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FEMA

**“Tsunami Warning, Preparedness, and
Interagency Cooperation: Lessons Learned”**

**Before the
Committee on Oversight and Government Reform**

**Subcommittee on National Security, Homeland Defense and
Foreign Operations**

**U.S. House of Representatives
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I. Introduction

Good afternoon Chairman Chaffetz, Ranking Member Tierney and distinguished Members of the Subcommittee. It is an honor to appear before you today on behalf of FEMA to discuss tsunami preparedness.

Tsunamis, also known as seismic sea waves, are a series of enormous waves created by an underwater disturbance such as an earthquake, landslide, volcanic eruption or meteorite. A tsunami can move hundreds of miles per hour in the open ocean and smash into land with waves as high as 100 feet or more. Tsunamis are most common along the Pacific coast, but can strike anywhere along the U.S. coastline. The topography of the coastline and the ocean floor will influence the size of the wave.

Recent history has shown the destructiveness and devastation that tsunamis can create. On December 26, 2004, a magnitude 9.0 earthquake off Sumatra generated a tsunami in ten countries, killing more than 280,000 people.

The United States and its territories have recent experience with a tsunami's destructive force as well. On September 29, 2009, a magnitude 8.1 earthquake struck off the coast of American Samoa in the Western Pacific Ocean and the tsunami that followed struck the island nations of Samoa, Tonga and American Samoa. The tsunami damage resulted in nearly 200 deaths, hundreds injured across all three islands, and millions of dollars in damages. After the tsunami, President Obama declared a major disaster for American Samoa, allowing FEMA and our federal partners to immediately move supplies and staff across the Pacific from the Region IX logistics facility in Hawaii. FEMA's National Response Coordination Center coordinated teams of experts from FEMA, the U.S. Department of Health and Human Services, the U.S. Coast Guard, the Department of Defense, the Department of the Interior's National Park Service, the U.S. Army Corps of Engineers, the Small Business Administration, and other partners to help move the island towards recovery.

Of course, the images of utter devastation still remain fresh in our minds from the events in Japan just last month. On the evening of March 10th, a magnitude 9.0 earthquake off the northeastern coast of Japan generated a tsunami wave up to 98 feet high that traveled up to six miles inland in some areas. The true toll of the earthquake, tsunami, and nuclear situation is not completely known at this time. The Japanese government has confirmed more than 12,000 deaths, and projected damage estimates in the hundreds of billions of dollars.

These recent events remind us why catastrophic preparedness in general, and tsunami preparedness in particular, is so important. Our testimony discusses FEMA's catastrophic planning efforts, the National Warning System, tsunami mitigation, and most importantly, personal tsunami preparedness.

II. Catastrophic Planning

An incident of catastrophic proportions has the potential to imperil millions of people, devastate multiple communities, and have far-reaching economic and social effects. Time is of supreme importance, and the imperative to take immediate action begins in the communities where people live and work, where businesses and industries operate, and where local governments and institutions reside.

At the heart of our planning and preparedness efforts is our strong belief that our ability to succeed is tied to whether or not we are able to work together as a team. We must view all of the work FEMA does in concert with the rest of the emergency management team as part of a broad plan for addressing the demands and challenges of a catastrophic disaster.

In that regard, FEMA's "Whole Community" initiative recognizes and seeks to leverage the capabilities that both governmental and non-governmental entities play in preparing for and responding to a catastrophic disaster. It will take every member of the team working together for us to be successful in a catastrophic event.

We cannot effectively respond to a catastrophic disaster alone. Our planning and preparedness scenarios require all parties to pitch in, including FEMA and its partners at the federal level; state, local and tribal governments; non-governmental organizations in the non-profit, faith-based and private sector communities; and most importantly, individuals, families, and communities, who continue to be our most important assets and allies in our ability to respond to and recover from a major disaster.

As the name of the initiative indicates, it is truly the *whole* community that must be prepared to respond in ways that extend beyond the normal paradigms in which we have traditionally operated. As a result, FEMA is addressing its own preparedness and response capabilities through the whole community framework. And it is through that lens that we will work to improve our preparedness for the next catastrophic disaster.

