22 Capacity Building Using Information And Communication Technologies

BACKGROUND

Electronic Communication & Information Exchange ECIE is a NGO founded by QUIPUNET members who co-organized with United Nations – International Decade for Natural Disaster Reduction Secretariat (UN-IDNDR) Internet Conferences from 1996 to 1999 The expertise which ECIE/QUIPUNET acquired running other Internet Conferences, like the 1996 Internet Conference on the Kobe Earthquake in Japan, proved to be an essential building stone and success factor for those Virtual Conferences.

On January 17th, 1995, one of the worst catastrophic earthquakes in the modern history of Japan destroyed a great portion of the city of Kobe. After a year of this terrible disaster, and in the spirit of sharing experiences to gain valuable knowledge that the Virtual Conference "Kobe, Japan; The Earthquake of 1995 and its lessons" was organized and held from January 17 to March 22, 1996. This was the first Internet Conference ever organized on Earthquake Engineering The conferences had 120 participants from 15 countries. It was held using web pages and a mailing list.

OBJECTIVES

The Goal of the Virtual Conferences was to discuss experiences and to share information on natural disaster management. Specific objectives were 1) Exchange practical information among participants, 2) Facilitate networking among professionals of different fields and countries and 3) Create new partnerships and exchanges between participants and/or organizations concerned.

ACTIVITIES

Four Global Virtual Conferences were co-organized by UN/IDNDR en ECIE/QUIPUNET as follows:

■**First Virtual Conference: 1996**
Title: Solutions for Cities at Risk
Number of Participants: 500 persons from 60 countries
(Note The first virtual conference was qualified as "a landmark event" for the United Nations - IDNDR activities)

■**Second Virtual Conference: 1997**
Title: Floods, Droughts, Issues for the 21st Century
Number of Participants. 700 persons from around 60 countries

■**Third Virtual Conference: 1998**
Title: Prevention Begins with Information
Number of Participants. 700 persons from around 100 countries

■**Fourth Virtual Conference: 1999**
Title The International Program Forum· The concluding phase of the United Nations International Decade for Natural Disaster Reduction
Number of Participants. 900 persons from around 110 countries.

ACHIEVEMENTS

Based on the above experiences, later, in Peru, ECIE continued with capacity building activities using Virtual Conferences In 2001, the Virtual Conference "Arequipa - Peru Earthquake" was held. This conference had around 400 participants from all Latin American countries. During the conference, presenters from Peru and other Latin American countries distributed their research work in relation with the damages caused by the Arequipa-Peru Earthquake. This Conference was co-organized by National University of Engineering - Japan-Peru Center for Seismic Research and Disaster Mitigation (CISMID) at Lima, Peru. CISMID also has a Distance Education Program on Earthquake Engineering Design whit a duration of one year.

Recently, United Nations / International Strategy for Disaster Reduction (UN/ISDR) organized an On-line Conference from 15 June to 15 July 2004 titled "Priority areas for further action to implement disaster risk reduction 2005-2015". As ISDR mentions "The purpose of the dialogue was to provide space for a global discussion between representatives, experts and interested stakeholders on reducing vulnerability to natural hazards". There were 730 participants from 107 countries.

LESSONS

■Through virtual conferences, information exchange and discussions are enabled at all levels, whether local, national, regional or international at very little cost

■Provided participants have the necessary equipment for access to electronic mail or to the internet, many of the reasons that often prevent people from traveling to a given meeting, are brushed aside.

■Expertise and opinions are focused and may therefore be shared with the broadest audience This allows for maximized networking opportunities and for information to be circulated where it would not necessarily go otherwise

■These virtual conferences require minimum investment for participants, the cost is reduced and they have to pay only connections fees However, they requires a high number of working hours from the organizing entities

FUTURE

The virtual conferences proved to be an excellent tool to promote networking among participants working for disaster prevention. Therefore the next step is to analyze and create networks of experts in each of the fields of disaster prevention. The recent development of theory of real and social networks showed that once established the network they will grow and will have a subtle preference to link to the individuals known as connectors or the hubs" The use of Information and Communication Technologies for the promotion of networks will have impact in capacity building activities.

