U.S. INDIAN OCEAN TSUNAMI WARNING SYSTEM (IOTWS) PROGRAM

INTEGRATED PROGRAM WORK PLAN 2005-2007

March 2006 Version 1.0

Prepared for the United States Agency for International Development
by the IRG-Tetra Tech Joint Venture

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US IOTWS Program

INTEGRATED PROGRAM WORK PLAN 2005-2007

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LIST OF ACRONYMS AND ABBREVIATIONS USED

ADPC	Asian Disaster Preparedness Center
ADRC	Asian Disaster Reduction Center
AIT	Asian Institute of Technology
ASEAN	Association of South East Asian Nations
BMG	Meteorological and Geophysical Agency (Indonesia)
BMPs	Best Management Practices
CONOPS	Concept of Operations
COP	Chief of Party
CTO	Cognizant Technical Officer
CZM	Coastal Zone Management
DART	Deep Ocean Assessment and Reporting of Tsunami
DCOP	Deputy Chief of Party
DMAT	Disaster Management Advisory Team
DMC	Disaster Management Center (Sri Lanka)
DMS	Disaster Management Support
DOD	Department of Ocean Development (India)
EO	Expected Outcome
ER	Expected Result
GPS	Global Positioning System
GTS	Global Telecommunications System
IAA	Inter-Agency Agreement
ICG	Intergovernmental Coordination Group of the IOC
ICM	Integrated Coastal Management
ICS	Incident Command System
IO	Indian Ocean
IOC	Intergovernmental Oceanographic Commission of UNESCO
IMS	Information Management System
IOTWS	Indian Ocean Tsunami Warning System (as used to describe U.S. government program)
IOTWS	Indian Ocean Tsunami Warning and Mitigation System (full name of ICG for Indian Ocean, ICG/IOTWS)
IR	Intermediate Result
IRG	International Resources Group, Ltd.
ITIC	International Tsunami Information Center
LBSNAA	Lal Bahadur Shastri National Academy of Administration (India)
LOE	Level of effort
NDMC	National Disaster Management Center (Sri Lanka; see DMC)
NDMO	National Disaster Management Organization
NDWC	National Disaster Warning Center (Thailand)
NEIC	National Earthquake Information Center (United States)
NGO	Non-Governmental Organization
NOAA	National Oceanic and Atmospheric Administration (United States)
NWS	National Weather Service of NOAA
PA	Program Area
PDC	Pacific Disaster Center
PI	Program Integrator (USAID contractor supporting US IOTWS Program)
PMEL	Pacific Marine Environmental Laboratory
PMP	Performance Management Plan
PTWC	Pacific Tsunami Warning Center

RANET	RAdio and InterNET for the Communication of Hydro-Meteorological and Climate-Related Information
RDM/A	Regional Development Mission/Asia of USAID
SOW	Statement of Work
SpO	Special Objective
TARNS	Tsunami Alert Rapid Notification System
TRC	Tsunami Resilie*nt* Community
Tt	Tetra Tech, Inc.
UNESCO	United Nations Educational, Scientific, and Cultural Organization
URI	University of Rhode Island
USAID	U.S. Agency for International Development
USDA/FS	U.S. Department of Agriculture/Forest Service
USG	United States Government
USGS	U.S. Geological Survey
USTDA	U.S. Trade and Development Agency
WMO	World Meteorological Organization

1.0 INTRODUCTION

On December 26, 2004, a 9.3 magnitude earthquake occurred in the Indian Ocean off the coast of Sumatra, Indonesia and was followed by a major tsunami that devastated many coastal areas of Asia and Africa. Almost 200,000 people in eight countries perished in a few hours, and over 100,000 are still missing. Many more had their homes and livelihoods swept away. As a result of this disaster, the international community led by the Intergovernmental Oceanographic Commission (IOC) of the United Nations Educational, Scientific and Cultural Organization (UNESCO) has joined efforts to develop the first operational tsunami warning and mitigation system for the Indian Ocean, modeled after the system currently used in the Pacific.

Of the $656 million the U.S. has dedicated for tsunami recovery and reconstruction, led by the U.S. Agency for International Development (USAID), $16.6 million will be used to implement a U.S. Government (USG) program to support the development of the Indian Ocean Tsunami Warning System (IOTWS). The US IOTWS Program serves to support efforts to develop an "end-to-end" early warning system for tsunamis and other natural disasters in the Indian Ocean in coordination with the IOC's Intergovernmental Coordination Group for the Indian Ocean, which has the lead responsibility for coordinating the effort of other donor nations and national governments in the region.

1.1 Program Team

The US IOTWS Program Team (the Team) consists of U.S. Government (USG) agencies and a Program Integrator (PI) contractor represented by a variety of technical organizations. USAID Regional Development Mission for Asia (RDM/A) serves as the program lead and provides overall management of the program, in coordination with other key USAID offices in the region and in Washington. Other agency partners include the National Oceanic and Atmospheric Administration (NOAA), U.S. Geological Survey (USGS), U.S. Department of Agriculture/Forest Service (USDA/FS), and U.S. Trade and Development Agency (USTDA).

USAID contracted the IRG-Tetra Tech Joint Venture (IRG-Tetra Tech) to serve as the PI to provide a variety of field- and U.S.-based quick response technical assistance, coordination, logistical, training, and administrative support to RDM/A, the USG agency partners, and international, national, and local organizations involved in developing the IOTWS. IRG-Tetra Tech was awarded Task Order EPP-I-02-04-00024-00 on August 4, 2005 under USAID Contract No. EPP-I-00-04-0024-00. NOAA, USGS, and USDA/FS apply program funding and resources to implement activities in areas where they bring unique technical experience and expertise under 632(b) Inter-Agency Agreements (IAAs). Unlike the other three agencies, USTDA was funded through a 632(a) transfer. Thus, although coordination will still be facilitated by the PI, USTDA will operate more autonomously than the other three agencies.

1.2 Program Development

In establishing the US IOTWS program, USAID and its implementing partners participated in a series of key program planning milestones, including:

- A USG inter-agency coordination meeting held May 2-3, 2005 in Bangkok;
- USG agency submissions to USAID of concept proposals describing proposed targeted activities for developing the IOTWS during May-June 2005;
- Preparation of a comprehensive Program Description in June 2005;
- Design and approval of Statements of Work for each partner agency and for the PI;
- A second inter-agency program coordination meeting September 12-14, 2005 in Bangkok ("Kick-Off" meeting);

- Direct consultations with national government, donor, NGO, and private sector counterparts through a series of scoping missions to Thailand, Indonesia, Sri Lanka, and India during September 15-28, 2005; and
- The Second U.S. Indian Ocean Tsunami Warning System Program Coordination Workshop, January 30-31, 2006, Bangkok, Thailand

The combined outcomes of these activities and documents have contributed directly to the preparation of this workplan.

1.3 Work Plan Overview

This Integrated Program Work Plan (work plan) provides an overview of the activities and outcomes of the entire US IOTWS Program over the 26-month implementation period from August 1, 2005 to September 30, 2007. While each USG agency has prepared detailed implementation plans for their individual IAAs, this work plan provides the combined roadmap for achieving the overall objectives and expected outcomes of the USG Program. The work plan is organized as follows:

Section 1	Introduction
Section 2	Program Strategy
Section 3	Program Overview
Section 4	Integrated Program Activities
Appendix A	Principles and Themes
Appendix B	Performance Management Plan
Appendix C	Communications Plan
Appendix D	Summary of Donor Activities Underway in the Indian Ocean Region
Appendix E	Regional Exchange Program

Appendix A lists the program principles and themes that guide implementation. The Performance Monitoring Plan provides indicators and targets for the entire US IOTWS Program (Appendix B). The Communications Plan, Summary of Donor Activities Underway in the Indian Ocean Region, and an overview of the Regional Exchange Program are provided as Appendices C, D, and E respectively.

2.0 PROGRAM STRATEGY

2.1 Program Objective

The overall objective of the US IOTWS Program is to provide strategic support towards the development of an operational IOTWS that provides integrated “end-to-end” capabilities at the regional, national, and local levels within a multi-hazard framework as part of the overall process of the IOC’s Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS). (See Figure 2.1 for an illustration of an end-to-end system.)

Figure 2.1 Components of a Tsunami Early Warning System

One of the principal challenges for the U.S. program is that the complete technical and capacity building requirements for the IOTWS will take several years to complete beyond the program period. Nevertheless, by September 30, 2007, it is expected that the US IOTWS Program will have helped advance end-to-end tsunami warning capabilities in each of the five focus countries such that system operations from initial hazard detection to local response are established or, at the very least, clearly planned with appropriate responsible organizations prepared to provide necessary support. While the U.S. program itself will not contribute to all functional requirements of the IOTWS, it will support a significant portion, and work in support of the ICG/IOTWS and in coordination with national governments, and other donors and organizations to ensure all components of an end-to-end system in the five focus countries are established or planned in manner that ensures effective operation and long-term sustainability.

2.2 Strategic Approach

Leadership and Partnership. The foundation of the US IOTWS Program strategy is to utilize the unique experience, expertise, and leadership the U.S. brings in having supported operating tsunami warning systems and in the specific technologies, tools, systems, and practices required for effective disaster planning, preparedness, and mitigation. While the IOTWS must be developed through the contributions of numerous countries and organizations under the ICG/IOTWS process, the U.S. can contribute technical leadership, direction, and practical know-how to help ensure success. In support of the ICG/IOTWS process, U.S. leadership can help ensure that the contributions to the IOTWS of Indian Ocean nations, multi-lateral and bilateral donors, NGOs, and others are complementary and effectively coordinated. To the extent possible, the US IOTWS Program will seek to work in partnership with other institutions supporting tsunami warning system capabilities at a regional level, and in the five focus countries.

The U.S. program's strategic approach for partnership and leverage include: working through the IOC and ICG/IOTWS to explore opportunities with multi-lateral and bilateral donors, NGOs, and other organizations; facilitating direct group and individual discussions with potential partners, such as during the USG Program Coordination meetings held in September 2005 and January 2006; and utilizing and sharing project activity information resources from outside sources, such as the Development Assistance Databases established with UNDP support, and from the US IOTWS Program, primarily through the program website www.us-iotws.gov.

Responding to Critical Needs. A starting point for developing the IOTWS is an understanding of the capacity building and technical needs of the region as a whole and of each focus country at every stage

of an end-to-end system. The US IOTWS Program separates its technical focal areas into three general themes:

- **Regional detection:** regional-level capacity to detect, analyze, and report earthquake and tsunami hazards;
- **National warning:** formulation and dissemination, including last-mile communications to communities at risk; and
- **Local preparedness**: capacity to act on warnings and coastal mitigation measures to reduce potential impacts.

The first technical area is largely being addressed through the ICG/IOTWS process, and engages 27 member nations and numerous observer organizations and nations (including the U.S.). The U.S. will remain an active participant in that process to develop seismic and sea-level monitoring, modeling, and inter-operability in the region. The U.S. will also provide limited institutional support to the IOC itself with the aim of furthering the objectives of the ICG/IOTWS.

To date, the IOC process has only started to address "downstream" warning system requirements identified in the second and third themes. As a result, the U.S. is working to identify and respond to priority needs. The IOC National Assessments conducted during May-September 2005 in 16 countries, as reported in *Assessment of Capacity Building Requirements for an Effective and Durable Tsunami Warning and Mitigation System in the Indian Ocean*, provide a strong technical basis for identifying these needs in three U.S.-focus countries, Indonesia, Sri Lanka, and Thailand. Additional assessments by the World Meteorological Organization (WMO) are considering warning communications systems.

The U.S. has also initiated efforts to engage directly with national governments on warning system development efforts and unmet needs, as well as to seek collaboration with multilateral and bilateral donors, NGOs, and other organizations to support country-specific activities. Key opportunities for coordination include forums convened through the ICG/IOTWS process, by other donors and UN organizations, by country governments, and by USAID and the US IOTWS Program itself.

Amplifying Regional Impact. Because tsunamis require among the fastest reaction times and extensive, highly integrated warning systems, at every stage the US program will seek to respond to related hazards such as floods, storm surges, cyclones, and earthquakes as part of a multi-hazard framework. An important basis for this approach includes international disaster risk reduction frameworks such as the Hyogo Framework for Action 2005-2015 which resulted from the World Conference on Disaster Reduction in Kobe Japan in January 2005.

To further maximize regional impact, the US program will provide strategic opportunities for cooperation among countries in the region, sharing of best practices and lessons learned, joint exchanges and training programs, partnerships, and twinning activities.

2.3 Principals for Program Implementation

A critical consideration of program implementation is developing an IOTWS in a developing country context. The USG approach incorporates several key principles and themes to guide program implementation (See Appendix A). Briefly, these include:

- Sustainability and long-term impact;
- Catalytic leadership, leverage, and partnerships;
- Transparency and the open exchange of data;
- Centralization, standardization, and interoperability;
- Regional cooperation and cross-learning;
- Multi-hazard and multi-disciplinary approach;
- Integration and complementation with ongoing disaster management programs;
- Emphasis on field support; and
- Stakeholder involvement and empowerment.

The Team will coordinate efforts to enhance hazard detection, prediction, warning, communication, mitigation, and preparedness, and do so at regional, national, and sub-national/community scales. While the Team will implement activities at all levels, it will do so in a manner that makes the most strategic use of USG and leveraged resources. The aim of the program is to be comprehensive in coverage—through strategic collaboration with the international community, other donors, the private sector, and NGOs without necessarily seeking to address every need everywhere. Activities will be invested in large part in capacity building and technical assistance, and include targeted assistance in technology transfer, deployment, and training. In furthering US leadership and unique capability in the area of tsunami warning and preparedness, the program will also involve substantial leveraging of external resources, from other donors, the private sector, and NGOs.

2.4 Leading to Results

The results framework for the US IOTWS Program falls under USAID Special Objective (SpO) 498-045, Intermediate Result 3, although the program supports several indicators in the SpO results framework (see Table 2.1). The US IOTWS Program will aim to achieve the nine expected outcomes originally described in the June 2005 Program Description within the program implementation period (see Appendix B Figure B.2). Each Expected Outcome (EO) is associated with specific program areas (e.g., EO 1.1 falls under Program Area 1), except for EO 5.1, which is cross-cutting through all program areas. These EOs were incorporated into USAID's contract with the PI contract as well as into each Inter-Agency Agreement with NOAA, USGS, and USDA/FS.

The Performance Management Plan (PMP) has been developed to effectively measure the accomplishments of the diverse and numerous program activities. The PMP incorporates SpO-level intermediate results as well as a series of Sub-IRs (Intermediate Result) developed from the original Expected Outcomes. Each IR and Sub-IR includes specific indicators that will be used in performance monitoring and reporting.

These performance measures provide a critical function in tracking the overall effectiveness of US program, and in reflecting the gradual additions and improvements to the IOTWS. As addressed in Section 2.5 below and in the PMP (see Appendix B), the intermediate results (IRs) and indicators are designed to demonstrate impact across all relevant levels of the end-to-end system. In order to ensure effective tracking of program impact, the performance monitoring process will track indicators against specific program activities.

Table 2.1 Results Framework for the US IOTWS Program

USAID Special Objective for Tsunami Recovery and Reconstruction: To save lives; help individuals rejoin the workforce and return to communities; support host government-led reconstruction & early warning/disaster preparedness efforts

SpO IR 3: Early Warning System Established
- SpO Indicator 3.1: Number of communities trained in disaster preparedness
- SpO Indicator 3.2: Number of communities included in National alert system

SpO IR 4: Technical Assistance, Good Governance & Reconciliation
- SpO Indicator 4.1: Number of government agencies that received technical support

Special Interest Reporting Indicator
- SpO Special Indicator C: Kilometers of coastline under improved, sustainable environment management

Sub-IRs (Program-level IRs)

Sub-IR 1. Scientifically sound design for IOTWS developed (Ref EO 1.1; 2.1)
- Indicator 1.1: Conceptual design for early warning system design accepted

- Indicator 1.2: Protocols, agreements, and products developed by IOC/IOTWS member nations to ensure interoperability of the regional IOTWS system

Sub-IR 2. Tsunami detection and early warning capabilities improved
- Indicator 2.1: Regional-level tsunami detection and communication system components (core stations) installed, deployed, or upgraded
- Indicator 2.2: National- and local-level tsunami warning system components integrated into the IOTWS and operated in accordance with IOTWS standards and criteria

Sub-IR 3. National capacity in disaster management planning, tsunami warning dissemination, and vulnerability assessment improved
- Indicator 3.1: Tsunami/all hazards warning dissemination and disaster management system components designed, developed, or improved
- Indicator 3.2: Communities included in national alert systems (ref. SpO Indicator 3.2)
- Indicator 3.3: Number of government agencies (e.g. central government offices, municipalities) receive technical support (ref. SpO Indicator 4.1)

Sub-IR 4. **Local preparedness and coastal mitigation for tsunamis and related hazards improved**
- Indicator 4.1: Number of communities trained in disaster preparedness (ref. SpO Indicator 3.1)
- Indicator 4.2: Coastal communities initiating activities that support tsunami resiliency
- Indicator 4.3: Kilometers of coastline under improved, sustainable environmental management (ref. SpO Indicator C)

Sub-IR 5. Private and public resources leveraged for the USG program (ref. EO 5.1)
- Indicator 5.1: US$ leveraged through private sector, NGO, donor, and public sector resources in support of the development of an end-to-end IOTWS

2.5 Adaptive Management and Rolling Design

The Team has adopted an "adaptive management" approach that provides the flexibility to adjust the scale and nature of activities, depending on changing or new circumstances at the international and national levels and incorporating new information. In doing so, the Team will employ a "rolling design" concept in program implementation to provide flexibility in meeting the needs of partner countries. As a result, the activities described in this work plan—particularly the work plan table of activities and implementation schedule (Section 4)—will be augmented and/or updated on a semi-annual basis as new information is obtained. For example, findings from scoping visits to the four program countries in September 2005 by the Team are reflected herein. Other assessments and related information in the region will be considered as available.

Efforts to update and incorporate revisions to the work plan over the life of the project will be accomplished through the Team Workspace located on the US IOTWS Program web site in coordination with all USG agencies and other implementing partners. Provision to facilitate updates and incorporation of revisions to the appendices, as needed, over the life of the project will be accommodated. In coordination with USAID and other USG agencies, the PI will be responsible for incorporating updates and disseminating revised sections of the work plan to the rest of the Team.

3.0 PROGRAM OVERVIEW

3.1 Program Areas

The US IOTWS Program is organized into the following seven program areas:

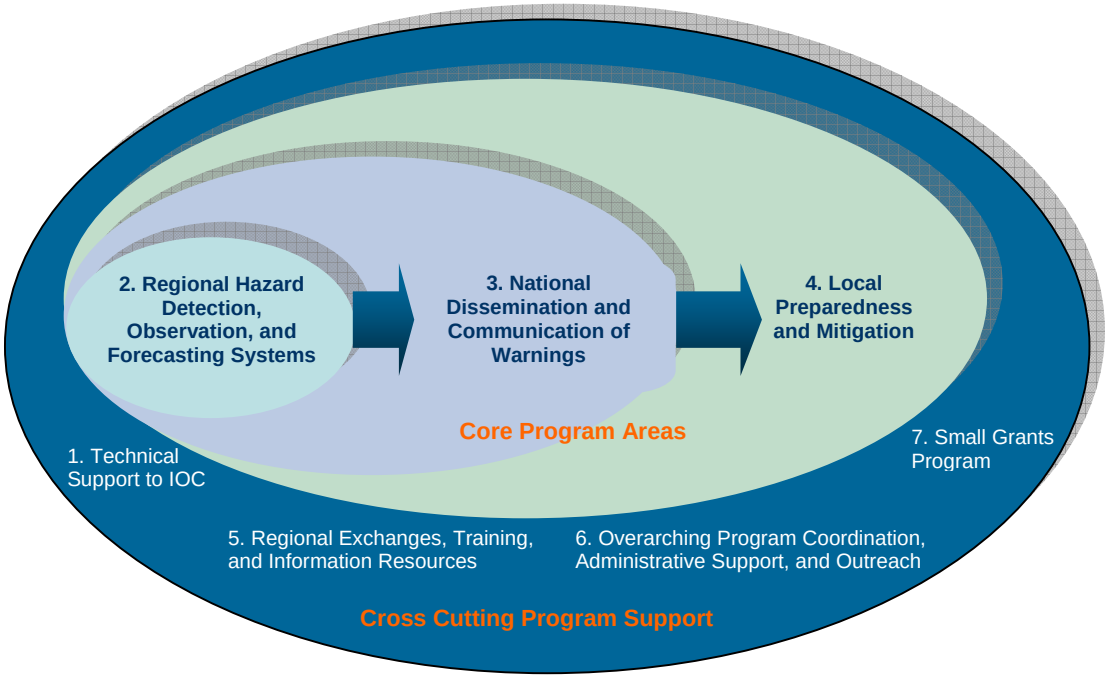
1. Technical Support to IOC
2. Regional Hazard Detection, Observation, and Forecasting Systems

3. National Dissemination and Communication of Warnings
4. Local Preparedness and Mitigation
5. Regional Exchanges, Training, and Information Resources
6. Overarching Program Coordination, Administrative Support, and Outreach
7. Small Grants Program

Core program areas (Program Areas 2, 3, and 4) focus on regional, national, and local capacity building activities to support the development of an IOTWS (Figure 3.1), following the three themes provided above under Program Strategy. Cross-cutting program areas (Program Areas 1, 5, 6, and 7) support the core program areas and include capacity building for the IOC, regional exchange of lessons learned, program management and outreach, and a small grants program. Each program area consists of one or more activities.

Program areas and specific activities are described in further detail in Section 4.

Figure 3.1 US IOTWS Program Areas



3.2 Geographic Scope

The US IOTWS Program will be implemented within the broader framework of the ICG/IOTWS, and thus indirectly support all 27 IOC member countries in the region. At the same time, substantive progress towards effective national warning and response systems in the five target countries of the IOTWS is a prerequisite to a functional regional system. As a result, the US IOTWS Program will support focused national and local-level technical support in the five countries most affected by the December 2004 tsunami, namely Indonesia, Sri Lanka, India, Thailand, and the Maldives in developing and implementing various components of an IOTWS at national and local levels (see Figure 3.2).

Figure 3.2 Focus Countries of the US IOTWS Program

3.3 Team Roles and Responsibilities

The US IOTWS Program will be implemented through the central management and coordination by USAID/RDM/A using the comparative strengths of each USG agency partner (Table 3.1). NOAA and USGS will provide expert technical assistance in observation systems, risk assessment, standards/protocols, and system interoperability. Experts from USDA/FS will assist with development of emergency operations and incident command infrastructure in national disaster management organizations. USTDA will engage US private sector support and expertise for the development of critical emergency communications and operations systems design. Brief summaries of agency roles and responsibilities are provided below. The PI will provide a wide range of support in all program areas under the direction of USAID/RDM/A. The PI's organization and staffing plan are described in Section 3.4.

Table 3.1 Summary of Responsibilities of US IOTWS Program Team by Program Area

Program Area	USAID/PI	NOAA	USGS	USDA/ FS	USTDA
1. Technical Support to IOC	●	●	○		
2. Regional Hazard Detection, Observation, and Forecast Systems	○	●	●		●
3. National Dissemination and Communication of Warnings	●	●	●	●	●
4. Local Preparedness and Mitigation	●	●	○	○	○
5. Regional Exchanges, Training, and Information Resources	●	○	●	○	○
6. Overarching Program Coordination Support, Administration, and Outreach	●	○	○	○	
7. Small Grants Program	●	○	○	○	

Major Role: ● Supporting Role: O

US Agency for International Development (USAID). USAID will provide overall management, coordination, and administrative support for the integrated USG program from its Regional Development Mission for Asia (RDM/A), located in Bangkok, Thailand. USAID/RDM/A will coordinate directly with appropriate USAID Mission personnel and programs in India, Indonesia, and Sri Lanka, as well as internally within USAID with RDM/A's Regional Environment Office, with the USAID Office of Foreign Disaster Assistance (OFDA) offices in Bangkok and Kathmandu, and with USAID/Washington. USAID will manage the PI for the US IOTWS Program and work and coordinate directly with each of its USG agency partners. *Point of Contact:* Orestes Anastasia, US IOTWS Program Manager and Cognizant

Technical Officer (CTO)[1], USAID Regional Development Mission for Asia, Tel. +66-2-263-7468; oanastasia@usaid.gov.

National Oceanic and Atmospheric Administration (NOAA). NOAA will provide an array of technical support at multiple levels of engagement which may include, among other things: institutional and technical support to and participation in the ICG/IOTWS; technology transfer for sea-level gauges, detection buoys, and related systems; tsunami detection, prediction, and warning formulation; communications systems and integration; hazard mapping and modeling; and support for local preparedness including development of an Indian Ocean *TsunamiResilient* Communities Program. NOAA will also collaborate with the USDA/FS to support a Tsunami Alert and Rapid Notification Systems (TARNS) program in selected countries. *Point of Contact:* David McKinnie, Tel. +1-206-526-6950; david.mckinnie@noaa.gov.

US Geological Survey (USGS). USGS will provide complementary interventions, often in coordination with NOAA, that include: institutional and technical support to and participation in the ICG/IOTWS; seismic monitoring technology transfer; regional and global interoperability through the IOC framework; and capacity building at both the detection/warning formulation and local preparedness levels in data analysis and prediction and in hazard/vulnerability/risk mapping and modeling standards, protocols, and methods. *Point of Contact:* Dr Walter Mooney, Tel. +1-650-329-4764; mooney@usgs.gov.

US Department of Agriculture/Forest Service (USDA/FS). USDA/FS will offer expertise that helps integrate Incident Command Systems (ICS) into the existing disaster response systems of one country, helping to institutionalize national capabilities in ICS while working to ensure standardization and interoperability among nations for cross-border cooperation. USDA/FS will also team with NOAA to support development of national-level Tsunami Alert Rapid Notification Systems (TARNS). *Point of Contact:* Deanne Shulman, Tel. +1-760-376-6263; dshulman@fs.fed.us.