All Hazards Catastrophic Planning

Because disasters often occur with little to no notice, our catastrophic event response plans must be comprehensive and wide-ranging. Regardless of the type of emergency or disaster, FEMA will plan and be prepared to support our citizens and first responders by implementing and coordinating an accelerated, proactive national response to a catastrophic incident.

FEMA is coordinating and facilitating the development of detailed state and regional catastrophic response plans for earthquakes, hurricanes, tsunamis, improvised nuclear device attacks and other threats. Our planning assumptions for catastrophic disasters are based on worst-case scenarios and are designed to challenge preparedness at all levels, forcing innovative, non-traditional solutions as part of the response strategy to such events. To more effectively carry out operational planning, our Response Directorate has aligned existing federal response planning initiatives into a more holistic and coordinated planning approach that will incorporate

activities such as catastrophic planning, evacuation and transportation planning and emergency communications planning.

We have identified the highest priority tasks necessary to save and sustain lives and stabilize a catastrophic incident during the crucial first 72 hours, and have begun to work across all segments of society to identify how we can collectively achieve these outcomes. While the initial 72 hours after an incident are the most critical in saving and sustaining life, our approach spans not only response operations following a disaster, but also prevention, recovery, protection, and mitigation activities that occur before, during and after a catastrophic event. Changing outcomes will require public engagement and public action, which means fully embracing dialogue between our public safety and emergency services institutions and the communities they serve. This planning process results in the development and identification of existing capabilities that can be employed using pre-established logistics protocols and deployment solutions.

Hazard-Specific Response Plans

Recognizing that certain disasters present greater likelihoods of occurrence depending on the location, FEMA also conducts regional catastrophic planning efforts to address area-specific disaster scenarios. The plans focus on the immediate application of resources to life-saving and life-sustaining missions, with a goal of stabilizing the event within the first 72 hours. Some of our tsunami-focused planning efforts include:

- Cascadia Subduction Zone Planning Project: Located just off the Pacific Northwest Coast, the Cascadia Subduction Zone is an 800-mile long fault zone. The disaster response plan is based on a magnitude 9.0 earthquake and tsunami with a complete rupture along the entire fault. The plan is being developed as part of a partnership between FEMA Regions IX and X, the Department of Homeland Security's National Protection and Programs Directorate and Homeland Infrastructure Threat and Risk Analysis Center, state emergency management agencies in California, Washington, Oregon, Idaho and Alaska, and Canadian public safety officials in British Columbia. The planning efforts are currently in step 1 (forming the Collaborative Planning Team) of a six-step planning process. This planning project is scheduled to be completed in late 2012/early 2013. In the event of a Cascadia Subduction Zone earthquake or tsunami event before the completion of this plan, Regions IX and X will use existing national level plans, including the National Response Framework, the National Incident Management System, and other scenario specific plans, and tailor them as necessary to support response efforts.
- Earthquake/Tsunami Plan for Puerto Rico and U.S. Virgin Islands: FEMA Region II is currently working with Puerto Rico and the U.S. Virgin Islands to address the impact of a tsunami in those areas. The planning efforts are currently in step 1 (forming the Collaborative Planning Team) of a six-step planning process. Implementation and Plan Signature is scheduled for 2012.

III. National Warning System

Section 202 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act requires the President to ensure that “all appropriate Federal agencies are prepared to issue warnings of disasters to State and local officials.”¹ The President has delegated this authority to FEMA, which funds and operates the National Warning System (NAWAS).

NAWAS is used to disseminate warning information concerning major disasters to more than 1,800 warning points throughout the continental United States, as well as Alaska, Hawaii, Puerto Rico and the Virgin Islands. This information includes, but is not limited to, terrorist actions, aircraft incidents, earthquakes, floods, hurricanes, nuclear incidents/accidents, severe thunderstorms, tornadoes, winter storms and tsunamis.