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23 The Puerto Rico Tsunami Warning And Mitigation Program

BACKGROUND

Although the Caribbean region is well known for the hurricane threat, a "forgotten hazard' lurks in the background. tsunamis. Recently, Lander et al. (A brief history of tsunamis in the Caribbean Sea, Science of Tsunami Hazards, 20, 57-94, 2002) published a brief history of tsunami in the region in which they found 91 events that might have been tsunamis within the region. Of these, 27 are judged by the authors to be true, verified tsunamis and an additional nine are considered to be very likely true tsunamis. In the region near the island of Puerto Rico three big earthquakes, accompanied by catastrophic tsunamis, have occurred in 1867, 1918, and 1946 Due to concern raised by the Intergovernmental Oceanographic Commission of UNESCO, the USA Federal Emergency Management Agency, and the Sea Grant Program of the University of Puerto Rico, a series of workshops and research projects have led to the establishment of the Puerto Rico Tsunami Warning and Mitigation Program, started in 2003

OBJECTIVES

The main goal of this initiative is to raise the level of awareness in the local population about this "forgotten hazard" and, thus, through a series of tasks, educate the public and the government. Since historically Caribbean tsunamis are local events in which no practical warning system can do much, it is felt that the best way to mitigate its impact will be through education (in form of training, capacity building, awareness raising) and the preparation of tsunami flood maps.

ACTIVITIES

Six major tasks were undertaken for this purpose: (1) Preparation of tsunami flood maps; (2) Raising awareness of potentially affected population through education and outreach; (3) Local and regional seismic waveform analysis with the goal of rapid identification of regional and local tsunamigenic earthquakes; (4) Development of warning messages and a protocol for rapid and clear dissemination of tsunami warnings in the case that a tsunamigenic event is detected; (5) Development of a PC-based Caribbean Historical Tsunami Database for instructional and scientific uses; and (6) Promote and seek support and partnerships at the state, national, and international level for long-term tsunami hazard mitigation in the island and region.

ACHIEVEMENTS

Tsunami flood maps for the entire island have been prepared and are made available through the Internet, hardcopy, and CD's This was followed by the installation island-wide of tsunami warning signs in the potentially floodable coastal areas, signs which have contributed a lot to raising the awareness of this latent threat. Workshops have been given all around the island illustrating the basics of tsunamis, their potential impact, and what can be done in case one is detected. Many newspapers, radio and television interviews have followed. Earthquake and tsunami drills have been given at selected schools located in the potentially floodable areas. A Spanish version tsunami video has been prepared and freely distributed to schools, government agencies, private companies, TV stations, and the general public. Conferences have been given at the halls of the two biggest shopping centers in the island. An Internet site has been established where the maps can be downloaded, including all of the reports generated by this program. A protocol for a tsunami warning message has been created to be used by the two agencies in charge of warning dissemination: the Puerto Rico State Emergency Management Agency and the USA National Weather Service. A software package has been developed and installed at the Puerto Rico Seismic Network for early detection and characterization of tsunamigenic events in the region. A series of training workshops are being given in which emergency response personnel have been trained on the use of the flood maps and on the protocol to be followed following a tsunami advice A Caribbean and Atlantic Historical Tsunami Database has been developed which runs under MS-Windows. And representatives from the island have been invited to participate in the meetings of the USA National Tsunami Hazard Mitigation Program

and other forums, like the International Tsunami Commission of the IUGG and international meetings and workshops. And in March of 2004 the USA National Science Foundation sponsored a Caribbean Tsunami Workshop.

LESSONS

One thing learned is how in just three years of concerted effort we can raise the awareness and educate the public in an island of 4 million inhabitants about a natural hazard that was basically forgotten We have found how useful the Internet can be in places where it is available to the general public. The installation of warning signs at selected places along the coast in an island where going to the beach is the favorite pastime has proven to be a powerful instrument to take the message to the masses. This is particularly applicable to the new generations, which had never heard of the past tsunamis that have affected the island The drills at the grade schools have been very useful in teaching the very young about this threat, and they themselves have taken the concern to their homes, picking the curiosity of their parents, and so on.