US Trade and Development Agency (USTDA). USTDA, funded through a direct 632(a) funding transfer from USAID, will be supporting grants programs in partnership with country governments that aim to strengthen disaster warning center analytical and communications systems. In addition, USTDA will assist the Team to engage and leverage opportunities for investment and engaging private sector expertise in communications and emergency operations systems and technologies necessary for the tsunami warning system. *Point of Contact:* Rachaneekorn Sriswasdi, Tel. +66-2-205-5278; rachaneekorn.sriswasdi@mail.doc.gov.

US Department of State. The State Department will continue to play a critical role in international diplomacy on development of a regional tsunami warning system. In addition, the State Department can engage national governments in coordination with the IOC on the need for policy or regulatory reforms that allow for improved data sharing between governments, as well as provide public diplomacy resources that can effectively engage national media organizations for their critical role in disseminating disaster warning messages to the public. State's ongoing role will not require use of program funding. *Point of Contact:* Jim Waller, Tel. +66-2-205-4712; wallerjm@state.gov.

Program Integrator (PI). The PI will provide technical leadership and broad coordination, logistical, training, and administrative support in all program areas. The PI is composed of the IRG-Tetra Tech Joint Venture, the regional partner ADPC, and a consortium of other technical organizations. The PI will assist in coordinating USG agency efforts towards achieving and reporting the overall expected results for the USG program. In addition to overarching support, the PI will provide support for technical program areas and activities not already addressed by the Team and lead efforts to facilitate national and regional events such as conferences, workshops, training activities, and regional exchanges. *Point of Contact:* Dr Alan White, Chief of Party, Tel. +66-2-637-8518; alan.white@ttemi.com.

[1] Mr. Anastasia is the CTO for the PI contract with IRG-TetraTech Joint Venture, and for the Inter-Agency Agreements with NOAA and USGS. Erik Streed, EGAT/NRM/F is the CTO for the IAA with USDA/FS. USAID does not have an inter-agency agreement with USTDA for implementing the IOTWS Program.

3.4 Program Integrator Organization and Staffing Plan

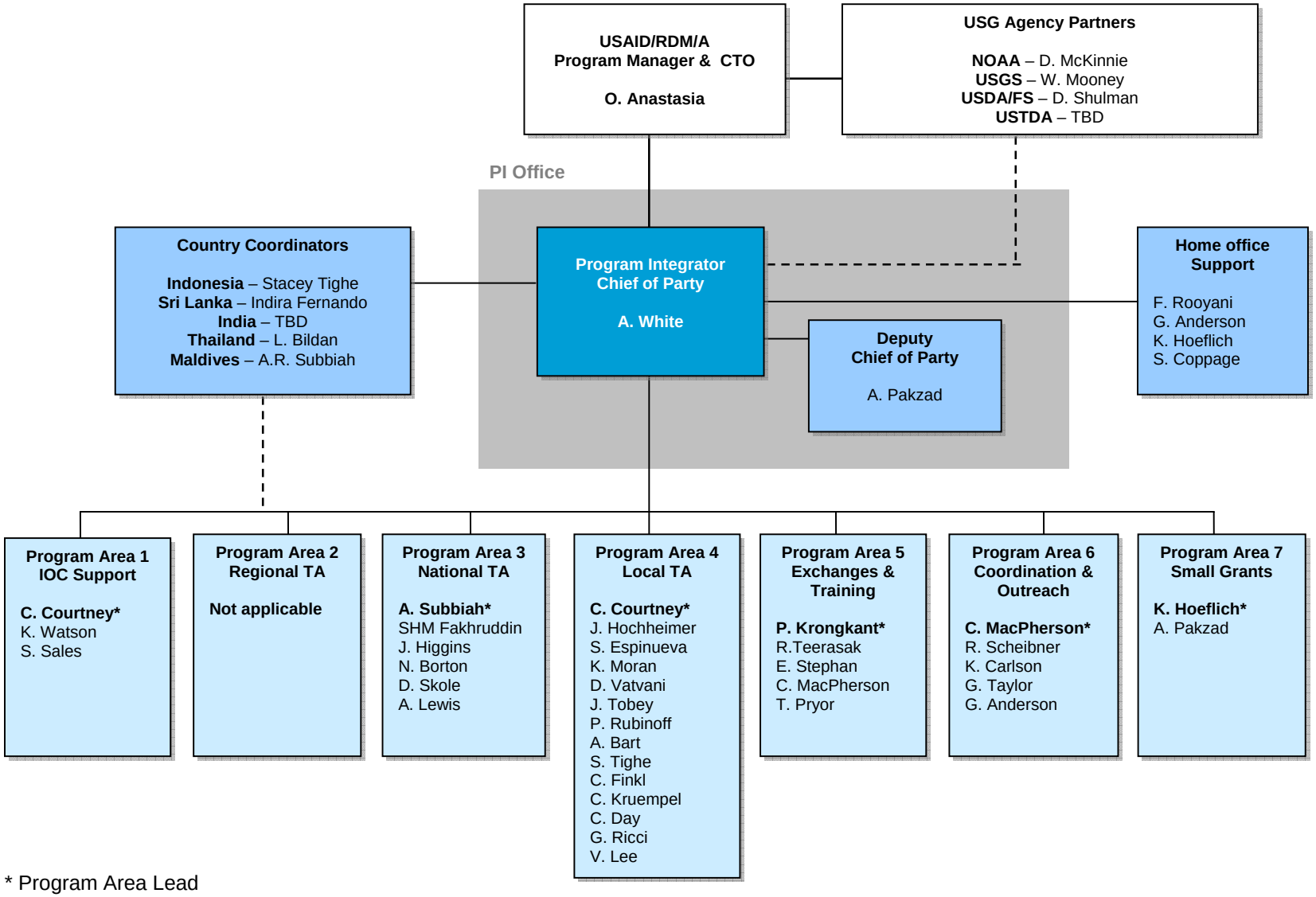
The PI includes a mix of technical disciplines, administrative expertise, and international experience in the Indian Ocean region to support the various Program Areas under this project. Dr. Alan White is the Chief of Party, with Amin Pakzad serving as Deputy Chief of Party. Both of these positions are based in Bangkok. In addition, the regional partner, the Asian Disaster Preparedness Center (ADPC), is also based in Bangkok. The PI includes individuals with specialized expertise in forecast systems, vulnerability assessment, institutional frameworks, local preparedness, and coastal mitigation.

Organizational Structure. The PI is structured to be able to respond quickly and effectively to the activities and tasks that arise under the program. It is important to be able to focus expertise both by technical skills and country-specific experience. The PI has identified key staff for each of the seven program areas (Figure 3.3) as well as listed regional experts who can target their skills to one of the five focus countries under the program. For each of the seven program areas, there is a Program Area Lead who will help coordinate the assignments and ensure the quality of the products. Because many of the topics in the program areas overlap to some extent, each Program Area Lead will work closely with the COP and other Leads to ensure consistency and continuity among the activities.

The PI and/or the regional partner, ADPC, will be responsible for providing in-country coordination for each of the five countries to help focus and complement activities at the national and local level. The level of effort for local coordinators and decisions regarding local offices and other logistics will be determined on a case-by-case basis with consideration given to the types and frequency of capacity building and training activities planned for each country. The local coordinators will provide support across Program Areas 3, 4, 5, and 6, and 7 and will be under the supervision of the COP (see Figure 3.2).

Staffing Plan. Because of the dynamic and iterative nature of this project, it is difficult to outline all of the planned activities that will be undertaken within the two-year time period. Consistent with the adaptive management approach and shared view to retain flexibility in staffing, the staffing plan is presented based on anticipated activities as of March 2006 (Table 3.2). Local coordinators for India and Indonesia have not been recruited at this point in the program. Table 3.2 lists the proposed staff to be used on this project, their skills, and program areas each individual will support. More detailed discussion of proposed staff's level of effort and the timing of their work on each program area and activity is provided in Section 4, below.

Figure 3.3 Organizational Structure of the US IOTWS Program Team



* Program Area Lead

Table 3.2 Program Integrator Staffing Plan[1]

Title, Activities, Skills	Name	LOE[2]	PI Org	Country
Program Management and Administration				
COP, Project Mgt, Coastal Zone Mgt	Alan White	520	Tt	All (Bkk)
DCOP, Finance, Admin & Contracts Mgt	Amin Pakzad	500	Tt	All (Bkk)
Accounting Support	TBD	400	Tt	All (Bkk)
Administrative Support	Kultida Khumpradid	510	Tt	All (Bkk)
Program Management	Leslie Squillante	10	URI	All
1. Technical Support to IOC				
IOC National Assessments	Catherine Courtney*†	50	Tt	All
IOC National Assessments	Kaiulani Watson	7	Tt	All
IOC National Assessments	Sita Sales	23	Tt	All
2. Regional Hazard Detection, Observation, and Forecast Systems				
Not applicable (N/A)	N/A	N/A	N/A	N/A
3. National Dissemination and Communication of Warnings				
National Dissemination/Communication	A.R. Subbiah*†	100	ADPC	All (Bkk)
Dissemination/Comm. of Warnings to Communities	S.H.M. Fakhruddin	500	ADPC	All (Bkk)
Policy and Regulation	John Higgins	12	IRG	All
Policy and Regulation	Nan Borton	17	IRG	All
Vulnerability Assessments	David Skole	20	MSU	All
Disaster Management Planning/Capacity Building	Ann Lewis	29	IRG	All
4. Local Preparedness and Mitigation				
Coastal Preparedness/Mitigation	Catherine Courtney*†	150	Tt	All
Community Preparedness	Susan Espinueva	350	ADPC	All (Bkk)
Coastal Zone Management	John Hochheimer	20	Tt	All
Hazard/Vulnerability Mapping	Kate Moran*	0	URI	All
Hazard Detection, Warning Formulation	Deepak Vatvani	20	Delft	All
Tsunami Resilient Communities, CZM Policy	Pam Rubinoff	87	URI	All
Community Preparedness, CZM Policy	Jim Tobey	17	URI	Thailand
Tsunami Resilient Communities	Amrit Bart	0	URI	Thailand
Tsunami Resilient Communities	Glenn Ricci	55	URI	Thailand
Tsunami Resilient Communities	Virginia Lee	10	URI	Thailand
Coastal Planning & Mitigation	Stacey Tighe	18	IRG	Indonesia
Coastal Planning & Mitigation	Charles Finkl	20	CPE	All
Coastal Planning & Mitigation	Craig Kruempel	20	CPE	All
Coastal Planning & Mitigation	Christopher Day	20	CPE	All
5. Regional Exchanges, Training, and Information Resources				
Training & Project Management	Parichatt Krongkant*	510	Tt	All (Bkk)
Website & Network Administration	Teerasak Ratnukulkit	500	Tt	All (Bkk)
Information Management Systems (IMS)	Eric Stephan	60	IRG	All
Outreach, Communications, Facilitation	Charlie MacPherson	40	Tt	All
Information Management Systems	Tony Pryor	5	IRG	All
6. Overarching Program Coordination Support, Administration, and Outreach				
Outreach, Communication, Facilitation	Charlie MacPherson*	80	Tt	All
Outreach, Communication	Regina Scheibner	10	Tt	All
Outreach, Communication	Krista Carlson	10	Tt	All
IEC Materials Development, Library	Ratirose Supaporn	400	Tt	All (Bkk)
Alliances, Donor Coordination, Strategic Planning	George Taylor	22	IRG	All
Needs Assessment, PMP, Reporting	Glen Anderson	40	IRG	All
Project Coordination – Thailand	Lolita Bildan	250	ADPC	Thailand
Project Coordination – Indonesia	Stacey Tighe†	60	IRG	Indonesia
Project Support – Indonesia	TBD	400	ADPC	Indonesia
Technical Consultant – Sri Lanka	Indra Ranasinghe	150	ADPC	Sri Lanka
Project Coordination – Sri Lanka	Indira Fernando	400	Tt	Sri Lanka
Project Coordination – India	TBD	400	ADPC	India

Project Coordination – Maldives	A.R. Subbiah*†	150	ADPC	Maldives (Bkk)
7. Small Grants				
Small Grants Coordination	Kathryn Hoeflich*	174	IRG	All
Grants and Financial Management	Amin Pakzad	20	Tt	All

*Program Area Lead
†Person listed multiple times in table.
Bkk = Located in Bangkok Office

[1]This table will be updated semiannually.
[2]LOE in days.

4.0 INTEGRATED PROGRAM ACTIVITIES

This section describes implementation activities covering a 26-month program period from August 1, 2005 to September 30, 2007. Major activities for this period are summarized below by program area and presented in Table 4.1 that follows. In some cases, activities are applicable to more than one program area. These activities are presented in table format (Table 4.1) under Section 4.2, separated by program area. Table 4.1 will be used by the Team to review the status and accomplishments of the program on a quarterly and semiannual basis.

Overarching Management and Coordination. USAID RDM/A will provide overall management and coordination for the integrated program, overseeing the activities and performance of all USG partners (excluding USTDA) and the PI. As needed, RDM/A will also coordinate directly with appropriate USAID Missions in India, Indonesia, and Sri Lanka, and with other sections of USAID on behalf of the program team. USTDA-funded IOTWS activities will be managed by USTDA's Asia Regional Office in Bangkok in coordination with USAID and the entire US IOTWS program team.

Partner	Activity Title and Reference	Lead Responsibility
USAID	US IOTWS Program Management for PI, NOAA, USGS, and USDA/FS	Orestes Anastasia, oanastasia@usaid.gov
USTDA	Management of USTDA-funded activities under US IOTWS Program framework	TBD

4.1 Program Area 1: Technical Support to IOC

The IOC has been given the lead role in coordinating UN agency activities for development of an Indian Ocean tsunami warning system. At the IOC meeting in Paris in March 2005, governments of the region agreed to develop a national tsunami warning systems within an interconnected and interoperable regional framework, coordinated through the Indian Ocean Intergovernmental Coordination Group (ICG). The US IOTWS Program will provide technical support to the IOC, including participation in the IOC-sponsored national assessments, ICG meetings and inter-sessional working groups, and other support as appropriate. Focused support in this program area will include the following activity areas:

1a – Technical Support on for IOC National Assessments. The US IOTWS Program will provide technical support on the IOC National Assessments. NOAA and USGS will participate in national assessments of tsunami warning system capacity in Indonesia, Thailand, and Sri Lanka, being conducted by the IOC and WMO together with international and national experts from countries in the Indian Ocean region. Following the completion of these assessments, the PI will assist the IOC draft a consolidated report summarizing the assessments from 16 participating countries in the Indian Ocean region. USAID and the PI will work with IOC counterparts to develop the report outline and types of analyses of the national assessments. The consolidated report will provide an overview of the capacity for tsunami detection, warning, and mitigation in the region and identify gaps in technical and infrastructure assistance and support requirements at national, sub-regional, and regional levels. A final consolidated report was prepared for dissemination at the ICG meeting in Hyderabad, India in December 2005.

Activity Area 1a: Implementation Activities and Lead Responsibilities

Partner	Activity Title and Reference	Lead Responsibility
NOAA	1.2 Participation on IOC/WMO Assessment Teams	David McKinnie, david.mckinnie@noaa.gov
USGS	Task A.1.1: National Assessments	Walter Mooney, mooney@usgs.gov
PI	Task 1 Technical Support on IOC National Assessments	Catherine Courtney, kitty.courtney@ttemi.com

1b – Cross-Cutting Regional Support through ICG/IOTWS. The US IOTWS Program will maintain active participation in the ICG meetings, technical working groups, and inter-sessional activities. NOAA and USGS will participate in ICG meetings and provide technical assistance and guidance on the development of a conceptual design for a regional IOTWS. Support to the IOC and ICG will include the following:

- Provide appropriate technical and policy support to the ICG and individual ICG working groups as requested by the member states;
- Ensure that US IOTWS activities are consistent with, and support the ICG's planning and development activities;
- Prepare US delegation background materials and position papers and reporting cables; and
- Provide policy coordination and support for the US delegation and ICG.

NOAA will combine its expertise in tsunami warning system design with the experience of its collaborators to develop a regional conceptual approach for review and adoption by the ICG that member states will adapt the baseline to meet national requirements. These experts will also help NOAA vet a conceptual Indian Ocean design for the Indian Ocean. The conceptual design will include number and locations of tide gauges, DART buoys and a WMO Global Telecommunications System (GTS) upgrades. NOAA's conceptual design will include options for a minimal design sufficient to provide some level of lead time for Indian Ocean nations through a full design that would provide maximum lead times for the region's nations. The conceptual design will also provide an option that maximizes lead times for the USG program's investment of resources. The initial conceptual design was presented and well received at the Perth meeting (ICG-I). It was revisited at the Hyderabad meeting (ICG-II) and adopted as a baseline reference for a scientifically sound tsunami detection system array.

WMO and NOAA will develop all-hazard regional and national Concept of Operations (CONOPS) and compendium on all-hazards. NOAA will participate in WMO Symposium on all-hazards and conduct a workshop on all-hazards CONOPS. It will assist selected countries in CONOPS and write an operations manual.

USGS will provide technical assistance to the IOC in the designing and coordinating of the planning and development of the IOTWS; facilitate IOC engagement with other USG agencies, national governments, and NGO partners as appropriate. USGS will also support efforts to develop and relay system designs and operational plans, and attend and participate in related workshops and training in the region.

Activity Area 1b: Implementation Activities and Lead Responsibilities

Partner	Activity Title and Reference	Lead Responsibility
NOAA	1.4 Support to IOC Mission to Implement Regional IOTWS	David McKinnie, david.mckinnie@noaa.gov
USGS	Task A.2.1: IOC Institutional Support	Walter Mooney, mooney@usgs.gov
NOAA	1.1 Conceptual Design for a Regional Indian Ocean Tsunami Warning System	David McKinnie
NOAA	1.3 Regional Warning Center Concept of Operations	Laura Furgione, laura.furgione@noaa.gov
USAID	Support to ICG/IOTWS	Orestes Anastasia, oanastasia@usaid.gov

1c – Interim Warning Support and Capacity Building. The US IOTWS Program will provide interim tsunami warning support and capacity building to the Indian Ocean region through NOAA's Pacific Tsunami Warning Center (PTWC). Located in Honolulu, Hawaii, PTWC is the operational center for the Pacific Tsunami Warning System (PTWS), comprised of 26 member states around the Pacific Rim. PTWC will provide interim tsunami watch support to the Indian Ocean region until a regional warning center is established. PTWC coordinates this support with the Japan Meteorological Agency (JMA), which is also issuing tsunami-relevant information for the Indian Ocean region. In addition to notifications and other tsunami-relevant information issued to Indian Ocean nations from PTWC, NOAA will organize visits and training for appropriate staff from government agencies and academic institutions in the Indian Ocean region to NOAA's tsunami warning centers in the U.S. as part of the regional exchange program.

While NOAA's tsunami warning centers have no authority or responsibility to issue tsunami warnings outside their regions of responsibility, NOAA, working with the IOC, has provided tsunami-relevant information to Indian Ocean nations since January 2005 and will continue to do so through the end of the US IOTWS Program period. NOAA has agreed to provide tsunami-relevant information on an interim basis. As the IOTWS is developed and made operational, the regional centers that comprise the IOTWS will assume this responsibility from NOAA. However, at this time it remains uncertain at what date the IOTWS will become operational.

Activity Area 1c: Implementation Activities and Lead Responsibilities

Partner	Activity Title and Reference	Lead Responsibility
NOAA	2.1 Notification of Potential Tsunamis in the Indian Ocean	Curt Barrett, curt.barrett@noaa.gov

4.2 Program Area 2: Regional Hazard Detection, Observation, and Forecast Systems

The US IOTWS Program will play a leading role in supporting IOC efforts to establish a region-wide, integrated and interoperable, tsunami hazard detection, observation, and forecast system. The Team working within the framework of the IO-ICG and guided by support requirements identified by the IOC national assessments will provide guidance to the IOC and specific support to member countries on tsunami detection, observation, and forecasting as well as methods for promoting regional and sub-regional coordination between national warning centers. Focused technical support in this program area will include the following activity areas:

2a – Sea-Level Detection and Networks. Under the US IOTWS Program, NOAA will provide U.S. Deep-Ocean Assessment and Reporting of Tsunami (DART) technology to the region. DART technology is the only operationally proven tsunami technology currently available worldwide. As such, it will serve an important purpose for the Indian Ocean both for deployment as part of the IOTWS and as a benchmark against which new entries into the tsunameter market can be tested. NOAA has committed to provide at least two tsunameters to the Indian Ocean in support of the IOTWS. It has also committed to provide training for long-term operation of these devices. NOAA will try to ensure that the countries responsible for maintenance are fully able to support their operation into the foreseeable future. It may need to facilitate the national maintenance agreements.

There are several contingencies that must be addressed as part of this commitment. First, NOAA is developing a new tsunameter hull and mooring that may be more appropriate for the Indian Ocean than the standard DART II hull and mooring. It is in prototype deployment at this time. Second, NOAA's DART production schedule has been compromised by Katrina and other events. Third, the Indian Ocean Intergovernmental Coordination Group (ICG) is working to set standards and criteria for tsunameter deployment and operation in the Indian Ocean. At ICG/IOTWS-II (Hyderabad), the ICG adopted the NOAA tsunameter array design as a baseline for the IOTWS. This array design helps to narrow the field of potential Indian Ocean partners.

NOAA will also upgrade components of selected sea-level detection core stations in the Indian Ocean region as part of capacity building and training efforts on warning system development. NOAA will fund upgrades of selected tide stations in the Indian Ocean to support tsunami detection based on a network design endorsed by the ICG. Upgrades of sea-level detection equipment will include: new technology data collection platforms, high rate data collection (one-minute sampling) and dissemination for tsunamis, satellite data collection (Meteosat, for example), automated data quality control, redundant and backup sensors, vertical stability and control (routine leveling to local benchmarks), hardened stations and raised platforms to withstand environment (storms, floods, vandalism, etc.), and the addition of ancillary measurements such as water level switches and atmospheric pressure sensors.

NOAA will strengthen partnerships with existing national and local partners in the region to operate and maintain the upgraded stations. Training for the maintenance of sea level detection networks and analysis of sea level data for tsunami detection will be conducted as part of the development of the Tsunami Training Center (see Program Area 5, activity 5c). The Tsunami Training Center will incorporate a "tsunami simulator" that could provide ongoing training and capacity building for tide station and other instrumentation to the Indian Ocean region after the US IOTWS Program ends.

Activity Area 2a: Implementation Activities and Lead Responsibilities

Partner	Activity Title and Reference	Lead Responsibility
NOAA	2.3 Deployment of DART systems in the Indian Ocean	Eddie Bernard, eddie.bernard@noaa.gov
NOAA	2.4 Upgrade Tide Stations for the Indian Ocean	David McKinnie, david.mckinnie@noaa.gov

2b – Seismic Detection and Networks. Under the US IOTWS Program, USGS will provide assistance in four key areas supporting seismic detection and networks: technology transfer and training on seismic observation and communications systems; capacity building for tsunami warning centers; data-sharing policies; and capacity building in paleoseismology for better detecting tsunami and earthquake risk over the long term.

In support of technology transfer and training on seismic observation and communications systems, USGS will assist upgrade the capacity of selected core stations in countries in the Indian Ocean region to observe and analyze seismic events as part of a robust tsunami detection and forecasting system. USGS will work to increase capacity of national government stakeholders to increase the recording capacity and processing rate of real-time seismic data in order to improve the speed and accuracy of earthquake locations, magnitudes, and other relevant parameters.

In order to build capacity of national warning centers, USGS will share approaches to making the necessary technical improvements in software, hardware, and communications with the five regional countries through training workshops, and through USGS-sponsored visits by seismologists in the region to National Earthquake Information Center (NEIC) for hands-on training. Global Positioning System (GPS)-based geodetic monitoring systems developed by the USGS will be deployed by staff of the California Institute of Technology (Caltech), a key USGS partner, working alongside Indonesian colleagues for in-the-field training, as has been done over the past several years. A related element of this task is earthquake monitoring with local seismic stations, and for this activity USGS will support Indonesia's efforts to build upon and upgrade the existing network of instruments installed during the past decade in Indonesia.

In support of improved data-sharing in the region, USGS will share its own policies, which provide an example at the international level. USGS will bring its own experience in successfully educating other countries in the benefits of data sharing, and in particular the goal of ensuring quality data is provided so that warning formulation can be achieved. USGS will also provide training in data sharing protocols, including issues related to data transmission formats, storage, retrieval, and verification.

In an effort to enhance the ability of IOTWS countries to define earthquake and tsunami hazards, USGS will also provide advanced training through exchanges on paleoseismology experiences and practices of countries along the Pacific Rim.

Activity Area 2b: Implementation Activities and Lead Responsibilities

Partner	Activity Title and Reference	Lead Responsibility
USGS	Task B.1.1a: Global Seismic Network Data Integration	Jill McCarthy, jmccarthy@usgs.gov
USGS	Task B.1.2a: Regional GPS Data Integration	Ken Hudnut, hudnut@usgs.gov
USGS	Task B.1.2b: Regional Seismic Monitoring	Ken Hudnut
USGS	Task B.2.1: Regional Seismic Capacity Building	Ray Buland, buland@usgs.gov
USGS	Task B.2.2: Regional GPS Capacity Building	Ken Hudnut

USGS	Task B.4.1: Regional Data Sharing of Seismic and GPS Capacity Building	Ken Hudnut
USGS	Task E.2.2: Capacity building exchanges in the geologic assessment of earthquake and tsunami hazards	Brian Atwater, atwater@usgs.gov

2c – Detection System Communications. Under the US IOTWS Program, NOAA and USGS will support the development of detection system networks and communications in contribution to the ICG/IOTWS effort.

NOAA will support Global Telecommunication System upgrades under the IOTWS program. A fast, reliable regional communications system is essential if the IOTWS is to operate successfully. The regional communications system must assure that critical tide gauge, seismic, and DART sensor data are relayed immediately to regional watch providers and national warning centers. A regional communication system must also provide the means for tsunami watch, warning and bulletins be transmitted from regional forecast facilities to the 27 national warning centers. The Indian Ocean countries have agreed to use the GTS as the regional communication system. The region is served primarily by the New Delhi Regional Hub with some countries linking off Jeddah. Although the speed of data links between hubs is more than adequate, according to WMO analysis and assessments there are many country links that are unacceptably slow.

