

**United Nations Centre for  
Regional Development (UNCRD)**

**Disaster Management  
Planning Hyogo Office**

**10th Anniversary  
Report (1999-2009)**



**10th  
Anniversary**



United Nations

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## Disaster Management Planning Hyogo Office United Nations Centre for Regional Development (UNCRD)

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Printing 1000, Nov. 2009

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# 10<sup>th</sup> Anniversary Report (1999-2009)

## Disaster Management Planning Hyogo Office

United Nations Centre for Regional Development  
(UNCRD)

November 2009



## Foreword

Disaster Management Planning Hyogo Office of United Nations Centre for Regional Development (UNCRD) was created in 1999. UNCRD was established in 1971 in Nagoya and its disaster management programs started in 1985.



Disaster Management is a critical component for sustainable development. Key sectors of regional development planning such as transport, land use, environment, and infrastructure will need to take climate change into consideration as well as disaster management. Disaster risk reduction can provide a useful basis for adapting to climate change. Bringing the disaster and climate change risks and communities together should be a priority.

Without a holistic policy review and implementation at both the government and community levels, hazard risks threaten to derail the process of regional development, with more marked disaster and climate risks for developing countries. Disaster management is thus a vital component for realizing the goals identified in the MDGs, and the UNCRD Disaster Management Planning Hyogo Office specializes in research, consultation, and training activities that focus on key components of the *Hyogo Framework for Action (HFA)*.

UNCRD's research activities have yielded significant social indicators and capacity-building efforts in pilot countries and have helped to elevate this vital topic to national-level policy discussion. These include gender mainstreaming, disaster education, dissemination and implementation of safe building methods, and sustainable recovery strategies towards the establishment of a "disaster management culture" that can adapt to new risks on climate change while helping to preserve local knowledge and cultural heritages that are testaments to sustainability.

This publication compiles history of the projects, symposiums, personnel and publications of the Disaster Management Planning Hyogo Office since its establishment. It is hoped that the publication will be instrumental in developing strategies for future initiatives and up-scaling the activities of not only UNCRD but also for cooperative organizations.

Kazunobu Onogawa  
Director  
UNCRD

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## **SECTION 1**

### **Words from Successive Coordinators of Hyogo Office**

## 1.1 Masami Kobayashi (1st Coordinator)

### What I learned at the UNCRD Hyogo Centre (1999-2002)

Professor, Kyoto University  
Masami KOBAYASHI

The UNCRD Hyogo Office was established in April, 1999, in Kobe, to utilize the experience from the Great Hanshin-Awaji Earthquake of 1995 to recovery and prevention activities around the world. I became the first director of the Hyogo Office as I was asked by Mr. Hidehiko SASANAMI, who helped to establish the UNCRD and was its third director. Earthquake was not predicted or avoided last-minute at the time of the Great Hanshin-Awaji Earthquake. The houses without strength collapsed, and victims were not able to get help of their neighbors. On the other hand, the power of community cooperation was re-recognized when many residents were willing to work together towards recovery after the disaster.

What we did first in the empty office located in the IHD Centre Building after I took the position was to start preparing pamphlets describing the aims of the Hyogo Office. For reducing risks by disasters based on regional tradition and culture, we surveyed other disaster areas in developing countries. And we succeed the purpose set by the IDNDR of the UN, we decided that 1) to provide advisory services to communities vulnerable to disasters, in cooperation with governmental agencies, NGOs, and academic institutions; 2) to improve the safety of core community facilities such as schools and hospitals, houses, and cultural heritage sites that are vulnerable to disasters; and 3) to identify and learn best practices in disaster management at the community level and to disseminate.

The Hyogo Office actually started working on July, 1999, when the Great Hanshin Awaji Earthquake Association

(current 21<sup>st</sup> Century Research Institute) and the DESA, the superior body of UNCRD, signed the contract on the study on the community based disaster management. The next three years, the expense for activities of the Hyogo Office was paid by the Association. Because I had been only conducting research and teaching prior to this time, I didn't have any experience running office. So in order to do so, I decided to trust people, to ask to teach what I didn't know, and to learn best practices.

On January 15, 2000, I attended a ceremony of reconstruction for earthquake proofed schools located in mountains outside of Katmandu, Nepal. It was the international assistance project involving residents conducted by a Nepali NGO, the NSET and an American NOP, the GHI, which did a good job for the RADIUS project with assistance from the Japanese Government at the occasion of 10<sup>th</sup> year of UN's International Disaster Prevention. The ceremony was attended by national and local government officials. A shake table demonstration of two miniature school buildings representing pre-reconstruction and post-reconstruction was performed in front of students, teachers, parents and villagers. The professor Anand Arya at the Roorkee University, India, who carried out the technical guidance explained why the reconstructed building did not fell down. The newly built school was designed so that the places repaired and techniques used could be seen. Masons who learned the techniques were getting pictures taken with parents who participated in the work. Subsequently, the Hyogo Office took this program as an example and began the School Earthquake Safety Initiative (SESI).