NAWAS is a 24-hour private line telephone system used to convey warnings to federal, state and local governments, and emergency responders. NAWAS allows the issuance of warnings to warning points nationwide or to selected stations. FEMA funds, operates and controls NAWAS and carries out these warning functions through the FEMA Operations Center (FOC) and the FEMA Alternate Operations Center (FAOC). The FOC and FAOC are equipped and staffed to transmit warnings and emergency information to all or selected warning points on the NAWAS. States distribute warnings internally via NAWAS to local warning points and use state-controlled warning/communications systems to alert those political jurisdictions not directly served by NAWAS.

Warning of a possible threat to the public’s health, safety and property originate from many sources to include the National Oceanic and Atmospheric Administration (NOAA) and offices within NOAA that provide a variety of weather, water, and other relevant environmental information. The National Weather Service provides short and long-range weather forecasts and severe weather warnings and watches; the National Hurricane Center provides hurricane and tropical storm predictions; and the Tsunami Warning Centers in Hawaii and Alaska provide seismic and tsunami information for the Pacific, Atlantic, Gulf of Mexico and Caribbean regions.

NAWAS was utilized during the recent tsunami threat to the west coast of the U.S. last month. The NOAA Tsunami Warning Centers were busy with both verbal warnings over NAWAS as well as issuing bulletins. Because they exercise day-to-day control of the western portion of NAWAS, the FAOC in Thomasville, Georgia has primary responsibility for putting up the announcements, but the FOC can initiate them as well.

American Samoa, which is not connected to NAWAS, receives a direct call to its Department of Public Safety from the FOC and selected operations centers in Canada are added to the conferences by telephone when appropriate. The information shared is extremely valuable as it is delivered in real time and allows state and local officials to react immediately. Following the initial tsunami warnings after the Japan Earthquake, the Tsunami Warning Centers provided more than 35 updates via NAWAS to California, Oregon, Washington, and British Columbia until all warnings and watches were lifted.

¹ Disaster Relief Act Amendments of 1974, Pub. L. No. 93-288, 88 STAT. 143, 145 (May 22, 1974).

IV. Tsunami Preparedness and Mitigation

FEMA is a member of the National Tsunami Hazard Mitigation Program (NTHMP) Coordination Committee, which is chaired by NOAA and includes representatives from federal, state, local and tribal governments. Authorized by the Tsunami Warning and Education Act, the Coordination Committee recommends how funds appropriated for carrying out the NTHMP should be allocated, and ensures that all components of the program are integrated with ongoing hazard warning and risk management activities, emergency response plans, and mitigation programs in affected areas, including integrating information to assist in tsunami evacuation route planning.²

The primary goals of NTHMP are to: 1) raise tsunami awareness among potentially affected populations; 2) develop integrated tsunami maps and models that can be used to develop improved warning guidance and evacuation maps; 3) improve tsunami warning systems; and 4) incorporate tsunami planning into state and federal multi-hazard programs. Due to strong interagency collaboration through the NTHMP, integrated tsunami elevation models and inundation maps have been completed for many of the highest hazard U.S. coastal communities in the Pacific and Caribbean. Because tsunami mitigation is integral to the nation's overall effort to reduce coastal losses and improve resilience, the NTHMP takes a multi-hazards approach that responds to socio-economic and disaster management priorities. This includes sharing the coastal digital elevation models developed by NOAA and the NTHMP for other uses such as storm surge, coastal flooding, and habitat assessment.

FEMA also coordinates tsunami efforts with NOAA and the U.S. Geological Survey through the National Earthquake Hazards Reduction Program. Many communities along our nation's west coast are vulnerable to a tsunami triggered by an earthquake along the Cascadia Subduction Zone, which could potentially generate a tsunami of 20 feet in elevation or more within mere minutes. Given their location, it would be very difficult to evacuate these communities in time, which could result in a significant loss of life. For that reason, in 2008, FEMA and NOAA co-published a document for engineers, architects, state and local government officials, building officials, community planners, and building owners, to provide guidance on how to build a structure that would be capable of resisting the extreme forces of both a tsunami and an earthquake. Known as "vertical evacuation," this potential solution involves evacuation into the upper levels of structures designed to resist the effects of a tsunami. In 2009, FEMA and NOAA completed a companion publication intended to present information on how vertical evacuation design guidance can be used and encouraged at the state and local levels.