WMO intends to strengthen these weak links with support from NOAA and other organizations. With WMO, NOAA will strengthen both Sri Lanka and the Maldives communication links. This activity will result in significantly improved ability for these IO region nations to receive and process earthquake and tsunami information, and to share relevant information with other nations in the region. Wide Area Networks (WAN) will also be improved to ensure global connection and capability. Key communication components provided by this activity include:

- Operations and maintenance training and plans in place for the upgraded GTS networks in Sri Lanka, Maldives, and Thailand;
- Upgraded GTS and WAN systems for Sri Lanka, Maldives, and Thailand;
- Upgraded GTS network for the Indian Ocean region.

The GTS requires on-going operations and maintenance and provision must be made for ongoing training and capacity building in GTS operations and maintenance must be made if the IOTWS is to be successful in the long term. The “tsunami simulator” developed as part of the Tsunami Training Center can help build and maintain capacity for appropriate long term operations and maintenance.

USGS will also support this activity area, focusing on efforts to improve communications networks used for sharing international seismic data that allows for greater accuracy and real-time detection of earthquake events. One of the most important lessons learned from the December 26, 2004 Indian Ocean earthquake and tsunami event was the time required to record and interpret the event was too long, primarily due to lack of available data in the Indian Ocean region. Due to the remoteness of many of the proposed Global Positioning System (GPS) and seismic sites, satellite communication networks must be established so that all available data can be transferred in a timely fashion. Through this task USGS will support upgrades to these systems and train local experts and future IOTWS technicians. Compatibility in data sharing is another key concern that must addressed, and USGS will take a number of measures to enhance its own ability, through the National Earthquake Information Center (NEIC) to detect and report earthquake events to the Indian Ocean region.

Activity Area 1a: Implementation Activities and Lead Responsibilities

Partner	Activity Title and Reference	Lead Responsibility
NOAA	3.1 Upgrade Region GTS Network for the Indian Ocean	Curt Barrett, curt.barrett@noaa.gov
USGS	Task C.4.1: Regional Communications and Notifications Systems	Ray Buland, buland@usgs.gov

2d – Forecast Modeling. The modeling working group of the ICG has recommended establishing a NOAA-supported Tsunami Community Model[2] activity as the highest priority for capacity building in tsunami forecasting and mapping for the Indian Ocean. NOAA will develop the principal design and working prototype for the Web-based tsunami community model facility based on previous and current modeling efforts of the National Center for Tsunami Research at the Pacific Marine Environmental Laboratory (PMEL). The facility will provide access to NOAA's tsunami forecast model (MOST) for training, tsunami inundation mapping, and real-time tsunami forecast applications. NOAA will work with Indian Ocean partner scientists, members of the Modeling Working Group of the ICG to develop efficient model access and effective training curriculum. NOAA will use established relationships in the region to identify pilot projects for the Community Model applications. Scientific experts of the ICG/IOTWS Modeling Group will support the Tsunami Community Model efforts in the region. AusAID has agreed to work with NOAA to fund and support this effort.

The Web-based Community Model tools will be the primary way to transfer modeling expertise and capabilities to and between the IO countries. The supplemental training and model testing and exchange could take the form, for example, of an all-nation extended workshop and training session or a visiting scientist program, or both. NOAA and ICG/IOTWS Modeling Group will solicit input from experts for additional tsunami models that satisfy established criteria for use as Community Models.

The PI will provide limited support to NOAA as needed over the life of the project. The PI, through URI, will provide input on modeling for coastal inundation and local application in one coastal area in Thailand. The PI will support regional exchanges and workshops related to modeling and hazard analysis identified by NOAA and USGS under Program Area 5.

Activity Area 2d: Implementation Activities and Lead Responsibilities

Partner	Activity Title and Reference	Lead Responsibility
NOAA	2.5 Tsunami Community Model Prototype for Mapping and Forecasting in the Indian Ocean	Vasily Titov, vasily.titov@noaa.gov

4.3 Program Area 3: National Dissemination and Communication of Warnings

The US IOTWS Program will support a range of activities to build capacity of National Disaster Management Organizations (NDMOs) to receive tsunami and other disaster warnings, disseminate disaster warnings to affected communities, and coordinate disaster management responses. Program interventions at the national level will be informed by the results of the IOC national assessments. To the extent possible, the Team will seek to have impact in all five partner countries, but may provide more focused support to one or two countries initially, to demonstrate progress and a model that can be replicated elsewhere. Focused technical support in this program area will include the following activity areas:

3a – National Disaster Management Capacity Building. With an objective of building capacity for national level disaster management, USDA/FS will partner with the Government of Sri Lanka to integrate the Incident Command System (ICS) into its disaster response system. ICS is a disaster and emergency management procedure that helps government agencies and civil society coordinate and to prioritize action in emergency situations. This is important for IOTWS so that loss of life is minimized post disaster and that disaster relief is effective. The USDA/FS will provide technical assistance on the ICS in the form of consultations, formalized trainings, and study tours. Once proficiency in ICS application has been achieved, the USDA/FS will facilitate conduct of disaster simulation exercises and convene a regional lessons learned/best management practices workshop.

The PI through ADPC will conduct analysis and inform policy to support NDMO operations. This will build on the IOC assessment report completed in December 2005 and undertake further gap analysis. Since

[2] As used in this context, the term "community" refers to NOAA "community of modelers."

early warnings will only be as effective as the collective strengths of policies, laws, and institutional frameworks and capacities of national and local officials responsible for disaster management systems, this activity will clarify and advance the political mandate for disaster management responsibilities in each country. It will assess policy and regulatory frameworks that define the country's approach to disaster management, and support targeted national policy and regulatory interventions that strengthen overall national emergency management organizations and systems. With contributions from the USG team, the PI will introduce policy/regulatory interventions/enhancements primarily through a regional dialogue and sharing of best practices with other countries in the region and with the U.S. Targeted national-level activities will complement the regional-level dialogue, providing a means for national governments to put theory into practice and later exchange their experiences.

Activity Area 3a: Implementation Activities and Lead Responsibilities

Partner	Activity Title and Reference	Lead Responsibility
USGS	Task C.5.4: Regional Disaster Scenario Planning	William Leith, leith@usgs.gov
PI	Task 3 Capacity Building for NDMOs	A. Subbiah, subbiah@ait.ac.th
PI	Task 5 Policy and Regulatory Enabling Conditions	A. Subbiah

3b – National Warning Center Capacity. The ICG calls for the Indian Ocean region to operate its own national tsunami warning centers, some of which will also serve as regional tsunami watch providers. To help bridge the gap between current capacity and a functional IOTWS, NOAA will provide conceptual design training, information, and other support to assist Indian Ocean countries decide how best to protect their populations and those of their neighbors. Key deliverables for this activity include:

- Concept of Operations (CONOPS) for National Tsunami Centers;
- NOAA Tsunami Warning Center training.

NOAA will work through the IOC and ICG to assist nations and the region as they conceptualize and design warning centers. NOAA will also host training at the PTWC and the WC/ATWC for technical and warning experts from the affected countries. Concept of operations training must be an on-going activity to build long term capacity in the region. A "tsunami simulator" or training center approach will be incorporated into the Tsunami Training Center described in Program Area 5c.

USGS will provide assistance to national warning centers for seismic data acquisition, processing and interpretation. USGS will also provide training to national centers in the region in the production of real-time data products. USGS will incorporate new data streams from systems installed by countries in the region through their national funds or contributed by donor nations. This will improve hazard detection, prediction, and warning formulation in the region since the initial stages will require processed seismic data to flow through the NEIC to regional or national Centers. Improved capability performance in seismic monitoring and notification will be tracked during the course of the project. USGS support in this area will be founded on common data standards (e.g., SEED data format for seismic data exchange) and open data policy. USGS will promote sharing and open archival of all seismic data from the region The implementation activities under this program activity area are listed below by IOTWS Program Team member.

USTDA is providing support to NDMO's through training in CONOPS, communication protocols, and other technical assistance related to operations and communication tools in targeted national warning centers.

The Pacific Disaster Center (PDC) under USTDA support is extending CONOPS to the National Disaster Warning Center (NDWC) operation in Thailand. For NDWC, CONOPS is defined as: the operational flow of hazard and non-hazard information from organization (s) to organization(s); the interagency reporting relationships with the NDWC; and the decision making processes required to warning and assist local government officials to take appropriate action. These actions include evaluating populations who are at risk. Through the development of CONOPS, the PDC will better understand Thailand's existing Early Warning System, operations, and relationships. This is particularly useful in terms of relevant organizations and disaster warning processes, as well as emergency response and mitigation. PDC will

use this information to assist the NDWC and key organizations to develop and implement a prototype Decision Support System, based on best practices.

At this time, USTDA's activities in this area are defined and initiated only in Thailand, with activities still planned for Indonesia, Sri Lanka, and India. More information will be added to this Work Plan in future updates as it becomes available.

Activity Area 3b: Implementation Activities and Lead Responsibilities

Partner	Activity Title and Reference	Lead Responsibility
NOAA	1.3 Regional Warning Center Concept of Operations	Laura Furgione, laura.furgione@noaa.gov
NOAA	2.2 National Warning Center Concept of Operations	Laura Furgione
USDA/FS	A. Building Capacity for Disaster Response in Tsunami Impacted Countries: Incident Command System (ICS) Program Module	Deanne Shulman, dshulman@fs.fed.us
USTDA	TBA	TBA
PI	Task 2 Capacity Building for Tsunami Warning Center	Alan White, alan.white@ttemi.com

3c – Warning Communications. The US IOTWS Program will conduct a number of activities to build capacity to communication warnings to the last mile. These include tsunami alert and rapid notification systems (TARNS) and radio and internet communication (RANET).

The TARNS refers to a process for disseminating a tsunami warning message from a central focal point at the national level to the public at risk. A set of procedures and protocols for all relevant entities are developed and coordinated based on the country's government structure, available technologies and mechanisms for mass communication, and existing infrastructure. This process is tailored to reflect the unique attributes and culture of each country. The USDA/FS and NOAA will partner with a selected country within the Indian Ocean region for the development of a TARNS. USG agencies will provide TARNS principles, templates and lessons learned from the over 50 years experience in the Pacific Region. TARNS activities will include convening a TARNS Interagency Work Group to address development of a system design and plan, identify needed technologies, facilitate public-private partnerships, and conduct simulation exercises. NOAA will share the training and protocol development responsibilities for TARNS with USDA/FS. Under this task, NOAA will participate with USDA/FS to help Thailand to improve their TARNS**.**

RANET is a community based communications program designed to reach the "last mile" in developing nations and remote locations. The program is a collaborative effort of meteorological services, related national agencies, and NGOs to make weather, climate, and related information available and useful to rural/remote communities. To move critical information from city centers to rural populations, the RANET program has combined unique satellite broadcast capacities with Internet applications and the use of FM radio, HF radio, and other terrestrial broadcast capacities.

Under this activity, NOAA will first assess national communications infrastructure and how it is integrated with local systems in 2 or 3 target countries: Sri Lanka Maldives and Indonesia. Following this assessment, NOAA and other RANET representatives will work with designated contacts in each nation to outline a strategy and implementation plan utilizing satellite broadcast, satellite point-to-point, SMS (cell phone text messaging), and/or community FM radio to improve communication capacities related to all hazards warning and mitigation. Funding is estimated for 15 community sites in the two target countries with additional demonstration and replacement equipment.

Each site will contain a WorldSpace receiver, for download of information via the RANET broadcast. This download can include any text, graphic, and some audio/video material as best determined by the community and national agency. Sites will also be connected via the Inmarsat BGAN receiver units. This allows for primarily text based communication between communities and central national offices to support technical issues, promote extension, and allow for critical two-way communication during

emergencies. Support for a single computer at each site is included in the budget. It is expected that several sites may be 'off-grid' and therefore require an additional solar energy module to power the computer and two receivers. Two FM radio stations will be purchased as an extension of the RANET technical demonstration effort. These community FM stations allow for further distribution of information to the community. It is assumed that existing FM stations can be integrated with the other proposed RANET sites. Finally, RANET is currently engaged in a pilot effort to use cell phone text messaging (SMS) as a means to alert critical personnel when regional or other warnings are released. RANET will continue to pilot this effort with specific applications in and focus on Sri Lanka.

In addition, USGS will help warning centers implement the Common Alerting Protocol (CAP) for warning message format and distribution. CAP is a simple but general format for exchanging all-hazard emergency alerts and public warnings over all kinds of networks. The Common Alerting Protocol was defined as a basic protocol for all warning systems. This is the first step in developing a truly integrated and seamless alert and warning system. CAP allows a consistent warning message to be disseminated simultaneously over many different warning systems, thus increasing warning effectiveness while simplifying the warning task. CAP also facilitates the detection of emerging patterns in local warnings of various kinds, such as might indicate an undetected hazard or hostile act. And CAP provides a template for effective warning messages based on the best practices identified in academic research and real-world experience. The most practical approach to capacity building on this topic is to hold three national/regional training workshops, serving: (1) India, Sri Lanka, and the Maldives; (2) Indonesia, and (3) Thailand. This division recognizes the unique tsunami hazard situations for each of these three regions.

The PI-ADPC will assist with disaster management planning and communications through the ICS program in Sri Lanka and TARNS in Thailand together with the USG lead agencies (USFS/DA and NOAA).

Activity Area 3c: Implementation Activities and Lead Responsibilities

Partner	Activity Title and Reference	Lead Responsibility
NOAA	3.2 TARNS Collaboration with USDA/FS	Jennifer Lewis, jennifer.lewis@noaa.gov
NOAA	3.3 Local and Regional Information and Warnings through RANET	Kelly Sponberg, kelly.sponberg@noaa.gov
USDA/FS	B. Building Capacity for Disaster Response in Tsunami Impacted Countries: Development of a Tsunami Alert Rapid Notification System (TARNS)	Deanne Shulman, dshulman@fs.fed.us
USGS	Task B.3.1: Standards and Protocols for Warnings	Ray Buland, buland@usgs.gov
USTDA	TBA	TBA
PI-ADPC	Task 4 Disaster Management Planning	S.H.M. Fakhruddin (Bapon), fakhruddin@adpc.net

4.4 Program Area 4: Local Preparedness and Mitigation

Local knowledge and preparedness to act is a vital component of an end-to-end warning system. Local communities must not only receive warnings but know how to respond. The IOTWS Program will support work with partner countries to enhance community initiatives towards the development of a Tsunami Resilient Communities (TRC) Program. This program will build on benchmarks for local preparedness and response developed for US communities and adapt them for urban, rural, and tourism community types in the IO region. In addition, hazard mapping and coastal mitigation activities that help prepare for and mitigate disasters will be coordinated with the part of the TRC program. Focused technical support will include the following activity areas:

4a – Tsunami Resilient Communities Program. The US IOTWS Program will work with international, national, and local partners to identify and promote practices that will help coastal communities become more resilient to tsunamis and other natural hazards. A Tsunami Resilient Community (TRC) has taken specific steps to prepare for and mitigate the impacts of tsunamis and other hazards recurring in coastal

areas, to minimize social disruption, and to maintain environmental services. Active collaboration among national, provincial, and local emergency management agencies and the local communities is essential for achieving local preparedness and mitigation of tsunami and other hazards. This collaboration supports better and more consistent tsunami awareness and mitigation efforts among communities at risk. The main goal is to improve of public safety during tsunami emergencies and to build resilience to recurring coastal events. To meet this goal, the following objectives need to be met:

- Create minimum standard guidelines for a community to follow to become a TRC
- Encourage consistency in educational materials and response among communities and national emergency systems
- Recognize communities that have adopted TRC guidelines
- Increase public awareness and understanding of the tsunami and other hazards
- Improve community pre-planning for tsunami and other disasters impacts.

Prototype and modeler pilot communities will be used to inform guidelines for now to build TR communities. NOAA, the PI and its partners URI and ADPC will collaborate on this activity to develop a prototype TRC Guide for village, resort community, and municipality that includes:

- Framework and minimum benchmarks incorporating all hazard and coastal zone disaster mitigation;
- Self assessment process;
- Tools and best practices including hazard analysis tools and application.

Regional and national workshops with partner organizations will be organized to review and solicit input on the guide. The TRC Guide will incorporate lessons learned and best practices from around the Indian Ocean region. The draft Guide will be presented to the ICG Working Group 5 and finalized for translation and printing in the focus countries. Orientation sessions and train-the-trainer courses will be held in focus countries using TRC Guide. Partnerships with NGOs, private sector entities, and others who work directly with the local communities will be for development of a TRC Recognition Program to help ensure that the program expands beyond the prototype communities through the implementation of the training program developed through this effort.

Activity Area 4a: Implementation Activities and Lead Responsibilities

Partner	Activity Title and Reference	Lead Responsibility
NOAA	4.1 Tsunami Resilient Communities Recognition Program	Russell Jackson, russell.jackson@noaa.gov
PI	Task 6 Tsunami Resilient Communities Program for the Indian Ocean	Catherine Courtney, kitty.courtney@ttemi.com
PI-URI	Task 6 Tsunami Resilient Communities Program for the Indian Ocean (Thailand)	Pam Rubinoff, rubi@gso.uri.edu

4b – Hazard Analysis and Application Tools. Hazard analysis is a vital component of tsunami and all hazards preparedness. The US IOTWS Program will provide technical assistance in the region to develop tools that can be applied at the local level to identify and map hazards in the coastal zone.

The NOAA Pacific Services Center and Coastal Services Center have been working with various federal, state and local level partners in the U.S. and its territories to develop tools to enhance the ability of local emergency managers, planners, and decision makers to conduct multi-hazard risk and vulnerability assessments. In addition to developing a standard methodology for conducting multi-hazard risk and vulnerability assessments, the Centers have worked with their partners to develop GIS-based tools for implementing the methodologies. Many of the newer tools were all developed using GIS-based Internet mapping technologies and have greatly enhanced local level emergency managers', coastal zone managers', and other decision makers' abilities to mitigate the potential impacts of flood hazards. The use of interactive Internet mapping applications and GIS-based tools enables the data to be used to develop more effective comprehensive hazard mitigation plans and it enables the risk and vulnerability data to be utilized on a daily basis by planners, permitting officials, zoning officials, and emergency

managers. Internet accessibility also enables the hazards risk and vulnerability assessment data to be used as public outreach tools.

The tools previously developed by NOAA's Centers have demonstrated their value by assisting local decision makers in their efforts to identify their hazard risks and utilize the information to make more informed hazard mitigation plans. In an effort to help facilitate the development of similar tools throughout the entire 2004 Indian Ocean Tsunami impact area, the Centers will work with local communities to develop the prototype for an open source version of a hazard analysis tool. The open source version will enable any community with a Web server to develop similar tools without the need for GIS software or expertise. Following the completion of the open source version of the tool, efforts will be focused on training and outreach activities to help encourage other communities to develop similar tools.

The hazard analysis tools will be developed in close coordination with local community partners to ensure that they are locally applicable and meet the needs of the communities. In addition, if feasible, the tools will be developed utilizing open source-based Internet mapping technologies to help facilitate the development of similar tools in other communities throughout the 2004 Indian Ocean Tsunami impact area. The use of open source technologies will enable other communities to develop similar tools without the need for costly commercial off-the shelf software. The development of a training manual for implementing similar tools in other areas, combined with a train-the-trainer training program, will help ensure that other communities are able to develop similar hazard analysis tools.

USGS's will also be working to build the capacity for seismic hazard analysis for two of the countries affected by the 2004 magnitude 9.0 Sumatra earthquake and the March 2005 magnitude 8.7 aftershock, namely Indonesia and Thailand. These countries are currently reconstructing buildings and infrastructure in areas affected by the earthquake and tsunami, and the designs and engineering specifications for buildings and other structures should be appropriate for the seismic hazard in the area. USGS will support development of hazard and risk maps for Indonesia and Thailand, including seismic event time histories that will greatly improve the risk analysis of coastal hazard. USGS will also support development of a risk scenario for Padang, Indonesia, since it is perceived that this city has among the greatest earthquake risk in the region. USGS geologists will provide field training in the region, using satellite imagery to define major structures and work with local geologists to define potential earthquake magnitudes and recurrence rates. The risk scenario for Padang will include the amplification of ground shaking by soils and an inventory of buildings. These products will be an essential input for capacity building in the addressed countries, providing knowledge towards hazard analysis, mitigation, preparedness, and reconstruction in the region affected by the earthquake and tsunami. USGS will cooperate with the Worldwide Seismic Safety Initiative (WSSI) group (http://www.wssi.org), to organize regional workshops and encourage local participation in the development of the hazard and risk products. This collaboration is critical for ensuring sustainability in using these tools over the long-term. In addition, the USGS will provide seismic hazard computer codes and training for earth scientists in these countries so that they may develop these capabilities in their own country. WSSI has already given a commitment to be involved in this effort.

Activity Area 4b: Implementation Activities and Lead Responsibilities

Partner	Activity Title and Reference	Lead Responsibility
NOAA	4.2 Hazard Analysis Tools for Local Communities	Russell Jackson, russell.jackson@noaa.gov
USGS	Task C.5.1: Seismotectonic model, geologic map, and building inventories for Indonesia and Thailand.	Mark Peterson, mpetersen@usgs.gov
USGS	Task C.5.2: Seismic hazard maps for NEHRP B/C site conditions	Mark Peterson
PI-URI	Task 5 - Vulnerability Assessments and Hazard Mapping for Coastal Areas (Thailand)	Kate Moran, moran@gso.uri.edu

4c – Coastal Zone Disaster Mitigation. Coastal zone disaster mitigation is an integral part of building resiliency to tsunamis as well as other hazards in the coastal zone. Technical assistance in coastal zone disaster mitigation will cover a range of topics designed to restore and maintain the environmental and

socioeconomic services provided by healthy coastal ecosystems such as coastal forests, mangroves, and coral reefs. USAID and the PI will play a leading role in training national and local government agencies and NGOs in planning and implementing coastal zone management measure along vulnerable coastlines in participating countries. Building on guidelines developed by a number of groups (e.g. WWF) for green reconstruction, the PI will conduct regional workshops with key participants from coastal areas of the five participating countries to develop action plans or review implementation status of coastal zone disaster mitigation measures to achieve the program target of 200 km of coastline under improved management. The Team will also work closely with another USAID project in Thailand, the Post-Tsunami Sustainable Coastal Livelihoods Program and a coastal reconstruction project in Sri Lanka, to identify opportunities to collaborate and build on successes.

Activity Area 4c: Implementation Activities and Lead Responsibilities

Partner	Activity Title and Reference	Lead Responsibility
PI	Task 8 Coastal Zone Disaster Mitigation Measures (Regional)	Alan White, alan.white@ttemi.com
PI-URI	Task 8 Coastal Zone Disaster Mitigation Measures (Thailand)	Pam Rubinoff, rubi@gso.uri.edu

4.5 Program Area 5: Regional Exchanges, Training, and Information Resources

The US IOTWS Program will enhance its regional impact by seeking to replicate lessons learned and share best practices within and among the five target countries, and throughout the region. This program component includes exchange support; regional trainings, workshops, and conferences; and regional knowledge-sharing information systems. Most of the planned activities under Program Area 5 support many of the activities listed in the other program areas.

Activity Area 5a: Implementation Activities and Lead Responsibilities

Partner	Activity Title and Reference	Lead Responsibility
PI	Task 9 Regional and Sub-regional Exchange of Lessons Learned and Best Practices	Parichatt Krongkant, pkrongkant@yahoo.com
NOAA	5.1 Tsunami All-Hazard Training and Virtual Tsunami Training Center	Curt Barrett, curt.barrett@noaa.gov
PI	Task 10 Overarching Program Coordination, Support, Administration, and Outreach	Charlie Macpherson, charlie.macpherson@tetratech-ffx.com

Focused technical support will include the following activity areas:

5a – Support for Regional Exchanges. The US IOTWS Program will support a number of regional exchanges to enhance the technical capacity of individuals from government and academic institutions in aspects of the tsunami early warning system. These regional exchanges will be identified by members of the Team and may include areas such as: paleotsunamis, DART buoy operations, NDWC operations. The implementation activities under this program activity area are listed below by IOTWS Program Team member.

5b –Regional Trainings, Workshops, and Conferences and Related Events. The US IOTWS Program will support a number regional trainings, workshops, and conferences for the development of the IO tsunami warning system. These activities will be designed to provide a venue for representatives of the 5 target countries to be trained and share lessons learned as the end-to-end system is being developed. The PI will assist other team members organize and conduct these activities.

5c –Regional Knowledge Sharing and Development of Information Systems. The Indian Ocean National Assessments revealed that the IO nations require basic training to develop and maintain tsunami-warning systems. The US IOTWS Program will support the development and maintenance of a Tsunami Training Center that will be clearly defined by NOAA.

Through partnerships with universities in the U.S. and IO region, NOAA will initiate the development of a "Tsunami Training Center," incorporating both traditional and distant learning mechanism, as a foundation for Indian Ocean nations to successfully build and maintain an effective national tsunami warning system. The Tsunami Training Center will be linked to the ICG Secretariats to support other training and capacity building activities and to help improve donor coordination. Building on successful activities in place such as the IOC's International Tsunami Information Center and other efforts, NOAA's efforts in this activity will focus on developing the forecast module and linkages to preparedness and mitigation while exploring development of the other modules through basic training activities. An institutional framework will be developed that provides training and capacity building on all elements of an end-to-end tsunami warning and mitigation system: detection, forecast, warning and communication, preparedness, and mitigation that provides:

- Basic training for creating and maintaining national tsunami preparedness and warning services through workshops on WMO communications, inundation modeling, hazard identification, tsunami resilience, and options for alerting technology through face to face course work, workshops, and distance learning capabilities;
- Web based community inundation model with on-line support;
- Tsunami simulator for different tsunami preparedness and warning personnel;
- Specialized training workshops for countries that plan to operate tide stations or DART stations in the deep ocean.