The concept of the program was that schools were not only important facilities that provided education to children who would become community members, but also schools with great resistance were good places to evacuate. As residents participated in the construction of safe schools, they were able to gain knowledge and learn techniques on reducing damage by earthquake. Moreover, reconstructing schools using traditional



materials and techniques would promote sustainable city development involving culture and heritage of particular communities. Improving the SESI, the Hyogo Office applied for the Trust Fund for Human Security; however, we did not get approve from the DESA at the headquarter of the UN during my term.

At the end of January, 2002, just before my term was over, I was at the site of the PNY project collaborating with an Indian NGO, the SEEDS. Residents were working on recovering housing at Patanka, the small village of 256 families, who lost about half of the houses by the earthquake occurred in Western India on January 26, 2001. This resident driven program was designed to keep out intervention from outside as much as possible so that residents would be able to carry on by themselves even after assistance from outside would be terminated. The project team donated a new earthquake proof house for a family who the villagers thought was in most need. But for others, only steel and cement needed to strengthen houses were given, and owners were responsible for everything except materials and wage for skilled carpenters. Besides, easy and simple work was all done by family members. Masons who involved in the restoring of schools in Katmandu were there to teach the techniques learned to Indian carpenters with body language.

While I was serving my three-year term in Hyogo Office, I found that preventing disaster was like education for next generation, cooperation of people as a community member around the world, and self-help for those who was in most need.





## **1.2 Kenji Okazaki (2nd Coordinator)**

### **Activities of United Nations Centre for Regional Development, Hyogo Office (2002-2005)**

Professor, National Graduate Institute for  
Policy Studies (GRIPS)  
Kenji OKAZAKI

I was affiliated with United Nations Centre for Regional Development (UNCRD), Hyogo Office as the second coordinator from February 2002 to June 2005. I would like to look back at activities of Hyogo Office during the period. First, in March 2002, soon after I took the post, Mr. Kimura resigned as head of UNCRD, and I often visited its head office in Nagoya from Kobe as deputy head while waiting for Mr. Onogawa to assume the post of head in July 2002.

As continuing project, Hyogo Office implemented “Patanka New Life Plan (2001-2002),” which was designed to support reconstruction of the areas hit by the Gujarat Earthquake in India in 2002 and create an earthquake-proof community. A great deal of attention was drawn to an experiment in which a not-earthquake-resistant house (a half-size scale) placed on a huge simple shaking table, which made under the instruction of Professor Arya from India, was hit by a tractor.

Then, Hyogo Office launched a new three-year project “Sustainability in Community-Based Disaster Management (2002-2005).” Under the project, we conducted case studies of six countries in Asia and drew up guideline for sustainable community-based disaster prevention based on the study results. Community-based disaster management started to attract interest at that time, so this project was of great significance. Along with the project, we also conducted “Afghanistan Training and Life Planning (2002-2003)” program for Afghanistan that began to recover from damages caused by the long time civil

war. I was impressed to hold a symposium together with those involved and demonstrate experiments using a simple shaking table in Kabul where public security was unstable and hotels and restaurants were humble.

The most difficult problem I had during my tenure was to apply for “Trust Fund for Human Security” in order to realize “School Earthquake Safety Initiative: SESI (2005-2008)” project. The application was planned while former coordinator of Hyogo Office, Mr. Kobayashi, was in the post. We then rewrote an application letter over and over and repeatedly consulted with the UN New York headquarters and the Japanese Ministry of Foreign Affairs, the contributor to the fund. The application was finally accepted in 2004 and we could start the project in 2005. It became a big project with a budget of approximately 100 million yen, aiming to promote seismic retrofitting of schools and community based disaster management (CBDM) focusing on it in four cities of the Asia Pacific region.

Hyogo Prefecture has raised donations among the residents to support reconstruction when a major disaster occur in foreign countries, thanking for aid received from overseas when hit by the Great Hanshin-Awaji Earthquake. Asked for advice by Hyogo Prefecture after the Indian Gujarat earthquake in 2001, UNCRD decided to cooperate with the support project organized by the prefecture’s Hyogo-Gujarat Friendship Fund. The support activities include reconstruction and maintenance of schools, construction of training promoting centers, and implementation of training and promotion programs. Likewise, UNCRD cooperated in the support project run by the prefecture’s Hyogo-Kerman Friendship Fund with emphasis on seismic reinforcement of schools after the Iran earthquake in 2003.