*TsunamiReady*TM

The TsunamiReady Program, developed by NOAA's National Weather Service in 2001, is another integral part of our nation's preparedness for a catastrophic disaster. This program is designed to help cities, towns, counties, universities and coastal areas more broadly reduce the

² Tsunami Warning and Education Act, Pub. L. No. 109-424, 120 STAT. 2902 (Dec. 20, 2006).

potential for disastrous tsunami-related consequences. TsunamiReady has helped community leaders and emergency managers strengthen their local operations with clear readiness guidelines, making communities better prepared to save lives through better planning, education and awareness. For example, one of the guidelines for a community to become TsunamiReady is to have multiple ways of receiving Tsunami Warnings, such as utilizing FEMA's National Warning System (NAWAS).

V. Personal Tsunami Preparedness

In the event of a disaster, individuals and communities are not liabilities; rather, they are our greatest assets and the key to our success. We are fortunate to have leadership at the Department of Homeland Security and at the White House who share our belief that individuals are integral aspects of our emergency management capability. As Secretary Napolitano said before the Council on Foreign Relations in July 2009, "for too long, we've treated the public as a liability to be protected rather than an asset in our nation's collective security...We need a culture of collective responsibility, a culture where every individual understands his or her role."³

Moreover, the ability to effectively communicate during and immediately after a disaster is essential to fulfilling our mission. When working on a tight timeframe with partners at the federal, regional, state, local and tribal levels, making sure that everyone is on the same page is extremely important. As a result, we have put systems in place to ensure that we can coordinate and communicate in ways accessible to diverse communities so that we can accomplish our objectives during disasters.

In the wake of the tragic events in Japan, we are reminded of the importance of personal preparedness.

FEMA's Ready Campaign

Ready (www.ready.gov) is FEMA's national public service campaign, which partners with the Advertising Council to educate and empower Americans to prepare for and respond to all emergencies, including natural disasters and potential terrorist attacks. The goal of the campaign is to get the public involved and to increase the level of basic preparedness across the nation.

Ready and its Spanish language version, *Listo*, ask individuals to take simple steps such as making a family emergency plan, getting an emergency supply kit, obtaining information about the different types of emergencies that could occur and the appropriate responses to each one, and getting involved in community efforts that promote neighbor-to-neighbor preparedness. The *Ready* tsunami webpage also provides a detailed list of tsunami terms, and recommends that citizens take certain protective measures both during and after a tsunami.

³ Janet Napolitano, Secretary, U.S. Department of Homeland Security, Common Threat, Collective Response: Protecting Against Terrorist Attacks in a Networked World, Address Before the Council on Foreign Relations (July 29, 2009) (available at <http://www.cfr.org/immigration/common-threat-collective-response-protecting-against-terrorist-attacks-networked-world/p19929>).

National Tsunami Awareness Week

Earlier this month, NOAA's National Tsunami Hazard Mitigation Program led National Tsunami Awareness Week, which works to educate people in the U.S. about tsunami preparedness. National Tsunami Awareness Week serves as a crucial reminder for all Americans to take the time to get prepared now, before disaster strikes. The week also provides an opportunity to learn about emergency management agencies' efforts to decrease the effects of a tsunami, and provides the public with information about warning signs of a tsunami as well as what individuals can do in the event of a tsunami.

VI. Conclusion

Tsunami preparedness is an important part of FEMA's catastrophic planning and preparedness efforts. However, we cannot do it alone. It is important to note that FEMA is not the nation's emergency management team – FEMA is just part of the team. We work closely with the whole community, which includes our governmental partners at the federal, state, local, tribal and territorial levels; we leverage the resources of non-governmental entities, including private sector, faith-based, and non-profit organizations. Finally and most importantly, we work to instill a commitment to preparedness among individuals, families, and communities, who serve as our nation's 'first' first responders and the key to our success.

The tragic events in Japan serve as a solemn reminder to us of the gravity of our preparedness message. As we keep both the victims and survivors in our thoughts and prayers, please be assured we will continue to do all we can to ensure that we are as prepared as possible.

Thank you again for the opportunity to appear before you today to discuss tsunami preparedness. I am happy to answer any questions you may have.