Once the training and educational components are established, it is anticipated that this activity will be sustained and expanded to support other regions, including the U.S. and Caribbean, Southwest Pacific, and Europe over time through a combination of domestic and international partnerships, including UNESCO. A Tsunami Training Center will serve as a nucleus to attract additional investment in training in capacity building and fulfill future international and US domestic requirements.

4.6 Program Area 6: Overarching Program Coordination Support, Administration, and Outreach

The US IOTWS Program is comprised of multiple US government agencies (USAID, NOAA, USGS, USDA/FS, and USTDA) with activities that span five focus countries and many others at a regional level. Overarching program planning, reporting, coordination, logistical support, and program outreach is needed to ensure that activities of each member of the Team are coordinated and contribute to the overall program objectives and expected results. Program Area 6 will provide overarching program leadership, coordination, administrative support, and program outreach through USAID and the PI. In addition, one of the expected outcomes of this project is the leveraging of public/private resources. This leveraging effort will cut across all of the program areas.

Activity Area 6: Implementation Activities and Lead Responsibilities

Partner	Activity Title and Reference	Lead Responsibility
USAID	Overarching Program Management, Coordination, and Outreach	Orestes Anastasia, oanastasia@usaid.gov
PI	Task 10 Overarching Program Coordination, Support, Administration, and Outreach	Alan White, alan.white@ttemi.com

Focused technical support will include the following activity areas:

6a - USG Agency Coordination and Support. The Team needs frequent, reliable communication tools to exchange information, provide updates, report on findings, coordinate activities and action plans, and track progress. Several different tools need to be developed and implemented, depending on the type of information and timeliness of the response needed. A core Program Coordination Group (PCG) has been formed to provide day-to-day team coordination through regularly scheduled meetings (conference calls), and periodic coordination workshops will be scheduled throughout the life of the project. A section of the US IOTWS Program web site is designated as the Team Work Space in which team-related activities are

posted. These activities may include draft reports, internal documents, or discussions. In addition, standardized policies and procedures have been developed to streamline various activities such as travel support and preparation of monthly reports.

6b – External Program Coordination. Maintaining regular coordination with external target audiences will be critical towards achieving the US IOTWS Program's expected results. There are various partners that are directly relevant to the success of the US IOTWS Program and the Team needs to communicate with these audiences in different ways. As members of the Team meet with external partners, their information is compiled into a database that is available to team members on the Team Work Space. There are several external outreach mechanisms that the US IOTWS Program will use to communicate with external audiences, such as the UN-ISDR monthly updates.

6c – Program Outreach and Communications. The program communications plan provided as Appendix C describes outreach and communications mechanisms that will be used by various audiences. The US IOTWS Program web site, www.us-iotws.gov will serve as an important tool for disseminating information, products, fact sheets, and other outreach materials. The PI will continually develop new outreach products, both in hard copy and electronically, to help explain the technical concepts of the US IOTWS Program.

6d – Cross-Cutting Program Support. The PI will be supporting various activities for the Team that cut across the program areas such as regional exchanges and workshops, and leveraging support for the various program areas. A specific amount of funding will be allocated each quarter for exchanges to help with planning and tracking. The PI has developed a set of policies and procedures to support these exchanges.

The leveraging of external resources from other donors, the private sector, and NGOs, is an important component of this program. The PI recommends the following approaches to help achieve the leverage goals for this program:

- Identify and focus on 1-2 mega (over $100 million) and 3-5 large (over $10 million) opportunities;
- Make a concerted effort to quantify the "intellectual capital" contributions of team members;
- Use the Small Grants Program to catalyze leverage;
- Make an aggressive attempt to identify and pin down private sector leverage; and
- Aggregate activities that can be done w/out much additional effort.

4.7 Program Area 7: Small Grants Program

The US IOTWS Program will provide opportunities for regional partners to conduct activities to support or enhance the program implementation. USAID and the PI are responsible for the design and implementation of a small grants program to provide grants to local implementing partners to support activities of the Team and to replicate activities for broader dissemination at local levels. Asian, international, and US-based non-government organizations, community-based organizations, businesses, and universities will be eligible to apply for small grants. The PI will develop guidelines for approval by USAID/RDM/A CTO and Regional Contracting Officer.

Activity Area 7: Implementation Activities and Lead Responsibilities

Partner	Activity Title and Reference	Lead Responsibility
PI	Task 11 Small Grants Program	Kathryn Hoeflich, khoeflich@irgltd.com

4.8 Program Activities, Responsibilities, Performance Measures, and Timeframes

Table 4.1 below provides detailed information about specific program activities, organized by program area, including implementing partners, performance measures applicable to each activity, locations, and dates of performance. Each column is defined as follows:

- "Team Member" indicates the responsible lead agency and the relevant section provided in that agency's (or the PI's) Statement of Work in its IAA (or contract, respectively) with USAID and key team members involved in that activity.
- "Indicator" provides those indicators most applicable to the activity as defined in the PMP (Appendix B), and for which the activity is expected to provide results.
- "Location" refers to the country in which an activity will be implemented; 'regional' refers to region-wide activities involving all countries; '5 focus countries' refers to the five US program focus countries.
- "Dates," and the graphical marks to the right of "Dates," refer to the months in which activities will be implemented during the program period. The first column refers to calendar year 2005, the second to 2006, and the last to 2007. Dotted lines indicate the beginning of each federal fiscal year (FY), which begins October 1 and ends September 30 of the following year.

Table 4.1 Program Activities, Responsibilities, Performance Measures, and Timeframes FY05 – FY07 (last updated February 2006)

Activity	Lead	Indicator	Location	Dates	2005 A S O N D	2006 J F M A M J J A S O N D	2007 J F M A M J J A S
1. Technical Support to IOC							
1a Technical Support for IOC National Assessments							
National Assessment Missions	NOAA (1.2), USGS (A.1)	1.2	Regional	Aug-Sep 2005	■■		
Draft and Final Consolidated Report for IOC National Assessments 16 Countries	PI (T1)	n/a	Regional	Sep-Dec 2005	■ ■■		
1b Cross-Cutting Reg. Support through ICG/IOTWS							
Participation in IOC Workshops and Working Groups	NOAA (1.2, 1.4), USGS (A.2), USAID	1.2	Regional	Ongoing	■ ■	■ ■ ■ ■	■ ■ ■
Conceptual design support for regional IOTWS	NOAA (1.1)	1.1	Regional	Aug, Dec 05; Mar 06	■ ■	■	
WMO Workshop on CONOPS	NOAA (1.3)	1.2	Regional	Nov 05	■		
WMO Symposium on all hazards warning systems	NOAA (1.3)	1.2	Regional	May 06		■	
All hazards CONOPS workshop	NOAA (1.3)	1.2	Regional	Jun 06		■	
WMO/NOAA hire expert to develop all hazards CONOPS and compendium of best practices	NOAA (1.3)	1.2	Regional	Sep 06		■	
Assist establish all hazards CONOPS in selected countries	NOAA (1.3)	1.2	Selected countries	Oct 06		■	
1c Interim Warning Support & Capacity Building							
Continued notifications of potential tsunamis to Indian Ocean countries from PTWC	NOAA (2.1)	n/a	Regional	Jan 05 – Jul 07	■■ ■ ■■	■■ ■ ■ ■ ■■ ■	■ ■ ■ ■ ■■ ■
Documentation and training on NWS Tsunami Center Operating Practices and Policies	NOAA (2.1)	1.2	Regional	Jan 05 – Jul 07	■■ ■ ■■	■■ ■ ■ ■ ■■ ■	■ ■ ■ ■ ■■ ■
2. Regional Hazard Detection, Observation, and Forecasting Systems							
2a Sea-Level Detection and Networks							
Preliminary plan for upgrading existing tide stations	NOAA-UHI (2.4)	2.1, 2.2	Maldives, Sri Lanka	Jan 06		■	
Coordination with Thailand and Indonesia on potential tide station upgrades	NOAA-UHI (2.4)	2.1, 2.2	Thailand, Indonesia	Jan-Feb		■	
Conduct workshop for local and national partners on operation and maintenance of upgraded stations	NOAA-UHI (2.4)	2.1, 2.2	Regional	Jan-Feb 06		■	

Activity	Lead	Indicator	Location	Dates	2005				2006												2007							
					A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S
Finalize plan to upgrade tide stations	NOAA-UHI (2.4)	2.1, 2.2	Thailand, Indonesia	Feb 06						■																		
Upgrade selected tide stations	NOAA-UHI (2.4)	2.1, 2.2	Thailand, Indonesia	Jan 07																		■						
Analysis of DART technology and production options	NOAA (2.3)	2.1, 2.2	Regional	Feb 06						■																		
Analysis of DART deployment options/decision	NOAA (2.3)	2.1, 2.2	Regional	Mar 06						■																		
DART engineering workshop (Seattle, U.S.)	NOAA (2.3)	2.1, 2.2	Regional	May 06									■															
International agreements review	NOAA (2.3)	2.1, 2.2	Regional	Apr – Jun 06									■	■	■													
DART II deployment #1	NOAA (2.3)	2.1, 2.2	Regional	Jun 06											■													
DART II deployment #2	NOAA (2.3)	2.1, 2.2	Regional	Dec 06																■								
Analysis of deep ocean tsunameter technology deployed for the IOTWS	NOAA (2.3)	2.1, 2.2	Regional	Jul 07																						■		
2b Seismic Detection and Networks																												
Seismic and GPS systems upgrades	USGS (B.1)	2.1, 2.2	5 countries	Ongoing						■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
5-day seismic capacity building training	USGS (B.2)	2.1, 2.2	India	Sep - Oct 06														■	■									
5-day seismic capacity building training	USGS (B.2)	2.1, 2.2	Thailand	May-Jun 06										■	■													
5-day seismic capacity building training	USGS (B.2)	2.1, 2.2	Sri Lanka	Apr 06									■															
5-day seismic capacity building training	USGS (B.2)	2.1, 2.2	Indonesia	Nov-Dec 06																■	■							
5-day seismic capacity building training	USGS (B.2)	2.1, 2.2	Maldives	May-Aug 06										■	■	■	■											
Data sharing capacity building	USGS(B.4)	2.1, 2.2	Regional	Ongoing						■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Geologic assessment exchanges	USGS (B.5)	2.1, 2.2	Regional	Dec 05 – Sep 07				■		■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Logistical support for in-country training and regional exchanges	PI (T2, T5), ADPC	3.3	Regional	Ongoing				■		■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Paleoseismology scoping trip	USGS (B.2)	2.1,2.2	Thailand	Jan 06						■																		
Paleoseismology training	USGS (B.2)	2.1,2.2	Chile for Thailand, Indonesia, Sri Lanka	Feb 06						■																		
Paleoseismology research	USGS (B.2)	2.1	3 countries	Mar 06 – May 07							■	■	■	■	■	■	■		■	■	■	■	■	■	■	■		
2c Detection System Communications																												
WMO GTS kickoff meeting	NOAA (3.1)	2.1, 2.2	3 countries	Oct 05			■																					
Award contract for communications support	NOAA (3.1)	2.1, 2.2	3 countries	Dec 05				■																				
Develop design package and acquisition documentation for GTS upgrades for Sri Lanka, Maldives, and WAN for Thailand	NOAA (3.1)	2.1, 2.2	3 countries	May 06										■														
Host Indian Ocean GTS communication workshop	NOAA (3.1)	2.1, 2.2	3 countries	Jun 06											■													
Award GTS upgrade contract for Sri Lanka, Maldives, and WAN upgrade for Thailand	NOAA (3.1)	2.1, 2.2	3 countries	Aug 06													■											

Activity	Lead	Indicator	Location	Dates	2005 A S O N D	2006 J F M A M J J A S O N D	2007 J F M A M J J A S
Implement GTS upgrades	NOAA (3.1)	2.1, 2.2	3 countries	Mar 07			
Regional seismic communications and notification systems training	USGS (C.4)	2.1, 2.2	Regional	Sep 06 – Sep 07			
2d Forecast Modeling							
Produce design of the Web-based MOST model to share with modeling community in the region	NOAA (2.5)	2.1, 2.2	Regional	Apr 06			
Implement MOST model with Web interface	NOAA (2.5)	2.1, 2.2	Regional	May 06			
Develop MOST model training and test procedures	NOAA (2.5)	2.1, 2.2	Regional	Jun 06			
Community/MOST Model Training	NOAA	3.1	Regional	Jun 06			
Provide results of MOST model test implementation for specified locations	NOAA (2.5)	2.1, 2.2	Regional	Jul 06			
Develop inundation model/map for Ranong, Thailand	PI-URI (T2)	2.1, 2.2, 4,1, 4.2, 4.3	Thailand	2006			
Develop inundation model/maps for selected sites	PI-Delft (T3	2.1, 2.2, 4.1, 4.2, 4.3	Indonesia	2006			
Apply inundation model results to TRC program (see activities under 4a and 4b)	PI (T2), URI, NOAA (2.5, 4.1)	2.1, 2.2, 4.1, 4.2, 4.3	Regional	2006			
3. National Dissemination and Communication of Warnings							
3a National Disaster Mgmt. Capacity Building							
ICS consultative visits	USDA/FS (A)	3.1, 3.2, 3.3	Sri Lanka	Dec 05			
ICS brainstorming workshop	USDA/FS (A)	3.1, 3.2, 3.3	Sri Lanka	Jan 06			
ICS in-country courses	USDA/FS (A)	3.1, 3.2, 3.3	Sri Lanka	Mar 06 - Mar 07			
ICS 15-day study program #1	USDA/FS (A)	3.1, 3.2, 3.3	Sri Lanka	Jun 06			
US Study Tour for Sri Lanka and India	USDA/FS	3.1	US	Jun 19 - Jul 1 06			
ICS finalized training materials	USDA/FS (A)	3.1, 3.2, 3.3	Sri Lanka	Mar 07			
ICS 15-day study program #2	USDA/FS (A)	3.1, 3.2, 3.3	Sri Lanka	Jun 07			
ICS Workshop on best practices and lessons learned	USDA/FS	3.1, 3.2	Regional	Jul 07			
Monitor ICS courses taught by “train-the-trainers”	USDA/FS (A)	3.1, 3.2, 3.3	Sri Lanka	Sep 06 - Sep 07			
ICS technical consultations, simulation exercises	USDA/FS (A)	3.1, 3.2, 3.3	Sri Lanka	Oct 06 - Sep 07			
Policy and institutional capacity assessment and identification of gaps	PI (T3), ADPC	3.1, 3.3	5 focus countries	Jul - Aug			
Technical assistance to NDMOs in policy and institutional development, and national disaster management plans	PI (T3), ADPC	3.1, 3.3	5 focus countries	Oct - Apr 06			

Activity	Lead	Indicator	Location	Dates	2005 A S O N D	2006 J F M A M J J A S O N D	2007 J F M A M J J A S
Logistical support for in-country training and regional exchanges	PI (T2, T5), ADPC	3.3	5 focus countries	Ongoing			
Regional best practices/lessons learned workshops on national disaster management capacity (proposed)	PI (T2, T5), ADPC, NOAA, USGS, USDA/FS, USTDA	3.3	5 focus countries	Nov 06, July 07			
3b National Warning Center Capacity							
All hazards CONOPS workshop	NOAA (2.2)	3.1, 3.2, 3.3	Selected countries	Jun 06			
WMO/NOAA hire expert to develop all hazard regional and national CONOPS	NOAA (2.2)	3.1, 3.2, 3.3	Selected countries	Sep 06			
Select countries to apply CONOPS and prepare operations manual	NOAA (2.2)	3.1, 3.2, 3.3	Selected countries	Apr 07			
Standards and protocols for seismic warnings	USGS (B.3)	3.1, 3.2, 3.3	Regional	Ongoing			
Disaster warning systems integration and capacity development	USTDA-PDC	3.1, 3.2, 3.3	Thailand	Ongoing			
CONOPS Workshop to clarify existing operation procedures of NDWC	USTDA-PDC	3.1, 3.2, 3.3	Thailand	Feb 16-17			
Disaster warning systems integration and capacity development.	USTDA-PDC	2.1, 2.2		2006			
Disaster Management Plan and Technology Strategy—IN DEVELOPMENT	USTDA	3.1, 3.2, 3.3	Indonesia	TBD			
Disaster Early Warning Capacity Building and Systems Integration—IN DEVELOPMENT	USTDA	3.1, 3.2, 3.3	Sri Lanka	TBD			
Logistical support for in-country training and regional exchanges	PI (T2, T5), ADPC	3.3	5 focus countries	Ongoing			
Regional best practices/lessons learned workshops on national warning center capacity (proposed)	PI (T2, T5), ADPC, NOAA, USGS, USDA/FS, USTDA	3.3	5 focus countries	Nov 06, July 07			
3c Warning Communications							
RANET country discussions and activity planning	NOAA (3.3)	3.1, 3.2, 3.3	Sri Lanka, Thailand	Apr 06			
Communications Workshop	NOAA	3.1, 3.2	Regional	Jun 06			
RANET equipment and services acquisition and delivery	NOAA (3.3)	3.1, 3.2, 3.3	Sri Lanka, Thailand	Sep 06			
RANET community support site selection	NOAA (3.3)	3.1, 3.2, 3.3	Sri Lanka, Thailand	Oct 06			
RANET Phase 1 deployment of community information centers	NOAA (3.3)	3.1, 3.2, 3.3	Sri Lanka, Thailand	Jan 07			
RANET Phase 2 deployment of community information centers	NOAA (3.3)	3.1, 3.2, 3.3	Sri Lanka, Thailand	Mar 07			

Activity	Lead	Indicator	Location	Dates	2005 A S O N D	2006 J F M A M J J A S O N D	2007 J F M A M J J A S
TARNS program strategy meeting, template development (Seattle, U.S.; USG only)	NOAA (3.2), USDA/FS (B)	3.1, 3.2, 3.3	Seattle/ Thailand	Nov 05			
TARNS country consultation visits	NOAA (3.2), USDA/FS (B)	3.1, 3.2, 3.3	Thailand	Sep 05 - Feb 06			
TARNS working group meeting #1	NOAA (3.2) USDA/FS (B)	3.1, 3.2, 3.3	Thailand	May 06			
TARNS working group meeting #2	NOAA (3.2), USDA/FS (B)	3.1, 3.2, 3.3	Thailand	Sep - Nov			
TARNS working group meeting #3	NOAA (3.2), USDA/FS (B)	3.1, 3.2, 3.3	Thailand	Dec - Feb			
TARNS simulation exercises #1	NOAA (3.2), USDA/FS (B)	3.1, 3.2, 3.3	Thailand	Mar - May 07			
TARNS Regional Workshop	USDA/FS	3.1, 3.2	Regional	Jul 07			
TARNS simulation exercises #2	NOAA (3.2), USDA/FS (B)	3.1, 3.2, 3.3	Thailand	Jul - Aug 07			
Strategic advisory and ICT System	USTDA	3.1, 3.2, 3.3	Sri Lanka	TBD			
Logistical support for in-country training and regional exchanges	PI (T2, T5), ADPC	3.3	5 focus countries	Ongoing			
Regional best practices/lessons learned workshop on national warning communications (proposed)	PI (T2, T5), ADPC, NOAA, USGS, USDA/FS, USTDA	3.3	5 focus countries	Nov 06, July 07			
4. Local Preparedness and Mitigation							
4a Tsunami-Resilient Communities Program							
TRC Orientation and roll out workshops/ trainings	NOAA (4.1), PI (T4), ADPC,URI	" "	Sri Lanka, Maldives, Thailand Indonesia India	Feb 06			
Second Community Group Training in Ranong (in coordination with USAID Post-Tsunami Sustainable Coastal Livelihoods program)	ADPC, AIT, URI, PI (T4) NOAA (4.1)	4.1, 4.2, 4.3	Thailand	Mar 1-4			
Develop prototype TRC Guide for village, resort community, municipality	" "	" "	Sri Lanka, Thailand, Indonesia	Feb - May 06			
Develop formal partnership with appropriate organizations for TRC Recognition Program	" "	" "	Regional	Feb - Mar 06			
Develop TRC Program in learning sites in focus countries (municipality/city, village, resort community)	" "	" "	Sri Lanka, Thailand, Indonesia	Feb - Mar 06			
Conduct national workshops on the TRC Guide in each focus country	" "	" "	5 focus countries	Feb - Mar 06			

Activity	Lead	Indicator	Location	Dates	2005 A S O N D	2006 J F M A M J J A S O N D	2007 J F M A M J J A S
Conduct regional workshop with partner organizations to review prototype	" "	" "	Regional	May 06			
Revise TRC Guide based on inputs from regional workshop	" "	" "	Regional	Jun 06			
Present TRC Guide to IO-ICG WG5 to solicit input from IO countries	" "	" "	Regional	Jun - Jul 06			
Regional workshop to Launch TRC Guide formally with Office of the Special Envoy for Tsunami Recovery	" "	" "	Regional	Sep 06			
Conduct orientation sessions and TOT in focus countries	" "	" "	5 focus countries	Sep - Dec 06			
Finalize, translate, and print TRC Guide for focus countries	" "	" "	5 focus countries	Sep - Dec 06			
Logistical support for in-country training and regional exchanges	PI (T2, T5)	3.3	5 focus countries	Ongoing			
4b Hazard Analysis and Application Tools							
Develop hazard analysis tool for community level application	NOAA (4.2), PI-URI (T4)	4.1, 4.2	Regional, Thailand	Feb - Jun 06			
Develop manual for hazard analysis tool development	NOAA (4.2), PI-URI (T4)	4.1, 4.2	Regional	Jun - Oct 06			
Conduct TOT on hazard analysis tool development manual	NOAA (4.2), PI-URI (T4)	4.1, 4.2	Regional	Oct 06 - Feb 07			
Conduct training on hazard analysis tool development manual	NOAA (4.2), PI-URI (T4)	4.1, 4.2	Regional	Feb 07 - Jun 07			
4c Coastal Zone Disaster Mitigation							
IOC-Post Disaster Ecosystem Workshop	PI (T4), URI, ADPC	4.2, 4.3	Thailand	Feb 21-24			
Develop coastal zone disaster mitigation benchmarks for TRC Guide	PI (T4), URI	4.2, 4.3	Regional	Apr - Jul 06			
Provide technical assistance in coastal zone disaster mitigation in conjunction with TRC communities	PI (T4), URI	4.2, 4.3	Sri Lanka, Thailand, Indonesia	Sep 06 - Sep 07			
5. Regional Exchanges, Training, and Information Resources							
5a Exchanges							
Provide logistical support for study tours and exchanges (Listed Separately)	PI (T9), ADPC	All indicators	US and Regional	TBD			
5b Trainings, Workshops, and Conferences							

Activity	Lead	Indicator	Location	Dates	2005 A S O N D	2006 J F M A M J J A S O N D	2007 J F M A M J J A S
Provide logistical support for regional training activities	PI (T9), ADPC	All indicators	US and Regional	TBD			
5c Knowledge-Sharing Information Systems							
Develop Tsunami Training Center (TTC)	NOAA (5.1)	1.2	Regional	Ongoing			
Establish TTC working group with US and IO partners	NOAA (5.1)	1.2	Regional	Jun - Jul 06			
Conduct regional workshop with working group to refine TTC concept, develop TTC framework, and prepare action plan for module development	NOAA (5.1), PI (T5)	1.2	Regional	Aug - Sep 06			
Develop modules for TTC based on action plan	NOAA (5.1), PI (T5), ADPC	1.2	Regional	Oct 06 - Sep 07			
Establish sustainability mechanisms with international and national partners	NOAA (5.1), PI (T5)	5.1	Regional	Ongoing			
6. Overarching Program Coordination Support, Administration, and Outreach							
6a USG Agency Coordination and Support							
US IOTWS Program Coordination meetings	PI (T6), Team	n/a	Regional	Sep 05, Jan, Oct 06, Jun 07			
US IOTWS Program Work Plan review and revision	PI (T6), Team	n/a	Regional	Draft Sep 05, updates			
US IOTWS Program semi-annual and annual reporting and performance monitoring	PI (T6), Team	n/a	Regional	Draft Sep 05, Final Feb 06			
6b External Program Coordination							
Coordination with international donor community and other organizations	PI (T6), Team	5.1	Regional	Ongoing			
Conduct 1st IOTWS Partner Coordination Workshop to introduce US IOTWS Program Orientation to partners in the region	PI (T6), Team	5.1	Regional	Sep 30 - 31 05			
Conduct 2nd IOTWS Partner Coordination Workshop to identify areas for collaboration in the region	PI (T6), Team	5.1	Regional	Jan 30 - 31 06			
Partner Coordination Workshop on end-to-end system development at national level as needed.	PI (T6), Team	5.1		Jun - Jul 06			
6c Program Outreach and Communications							
USG Program communications plan preparation and finalization	PI (T6)	n/a	Regional	Sep 05, l Feb 06			
Updating Development Assistance Database (DAD) information on US IOTWS Program	PI (T6)	n/a	Regional	Ongoing			
Develop and maintain US IOTWS Program Web Site	PI (T6)	n/a	Regional	Ongoing			

Activity	Lead	Indicator	Location	Dates	2005				2006											2007							
					A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S
Prepare Weekly Submittals to RDM/A	PI (T6), NOAA, USGS, USDA/FS, USTDA	n/a	Regional	Ongoing																								
Prepare monthly US IOTWS Program Update	PI (T6), NOAA, USGS, USDA/FS, USTDA	n/a	Regional	Ongoing																								
Prepare IOTWS Program fact sheets	PI (T6), NOAA, USGS, USDA/FS, USTDA	n/a	Regional	Ongoing																								
6d Cross-cutting program support																												
Support to Team for exchanges, workshops and trainings	PI (T6)	n/a	Regional	Ongoing																								
7. Small Grants Program																												
Prepare Small Grants Manual	PI (T7)	n/a	Regional	Jan-Feb 06																								
First Small Grants Cycle	PI (T7)	n/a	Regional	Mar 06																								
Second Small Grants Cycle	PI (T7)	n/a	Regional	Jun 06																								

4.7 Geographic Summary of Work Plan Activities

Many of the work plan activities that will be conducted under US IOTWS in support of the IOC and ICG/IOTWS process will benefit the entire Indian Ocean Region. Some of the work plan activities, however, will be targeted to specific countries, building on the national and local preparedness program areas. As a result of the scoping trips conducted by the Team in September 2005, some of IO targeted countries expressed interest in partnering with the Team on specific IOTWS activities. The IOC national assessments were reviewed to identify support requirements and gaps in the development of an end-to-end tsunami warning and mitigation system. Table 4.2 presents the proposed work plan tasks organized by country and core program area. Some of these tasks may change as specific activities progress.