UNCRD held a section meeting and demonstrated the effectiveness of seismic strengthening by using a simple shaking table at the 2005 United Nations World Conference on Disaster Reduction held in Kobe City. Models for stone- and brick-built houses were made with the cooperation of Kobe University students. I myself made imitation bricks and

did brick work for these house models and could acquire practical skills for housing construction, though the skills were for housing models. We could also demonstrate the effectiveness for wooden houses thanks to the cooperation of Building Research Institute. As these demonstrations attracted the attention of the media, activities of UNCRD were covered by NHK.

Visits to many countries and deep discussions with many specialists on disaster prevention through engaging in such activities are precious experiences for me. I could carry out my duties, supported by great talents and energy of Mr. Rajib Shaw (currently associate professor at Kyoto University), who then worked under me, and his successor, Mr. Bishnu Pandey (currently Ph.D. student at the University of British Columbia in Canada) as well as excellence of staff including Ms. Tsunehiro and Ms. Nakagawa. I would like to express my appreciation to all of them.



### **1.3 Shoichi Ando (3rd Coordinator)**

#### **Our Activities at UNCRD Disaster Management Planning Hyogo Office (2005-2009)**

Coordinator of UNCRD Hyogo Office,  
Shoichi ANDO

With all the assistance from the concerned parties, our office has been able to celebrate its 10<sup>th</sup> anniversary. It's been 4 years since I have come to this office on October 2005, and taking this opportunity, I would like to sum up my thoughts in retrospect.

#### **1. Frequent Major Disasters in the world**

The year 2004 was a year of many disasters for Japan: 10 typhoons made landfall; and the Chuetsu Earthquake and Fukuoka Earthquake occurred. It was also a year of tragedy globally, as seen in that the Indian Ocean Tsunami has claimed the lives of more than twenty-thousand people. Since many Western tourists on Christmas vacation visiting those Asian resort areas had been involved in the disaster, their public attention for disaster management had a rapid increase, although, earlier, it had been commonly thought that disaster is an affair of some other people in some other land. Therefore, in January 2005, persons from as many as 168 different countries and regions participated in the World Conference on Disaster Reduction held in Kobe, and Hyogo Framework for Action (HFA) was adopted. The Kashmir Earthquake occurred in 2005, Java Earthquake in 2006, Peru Earthquake in 2007, Sichuan Earthquake and the wind and flood damages in Bangladesh and Myanmar in 2008. Major disasters occurred each year for these consecutive years. It is supposed that it was partly because of the climate change; however, one of the causal factors was due to the inadequate management approaches of the governments, which was given top priority in HFA. In Asia, especially, there are many cases where disaster reduction measures have not been implemented adequately due to the rapid

urbanization by economic growth. We think it clearly necessary to incorporate disaster reduction strategies into region development in advance.

#### **2. Why Located in Hyogo**

UNCRD Disaster Management Planning Hyogo Office was established in 1999 by UNCRD Nagoya Office, founded in 1971. Since its establishment, our office has focused on the Community Based Disaster Management (CBDM) that promotes regional participation for development. Hyogo prefecture, even prior to the big earthquake, was active in local development lead by its residents, and the related parties, such as local development committee, local administration, and experts have been positively involved in it. Also, various efforts were made to reflect the voices of those involved as much as possible for the earthquake reconstruction. The lessons learned in the process are greatly useful in preventing disasters in other regions. Since January 2005, HFA is always referred to at every international conference regarding disaster reduction. Thus, HFA has become the basis for the activities of related parties worldwide involved in disaster mitigation. Kobe has many international organizations such as WHO, UN/OCHA, ISDR and ADRC. They work together in cooperation and are supported by Hyogo prefecture.

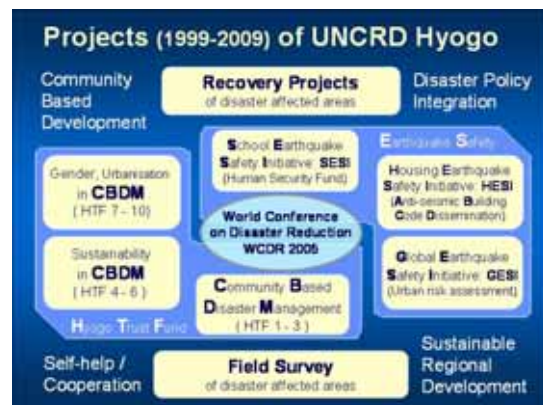
#### **3. Disaster Countermeasures and Climate Change Adaptation**

Our office, since its first coordinator Mr. Kobayashi, and second, Mr. Okazaki, has been made great efforts in disaster countermeasures. As well as GESI, which evaluates the seismic vulnerability of various cities, and SESI, which combines disaster prevention education and seismic retrofitting, we are recently working on HESI, which aims to build earthquake-resilient houses and buildings in developing countries, such as Indonesia, Nepal and Peru. For these won't be most effective until they are implemented in combination with regional development, we encourage both the Disaster Management and Regional Development Division of the governments. With all the assistance from the sponsors, related

governments and other international organizations have begun to incorporate into their activities the achievements of these projects. While we are working on expanding the areas of earthquake countermeasures, to include not only existing buildings but new-built buildings, Climate Change Adaptation (CCA) is expected to be accomplished by the Disaster Management and Development Division as a new international request. This approach is to mitigate possible damages by adapting in advance to disasters accompanied by the climate change, which is a new direction as opposed to Climate Change Mitigation (CCM), addressed in the Kyoto Protocol. We need a new approach from the point of disaster reduction as well; we hope to pursue it further.

