

Review of the National Tsunami Hazard Mitigation Program
by
Dennis S. Mileti
Director
Natural Hazards Research and Applications Information Center
University of Colorado
UCB 482
Boulder, CO. 80309
TEL: 303-520-3400 or 303-492-6818

1. The National Tsunami Hazards Mitigation Program has made great progress considering the low level of funding that it has received. The persons participating in the program deserve great praise for their accomplishments under this low level of funding, and funding levels should be increased to meet the demands of program needs.
2. The clear current emphasis of the program is on the detection of tsunamis via, for example, the use of bouys and that quality and quantity of seismic data. The unique character of the tsunami hazard, e.g., rapid onset, short times for public response, and so on, coupled with their infrequency in states like Oregon and California demands emergency preparedness and public education occur prior to an event in order to make use of advances in early detection if the objective of enhanced detection is to save lives and moveable property.
3. The program should immediately take steps to add and enhance program elements that would provide for effective public response results when tsunami warnings are issued based on enhanced detection technologies. These would include having the program expand to include planning to provide states and local communities (all actors involved in getting effective tsunami warnings to those who might need them) with state of the art knowledge about integrated warning systems and public response to warnings when they are issued. Doing so would require partnerships with local and state governments and providing leadership for them, integrating the detection function of warnings systems with state and local emergency planning and with the social psychology of human/public response to warnings. Emergency planning in local communities for issuing tsunami warnings should not be assumed and will likely play as large a role in protecting human life as detecting that a tsunami is on its way. In fact, the former may be more important to the effectiveness of the program than the latter because of the infrequency of tsunamis and their short lead time.
4. Public education and outreach activities such as K-12 teaching modules, phone book inserts, brochures, and so on do play a role in education and enhancing public awareness. But public education works best when it is designed to accomplish something and that designed from the point of view of what it seeks to accomplish.

Public education to enhance warning response has been researched and findings suggest that pre-event public education does not directly impact effective warning response during a warning emergency. But pre-event public education can prime the public for future warnings and response to them. The substance, form, style, etc. of public education to enhance public response to future tsunami warnings should be brought to bear on public education efforts in the program. NOAA should prepare a summary of this knowledge and provide leadership by their sharing it with the states and local communities at risk.

Public education for mitigation research also exists to show how public education can increase public actions to reduce what is at risk to being lost in future disasters. NOAA should prepare a summary of this knowledge and provide leadership by sharing this knowledge with the states and local communities at risk.

5. The program could greatly benefit from devoting a reasonable amount of its resources to developing partnerships with entities not now part of the program. All mitigation is local, yet the current plan largely involves federal and state players. Local communities, the private sector, and others should be courted and enrolled into becoming partners with NOAA and the states to reduce the loss of lives and dollars in future tsunami disasters.

Matching leveraged dollars in the program are limited to other programs in other federal agencies. Partnerships with a broader array of organizations, businesses and people could enhance leveraged dollars, for example, owners and operators of critical facilities and lifelines, e.g., utilities, in run-up areas. The program could benefit from increased efforts to “sell” it to those who will benefit from it. This could have more positive impacts on tsunami hazards loss reduction in the U.S. than players in the program might now imagine.

6. The program lacks clarity about mitigation, what it is and what helps it happen. The program should clarify and distinguish between preparedness (warning systems and public education), process mitigation (things that help others get involved in the mitigation business), and hard mitigation (things that actually reduce future losses (such as building codes and land use).

The program should select targeted national goals in these three domains (preparedness, process mitigation, and hard mitigation) and design its program elements accordingly. To be point blank, the program is not now designed as a mitigation program. As it currently exists, it is a tsunami detection and preliminary hazards assessment plan. This is insufficient to the needs of the nation.

7. The program’s “on-the-court” positive impacts are largely being assumed and are not effectively measured. Relevant questions should be stated and then answered through the collection of sound data. For example, What have been the results of the program on land use decisions, building codes and standards. What works best? How will future warnings and public response to them be upgraded and public response be more timely and effective because of the program. And so on.

8. Much of what the program is intended to do involves the behavior of human beings (issuing warnings, get educated, take mitigations actions, get out of harms way when warnings are issued, and so on. Yet the program has not included anyone trained in even one of the disciplines that study human behavior, e.g., sociology, geography, social psychology, and so on. This oversight excludes much useful knowledge from the program, and it will constrain the usefulness of the program. Consequently, the program is not asking questions such as “what impacts are the risk maps, evacuation maps, and other program products having on local evacuation plans, land use decisions, and building standards. Answers to questions such as these could greatly enhance the usefulness of program products.
9. The program is poorly funded and addresses an infrequent hazard. Consequently, there is good reason to link tsuanmi hazard mitigation in local communities to more slaient issues to leverage interest in the hazards and to help sustain local action over time. The program should find ways to link tsunami hazards mitigation in local communitites to broader community goals, to general community development plans, preparedness for warnings for other hazards, and so on. Working with locals (public and private) to “piggy-back” tsunamis hazard preparendess and mitigation could broaden the program’s net positive impacts now and in the future.
10. In sum, the program is seriously out of balance. The current emphasis on detection and risk mapping should not be excluded, but it must be enhanced and added to by seriously including the other type of program elements that I refer to above.