Table 4.2 Summary of Work Plan Tasks Organized by Country and Program Area

Activity		Country and Regional Locations					
		India	Indonesia	Maldives	Sri Lanka	Thailand	Regional
Program Area 1	1a Technical Support for IOC National Assessments		●		●	●	●
	1b Cross-Cutting Regional Support through ICG/IOTWS						●
	1c Interim Warning Support & Capacity Building						●
Program Area 2	2a Sea-Level Detection and Networks		●	●	●	●	●
	2b Seismic Detection and Networks						●
	2c Detection System Communications	●	●	●	●	●	●
	2d Forecast Modeling		●			●	●
Program Area 3	3a National Disaster Mgmt. Capacity Building	●	●	●	●	●	●
	3b National Warning Center Capacity		●		●	●	●
	3c Warning Communications				●	●	
Program Area 4	4a Tsunami-Resilient Communities Program	●	●	●	●	●	●
	4b Hazard Analysis and Application Tools		●			●	●
	4c Coastal Zone Disaster Mitigation		●	●	●	●	●
Program Area 5	5a Exchanges						●
	5b Trainings, Workshops, and Conferences						●
	5c Knowledge-Sharing Information Systems						●
Program Area 6	6a USG Agency Coordination and Support						●
	6b External Program Coordination						●
	6c Program Outreach and Communications						●
	6d Cross-cutting program support						●
Program Area 7	7a. Small Grants Cycle 1						●
	7b. Small Grants Cycle 2						●

U.S. Indian Ocean Tsunami Warning System (IOTWS) Program
Integrated Program Work Plan 2005-2007

APPENDIX A

PRINCIPLES AND THEMES

March 2006 Version 1.0

U.S. Indian Ocean Tsunami Warning System Program
Principles and Themes

In the interest of achieving maximum effectiveness given the limited resources and short timeframe for the program, the USG approach incorporates several key principles and themes to guide program design and implementation. Several of these principles are mutually reinforcing, but each reflects the need to address a wide range of inter-connected but complex challenges, including a web of diverse multilateral, bilateral, and national activities to develop various components of an IOTWS that are not yet effectively coordinated. The other critical consideration is the challenge of developing an IOTWS in a developing country context, where the government institutions and policy/regulatory frameworks critical for supporting the IOTWS are often weak, fragmentary, or non-existent

Sustainability and Long-Term Impact. The USG approach aims to ensure sustainability and effectiveness, particularly by promoting greater political, institutional, and technical linkages to existing global systems/networks by strengthening the national institutions and policy frameworks that would form the backbone of an effective, integrated, end-to-end IOTWS. While technologies and know-how will play an important role in developing the IOTWS, these must be introduced in a manner that ensures the greatest immediate *and long-term* impact and sustainability in each of the five targeted countries and for the region as a whole. The most successful management systems will be built upon a multisectoral approach in which all organizations -- government, private, and community -- are involved and understand their individual roles and responsibilities, and have allocated the recurrent budgets needed to sustain operations over time.

Catalytic Leadership, Leverage, and Partnerships. In further support of the goal of sustainability and to make the best use of limited resources, the USG approach will be *strategic* and *catalytic* to mobilize and leverage resources of the international community, country governments, the private sector, and NGOs, and *create synergies* with the ongoing efforts of regional, national, and local institutions and stakeholders. In particular, given the enormous amounts of foreign investment in Asia, the USG approach will promote public-private partnerships to leverage the vast expertise and financial resources of the US private sector, potentially using vehicles available through USAID's Global Development Alliance (GDA) and through programs administered by the U.S. Trade and Development Agency (USTDA). In addition, the USG program must find effective ways to leverage the large resources of NGOs, now holding millions of dollars in tsunami donations to support community disaster mitigation and preparedness activities in the region. Recognizing that this activity will be but one contribution of a multi-faceted international response, all project activities should be closely coordinated with IOC and the donor community to achieve maximum synergy and use of resources.

Transparency and the Open Exchange of Data. Timely, free and open exchange of publicly-funded, unclassified data among the national, regional, and global warning systems is a critical part of a successful IOTWS, and has been an underlying theme of the U.S. delegations involved in international dialogues with countries in the region. Without the immediate distribution of observational data in real time, the timeliness and effectiveness of the system will be severely compromised. The USG program will assist in developing common approaches for effective data sharing, particularly with respect to telecommunications, data processing, and warning dissemination capacities.

Centralization, Standardization, and Interoperability. It is critical for national early warning systems to be fully integrated into both regional and global frameworks to ensure "interoperability" of all systems. To accomplish this, there must be uniform standards and protocols for the collection and dissemination of relevant data, products, and services. Regional cooperation and coordination will be essential. U.S. delegations have expressed in international forums the US interest, experience, and capability in assisting the development of standards and protocols at the regional scale, while providing limited technical assistance on an as-needed basis to individual nations that already have the technological infrastructure for a national network, but that may lack data processing and exchange capabilities.

Regional Cooperation and Cross-Learning. Regional cooperation is essential: (1) to maximize and amplify the impacts of the USG program through sharing of knowledge and experience; (2) to ensure the

"interoperability" of national and :regional early warning systems into a global framework; and (3) to support uniform standards and protocols for information sharing. As a cross-cutting theme, the USG program will encourage regional cooperation and the sharing of experiences and lessons learned within the region, as well as with the US and the international community. Promoting s and twinning will be an important approach in further strengthening regional cooperation.

Multi-Hazard and Multi-Disciplinary Approach. As stressed by the international community, all national-level tsunami warning systems should be integrated into national disaster management systems and plans as part of a "multihazard" approach-one that recognizes the value of being able to simultaneously address multiple types of disasters through the same disaster management systems. The USG recognizes this important opportunity to make strategic and complementary advances on the many hazards facing the region's coastal areas, including (but not limited to) those associated with flooding, drought, erosion, landslides, earthquakes, volcanoes, land subsidence, storm surge, and maritime accident. Wherever possible and relevant, the USG program will encourage national disaster management systems to adopt a multi-disciplinary approach that incorporates mitigation, preparedness, response, and recovery objectives for the multiple hazards threatening communities in the region. These efforts should likewise be developed within an appropriate *risk management framework* that ensures the system ultimately implemented is appropriate for the level of risk**.**

Integration and Complementarity with Ongoing Disaster Management Programs. In view of limited resources and the importance of local stakeholder involvement, it is imperative that the U.S response complements, is consistent with, and adds to existing USG-funded and other disaster management programs in each country and facilitates linkages with regional activities. All activities will seek to complement other ongoing or planned programs in disaster management. For this reason it will be essential for all program partners, and primarily the LPI, to maintain ongoing coordination with USAID missions in each of the target countries, particularly with respect to activities at national and sub-national level.

Emphasis on Field Support. Consistent with international development principles, the USG approach will emphasize to the fullest extent possible the allocation of technical and budget resources to activities in the field, *i.e., in the Indian Ocean region -- particularly* the five targeted countries-and not the United States or any other industrialized nation. Efforts to provide technical assistance should seek to maximize impact and build indigenous capacity in the region at every given opportunity. AI1y efforts that divert direct investment in local institutions-as implementing partners, recipients of technology transfer, train-the-trainer participants, etc.-simply forestall much needed attention and capacity in the countries that need these most. As a result, the LPI and USG partners should seek to engage and involve local institutions as implementing partners in all program activities, often through sub-contracts and grants arranged through the LPI and USTDA. Using such institutions will greatly extend program resources, build local capacity, and increase program impact over the long term.

Stakeholder Involvement and Empowerment. Stakeholder involvement and empowerment at the community level will have important benefits in the program's practical effectiveness on the ground. Successful disaster management systems are built on the vertical integration and cooperation between local communities and their governments, as well as the horizontal integration among stakeholders and community members that may not otherwise have shared the same ideal. Community-based approaches to disaster mitigation, preparedness and response are more likely to be effective and sustainable when they are intertwined with local experience, practices, and knowledge, particularly taking into consideration the needs of women and marginalized communities.

U.S. Indian Ocean Tsunami Warning System (IOTWS) Program
Integrated Program Work Plan 2005-2007

APPENDIX B

PERFORMANCE MANAGEMENT PLAN

March 2006 Version 1.0

INTRODUCTION

This Performance Management Plan (PMP) describes the results framework, data collection sources and methods, and performance indicators and targets for the US IOTWS Program. The US IOTWS Program contributes substantively to USAID's Special Objective (SpO) 498-045 to save lives and support government-led early warning and disaster preparedness efforts in the Indian Ocean region. The program is intended to provide strategic, technical support towards the development of an operational IOTWS by contributing to efforts led by the UNESCO/IOC Intergovernmental Coordination Group on the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS). The roles and responsibilities of the US IOTWS Program Team and planned implementation activities are described in the Integrated Program Work Plan.

RESULTS FRAMEWORK

The results framework for the US IOTWS Program is provided in Table B.1. The US IOTWS Program falls under Special Objective 498-095 and SpO Intermediate Result 3. Five sub-intermediate results and their respective indicators are detailed incorporating and refining the expected results included in the Inter-Agency Agreements for NOAA, USGS, and USDA/FS and in the scope of work for the USAID and the PI. The results framework captures the expected results for the US IOTWS Program referenced in Table B.1 and shown in Figure B.1. This results framework has been refined in consideration of the IOC national assessments for target countries and in light of findings from scoping visits to India, Sri Lanka, Thailand, Indonesia, and Maldives. It may still change after additional refinement of activity plans by NOAA, USGS, and USDA/FS.

DATA SOURCES, COMPILATION, AND REPORTING

The results framework provides specific indicators that will be used by all agency partners to report the progress of the US IOTWS Program. A description of each indicator, including unit of measure, targets, and responsibility is provided in Table B.2. Each partner agency is required to measure progress using the relevant indicators provided in Table B.2 on a semi-annual basis. Each agency will submit performance management reports to USAID for consolidation by the PI. These results will be incorporated into the Semi-Annual and Annual Reports for the Program that tracks with the semi-annual process for preparing the "4102 Report" to Congress. Completed performance management reports from each partner agency must be submitted by the following dates:

- March 15, 2006
- September 15, 2006
- March 15 2007
- September 14, 2007.

In addition to semi-annual and annual performance monitoring, each partner agency will need to contribute to other reporting mechanisms required by USAID. These include the following:

- 4102 Report to Congress submitted by the field to USAID/ANE every May and December
- ANE Tsunami Tracker Database
- Ad hoc information requests from USAID/Washington, OMB, and Congress.

REPORTING RESPONSIBILITY

USAID RDM/A is ultimately responsible for providing input on these reports to AID/W. At a program level, the PI will be responsible for compiling and reporting data to USAID. The PI will assist each partner agency compile and report data at the agency level. Agencies will be given a brief period to review and comment on draft PMP report submissions, as well as draft submissions of aforementioned reporting mechanisms.

Table B.1 Results Framework for the US IOTWS Program

USAID Special Objective (SpO) for Tsunami Recovery and Reconstruction: To save lives; help individuals rejoin the workforce and return to communities; support host government-led reconstruction & early warning/disaster preparedness efforts

SpO Intermediate Result (IR) 3: Early Warning System Established
- SpO Indicator 3.1: Number of communities trained in disaster preparedness
- SpO Indicator 3.2: Number of communities included in national alert system

SpO IR 4: Technical Assistance, Good Governance & Reconciliation
- SpO Indicator 4.1: Number of government agencies that received technical support

Special Interest Reporting Indicator
- SpO Special Indicator C: Kilometers of coastline under improved, sustainable environmental management

Sub-IRs (Program-level IRs)

Sub-IR 1. Scientifically sound design for IOTWS developed (Ref EO 1.1; 2.1)
- Indicator 1.1: Conceptual design for early warning system design accepted
- Indicator 1.2: Protocols, agreements, and products developed by ICG/IOTWS member nations to ensure interoperability of the regional IOTWS system

Sub-IR 2. Tsunami detection and early warning capabilities improved
- Indicator 2.1: Regional-level tsunami detection and communication system components (core stations) installed, deployed, or upgraded
- Indicator 2.2: National- and local-level tsunami warning system components integrated into the IOTWS and operated in accordance with IOTWS standards and criteria

Sub-IR 3. National capacity in disaster management improved
- Indicator 3.1: Tsunami/all hazards warning dissemination and disaster management system components designed, developed, or improved
- Indicator 3.2: Communities included in national alert systems (ref. SpO Indicator 3.2)
- Indicator 3.3: Number of government agencies (e.g. central government offices, municipalities) receive technical support (ref. SpO Indicator 4.1)

Sub-IR 4. Local preparedness and coastal mitigation for tsunamis and related hazards improved
- Indicator 4.1: Number of communities trained in disaster preparedness (ref. SpO Indicator 3.1)
- Indicator 4.2: Coastal communities initiating activities that support tsunami resiliency
- Indicator 4.3: Kilometers of coastline under improved, sustainable environmental management (ref. SpO Indicator C)

Sub-IR 5. Private and public resources leveraged for the USG program (ref. EO 5.1)
- Indicator 5.1: US$ leveraged through private sector, NGO, donor, and public sector resources in support of the development of an end-to-end IOTWS

Table B.2 Expected Outcomes Provided in US IOTWS Program Description

Program Area 1. Technical Support for IOC National Assessments

EO 1.1 IOC institutional capacity strengthened to oversee and coordinate the cooperative development of an IOTWS, as a result of USG support.

Program Area 2. Regional Hazard Detection, Observation, and Forecast Systems

EO 2.1 Region-wide, integrated, end-to-end IOTWS system design that is interoperable with regional and global systems (incorporating uniform standards and protocols for warning formulation and dissemination at both regional and national levels), developed and adopted under the auspices of the IOC and regional governments, as a result of USG leadership and technical assistance.

EO 2.2 One or more tsunami warning centers (at the regional and/or national levels, as deemed appropriate) achieving operational status, with end-to-end warning system capabilities (detection, warning formulation, and dissemination) and operating in a manner compatible with the all-hazards approach, as a result of USG technical assistance and institutional capacity building.

Program Area 3. National Dissemination and Communication of Warnings

EO 3.1 Capacity of National Disaster Management Organization(s) (NDMO(s)) in at least one country strengthened and able to meet international standards in disaster management planning, tsunami warning message dissemination, and basic tsunami vulnerability assessment and hazard mapping/modeling capabilities.

EO 3.2 Integrated regional and national-level communications systems established as a result of USG technical assistance and leveraged support, capable of effective and efficient delivery of observational data, watches and warning messages, and related information following common standards and protocols.

EO 3.3 Key national-level policy/regulatory enabling conditions advanced in all five target countries towards ensuring NDMOs (and/or related institutions) possess the necessary authority and resources for effective tsunami emergency decision-making and response capabilities.

Program Area 4. Local Preparedness and Mitigation

EO 4.1 A TsunamiResilient Communities program established, with participants in each of the five target countries, meeting basic criteria for effective tsunami mitigation and preparedness and adopting community-based participation and decision-making practices.

EO 4.2 Model mitigation and/or preparedness activities involving coastal zone management approaches and strategies replicated in additional communities in each of the five target countries.

Cross-Cutting Targets

EO 5.1 Achievement of at least 3:1 leveraged private and public resources for the USG program overall that directly complement US IOTWS Program activities, particularly in the area of technology deployment for regional and/or national tsunami warning systems.

Table B.3. Performance Monitoring Tables for the US IOTWS Program

USAID Special Objective 498-045: ***To save lives, help individuals rejoin the workforce and return to communities, support host government-led reconstruction & early warning/disaster preparedness efforts***			
SPO-Level Indicators			
IR 3. Early Warning System Established	**FY**	**Planned**[3]	**Actual**[3]
SpO Indicator 3.1: Number of communities trained in disaster preparedness *(See Program Indicator 4.1 below)*	**06**	**500**	
	07	**1000**	
SpO Indicator 3.2: Number of communities included in national alert systems[4] *(See Program Indicator 3.2 below)*	**06**	**400/ 200,000**	
	07	**800/ 400,000**	
IR4: Technical Assistance, Good Governance & Reconciliation	**FY**	**Planned**	**Actual**
SpO Indicator 4.1: Number of government agencies (e.g. municipalities, central government offices) that received technical support *(See Program Indicator 3.3 below)*	**06**	**15/30**	
	07	**30/60**	
Special Interest Reporting Indicators to Be Included in Mission PMPs	**FY**	**Planned**	**Actual**
SpO Special Indicator C: Kilometers of coastline under improved, sustainable environmental management *(See Program Indicator 4.2 below)*	**06**	**100**	
	07	**200**	
Program-Level Indicators			
Sub-IR1: Scientifically sound design for IOTWS developed (ref. EO 1.1; 2.1)	**FY**	**Planned**	**Actual**
Indicator 1.1: Conceptual design for early warning system design accepted	**05**	**1**	
	06	**2**	
Unit of measure: Draft and final versions of conceptual IOTWS design provided to ICG/IOTWS. *Description:* Conceptual IOTWS design serves as regional baseline to guide development of national systems. Draft and final versions provided through ICG/IOTWS. The conceptual design includes location for detection devices, protocols for sharing information/data essential channels of communications and other elements. This indicator addresses Expected Outcomes 1.1, 2.1, 2.2, and 3.2 of the US IOTWS Program. *Relevance:* Provides scientifically sound basis for design of IOTWS, specifically for use by ICG/IOTWS member states. *Planned target:* One draft design and one final design. *Data source:* USG delegations to IOC meetings.			
Indicator 1.2: Protocols, agreements, and products developed by ICG/IOTWS member nations to ensure interoperability of the regional IOTWS system	**06**	**10**	
	07	**20**	

[3] Planned and actual values are cumulative.

[4] The total number of villages directly affected by the December 26, 2004 tsunami in the five US IOTWS project countries was approximately 4,318 or roughly 2,159,000 people.

Unit of measure: Number of protocols, agreements or products (as a result of direct US assistance) developed and adopted by ICG/IOTWS member states. *Description:* Protocols, agreements, and products include reporting standards, performance criteria, and data access standards to ensure interoperability of the various tsunami detection components (seismic networks, sea level networks, tsunami detection buoys, and communication networks, such as upgraded GTS, national communications networks). This indicator addresses Expected Results 1.1, 2.2 and 3.3 of the US IOTWS Program. *Relevance:* Protocols, agreements and products provide the basis for interoperability of each component in the IOTWS and provides the basis for establishing a functional end-to-end early warning system at a regional level. *Planned targets:* NOAA: 11 protocols/agreements (6 for sea level; 2 for DART, 2 for communication upgrades; 1 for WAN) USGS: 10 protocols/agreements (5 Letters of Intent, 5 agreements on standards for detection and communication (most in FY06) PI: 1 product (Consolidated Report of IOTWS system support requirements) *Data source:* US IOTWS Program Team, IOC, NDMOs.			
Sub-IR2: Tsunami detection and early warning capabilities improved (EO 2.1; 2.2)	**FY**	**Planned**	**Actual**
Indicator 2.1: Regional-level tsunami detection and communication system components (core stations) installed, deployed, or upgraded	**06** **07**	**10** **20**	
Unit of measure: No. of tsunami detection and communication system components (as a result of direct and indirect US assistance). *Description:* Tsunami detection and communication system components include seismometers, geodetic instruments (GPS), tide gauges, DARTs, and GTS upgrades identified as core stations in the regional conceptual plan design (Indicator 1.1). This indicator addresses Expected Results 2.2 and 3.3 of the US IOTWS Program. *Relevance:* These elements are essential to detect tsunami and transmit data to tsunami warning centers. *Planned targets:* USGS: 9 components (seismic stations and/or related equipment; upgrade GPS stations) NOAA: 11 components (6 sea level gauges and upgrade packages (Maldives, Sri Lanka, pot. India), 2 DART buoys, 2 country GTS upgrades (Maldives, Sri Lanka), and 1 communications systems (WAN, Thailand). Targets represent X%, Y%, and Z% of seismic, sea level, DART, and communication system core stations called for in the regional conceptual plan. This indicator addresses Expected Results 1.1, 2.2 and 3.3 of the US IOTWS Program. *Data source:* US IOTWS Program Team, NDMOs, other contractors working on equipment installation or protocols.			
Indicator 2.2: National- and local-level tsunami detection system components integrated into the IOTWS and operated in accordance with IOTWS standards and criteria.	**06** **07**	**10** **20**	
Unit of measure: Number of components (core stations) integrated into national systems and according to IOC standards *Description:* National tsunami warning systems integrated into the regional system. (This indicator addresses Expected Outcomes 1.1, 2.2 and 3.2.) *Relevance:* Installing detection hardware alone does not produce a functioning system. This indicator measures the number of functioning core stations (seismometers, geodetic			

instruments (GPS), tide gauges, DART buoys, communications networks) integrated and contributing to an overall end-to-end tsunami early warning system. *Planned targets:* USGS: 11 integrated components associated with seismic stations and/or related equipment (2 in India, 6 in Indonesia, 1 each in Sri Lanka, Thailand, and Maldives) NOAA: 6 integrated components associated with sea level gauges (Maldives, Sri Lanka, pot. India), 2 integrated components associated with DART buoys, 2 integrated components associated with country GTS upgrades (Maldives, Sri Lanka), and 1 integrated component associated with communications systems (WAN, Thailand). USDA/FS: USTDA: TBD *Data source:* US IOTWS Program Team, NDMOs *Frequency of reporting:* Semiannual *Responsible:* US IOTWS Program Team, NDMOs			
Sub-IR3: National capacity in tsunami warning dissemination and disaster management improved (EO 3.1, 3.2, 3.3)	**FY**	**Planned**	**Actual**
Indicator 3.1: Tsunami/all hazards warning dissemination and disaster management system components designed, developed or improved at the national level	**06** **07**	**20** **40**	
Unit of measure: No. of dissemination components *Description:* Tsunami/all-hazards warning dissemination and disaster management system components include: organizational (leadership/operational) structures; enabling policies to ensure NDMOs possess authority and resources for decision making and response; communication systems for warning dissemination (TARNS, RANET); warning dissemination and disaster response processes and protocols; training program/drills; and resource centers at national, provincial, and local institutional levels, as appropriate. (This indicator addresses Expected Outcomes 2.2, 3.1, and 3.2 of the US IOTWS Program.) *Relevance:* This indicator measures the warning dissemination and disaster management components that need to be in place to communicate warnings at national levels and to the last kilometer and to respond to disasters. *Planned targets:* *Organizational structure components (a) multi-hazard leadership, (b) operational structure; (c) enabling policies):* USDA/FS: 4 components (3 ICS (a,b,c) in Sri Lanka; 3 TARNS (a,b,c) in Thailand) PDC: 1 component (operational NDWC, Thailand) NOAA: CONOP PI: 5 enabling policy components for NDMOs (one in each country) *Warning dissemination components:* USTDA (communication system designs in each focus country to link national warning centers with regional and local systems) NOAA: 4 components (3 RANETs for Sri Lanka, Maldives, Indonesia; 1 Wide Area Network for Thailand) *Procedures/protocol components:* USGS: 6 components (Indonesia) USDA/FS: 6 components, ICS Sri Lanka (3 levels of government) and TARNS in Thailand (3 levels of government) NOAA: *Training program/drills components:* USDA/FS: 11 components: 9 (8 training courses and 1 simulation exercise) for ICS in Sri Lanka; 2 simulation exercises for TARNS in Thailand			

NOAA: *Resource center components:* USDA/FS: 1 in Sri Lanka (SLIDA); 1 in Thailand (Interagency Work Group) *Data source:* US IOTWS Program Team, NDMOs, other relevant organizations			
Indicator 3.2: Number of communities included in national alert systems (ref. SpO Indicator 3.2)	**06**	**400/ 200,000**	
	07	**800/ 400,000**	
Unit of measure: (a) Number of communities (as a result of direct and indirect US assistance); and (b) estimated total population of those communities. *Description:* An international warning system will be linked to vulnerable communities so that they can be alerted in advance. Interventions at the national level to capacitate national warning centers and connect them to communities will be used to identify connected communities. Communities are defined as 100 households of 5 persons (500 persons on average) and located in tsunami vulnerable areas counted will be those communities with a functional warning system that are connected directly to the national alert system. This indicator addresses Expected Outcomes 3.2 and 4.1 of the US IOTWS Program. *Relevance:* Communities vulnerable to disasters will be notified earlier and thus able to take steps to protect themselves. *Planned targets:* Based on 20% of the tsunami vulnerable communities in the coastal areas of the 5 countries of the IOTWS Program. *Data source:* USG agencies and PI extrapolate based on information from National Emergency Operations centers.			
Indicator 3.3: Number of government agencies (e.g. central government offices, municipalities) that received technical support (ref. SpO Indicator 4.1; EO 3.1, 3.3)	**06**	**15/30**	
	07	**30/60**	
Unit of Measure: Number of (a) central government and (b) municipal government agencies receiving technical assistance (as a result of direct and indirect US assistance). *Description:* Technical assistance to government agencies includes all forms of training, consultant time, technology transfer, preparation of plans and other forms of assistance that capacitate the agency in EWS and disaster preparedness. An inventory of government agencies receiving technical support will be maintained by country for each activity. This indicator addresses Expected Outcomes 3.1 and 3.2 of the US IOTWS Program. *Relevance:* The primary mode of technology transfer through the IOTWS Program will be through capacitating national and local government agencies *Planned targets:* Targets assume an average of 3 national and 6 local agencies per country per year USGS: 8 central government agencies (2 in Indonesia; 2 in India; 3 in Thailand; 1 in Sri Lanka) USDA/FS: 45 government agencies *Data source:* US IOTWS Program Team			
Sub-IR4: Local preparedness and coastal mitigation for tsunamis and related hazards improved	**FY**	**Planned**	**Actual**
Indicator 4.1: Number of communities trained in disaster preparedness (ref. SpO Indicator 3.1; EO 4.1, 4.2)	**06**	**500**	
	07	**1000**	

Unit of measure: No. of communities (as a result of direct and indirect US assistance) *Description:* The number of communities will be based on the number of government officials, NGOs, and local leaders trained in disaster preparedness and the communities represented or reached by these groups. The *TsunamiResilient* Communities Program will be basis for disaster preparedness training and include benchmarks on local preparedness and coastal mitigation measures. This indicator addresses Expected Outcome 4.1 of the IOTWS Program. *Relevance:* By making citizens more aware of emergency procedures, the impact of disaster can be mitigated. *Planned targets:* Based on projected training courses and workshops in project countries that will contribute to disaster preparedness. NOAA: 200 people representing 200 communities in 5 countries. USGS: 100 people representing 100 communities in 5 countries. PI: 200 people representing 200 communities in 5 countries. *Data source:* The number of people trained will be based on TrainNet database populated by attendance sheets from each workshop and training session and disaggregated by gender.			
Indicator 4.2: Coastal communities initiating activities that support tsunami resiliency (EO 4.1, 4.2)	**06** **07**	**50** **200**	
Unit of measure: No. of communities (as defined in Indicator 3.2) aware of and initiating activities to build tsunami resilience (as a result of direct and indirect U.S. assistance) *Description:* Benchmarks in tsunami resilience will be developed based on the US TsunamiReady program for countries throughout the Indian Ocean Region as the *TsunamiResilient* Communities Program guide. This guide will be developed and disseminated to coastal communities (villages, large municipalities, resort industry). Training and workshops on the *TsunamiResilent* Communities Program will be conducted with organizations and agencies working directly with coastal communities in each focus country and in collaboration with the IOC. This indicator addresses Expected Outcome 4.1 of the IOTWS Program. *Relevance:* By organizing communities to adopt appropriate disaster preparedness measures, the impact of tsunamis and other disasters can be mitigated. *Planned targets:* Targets include communities that receive the TRC Guide and orientation session, communities represented by organizations receiving TRC TOT, and TRC Program pilot communities *Data source:* US IOTWS Program Team			
Indicator 4.3: Kilometers of coastline under improved, sustainable environmental management (ref. SpO Indicator C; EO 4.2)	**06** **07**	**50** **200**	
Unit of measure: Kilometers of shoreline under improved, sustainable environmental management (as a result of direct and indirect US assistance). *Description:* Kilometers of coastline under improved environmental management captures the ecosystem component of tsunami resilient coastal communities. This indicator is derived from the kilometers of coastline associated with Indicator 4.2. This indicator addresses Expected Result 4.2 of the IOTWS Program. *Relevance:* Well-managed and/or natural coasts with ecosystems intact such as coral reefs, mangroves, and beaches are less vulnerable to disaster from flooding and storms. Shorelines where development is controlled and set back from the beach are also less vulnerable to human displacement. Effective integrated coastal management is a critical part of local preparedness because it provides for order in coastal development and brings a planning process that anticipates potential disaster situations..			