Among the remaining challenges is the preparation of more accurate flood maps using what is called the "third branch" of science, numerical simulations The physics of the inland tsunami penetration remains a very complex and complicated topic, especially the modeling of the inundation of a developed area with all types of infrastructure How to alert the population at risk in a region where tsunamis tend to be local, in which flooding starts just a few minutes after the earthquake occurs, remains a challenge We are working on the possibility of installing sirens. How to make the information about the potentially floodable areas available to the general public is still of concern, and the Hawaiian Islands option of publishing it in the local telephone books seems as the best option

FUTURE

The effort described above will continue with more workshops, meetings, and the use of the radio, newspapers, TV programs, and the Internet. The flood maps should be revised with more up-to-date topography and bathymetry, with higher resolution and better software in order to more realistically model the inundation phase of the tsunami life. And all of these efforts being carried out in the island of Puerto Rico should be exported to the other island/nations in the Caribbean region under the leadership of the Intergovernmental Oceanographic Commission of UNESCO and other relevant programs.

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24 The United States Web-Based Disaster Education Program: An Independent Assessment

BACKGROUND

The United States Federal Emergency Management Agency, hereafter referred to as FEMA, has undertaken a major measure to provide American citizens with disaster education at no cost to them. The program is a free set of online courses provided by the FEMA Emergency Management Institute, physically located in Emmitsburg, Maryland These online independent study courses give an excellent in-depth education about every type of natural and unnatural disaster imaginable in plain English, as very little agency terminology or acronyms are used, and when they are they're explained, so an ordinary person can easily understand it, though there are special courses available for professional Emergency managers. There are also a few specialized courses designed for homeowners, schools, medical professionals, and American Indian tribal governments as well.

OBJECTIVES

The overall goal of the program is to educate the entire willing populace about disasters, their effects, how to prepare and/or mitigate, what response will be like, and how to go about recovery after the disaster has passed, though they do also have courses on different aspects of the emergency management system, like the National Incident Monitoring System for example In the program's courses, a student typically downloads and prints the coursework itself in Adobe Acrobat pdf format, takes written exams at the end of each chapter as well as knowledge check exercises during the chapter itself, and after all chapters in a course are completed, the student takes a final exam conducted online at the Emergency Management Institute web page. If the student passes the final exam, they are awarded with a certification and college credit if desired. A course itself is completely self-paced and the student is encouraged to re-read and study all of the lessons in a course if a concept is not fully understood.

ACTIVITIES

The courses are freely available and as such, anyone with a computer and an Internet connection can undertake them. People who are educated about the disaster itself, preparedness, mitigation, response and recovery are far less likely to be killed or injured by a disaster, they also tend to heed warnings from government and volunteer organizations more than an average citizen due to their education in the seriousness of the matter. This applies to the author personally, as I withstood three successive hurricanes this past September I was prepared more than my neighbors and most of the local community due to the fact that I took a course on hurricane preparedness earlier this year and I knew how serious it was as well as what to expect during all phases of the disaster as a result of taking the course. If more people knew about the courses and took the time to take them, the community at large would have been much better prepared for the disasters and their aftermath Dissemination of information such as this could be wider if there were radio, television, and Internet public service announcements discussing the Independent Study courses. In the US government, education about federal level agencies and their programs is often severely limited to those who seek it out for themselves, which is not good enough in this case If FEMA made an effort to try to get people involved in education about disaster management through the Independent Study method, many more people would be prepared for disasters as they occur

FUTURE

In the future, the Agency may also want to create a few specialized courses for different regions of the country due to its wide-ranging natural and manmade environments. What applies in a State like Florida for example won't necessarily apply in Utah and the Agency should most certainly take this into account FEMA already separates the nation into ten unique

geographical regions, so writing ten new courses that give a general overview of each individual region's hazards should not be a major problem for them For example in Region IV, a course about the region would cover the Atlanta Federal Response Center, hurricanes, floods and the National Flood Insurance Program, wildfires, nuclear/radiological accidents, terrorism, response on the federal, state and local levels, mitigation, and preparedness measures unique to Region IV in comparison as well as compliance with the general National guidelines for such disasters.

(The courses themselves in their current incarnations are located on the web and open to your review at:
http://training fema gov/emiweb/IS/crslist.asp)

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