Planned targets: Targets are derived values based on potential pilot areas where local and/or national governments have expressed interest to address issues of improved coastal management in areas that were affected or are vulnerable to tsunami and related events. On an average one community may represent 5km of shoreline. *Data source:* Data from government bodies that are responsible for coastal management, NGOs, and US IOTWS Program Team.			
Sub-IR5: Private and public resources leveraged for the USG program (EO 5.1)	**FY**	**Planned**	**Actual**
Indicator 5.1: US$ leveraged through private sector, NGO, donor, and public sector resources in support of the development of an end-to-end IOTWS	**06** **07**	**$24.9m** **$49.8m**	
Unit of measure: US $ millions (aggregated by source; reporting will specify source) *Description:* The US IOTWS Program will strive to interact with other donors, programs and organizations, both public and private, to coordinate efforts and to identify support that can complement and augment that of the US IOTWS Program. All USG partner efforts, including those of USTDA, will be captured under this measure. As used for this measure, directly leveraged funding includes: (1) funding leveraged for joint IOTWS activities from other public and private partners, including national or sub-national host country governments; (2) funding for activities in which the IOTWS program developed enabling policies, regulations, or provided pre-investment support; (3) obligated or committed funding for direct follow-on programs of multi-lateral or bilateral donors, NGOs, or the private sector; (4) USAID Global Development Alliance or Development Credit Authority investments; or (5) other USG-leveraged funding not originating from the tsunami emergency supplemental budget. USAID bilateral projects will not be included, although leveraged funding for those projects that directly supports IOTWS objectives may be reported. This indicator addresses Expected Result 5.1 of the IOTWS Program. *Relevance:* Leveraged support will increase the overall impact and effectiveness of a regional system that depends on many different sources of support to make it fully functional and durable in time. *Planned targets:* Target of 3:1 direct and indirect leveraging has been set by USAID based on the total US IOTWS Program budget of $16.6 million. USGS: $1.1 million; $500K agreement with CalTech; $500K China/Japan training; intellectual capital *Data source:* Donor programs, private and public sector, other sources as appropriate.			

Notes: Planned and actual values are cumulative

U.S. Indian Ocean Tsunami Warning System (IOTWS) Program
Integrated Program Work Plan 2005-2007

APPENDIX C

COMMUNICATIONS PLAN

March 2006 Version 1.0

1.0 INTRODUCTION

The U.S. Government (U.S.) has launched a two-year, U.S. $16.6 million program to provide technical assistance to support the development of a tsunami warning system for the Indian Ocean in coordination with UNESCO's Intergovernmental Oceanographic Commission (IOC). Under the U.S. Indian Ocean Tsunami Warning System (IOTWS) Program, the program team will provide support at regional, national, and local levels, with focused assistance in the countries most affected by the December 2004 tsunami, so that their capabilities to prepare and respond effectively to a tsunami as well as other coastal hazards are enhanced.

This communications plan is organized by the two major pathways of communication that are needed for this program: (1) internal communication among the US IOTWS Program Team members, and (2) external communication to broader audiences that include U.S. and international partners. The plan is further divided under each section to identify the major affected audiences, coordination mechanisms, and communication tools and products that will be developed to satisfy the goals of this communications plan.

2.0 GOALS OF THE COMMUNICATIONS PLAN

The goals of this communications plan include the following:

- Present the US IOTWS Program in a consistent and unified manner;
- Provide tools to inform internal and external partners on the developments, progress, successes, and impacts of the US IOTWS Program;
- Provide mechanisms for the U.S. Program partners to effectively and efficiently communicate with each other so that the program activities are conducted in a coordinated fashion using the most recent information for decision making; and
- Enable USAID and other U.S. agencies supporting the program to rapidly provide information to Congress, the White House Office of Management and Budget (OMB), other high-level officials, and other entities on the status and results of program activities.

3.0 INTERNAL COORDINATION AND COMMUNICATION

The US IOTWS Program team (the Team) needs frequent, reliable communication tools to exchange information, provide updates, report on findings, coordinate activities and action plans, and track progress. Several different tools need to be developed and implemented, depending on the type of information and timeliness of the response needed, as described below.

3.1 Audiences

Core Program Implementers

USAID Regional Development Mission for Asia (RDM/A). USAID has the lead responsibility for the U.S. tsunami recovery and reconstruction effort, including the US IOTWS Program. RDM/A has lead responsibility for managing and coordinating the US IOTWS Program. RDM/A will also support development of communications products such as press kits as well as submitting weekly updates on the program to USAID Washington (AID/W), including updates for the USAID Administrator.

USG Agency Implementing Partners. There are five primary U.S. agencies primarily involved in this program: the U.S. Agency for International Development (USAID), the National Oceanic and Atmospheric

Administration (NOAA), the U.S. Geological Survey (USGS), the U.S. Trade Development Agency (USTDA), and the U.S. Department of Agriculture's Forest Service (USDA/FS).

Supporting USG Agencies

In addition to the core USG partners, there are several additional agencies that will be supporting the development of the IOTWS:

USAID Bilateral Missions. The USAID missions in the affected countries are an important resource needed to identify and coordinate activities at the national and local levels. The missions assist in organizing visits to the country and scheduling meetings with relevant national agencies and organizations. Mission contacts are provided under "Coordination for Travel and Logistics," below.

Other USG Agencies. The US IOTWS Program will also coordinate with existing U.S. agencies that are working in the region such as the U.S. Trade and Development Agency (USTDA) and the State Department. These agencies are represented on the PCG and additional efforts will be used to maintain effective coordination. The State Department, including regional environment/science hubs (Bangkok and Kathmandu) and The Bureau of Oceans and International Environmental and Scientific Affairs (OES), plays a critical role in supporting bilateral diplomacy and coordination with the IOC. In addition, U.S. Embassy/Colombo is a lead player in support of the tsunami recovery effort in the Maldives.

3.2 Coordination Mechanisms

Program Coordination Group (PCG)

At the September 12-14, 2005 Program Coordination Workshop in Bangkok, the Team formed a core Program Coordination Group (PCG) that will provide day-to-day team coordination through regularly scheduled meetings (conference calls). Each interagency agreement (IAA) designates primary and secondary points of contacts. The primary contacts will serve as the PCG members with the secondary contacts serving as alternates. It was agreed that the alternates may attend the calls as "silent" partners. The PCG members are listed in Table B.1. Any subsequent coordination or communications that are required with each respective agency's staff or partners will be the responsibility of PCG Agency representative's.

The PI is responsible for organizing the calls and notifying the PCG. Any PCG member may request a call if deemed necessary. For consistency and to accommodate the varying time zones, it is suggested that all conference calls take place at 8:00 AM Bangkok time. The PI will prepare an agenda to send out prior to the call and prepare a brief summary of the items discussed during the call. The PI will prepare and send out draft meeting summaries to the CTO and PI for review prior to sending to call participants. The meeting summary will also be posted on the Team Workspace (see below).

US IOTWS Program Coordination Meetings

The US IOTWS Program will hold periodic meetings to discuss the status of the activities, identify any course corrections needed, highlight upcoming opportunities for coordination, and to showcase successes in the project. In addition, outside partners will be invited to share lessons learned on their projects and to provide coordination and networking opportunities. It is anticipated that these coordination meetings will occur semi-annually on average and most, if not all, will be held in the Indian Ocean region. Prior meetings include May 2-3 (preliminary USG coordination meeting), September 12-14, 2005, and January 29-January 31, 2006, were all held in Bangkok, Thailand.

Requests to USAID: Travel and Logistics Coordination

Coordination with the CTO and PI is essential for planning logistical arrangements for holding a workshop and travel to various target countries. The CTO and PI will need the following types of information to facilitate travel and logistics planning:

Travel Notification. Each agency is required to notify the CTO of any upcoming travel. In addition, the agency should copy the COP and DCOP on email notifications.

Country Clearance. Each agency is requested to contact the individual USAID missions to obtain the necessary country clearances. Please copy the USAID CTO on any correspondence to the USAID missions. Primary and secondary USAID Mission contacts include the following:

- India: Nina Minka, nminka@usaid.gov; Paul McVey, pmcvey@usaid.gov.
- Sri Lanka (and the Maldives): Ben Kauffeld, bkauffeld@usaid.gov
- Indonesia: Herbie Smith, hsmith@usaid.gov; Yusak Oppusunggu, yoppusunggu@usaid.gov
- Thailand (RDM/A): Orestes Anastasia, oanastasia@usaid.gov

Requests to PI: Exchange, Training, and Other Cross-Cutting Program Support

The PI will be supporting various activities for the team that cut across the program areas such as regional exchanges and workshops. A specific amount of funding will be allocated each quarter for these activities to help with planning and tracking. The CTO will approve the requests and determine which activities will be supported if there are more requests than the budget can support.

When an agency is considering conducting a regional exchange or workshop that will involve PI support, an email should be sent *as early as possible in advance of the activity dates* to the COP (with a cc to the DCOP and CTO) with the following:

- Description of exchange or training activity
- Proposed dates
- Specific support requested of the PI
- Agency contact

Requests to PI: Outreach and Communications Support

For communication to the PI regarding outreach support such as the FTP site, web site, brochures or presentation materials, the Team should email the COP and Charlie MacPherson (PI).

3.3 Communication Tools and Products

The US IOTWS Program team needs frequent, reliable communication tools to exchange information, provide updates, report on findings, coordinate next steps, and track progress.

US IOTWS Program Web Site

Web Site Development, Maintenance and Updates. The US IOTWS Program web site (www.us-iotws.gov) will be continually updated and modified throughout the life of the program. For example, the PI will strive to continually improve the site by adding new features such as an image gallery and animated files showing depictions of the earthquake that triggered the tsunami as well as the resulting wave patterns.

Because the US IOTWS Program web site is one of the primary communication formats, it requires weekly updating and maintenance. The PI will review the site weekly and do the following:

- Check related links to ensure that they are still active
- Review contact information and update as needed
- Update the What's New section and move older items to the archived folder
- Add new documents to the library

Internal Information Management System. A web-based information management system, or Team Workspace, has been created on the program website using the software *Simplify* to help manage the flow of information, track upcoming activities and travel schedules, and provide a discussion forum for the

Team. The system will be streamlined to reduce the overall memory requirements and to facilitate the ease of use.

Initially the system will include the following features:

- Calendar showing upcoming travel by team members
- Draft IOTWS Program documents that are posted for review, or of a sensitive nature (i.e., IAAs, PMP, Workplan, etc)
- Monthly technical and financial reports
- Communication Materials that can be modified by each agency
- Summaries of PCG calls
- Copies of PowerPoint (PPT) presentations from workshops

Team members will receive training (either through conference calls or onsite training) on using the system, and accompanying reference materials and protocols for using the system. Modifications will be made the system throughout the project based on the needs of the team.

Internal FTP site (temporary). As an interim measure before the Team Workspace is operational, an FTP site has been created for the team to upload/download relevant documents and presentations for the Program. Once the Team Workspace is operational, the FTP site will be eliminated. The site is password protected and only intended for the use of the Team. Team members are to understand that *information posted is for internal use only and may not be distributed unless cleared by the original author.* Each team member may upload documents to the site and are asked to put any files in the folder marked NEW FILES. The PI will check this folder daily and move these files to the relevant folders.

The FTP site may be accessed by typing in the browser: ftp.planetwater.com

User name: iotws (case sensitive)
Password: tsunami (case sensitive)

Monthly IOTWS Program Update

In order to satisfy a strong need for information on progress on the US IOTWS Program, as well as to facilitate coordination with program partners, the PI Communications/Outreach Coordinator will disseminate a summary by email of monthly updates and announcements to all IOTWS Program Team members and program partners, including interested donors, NGOs, and other organizations. Recipients will include all key contacts the Program Team has already identified and/or is working within partnership. Other interested organizations and individuals will have an opportunity to “sign up” to receive the IOTWS Program Update via the Program web site.

IOTWS Program Team members will not be required to prepare any additional material to be included in the monthly IOTWS Program Update.

Monthly Reporting: Technical and Financial Reports

Each participating USG agency will prepare monthly technical progress and financial reports to help track activities and to provide up-to-date information needed for external reporting. Each agency is to complete a technical and financial progress report for the completed month.

Technical Report. Each agency (NOAA, USGS, USDA/FS) and the PI are required to prepare monthly technical reports summarizing key activities and milestones related to the program areas as well as planned activities for the following month. The PI will email the template in MS Word to the primary contacts at the end of each month, requesting them back by the 5th day of the following month. The agencies are to send the completed report to both the CTO and the PI COP. A common labeling system will be used to identify the file:

IOTWS AGENCY technical report YYYY-MM.doc

e.g., IOTWS NOAA technical report 2005-10.doc

Financial Report. Each agency (NOAA, USGS, USDA/FS) and the PI are required to prepare monthly financial reports summarizing expenses for the completed month. The PI will email the format in MS Excel to the primary contacts at the end of each month, requesting them back by the 5th of the following month. NOAA and USGS are required to have a financial official with the appropriate authority sign the forms, and must scan and email the signed forms directly to the CTO, RDM/A's financial controller (Amanda Levenson, alevenson@usaid.gov), and the PI COP. A common labeling system will be used to identify the file:

IOTWS AGENCY financial report YYYY-MM.xls
e.g., IOTWS USGS financial report 2005-11.xls

IOTWS Program Materials

Program materials generated by the US IOTWS team members for general dissemination are discussed under Section 4.3, below.

Database of Contacts

It is important to collect and maintain contact information on the various organizations and individuals involved in the US IOTWS Program. The PI has developed a database that includes contact information on these various audiences that can be sorted by name, organization, or country. This database will be maintained and enhanced throughout the project. Two versions of the contact database will be prepared: (1) a generic list of contacts that include organization name and a Web site address will be posted on the public IOTWS web site, and (2) a more detailed list of contacts that include names, phone numbers, and more detailed information will be posted in the Team Workspace.

Matrix of Relevant Activities in the Affected Countries

There are dozens of activities being conducted in the affected countries that could potentially be coordinated with the US IOTWS Program. At the September 2005 workshop in Bangkok, participants expressed an interest in organizing the activities that had been presented during the meeting. A matrix has been prepared that summarizes the organization, relevant activity, and location. Portions of this matrix will be extracted and available on the Web site. This matrix will be updated quarterly.

4.0 EXTERNAL COORDINATION AND COMMUNICATION

The US IOTWS Program must coordinate and communicate with a wide range of audiences using a variety of tools, as described below.

4.1 Audiences

There are several external audiences that the US IOTWS Program team members need to reach and coordinate with at various levels of detail regarding the development of the IOTWS. These audiences include other U.S. Government agencies, donors in the international community, NGOs, universities, foundations, and the private sector.

U.S. Congress, the White House, Other High-Level USG Officials, and the Public. The US IOTWS Program is a very high-profile program and of great interest to the U.S. Congress, the White House Office of Management and Budget, and other senior USG officials at USAID, the State Department, and elsewhere. The Program will be expected to report frequently on progress and developments so mechanisms must be established to gather this information quickly. In addition, the US IOTWS Program will be expected to provide updates on the technical outputs as well as program expenditures. These updates may be in the form of reports to Congress, briefings, press conferences, or individual

presentations. Consistent with USG policy, USAID and other USG partners have a responsibility to inform the American public and world at large of program accomplishments, particularly in the context of providing foreign and disaster-related assistance using U.S. taxpayer funding.

National Governments and Partners. National partners include government ministries, planning agencies, and other entities within each country that will be responsible for disseminating and communicating warning messages to the communities.

Multilateral Donors. The development of the IOTWS is being conducted on a regional scale that involves many multi-lateral donors. The US IOTWS Program's activities will be coordinated to a large extent with the overall IOTWS efforts that are being developed under the direction and oversight of UNESCO's Intergovernmental Oceanographic Commission (IOC). NOAA is the U.S. Government's representative and lead liaison to the IOC, in coordination with State/OES. In addition, several other multilateral donors, such as the World Meteorological Organization (WMO), the United Nations Development Program (UNDP), and the UN International Strategy for Disaster Reduction (US-ISDR) are supporting tsunami-related activities.

Bilateral Donors. In addition to the multi-lateral donors providing technical and financial support, there are many bilateral donors such as Germany, Australia, the United Kingdom, and Japan, participating in the development of the IOTWS. Germany, for example, has donated €43 million for the development of Indonesia's early warning system, including the installation of detection buoys and seismic stations. As with the multilateral donors, the bilateral donors are represented on the IOC working groups and most of the coordination will take place through this mechanism.

Non-Governmental Organizations. International and country-based non-governmental organizations (NGOs) play a key role in all aspects of the development of early warning and preparedness mechanisms for disaster risk reduction. Many NGOs such as International Federation of the Red Cross (IFRC), Catholic Relief Services (CRS), and WorldVision have longstanding programs in the affected countries that work at the local community level.

Private Sector. A primary goal of the U.S. program is to leverage resources and develop public-private partnerships. Therefore, it is critical to communicate with the private sector and provide opportunities for them to become involved. Private sector support may be solicited through national chapters of the American Chamber of Commerce (AmCham), US-ASEAN Business Council, and USAID's Global Development Alliance office, as well as direct contact with organizations such as insurance companies or the oil and gas industry.

4.2 Coordination Mechanisms

Maintaining regular coordination with external target audiences will be critical towards achieving the US IOTWS Program's expected results. There are various partners that are directly relevant to the success of the US IOTWS Program and the team needs to communicate with these audiences in different ways.

As the program unfolds additional tools and products may be developed that are tailored to each audience. For example, for international partners the US IOTWS Program will identify and participate in donor forums held in each target country. Partnerships can be formed with international donor agencies that are currently sponsoring these forums, such as UN-ISDR. The PI's Asian Regional Partner, ADPC, is working with several of these international donor agencies and is well-positioned to communicate the US IOTWS Program activities as well as to help identify opportunities for coordination.

For national and local government partners, the US IOTWS Program will coordinate with these entities in each target country to ensure that activities conducted are relevant and supported by the target country. The Team will identify and maintain regular communication with relevant government contacts for each program area.

The US IOTWS Program will look to ways to communicate and bilateral donor partners with NGOs to build the capacity of these communities to become better prepared for any potential coastal hazards. The

US IOTWS Program will sponsor several regional and country-specific informational and training workshops with NGOs on the development of an end-to-end tsunami warning and mitigation system and a TsunamiResilient Communities program.

For private sector partners, the US IOTWS Program will identify strategic private sector alliances working directly with individual corporations and trade organizations. The US IOTWS Program team will make these organizations and corporations aware of the program through communication tools and products that are highlighted below.

4.3 Outreach and Communication Tools and Products

There are various partners that are directly relevant to the success of the US IOTWS Program and the Team needs to communicate with these audiences in different ways. It is critical to provide several means for outside partners to follow the activities of the U.S. program. At the outset of this program it was recommended that the PI develop the following tools for the U.S. agencies to apply in their Program activities.

USAID Branding REQUIREMENT

Pursuant to USAID regulations and as indicated in relevant contracts and inter-agency agreements for the IOTWS program, the USAID logo and brand (identity) must be included on all relevant program outreach materials, deliverables, presentations, and related products. All new **t**echnical equipment and devices procured with USAID funding must also be marked with the USAID identity. In cases where the USAID identity is grouped with other agency logos, the basic "USAID" identity will be used (vertical or horizontal formats). In all other cases, the brandmark specific to RDM/A will be used, "USAID|Asia". In all situations, specific guidelines about the use, placement, and size of the USAID identity must be followed (see http://www.usaid.gov/branding/). Copies of the USAID identities and branding guidelines will be provided on the Team Workspace.

USAID | ASIA
FROM THE AMERICAN PEOPLE

USAID
FROM THE AMERICAN PEOPLE

USAID
FROM THE AMERICAN PEOPLE

US IOTWS Program Identity

Because this program includes several different agencies it is difficult to determine how the program is organized and coordinated. In addition to participating in this program, each agency is conducting its own activities that may or may not relate to this program. Therefore, a logo has been created that identifies this program and each agency can include this program logo on relevant materials with their own information. In most cases, the IOTWS Program Identity will be used in combination with the USAID|Asia identity, with or without another agency identity.

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

US IOTWS Program Outreach Materials

Program materials will be prepared in a variety of formats throughout the project to inform external audiences on the team activities, highlight lessons learned, explain technical concepts, and provide updates. The materials will be tailored to the audiences and will be sensitive to the role of the US IOTWS Program in the context of working with international and other partners, such as the IOC, national governments, NGOs, etc.

End-To-End Schematic*.* A key feature of the US IOTWS Program is that it promotes an "end-to-end" approach. This means that the system will address all stages of early warning from initial hazard detection and warning to the final communication of the message to coastal communications at risk. To help explain this concept a schematic has been developed that displays this approach. The schematic will be used throughout the project and will be reproduced as a poster, incorporated into print materials, and made into a "clickable" image map on the Program web site.

Informational Brochure. Due to the complicated nature of the program and the number of agencies involved, it is extremely difficult to clearly describe it in a few sentences. Two-page and four-page informational brochures have been developed that outline the goals, partners, and activities for this two-year program. These two brochures will provide the template for developing the topic-specific fact sheets (see below). The brochures are posted on the Web site, and copies will be provided to each of the US IOTWS Program team members to be distributed at related meetings and conferences.

Topic-Specific Fact Sheets. The team members will assist in developing the program materials that will be used to communicate concepts and activities to external audiences. A standardized format has been developed for preparing the topic-specific fact sheets to streamline the process and to ensure consistency with the materials. This format adheres to the USAID branding guidelines. While fact sheets will be added throughout the program, the preliminary list of topics includes the following:

- Program Summary
- DART Buoy Technology
- Seismic Networks
- TsunamiResilient Communities Program
- Tsunami Alert Rapid Notification System
- Incident Command Systems
- Integrated Coastal Management
-

These fact sheets will be posted on the Program web site, reproduced in hard copy, and included in press packets.

Table 4.3a outlines the guidelines that have been developed to enhance the consistency of the fact sheets.

Table 4.3a. Guidelines for Developing IOTWS Program Fact Sheets

Components	Instructions	Example
Title	Include the activity or product and its purpose	DART BUOY TECHNOLOGY USED TO IMPROVE WARNING OF TSUNAMIS AND OTHER COASTAL HAZARDS
Body	Write several brief paragraphs (up to 500	What is DART?

	words) that describe the activity or product. Separate sections with headers that ask a question.	▪ DART refers to Deep Ocean-Assessment and Reporting of Tsunamis (DART)… ▪ Where are DART systems located? ▪ How will they be deployed in the Indian Ocean?
Graphics	Include relevant photos or graphics. Save as EPS files for logos, pie charts, and TIF files for photographs. Resolution should be 300 dpi at 100% of the size you intend to print.	Picture of DART buoy, graphic showing relationship of bottom pressure recorder to buoy, etc, with caption
Contact	Include a contact name, telephone number, and email if relevant	Dr. Robert Jones DART Program www.noaa.gov
URLs	Include any relevant URLs	http://www.ndbc.noaa.gov/Dart/dart.shtml

Contributions to USAID's "Telling Our Story" Web site. Similar to the fact sheets described above, the US IOTWS Program will develop an array of materials that could be included on USAID's "Telling Our Story" public web site, located at www.usaid.gov/stories/, or, if not selected for USAID's official web site, to be included on the IOTWS Program web site. There are five different "stories" including the following (with link to templates):

- Success Story (template: http://java.usaid.gov/usaid/jsp/success_story.jsp)
- Case Study (template: http://java.usaid.gov/usaid/jsp/case_study.jsp)
- First Person (template: http://java.usaid.gov/usaid/jsp/first_person.jsp)
- Before and After (template: http://java.usaid.gov/usaid/jsp/before_and_after.jsp)
- Photo and Caption (template: http://java.usaid.gov/usaid/jsp/photo_and_caption.jsp)

Each Program partner can independently develop stories based on these templates, or in coordination with the PI. Draft "stories" should be submitted to the PI for review and editing, and the PI will submit a draft to the CTO, who will work with RDM/A's communications staff to finalize the draft. The PI and CTO will consult with the original drafter as needed. Once complete, RDM/A's communications staff will submit the story to the RDM/A Mission Direct and then to AID/W for approval. If the story is selected for USAID's official web site, it will nevertheless be included on the IOTWS Program web site and printed for general dissemination, as appropriate.

"Activity Briefs". Similar to the fact sheets and "Stories" described above, the US IOTWS Program will develop short one-page briefs summarizing progress at an activity level. For example, a brief might be written on a specific TsunamiResilient Community pilot project, a RANET initiative in one country, a training program on seismology or paleoseismology, establishing ICS in Sri Lanka, etc. The format for Activity Briefs is identical to fact sheets.

Weekly Updates and Announcements ("Administrator's update" and "What's New"). The PI will collect relevant information on a weekly basis using a common format from the entire Program Team that summarizes key "newsworthy" accomplishments and progress among IOTWS program activities, as well as announcements on upcoming events and activities. The formats for collecting weekly updates and announcements are provided in Tables 4.3b and 4.3c.

Weekly updates are submitted to USAID RDM/A, where they are reported to the RDM/A Mission Director. From the Mission Director's office, they are forwarded to AID/W to be considered for inclusion in the USAID Administrator's Weekly Update on Tsunami Recovery and Reconstruction efforts. Some of the information in the weekly updates may be used on the *What's New* section on the Program web site, and contribute to development of a monthly IOTWS Program Update to be disseminated widely to program partners (see section below).

RDM/A has developed the following guidelines for submitting weekly updates/announcements:

1. **Content for Weekly Updates.** Items submitted should report on *significant* accomplishments, noteworthy events and strategic developments related to your program activities. The emphasis

should be on milestones, findings or key decisions related to achievement of your project objectives, or the overall goals of the program. Submissions could include key results from regional or country meetings, or achievements related to the adoption of new policies or practices, publication of relevant studies or other findings, establishment or strengthening of partner agencies or organizations, or the creation of new strategic partnerships.

Content for Calendar. Submissions should include a brief summary of upcoming program activities and events, dates the event will take place, relevant web links, and contact information.

2. **Style and Format.** Items submitted should be between one and four sentences in length, have a "newsy" tone, and include the following information:

   - A concise, descriptive headline
   - Geographic location: regional or country
   - Date(s) of accomplishment, event, or development
   - Brief summary of accomplishment and relevance
   - Use the active voice
   - All acronyms should be spelled out
   -

   The submissions may include information to address the following questions: What happened? Who was involved? How was USAID involved? Why is it significant? How does it further development of regional/national IOTWS objectives? What will be potential future benefits?

3. **Submission Process and Deadline.** IOTWS Program Team members must submit updates and/or announcements to the PI Communications/Outreach Coordinator by Friday OOB (Bangkok time). The PI will combine and email updates by Friday 12:00 noon (Bangkok time) to the CTO and copy RDM/A REO's lead support contractor, PADCO:

   Ms. Piper Hackett
   Environmental Cooperation-Asia (ECO-Asia)
   Bangkok, Thailand
   Tel. (662) 651 8826 ext. 115 Fax. (662) 651 8864
   E-mail: piperhackett@hotmail.com

4. **Posting on Program Web Site.** Updates and announcements will be posted under *What's New* on the Program web site. As appropriate, announcements will be posted under the Calendar section on the web site.

Table 4.3b: Template for Weekly Updates/"What's New"

Components	Instructions	Example
Title	Include the activity or product, location if relevant, and agency. Use active tense.	Sri Lanka to Incorporate Incident Command System (ICS) as part of National Tsunami Warning System
Date	Include dates for upcoming or past events, if relevant	January 11 -January 12 2006
Body	Write 1 to 4 sentences that describe the activity or outcome. Make it "newsy". Include specific information such as dates, locations, participants.	As a result of a USAID-sponsored brainstorming session with government and NGO representatives in Sri Lanka Jan 11-12, the government has agreed to take steps to adopt ICS as a critical component of its disaster management programs, including tsunami early warning. ICS is an all-hazards approach now widely adopted in the U.S. to rapidly establish clear and effective command and coordination authority in handling emergency situations. As part of the U.S. Indian Ocean Tsunami Warning System (IOTWS) Program, emergency management experts from the USDA Forest Service, where ICS originated 30 years ago, and from the Indian

		Government, which adopted ICS through another USAID program starting in 2002, facilitated the discussion. They described the fundamentals of ICS and conducted a planning exercise with stakeholders to develop the road map for integrating ICS into Sri Lanka's disaster response system. The workshop was extremely well attended, and will be followed by a series of train-the-trainer programs, simulation exercises, and a regional workshop to share the ICS experience in the region.
Contact	Include a contact name and email if relevant	Deanne Shulman, USDA/FS
Graphics	Include relevant photos or graphics (desirable but not required). Insert directly into Word file or save as GIF for logos, pie charts, distinct shapes; or JPEG files for photos, or images with shaded tones. Image resolution should preferably be 72-96 dpi.	
URLs	Include any relevant URLs. URLs may also be provided in Body, above.	www.osha.gov/SLTC/etools/ics/inci.html www.nifc.gov/fireinfo/ics_disc.html

Table 4.3c: Template for Weekly Announcements/Items for "Calendar"

Components	Instructions	Example
Title	Include the activity or product, location if relevant, and agency. Use active tense.	Incident Command System (ICS) for Disaster Management: Introductory Workshop
Dates	Include dates for upcoming events, if relevant	January 11 -January 12 2006
Location	Include location for upcoming events, if relevant	Colombo, Sri Lanka
Body	Write 1 to 4 sentences that describe the activity or outcome. Make it "newsy". Include specific information such as dates, locations, participants.	The main objectives of the workshop are to develop a collective vision for integrating the ICS into Sri Lanka's disaster management system and collaboratively develop a road map to realize the vision for integrating the ICS. This activity under the US IOTWS Program will eventually lead to sharing of lessons at the regional level.
Contact	Include a contact name and email if relevant	Deanne Shulman, USDA/FS
Materials	Submit other materials to be linked to announcement, if relevant	ICS Draft Agenda
URLs	Include any relevant URLs. URLs may also be provided in Body, above.	www.osha.gov/SLTC/etools/ics/inci.html www.nifc.gov/fireinfo/ics_disc.html

Glossary of Terms. A consistent set of terminology should be used when talking about the program. A glossary of terms has been developed and will be expanded and refined throughout the program. The glossary is posted on the Program Web site.

Press Materials. A press kit of background materials will be developed that can be updated, as needed. At a minimum the press kit will contain the two-page background information sheet, a list of contacts, and the topic-specific fact sheets.

Semi-Annual Reports. In coordination with the Performance Management Plan (PMP), the Program Team is responsible for preparing reports that highlight accomplishments to date. The PI will be responsible for coordinating and preparing the content of these reports in coordination with the CTO and with input from the entire IOTWS Program Team. For example, USAID submits the semi-annual "4102 Report" to Congress, compiled and finalized at USAID/W, that includes information on the Program. The PI will solicit input from within the team for these submissions. In addition, the PI will develop a stand-alone semi-annual report on the Program that will be distributed to outside partners. The report will include overall objectives, activities conducted to date, challenges, and remaining tasks. The PI will use the monthly reports, monthly Program Updates, and weekly updates as a starting point for developing the report and then solicit input from the team.

IOTWS Program Web Site

The US IOTWS Program web site will be a central focal point for communicating information about the program to external audiences. The Web site includes the following major sections:

- About the Program
- What We Do
- U.S. Program Team
- Other Program Partners
- Information and Resources
  What's New
  Calendar
  Fact Sheets
  Frequently Asked Questions
  Press
  Glossary of Terms
  Program Team Workspace
- Workshops and Trainings

The domain name for the web site is www.us-iotws.gov and will be included on all communications materials. Each agency has designated a single point of contact that is to be listed on the web site.

A primary focus for the web site will be the section *What's New*. This section is posted on the home page and will include any new updates, products, or activities being undertaken by the Team. The *What's New* section will provide information to outside agencies that can be included in their own communication materials.

Program PUBLICATIONS and Development Experience Clearinghouse

All publications produced under this contract will adhere to the publication guidelines as outlined in the USAID Graphics Standards Manual at http://www.usaid.gov/branding/gsm.html A template will be developed for the program that provides a consistent look to all of the materials and outlines the specifications to be used. All final documents will adhere to these specifications.

Submission of Program Documents to the Development Experience Clearinghouse (DEC)

The DEC serves as a clearinghouse for the storage and dissemination of USAID-funded publications to the international development community. Online services include searchable database, document

submission, e-mail subscription, and ordering documents and CD's. The US IOTWS Program will submit key program documents to the DEC. These documents may include the following:

- Program Workplans and Performance Management Plans
- Conference and workshop proceedings
- Technical reports
- Outreach materials such as brochures, fact sheets, and monthly updates
- Semi-annual and annual progress reports

The PI will prepare an initial list of key program documents that have already been developed that should be included in the DEC and present this list to the CTO. Upon approval by the CTO, the PI will follow the submission procedures as outlined at docsubmit@dec.cdie.org.

External Meetings and Presentations

Dozens of tsunami-related meetings and conferences are held throughout the Indian Ocean region as well as within the United States. It is important that the participating USG agencies represent the US IOTWS Program at these meetings as means to educate others on the program and as an opportunity to highlight Program accomplishments. Through their professional contacts, each team member participates in various related meetings and these upcoming meetings are recorded during the Program Coordination Group (PCG) calls.

PowerPoint Template and US IOTWS Program Overview. A standardized PowerPoint template and overview presentation on the US IOTWS Program has been prepared and distributed to the U.S. Program team for use in their presentations. This presentation will be periodically updated and will reside on the Team Workspace (on the program website). As per specific agreements with USAID, templates will include USAID logo and branding, as well as the IOTWS program identify, in addition to specific agency logos as appropriate.

As part of the periodic US IOTWS Program coordination meetings, outside partners and interested parties will be invited to attend a portion of the meeting to provide updates and learn more about the USG efforts in the Indian Ocean region.

Contributions to External Newsletters

There are several ongoing complementary efforts in the Indian Ocean region that the US IOTWS Program can use to help coordinate activities and share information on the development of the US IOTWS Program. Some of these efforts include the following:

TEWIS. UN-ISDR Asia and Pacific has created a new web-accessible information base on activities related to the Tsunami Early Warning Strengthening Project. The Tsunami Early Warning Information System (TEWIS) initiative has been developed by the UN/ISDR Platform for the Promotion of Early Warning (PPEW) in Bonn, with the assistance of UNU-IEHS, Bonn, as part of the ISDR secretariat's coordinating activities for the multi-partner, multi-donor project supported by UN Flash Appeal project "Evaluation & Strengthening of Early Warning Systems in Countries Affected by the 26 December 2004 Tsunami". At this time, TEWIS is designed only to present information/documentation on projects "funded" by the UN/ISDR-coordinated tsunami early warning project. http://www.unisdr-earlywarning.org/tewis.

ISDR Highlights. ISDR Highlights is an electronic newsletter on disaster risk reduction activities in the Indian Ocean region. Contributions on new initiatives, project or events on disaster risk reduction in the Asia-Pacific region are welcome by **the first of the month** for inclusion in the next edition of ISDR Highlights. Submissions are to be sent to rosec@un.org, cc: dechnarong@un.org.

Special Events

In addition to regular reporting on the US IOTWS Program, there may be opportunities to participate in several special events that may warrant additional communications support through mass media outlets. These events could include launching specific activities such as a *TsunamiResilient* Communities Program, deployment of a DART system, and demonstrations of the Tsunami Alert Rapid Notification System (TARNS). In these cases, the PI will work closely with the communications staff at RDM/A. Some examples include the following:

- **December 26 Anniversary.** Anniversaries marking the December 26, 2004 tsunami provide an opportunity for the U.S. Program to report on its activities to date. The primary communication vehicles to promote US IOTWS Program activities will be through the Program Web site, press releases, and fact sheets (as emphasized for the first year anniversary), although events will be considered as appropriate. Press releases will be developed in coordination with the RDM/A pubic affairs group.

- **Deployment of DART System**. The deployment of a demonstration DART system in the Indian Ocean is a significant event and provides an excellent opportunity for visual communication through video footage. It is recommended that a news camera crew accompany the vessel and film the deployment, followed up by interviews with Program team members.

- **Identification of Pilot *TsunamiResilient* Communities**. The selection and initiation of a pilot *TsunamiResilient* Community should be promoted at the local, national, and international level through media coverage. As part of the announcement, materials about tsunami readiness can be developed and translated into local languages and distributed in local schools.

- **Demonstration of ICS and TARNS**. As part of both the ICS and TARNS activities, simulation exercises will be conducted to show effective coordination, communication, and evacuation skills. It would be beneficial to get media coverage at this event to further promote communication tools and to educate local audiences on proper evacuation practices. The video footage could be packaged and used again as training in other communities.

Attachment 1: US IOTWS Program Communications Reference Guide

Activity	Occurrence	Description	Participants	Tasks
Program Coordination Group (PCG)	Bi-weekly and as needed. Calls will be scheduled at 8:00 a.m. or 9:00 a.m. Bangkok time	The PCG was established to provide a forum for regular communication among the Team. The PCG will participate in monthly conference calls.	The PCG calls will include a PCG members or alternates from each USG agency and the PI.	PI will prepare and distribute agenda prior to call.
Monthly Technical Reports	Forms sent to Team by 25th of month; forms submitted by 5th of following month.	The Team will prepare monthly technical progress reports. The PI will email the templates to the USG team on the 25th day of the month. They are due to the CTO and PI on the 5th day of the subsequent month.. Labeling protocol for file: IOTWS Agency monthly rpt YYYY-MM.doc	NOAA, USGS, USDA/FS	Email technical progress reports to CTO: oanastasia@usaid.gov and PI: pkrongkant@yahoo.com
Monthly Financial Reports	Forms sent to Team by 25th of month; forms submitted by 5th of following month.	The Team will prepare monthly financial progress reports. The PI will email the templates on the 25th day of the month to the USG team and they are due to the CTO with a cc to the COP on the 5th day of the subsequent month. Labeling protocol for file: IOTWS Agency financial rpt YYYY-MM.xls	NOAA, USGS, USDA/FS	Email financial progress reports to CTO: oananstasia@usaid.gov And PI: Alan.white@ttemi.com
Weekly Updates and Announcements	Weekly	The Team will submit weekly updates to the PI and the PI will compile the submittals and send to the CTO COB Thursday EST.	NOAA, USGS, USDA/FS	Team sends submittals to C. MacPherson COB Thurs. EST, charlei.macpherson@tetratech-ffx.com. PI sends to CTO by OOB BKK Friday. PI to email CTO and cc: phackett@ecoasia.net
Monthly IOTWS Program Update	Submitted on the 10th of the Month.	The PI will consolidate information from weekly submittals and the Team monthly reports to prepare a monthly program update.	NOAA, USGS, USDA/FS, USTDA	PI submits PDF file to the PI on the 15th of the month.
Program Web Site and Team Workspace	Daily updates and maintenance.	A public web site will be created as well as a Team workspace	Web site: All Team workspace: US IOTWS Program Team members	url: www.iotws.org Workspace: login and password required

Table 3.2a. US IOTWS Program Team Contact List

Name	Organization	Role	Contact Information
Orestes Anastasia	USAID RDM/A	Cognizant Technical Officer (CTO)/PCG member	Tel. (662) 263 7468 Fax. (662) 263 7499 oanastasia@usaid.gov
David McKinnie	NOAA	Team representative/PCG member	Tel. (1-206) 526 6950 Fax. (1-206) 526 4576 david.mckinnie@noaa.gov
Curt Barrett	NOAA/NWS	Team representative/PCG alternate	Tel. (1-301) 713 1784 ext 136 Fax. (1-301) 587 4524 curt.barrett@noaa.gov
Jennifer Lewis	NOAA/NWS	Team representative/PCG alternate	Tel. (1-301) 713 1784 ext 136 Fax. (1-301) 587 4524 jennifer.lewis@noaa.gov
Walter Mooney	USGS	Team representative/PCG member	Tel. (1-650) 329-4764 Fax. (1-650) 329-5163 mooney@usgs.gov
Shane Detweiler	USGS	Team representative/PCG alternate	Tel. (1-650) 329 5192 Fax. (1-650) 329 5163 shane@usgs.gov
Stuart Sipkin	USGS	Team representative/PCG alternate	Tel. (1-303) 273 8415 Fax. (1-303) 273 8450 sipkin@usgs.gov
Deanne Shulman	USDA/FS	Team representative/PCG member	Tel. (1-760) 376 6263 Fax. (1-760) 376 3142 dshulman@fs.fed.us or dshulman@hotmail.com
Trudie Mahoney	USDA/FS	Team representative/PCG alternate	Tel. (1-202) 273 4735 Fax. (1-202) 273 4750 bbecker@fs.fed.us
Bob Becker	USDA/FS	Team representative/PCG alternate	Tel. (1-202) 273 4735 Fax. (1-202) 273 4750 bbecker@fs.fed.us
TBD	USTDA	Team representative/PCG member	
Rachaneekorn (Jiab) Sriswasdi	USTDA	Team representative/PCG alternate	Tel. (662) 205 5278 Fax. (662) 255 4366 Rachaneekorn.Sriswasdi@mail.doc.gov
Jim Waller	State Department	Team representative	Tel. (1-202) 205 4712 Fax. (1-202) 254 2839 wallerjm@state.gov
Alan White	Program Integrator (PI)	Chief of Party (COP)/PCG member	Tel. (662) 637 8518 Fax. (662) 637 8520 alan.white@ttemi.com
Amin Pakzad	PI	Deputy Chief of Party (DCOP)	Tel. (662) 637 8518 Fax. (662) 637 8520 amin.pakzad@ttemi.com
Kitty Courtney	PI	Technical Support	Tel. (1-808) 441 6612 Fax. (1-808) 382 6927 kitty.courtney@ttemi.com
Charlie MacPherson	PI	Program Communications and Outreach	Tel. (1-703) 385 6000 Fax. (1-703) 385 6007 charlie.macpherson@tetratech-ffx.com
Arjunapermal Subbiah	PI	ADPC representative/PCG member	Tel. (662) 516 5900-10 Ext. 405 Fax. (662) 524 5350 subbiah@adpc.net
Lolita Bildan	PI	ADPC representative/PCG alternate	Tel. (662) 516-5900-10 Fax. (662) 624 5350 Lolita@adpc.net
Parichatt Krongkant	PI	Training and Project Management Spec.	Tel. (662) 637-8517-19 Fax. (662) 624 5350 pkrongkant@yahoo.com
Kultida (Noon) Khumpradid	PI	Administrative Assistant	Tel. (662) 637 8517-19 Fax. (662) 637 8520 K_khumpradid@yahoo.co.th
SHM Fakhruddin (Bapon)	PI	Technical Specialist	Tel. (662) 637 8517-19 Fax. (662) 637 8520 fakhruddin@adpc.net
Teerasak Ratinukulkit	PI	Web and Network Administrator	Tel. (662) 637 8517-19 Fax. (662) 637 8520 teerasak@adpc.net
Ratirose Supaporn	PI	IEC Material Specialist	Tel. (662) 637 8517-19 Fax. (662) 637 8520 Ratirose@gmail.com
Eric Stephan	PI	Information Mgt Specialist	Tel. (1-202) 289-0100 Fax. (1-202) 289-7601 estephan@irgltd.com

U.S. Indian Ocean Tsunami Warning System (IOTWS) Program
Integrated Program Work Plan 2005-2007

APPENDIX D

SUMMARY OF DONOR ACTIVITIES IN THE INDIAN OCEAN REGION

March 2006 Version 1.0

Table D.1. Summary of Tsunami-Related Donor Activities in Indonesia

Donors/ Organizations	Description of activities	Contact Information
Indonesian Red Cross	Responsible fore operating disaster preparedness and response programs for Indonesia in four areas: disaster preparedness, early warning system, emergency response, and integrated community-base risk reduction. Working with International Federation for Red Cross to build structures to facilitate communications between national and provincial governments and local communities for warnings.	Irman Rachman, Head of DM Division Jl. Jend.Gator Subroto Kav 96 Jakarta 12790, Indonesia Tel. (6221) 7919 1841 Fax. (6221) 7918 0905 Email: dmdivision@pmi.or.id Web: www.palangmerah.org
Government of Norway	Providing support for mapping northern Sumatra	Royal Norwegian Embassy Menara Rajawali Building, 25th floor, Kawasan Mega Kuningan, 12950 Jakarta, Indonesia Tel. (6221) 576 1523 Fax. (6221) 576 1537 Email: emb.jakarta@mfa.no Web: www.odin.dep.no
United Nations Educational Scientific and Cultural Organization (UNESCO)	Promotes international cooperation to build human and institutional capacity in diverse fields and serve as a clearinghouse that disseminates and shares information and knowledge. Supporting training in Sumatra in 5 districts and instruction in community-based hazard mapping and vulnerability analysis.	UNESCO House, Jalan Galuh (II), No.5, Kebayoran Baru, Jakarta Selatan, Jakarta 12110, Indonesia P.O. Box 1273/JKT, 10002 Indonesia Tel. (6221) 739 9818 Fax. (6221) 7279 6489 Email: Jakarta@unesco.org Web: www.unesco.or.id
Government of Germany	Implementing a 3-year Tsunami Warning System program for Indonesia	Michael Rottmann, Counselor for Science, Technology, and Environment Jl. MH Thamrin No. 1. Jakarta 10310, Indonesia Tel. (6221) 398 55000 Fax : (6221) 390 1757
German Technical Assistance Agency (GTZ)	Supporting post-graduate training/education. The German Technical Assistance Agency has been working in Indonesia since 1975 on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ).	Dr Birgit Kerstan Country director, GTZ 20th floor, Deutsche Bank Building, Jl. Imam Bonjol No. 80 Jakarta 10310, Indonesia Tel: (6221) 3192 4007 Fax: (6221) 3192 4070 Email: gtz-indonesien@id.gtz.de Web: http://www.gtz.de/en/top-themen/608.htm
World Meteorological Organization (WMO)	An intergovernmental organization of 187 Member States and Territories organized under the UN, serves as the platform for international cooperation to monitor weather, climate, hydrology, and water resources and in the specific case of weather	World Meteorological Organization 7bis,avenue de la Paix,, Case postale No. 2300CH-1211 Geneva 2, Switzerland Tel. (4122) 730 8111 Fax. (4122) 730 81181 Email: wmo@wmo.int

Table D.1. Summary of Tsunami-Related Donor Activities in Indonesia

Donors/ Organizations	Description of activities	Contact Information
Minister of State for Research and Technology, Indonesia (MINRISTEK)	Agency responsible for helping to identify and introduce appropriate science and technology to the Government of Indonesia	Dr. Ir. Idwan Suhardi, Assistant Deputy Minister for Assessment of Science and Technology Needs 2nd Bldg. 6th Flr, Thamrin St. 8 Jakarta 10340, Indonesia Tel. (6221) 316 9168 Fax. (6221) 310 1952 Email: idwan@ristek.go.id
Meteorological and Geophysical Agency—Geophysical Data Information Center (BMG)	Responsible for seismic/geophysical information processing and data management	Dr. P.J. Prih Harjadi, Director Jl. Angkasa I No. 2 Kemayoran Jakarta, Indonesia Tel. (6221) 654 6311 Fax. (6221) 654 6316 Email: prih@bmg.go.id
National Coordinating Board for Disaster Management and Internally Displaced Persons/Refugees (BAKORNAS)	Coordinates with Meteorological and Geophysical Agency (BMG) and Minister of State for Research and Technology (MENRISTEK). Serves as the national emergency operations body. In the process of establishing 5 regional (sub-national) centers.	Mr. Sugeng Triutomo, Director for Disaster Mitigation Jln. Medan Merdeka Barat No. 3 Jakarta 10110 Indonesia Tel. (6221) 344 2734 Fax. (6221) 345 8400 Email: striutomo@centrin.net.id
Ministry of Marine Affaires and Fisheries (MMAF)	Overall coordinating agency for coastal management in Indonesia.	Dr. Widi Agoes Pratikto Director General Jl. Medan Merdeka Timur No. 16 Jakarta 1011, Indonesia Tel. (6221) 350 0064 Fax. (6221) 352 0357 Email: wapratik@rad.ent.id
National Survey and Mapping Agency (BAKOSURTANAL)	National Mapping Agency that supports hazard mapping at the national level through the National Spatial Data Infrastructure (NSDI) Project. Supports local government institutional development in coastal zone management and coordinates on coastal hazard mapping with BAKOSURTANAL	Dr. Parluhutan Manurung, Coordinator for sea level measurements and analysis, Jl. Raya Jakarta - Bogor KM. 46 Cibinong 16911, Indonesia E-mail : info@bakosurtanal.go.id Tel. (6221) 875 2062, 875 2063 Fax. (6221) 875 2064 Web: www.bakosurtanal.go.id

Table D.2. Summary of Tsunami-Related Donor Activities in Sri Lanka

Donors/ Organizations	Description of activities	Contact Information
Japanese Red Cross	Working on the eastern and western sides of Sri Lanka	307,2/1 T.B. Jayah Mawatha, Colombo 10, Sri Lanka P.O. Box 375 Sri Lanka Tel. (9411) 269 1095,535 7000 Fax. (9411) 269 4487,269 5434 Web: www.jrc.or.jp
Netherlands Red Cross	Working in Galle and Hambantota	De Vries, Greet Country Coordinator 36/2A Sir Marcus Fernando Mawatha, Colombo 7, Sri Lanka Tel. (9411) 268 4923 Fax. (9411) 267 1634
World Vision	Implementing a program in Community-Based Disaster Management	World Vision Sri Lanka P.O. Box 2034, Colombo, Sri Lanka Web:www.wvi.org/wvi/asia_tsunami/sri_lanka_tsunami.htm
United Nations Educational, Scientific, and Cultural Organization (UNESCO)	Promotes international cooperation to build human and institutional capacity in diverse fields and serve as a clearinghouse that disseminates and shares information and knowledge. Under this program Supporting training in Sumatra in 5 districts and instruction in community-based hazard mapping and vulnerability analysis	1, rue Miollis, 75732 Paris Cedex 15 France Tel. (3314) 568 1000 Fax. (3314) 567 1690 Web: www.unesco.org
United Nations Development Program (UNDP)	Supporting Sri Lanka Disaster Risk Management Act and Srilanka's road map for disaster risk management. Also supporting the DMC in education outreach and public awareness, and supporting risk mapping to GOSL.	202-204, Bauddhaloka Mawatha Colombo 7, Sri Lanka Tel. (9411) 2580691-7 Fax. (9411) 2581116 Email: fo.lka@undp.org, Web: www.undp.lk
German Technical Assistance Agency (GTZ)	Potsdam Institute supporting observation and detection systems.	Postanschrift, GTZ Office Colombo, 6, Jawatte Avenue, Colombo 5 Sri Lanka Tel.: (9411) 259 9713 -6 Fax. (9411) 255 1525 Email: gtz-srilanka@lk.gtz.de
Japan International Cooperation Agency (JICA)	Working with the NDMC to coordinate activities	5th Floor, Green Lanka Tower, 46/46, Nawam Mawatha, Colombo-2, Sri Lanka P.O.Box No. 2068, Colombo Tel. (9411) 230 3700 Fax. (9411) 230 3692
United States Agency for International Development (USAID)	USAID is the official bilateral economic assistance and development agency of the US government.	USAID Colombo, Department of State, Washington, DC 20521-6100 U.S.A. Tel. (9411) 247 2855 Fax. (9411) 247 2850

World Meteorological Organization (WMO)	The WMO, an intergovernmental organization of 187 Member States and Territories organized under the UN, serves as the platform for international cooperation to monitor weather, climate, hydrology, and water resources and in the specific case of weather	World Meteorological Organization 7bis,avenue de la Paix,, Case postale No. 2300, CH-1211 Geneva 2 Switzerland Tel. (4122) 730 8111 Fax. (4122) 730 8181 Email: wmo@wmo.int Web: www.wmo.int
Coast Conservation Department (CCD)	Required to prepare a national coastal management plan that focuses on set backs, coastal mitigation and management measures within the coastal strep of 200 meters inland and 2 km seaward.	4th Floor, New Secretariat Building, Maligawatta, Colombo 10, Sri Lanka Tel. (9411) 244 9754 Fax. (9411) 243 8005 Email: ccd@fisheries.gov.lk
The Geological Survey and Mines Bureau (GSMB)	Oversees seismology issues. Has only one station which is connected to GSM network.	Senanayake Building, No 4 Galle Road, Dehiwala, Sri Lanka Tel. (9411) 273 9307-8 Fax. (9411) 273 5752 Email: gsmb@sltnet.lk
National Aquatic Resources Agency (NARA)	Responsible for all coastal bathymetric data and mapping.	Dr. Champa Amarasiri Director General Tel. (9411) 252 1000 Fax. (9411) 252 1932 Email: dg@nara.ac.lk
National Building Research Organization (NBRO)	Conducting hazard mapping. Sits on the EW committee, involve in landslide hazard mapping program	99/1, Jawatta Road, Colombo 5 Sri Lanka Tel. (9411) 258 8946 Fax. (9411) 250 2611 E-mail: nbro@sltnet.lk Web: www.nbro.gov.lk
National Disaster Management Center (NDMC)	The NDMC will serve as the national focal point and coordinating body for disaster risk reduction and disaster management. Will establish Disaster Management District Councils	Ministry of Womens Empowerment and Social Welfare Sethsiripaya, Battaramulla, Sri Lanka Tel. (9411) 286 1136, 286 1137 Fax. (9411) 286 1145 Email: dndmc@sltnet.lk Web:www.ndmc.gov.lk
University of Moratuwa	Conducts modeling for a tsunami event and mapping areas of vulnerability.	University of Moratuwa, Katubedda, Moratuwa, Sri Lanka Tel. (9411) 265 0301 Fax. (9411) 265 0622 Web: www.mrt.ac.lk
Department of Meteorology	Currently has lead on issuing tsunami warnings and operates a 24/7 warning center.	383, Bauddhaloka Mawatha Colombo 07, Sri Lanka Web: www.meteo.slt.lk
Central Environmental Authority (CEA)	Primarily assisting with mapping of landslide hazards in inland areas and promoting mitigation measures.	Mr.Thilak Ranaviraja Chairman, 'Parisara Piyasa' 104,Robert Gunawardena Mawatha, Battaramulla, Sri Lanka Email: interior1@sltnet.lk , cea@cea.lk
Task Force for Rebuilding the Nation (TAFREN)	Plays lead role in facilitating and coordinating reconstruction effort.	Mr. Mano Tittawella, Chairman, Saman Ralapanawe, Director, Housing Urban Development & Environment Task Force for Rebuilding the Nation No.21, 6th Floor, Janadhipathi Mawatha, Colombo 01, Sri Lanka Tel. (9411) 242 6100 ext. 622 Fax. (9411) 242 6160 Email: saman@tafren.gov.lk

National Science Foundation	Involved in initiate, facilitate and support basic and applied scientific research by universities , science and technology institutions and scientists	47/5 Maitland Place Colombo 00700, Sri Lanka Tel. (9411) 269 6771 Fax. (9411) 269 4754 Email: info@nsf.ac.lk
Urban Development Authority (UDA)	Involved in local evacuation planning and land use planning	7th Floor, Sethsiripaya, Battaramulla, Sri Lanka Tel. & Fax. (9411) 287 2390 Email: indrasiri@uda.lk Web: www.uda.lk/
Sri Lanka Telecom	Developing a wireless system for Sri Lanka	Sri Lanka Telecom, Lotus Road, P.O.Box 503, Colombo 1, Sri Lanka, Tel: (9411) 232 9711 Fax. (9411) 244 0000 Email: pr@slt.lk, Web: www.slt.lk
Ceylon Chamber of Commerce	Focusing on restoring tourism and strengthening networks among coastal resorts to assist with coastal restoration and warnings.	50, Navam Mawatha, Colombo 02, Sri Lanka Tel : (9411) 2452183, 242 1745, 232 9143 Fax. (9411) 243 7477, 244 9352 Email: info@chamber.lk
Federation of Chambers of Commerce and Industry of Sri Lanka (FCCISL)	Supporting a "back to business" program involving small grants to Small and Medium Enterprises. Also supporting a needs assessment study through its 46 local chambers.	Lal De Mel, President, FCCISL Level 3, 53 Vauxhall Lane, Colombo 2 Sri Lanka Tel.: (9411) 230 4256, 280 8419 Fax. (9411) 230 4257 Web: www.fccisl.org
Government of Sri Lanka (GOSL)	Involved in developing guidelines for tsunami-ready hotels (certification program)	Government Agent Vavuniya, Sri Lanka Email: gosl@presidentsl.org Web: www.priu.gov.lk
United States Trade and Development Agency (USTDA)	Technical and capacity-building assistance to the Department of Meteorology (Met Department) related to an early warning system for disasters	1000, Wilson Boulevard, Suite 1600, Arlington. Virginia 22202, U.S.A. Tel. (703) 875 4357 Fax. (703) 875 4009 Web: www.tda.gov

Table D.3. Summary of Tsunami-Related Donor Activities in Thailand

Donors/ Organizations	Description of activities	Contact Information
United Nations Development Program (UNDP)	UNDP supports Thailand's Department of Disaster Prevention and Mitigation (DDPM) through a grant to Asian Disaster Preparedness Center. The goal is to build DDPM capacity to develop and establish their institutional approach	United Nations Development Programme GPO Box 618, Bangkok, 10501, Thailand Tel. (662) 288 1234 Fax. (662) 280 0556 Email: registry.th@undp.org
Japan International Cooperation Agency (JICA)	Thailand serves as the regional office for JICA. Technical Strengthening of National Institute of Metrology	Ms. Tamura Eriko, Assistant Resident Representative, Officer in charge of Disaster Prevention and Mitigation, 1674/1 New Petchburi Road, Bangkok 10320, Thailand Tel. (662) 2511655 Fax. (662) 2511655 Email: tamura.eriko@jica.go.jp Web: www.jica.go.jp/thailand/english/
Australian Agency for International Development (AusAid)	Australian assistance has largely focused on developing Thailand's infrastructure and rural sectors, but has evolved over the last decade in response to Thailand's economic development to focus on governance and regional trans-boundary issues. Training of trainers in CBDRM, emergency response, crisis management, damage and needs assessment.	37 South Sathorn Road, Bangkok 10120, Thailand Tel. (662) 344 6300 Fax. (662) 344 6539 Web: www.ausaid.gov.au/
National Disaster Warning Center (NDWC)	NDWC is the responsible agency for coordinating Thailand's Tsunami Warning System and generally supporting multi-hazard warnings.	Domestic Satellite Communications Center, Ratanatibet Road, Bangkrasor, Nonthaburi 11000 Thailand Web:www.ndwc.or.th
Thailand Meteorological Department and Geological Service	The Thailand Meteorological Department (TDM) is presently under the Ministry of Information and Communication Technology. TMD generates weather forecasts, tsunami warning and flood forecasts	4353 Sukhumvit Road, Bang Na, Bangkok 10260 Thailand Tel. (662) 399 4568-74 Web:www.thaimet.tmd.go.th/
Office for Coordination of Humanitarian Affairs (OCHA)	OCHA mainly working to identify lessons learned, best practices and recommendations for improved disaster preparedness	Mr. Nopadol Gunavibool Director-General Department of East Asian Affairs Ministry of Foreign Affairs, Sri Ayudhaya Road, Bangkok 10400 Thailand Tel. (662) 643 5191
World Bank	Emergency and post emergency response to the Tsunami Affected Communities in Southern Thailand for sustainable management of coastal and marine ecosystem.	Kimberly Versak The World Bank Office, Bangkok 30th Floor, Siam Tower 989 Rama 1, Pathumwan, Bangkok 10330 Thailand Tel. (662) 686 8324 Fax. (662) 686 8301 Email: kversak@worldbank.org

Danish International Development Agency (DANIDA)	Community involvement in urban environmental management and support to net-working among communities. Positive environmental impact for biodiversity and ecosystem functions of protected areas affected by the Tsunami catastrophe. Waste water management programme.	Royal Danish Embassy Bangkok 10 Soi Attakarn Prasit, South Sathorn Road, Bangkok 10120, Thailand. Tel. (662) 343 1100 (-10) Tel. (662) 343 1180 (-90) Fax. (662) 213 1752 Email: bkkamb@um.dk
GTZ	German Ministry for Economic Cooperation and Development (BMZ) commissioned GTZ to plan and implement a project under the title "Environmentally Compatible Rehabilitation of the Tsunami-affected Region. Training in disaster prevention and mitigation. Capacity building in search and rescue, disaster management.	Jürgen Koch 193/63 Lake Rajada Office Complex (16th floor) New Ratchadapisek Road Klong Toey, Prakhanong Bangkok 10110 Tel. (662) 661 9273 Fax. (662) 661 9282 Email: gtz-thailand@gtz.de
Italian Ministry for the Environment and Territory	Coastal risk analysis for tsunamis, environmental remediation.	Tel. (396) 5722 8121 Fax. (396) 5722 8180 For more information Web: www.minambiente.it
Asian Development Bank (ADB)	Community development and livelihoods (Krabi, Phang Nga, Phuket); Implementation of medium-term action plan 2006-2008; Sub-regional development plan 2006-2020.	23rd Floor, Central World Bldg. 999/9 Rama 1 Road, Wangmai, Pathumwan Bangkok 10330 Thailand Tel. (662) 263 5350 Fax. (662) 263 5301 Web: www.adb.org/Thailand/default.asp
Food and Agriculture Organization (FAO)	Sustainable livelihoods, integrated and participatory coastal resource management and ecosystem development in fishery and farming communities, coastal public infrastructure and disaster management and preparedness.	Maliwan Mansion Phra Atit Road Bangkok 10200, Thailand Tel. (662) 697 4000 Fax. (662) 697 4445 Email: FAO-RAP@fao.org Web: www.fao.org
Canadian International Development Agency (CIDA)	Capacity building of provincial and local authorities in participatory rehabilitation planning; local participation in community development	Canadian Regional Offices Coordinator Canadian International Development Agency 200 Promenade du Portage 2nd floor, Gatineau, Quebec Canada K1A 0G4
Norwegian Government	Tsunami risk reduction focusing on land use and rehabilitation programme.	UBC II Building, 18th floor 591 Sukhumvit Road, Soi 33 Bangkok 10110 Thailand Tel. (662) 302 6415 Fax. (662) 262 0218 Email: emb.bangkok@mfa.no
The United Nations Children's Fund (UNICEF)	Ensure adequate safe water and safe excreta disposal for tsunami-affected population to prevent water-and excreta-related diseases, with an emphasis on the most vulnerable areas.	19 Phra Atit Road Chanasongkram, Phra Nakorn Bangkok 10200, Thailand Tel. (662) 356 9499, 280 5931 Fax. (662) 280 3563, 280 3564 Email: eapro@unicef.org

Table D.4. Summary of Tsunami-Related Donor Activities in India

Donors/ Organizations	Description of activities	Contact Information
United Nations Development Program (UNDP)	Implementing Disaster Risk Management program focusing on community-based disaster preparedness in 40 districts. Supporting hazard mapping at the local/district level in India	P.O.Box 3059, 55 Lodi Estate New Delhi, India Tel. (9111) 2462 8877 Web: www.undp.org.in/dmweb
United Kingdom Department for International Development (DFID)	Supporting sustainable fisheries and addicting to the UNDP disaster risk management (RDM) project.	The Department for International Development (India), British High Commission, B-28, Tara Crescent, Qutab Institutional Area New Delhi 110016, India Tel. (9111) 2652 9123 Fax. (9111) 2652 9296 Web: www.dfidindia.org/
The United States Agency for International Development's (USAID)	Supporting a variety of programs such as the Disaster Management Support (DMS) Program; City Links, a multi-hazard city capacity building effort; and tsunami recovery grants that support livelihoods.	Ms. Minka, Nina, Senior Humanitarian Assistance Advisor, c/o US Embassy, Shanti Path, Chanakyapuri, New Delhi Tel.: (9111) 2419 8000 E-mail: nminka@usaid.gov
Department of Ocean Development (DOD)	The lead agency for developing the Tsunami Warning System for India and is coordinating with other governments in the region.	Dr. P.S. Goel, Secretary Block 12 Mahasagar Bhavan, C.G.O. Complex, Lodhi Road New Delhi 3, India Tel. (9111) 2436 0874 Fax. (9111) 2436 2644 Email: dodsec@dod.delhi.nic.in Web: http://dod.nic.in/
Ministry of Home Affairs (MHA)	Focusing on the Bay of Bengal and Gujarat for vulnerability and tsunami. Ministry of Home Affairs is establishing local operations centers as part of the national Emergency Communications Plan	Ministry of Home Affairs North Block, Central Secretariat, New Delhi 110 001, India Tel. (9111) 2309 2011, 2309 2161 Fax. (9111) 2309 3750, 2309 2763 Web: http://mha.nic.in/
Department of Science and Technology	Responsible for cyclone detection	Department of Science & Technology, Technology Bhavan, New Mehrauli Road, New Delhi - 110016 India Tel. (9111) 2656 7373, 2696 2819 Fax. (9111) 2686 4570, 2686 2418 Email: dstinfo@nic.in Web: http://dst.gov.in/
Planning Commission India	Responsible for land use planning activities which is interested in integrating coastal policies on shoreline protection	Planning Commission Government of India Yojana Bhavan, Sansad Marg New Delhi 110001, India Email: plancom@nic.in Web:www.planningcommission.nic.in/

Government of Tamil Nadu	Modernizing and equipping the Fire and Rescue Services Commission of Tamil Nadu. Major programme is to replace old fire tenders with new modern units. To develop core competence to handle search and rescue operations during disasters, about 20 commandos are being trained in every district. They have been given intensive training and have become an asset to the department. In the wake of the Kumbakonam school fire tragedy special emphasis has been given to preventive action including training, organization of fire drills and sensitizing people to the hazards of fire.	Secretariat Fort St. George Chennai 600 009, India Tel. (9144) 2567 2111 Web: www.tn.gov.in

Table D.5. Summary of Tsunami-Related Donor Activities in Maldives

Donors/ Organizations	Description of activities	Contact Information
Germany / United Nations Development Program (UNDP)	Supports Maldives through its Disaster Risk Management Program. The project will seek to 1) establish an institutional framework for disaster management, 2) develop multi-hazard preparedness and response plans and 3) conduct training and capacity building activities. Key elements include early warning system (EWS), fully equipped emergency operations center (EOC), preparedness plan and safe area development (safe shelters).	Mr. Man B. Thapa, Disaster Management Specialist, Disaster Risk Management Programme, UNDP Maldives, UN Building, Buruzu Magu, Radhdebai Higun, Male, Maldives Mail Address: UNDP Maldives P.O.Box 2058 Male, Republic of Maldives Tel. (960) 325 063, (960) 324 501 Fax. (960) 324 504 Email: man.b.thapa@undp.org
Japan International Cooperation Agency (JICA)	Emergency Rehabilitation and Reconstruction Support following the Major Earthquake Off the Coast of Sumatra and Tsunami in the Indian Ocean	Mr. Katsumi Fujii, Senior Telecommunication Engineer, JICA Study Team, Email: a3490@n-koei.co.jp Mr. Masatsugu Komiya JICA Study Team Email: yec-komi@tkt.att.ne.jp 1st Floor, Radiumge-Aage, Neeloafaru Magu, Galolhu, Male 20130 Republic of Maldives Tel. (960) 322 049 Fax. (960) 326 643
Asian Development Bank (ADB) and Japan International Cooperation Systems (JICS)	The ADB and JICS are funding jointly the administration of the National Disaster Management Center (NDMC) - a center that was formed immediately after the Dec 2004 tsunami.	Mr. William H. Menninger, Senior Resident Advisor Email: wmenniger@adb.org
Ministry of Defense and National Security Service (NSS)	The NSS is currently spearheading the establishment of the National Disaster Management Council (NDMC) in place of the adhoc disaster management committee put up after the tsunami in December 2004.	Lt. Col. Ibrahim Mohamed Didi Email: didi@defence.gov.mv
Department of Meteorology (DM)	The DM is the mandated government organization to monitor weather parameters and issue daily weather forecasts, aviation and marine forecasts and soon tsunami warnings.	Mr. Abdulla Ageen, Director Email: algeen@meteorology.gov.mv Web: www.meteorology.gov.mv
Telecommunication Authority of Maldives (TAM)	The Telecommunications Authority of Maldives (TAM) is responsible for regulating post and telecommunications services in the country. TAM plans to put up alternative communications and network resilience for Maldives based on the lessons learned from the December 2004 tsunami.	Mr. Ilyas Ahmed, Director, Telecom Bldg., Husnuheena Magu, Male, Republic of Maldives Tel. (960) 323344, Fax. (960) 320000 Email: ilyas@tam.gov.mv Web: www.tam.gov.mv

U.S. Indian Ocean Tsunami Warning System (IOTWS) Program
Integrated Program Work Plan 2005-2007

APPENDIX E

REGIONAL EXCHANGE PROGRAM

March 2006 Version 1.0

US IOTWS Exchange Program and how it Works

Introduction

The US IOTWS exchange program refers to learning opportunities and information sharing forums (e.g. trainings, meetings, seminars, workshops, cross-visits or other such events) conducted in one of the five regional countries, in the U.S., or in another country in special cases. The decision on the best location for a given activity depends on the goals of the intervention and the most efficient, results-oriented, and cost-effective manner which will support the USAID Mission's Special Objective 498-045 and Intermediate Result 3. The US IOTWS exchange program is administered by the Program Integrator under USAID Contract No. EPP-I-00-04-0024-00 in collaboration with the USG partner agencies. USG agencies directly benefiting from the US IOTWS exchange program include NOAA, USGS, and USDA/FS.

Most exchange program activities will originate as a US IOTWS program-based activity and will be part of the US IOTWS Integrated Work Plan that reflects the major activities of all the USG partners. New or spontaneous opportunities for training, attending a workshop or cross-learning opportunities may arise during the course of the US IOTWS Program that may include but are not limited to, international events conducted by other organizations that are beneficial to US IOTWS project implementation and support the project SpOs and/or IRs. For all exchanges of any kind, participants are required to return to their respective countries upon completion of the exchange.

The process for making the decision whether the US IOTWS Program will support or participate in a given exchange opportunity will generally be determined in the work plan approval process. For those that arise separately, the decision process is described below (Figure 1).

Any US IOTWS exchange program that takes place in the U.S. must comply with the Mutual Educational and Cultural Exchange Act of 1961, as amended. The purpose of the Act is to increase mutual understanding between the people of the United States and the people of other countries by means of educational and cultural exchanges.

Nomination of Participants

For exchanges not listed in the work plan but requested during the program timeframe, the Program Integrator (PI) must seek initial approval and funding allocation from the USAID CTO prior to any announcement of approval. For the exchanges programmed in the work plan, the PI will reconfirm approval from the CTO prior to sending activity announcements to USAID Missions and partner organizations to request participant nominations. US IOTWS Program technical team members will contribute to the selection of participants and assist with conducting the exchange activity as appropriate.

After receiving official nomination from USAID Missions and/or organizations, the PI will send a letter of invitation to the individuals concerned. The exchange participants must fill in the participant's biodata form and send back to PI. Biodata forms include information necessary for TraiNet data entry and HAC insurance coverage as follows:

- Name
- Designation/ Position
- Organization and address
- Country of citizenship
- Country of residence
- Exchange title
- Exchange start and end date
- Exchange location
- The participant' date of birth and age
- Passport Number

- Emergency contact name and number
- USAID or other funding contribution

Participant Requirements for Exchanges to the U.S.
Eligible participants must be citizens or legal residents of the host country. Persons holding residency in other countries must be approved by CTO on a case-by-case basis. U.S. citizens, U.S. permanent residents, and individuals with dual U.S. and other country citizenship living abroad are not eligible for USAID-sponsored exchange, unless the need for such exchange is critically related to attaining strategic objectives. The Mission Director or designee must approve these exceptions.
All Exchange Visitors, including those persons traveling on Invitational Travel (as defined in ADS 522), must obtain, use, and abide by the terms of the J-1 visa exclusively when participating in USAID-funded activities, even if they already have a valid non-immigrant visa (e.g., B-1/B-2), unless such requirement is waived by the Mission Director.
For J-visa eligibility, that Exchange Visitors must know English well enough to participate effectively in their activity before they enter the U.S. The use of interpreters for USAID Exchange Visitor training events may be advisable, but does not negate this requirement. This external requirement of English language proficiency determination cannot be waived by USAID.

US IOTWS will be strict to ADS 252 – Visa Compliance for Exchange Visitors

Confirmation of Sponsorship
A letter of acceptance will be sent to participants together with US IOTWS-PI Travel Authorization (TA). The individual will have to sign the TA and return to PI. TA describes the financial details that are covered during that particular exchange. (e.g., air ticket, accommodation, daily subsistence allowance, travel allowance, and other information).

The PI will submit an exchange summary to CTO for final approval. The exchange summary consists of the following:

- Exchange title
- Date and country of exchange
- Responsible organization
- List of participants and contact detail
- Estimated budget of the exchange paid by US IOTWS
- Estimated budget of leverage, if any

The participant data will be documented in the Training Results and Information Network (TraiNet) four weeks prior to the travel date.

Logistical Arrangements

A. Air ticket and accommodation reservations. Please refer to US IOTWS Travel Policy for air tickets and accommodation reservation procedures. The PI will strictly follow the Fly American Act for travel arrangements.

B. Exchange Visitor Visa. All USAID-sponsored participants who are traveling to third country destinations and/or to the U.S. must apply for the appropriate visa category. The US IOTWS PI will provide a letter to help facilitate visa application, as required, but will not physically process visa applications for the participants. Exchange participants *sponsored fully or in part with U.S. Government funds can enter the U.S. on a J-1 visa (non-immigrant student visa for formally sponsored students/participants).* This regulation applies to programs of any length, including those of less than two weeks. Accordingly, all USAID participants traveling to the U.S. must use the J-1 visa exclusively. Participants are not encouraged to stay in the U.S. beyond the visa allowance period. However, if the extension of stay is not part of program requirement, the participant is responsible for his own visa extension application and financial requirements.

C. **Health and Accident Coverage Insurance.** All exchange participants traveling under USAID will receive Health and Accidental Coverage Insurance (HAC) from Highway to Health International. This is the single provider of HAC insurance for all USAID exchange visitors.

Orientation Prior to Travel
The agenda for the exchange, travel related information, per diem, air ticket, insurance ID number including coverage term, toll-free number, emergency contacts and any other pertinent information will be sent to participants prior to travel.

Exchange Follow-up (Evaluation)
The US IOTWS-PI will send a follow up questionnaire to exchange participants after 2 months from the completion of the exchange. A questionnaire will be developed in response to exchange objectives.

US IOTWS Exchange Program Decision Process