#### 4. Making Disaster Management Planning Network

Our office, which has a small number of staff members less than 10, has been able to implement our activities thanks to understandings and cooperation of many related parties. We are especially grateful to the good relationships we have enjoyed with the sponsors, such as Hyogo prefecture, Japanese government, and Yomiuri Newspaper, which has given us direct assistance, and to the counter part organizations in other countries with which we have been able to work together for all these years. We will invite the persons from those organizations for this upcoming 10<sup>th</sup> anniversary event. At Hyogo office, we hope to continue working on making networks that will help make disaster mitigation rooted in each region, as well as new activities.



## **SECTION 2**

### **PROJECTS**

**(1999-2009)**

## **2.1 Community Based Disaster Management (CBDM)**

### **2.1.1 HTF I (1999-2000): Disaster-Safe City Planning Rooted in Culture and Climate**

During the first year of the initial three-year project period, which marked the beginning of community based disaster management research activities at the Hyogo Office, the root causes of community vulnerability such as culture and climate were studied and analyzed to understand the issues at hand for further activities.

The main objective of the first project-year was to study the fire safety of the structure and environment of traditional Japanese wooden houses because the history of devastating earthquakes in Japan pointed to the need of fire safety. Ancient houses in Kyoto and Shirakawa-go, along with old water supply systems were studied carefully. In Kyoto, walls were traditionally erected around each wooden housing block and in Shirakawa-go, annual fire fighting drills had been upgraded with modern pumps over the years with a clearly outlined system for community participation, reflecting a traditionally high level of awareness and community level capacity for disaster management.

The decision of increasing fire fighting capability instead of removing wooden districts in San Francisco after the 1905 earthquake was also studied. This decision, undertaken in 1912 during the process of recovery from the 1905 San Francisco earthquake, helped preserve traditional wooden structures by strengthening firefighting infrastructure, with several water reservoirs constructed and pressure pumping systems installed.

The studies showed the effectiveness of community involvement and disaster management infrastructure for reducing disaster risk, as opposed to wanton removal of traditional wooden structures to help preserve the culture and traditions of local communities. It was also noted that evacuation plans and the role of elementary schools as temporary shelters in each community were also critical considerations for effective disaster management.

### **Turkish Aid Committee Establishment and Management**

The “1999 Turkey Earthquake Aid Committee” was established on 26<sup>th</sup> August, just 9 days from the devastating disaster in Turkey. Almost 50 experts gathered from public sector, research institutions, and NGOs in Japan to take on the initiative of applying the lessons learnt from the Great Hanshin Awaji Earthquake to support Turkey. UNCRD was the coordinator of the Committee that included Asian Disaster Reduction Center (ADRC), Earthquake Disaster Mitigation Research Center (EDM), Hyogo Prefecture Government, Kobe City Office, Kobe University, Kyoto University, Japan International Cooperative Agency ( JICA ), and NGOs.

Four recommendations for future aid were made as follows: 1) Temporary housing should be designed to withstand winter climates; 2) Psychological care for children necessary; 3) Facilitation of transition from temporary to permanent housing; 4) Facilitating the displaced victims’ return to their homes by alleviating concerns about safety and implementing comprehensive structural assessment.

### **1.2.2 HTF II (2000-2001): Global Earthquake Safety Initiative (GESI)**

The aim of the second year entitled the Global Earthquake Safety Initiative (GESI), was implemented upon the base of the RADIUS project from the UN International Decade for Natural Disaster Reduction (IDNDR) to focus on urban community vulnerabilities and to provide affordable means to reduce them.

GESI was launched to promote actions to mitigate risks by measuring trends, evaluating the effectiveness of mitigation efforts and comparing results with other similar cities. GESI was implemented in 21 cities around the world in cooperation with the NGO Geo Hazards International (GHI). The study showed that city planners were capable of reducing risks if they adequately identified the types of risks that their city faces. Information about risks would help city leaders set priorities



while information about other cities provided benchmarks for understanding risks and for identifying acceptable risk thresholds.

The main objectives of the GESI project were:

- 1) Expressing the risk of loss of life in each city due to earthquakes using easy-to-understand formats for the public;
- 2) Measuring trends in a city's earthquake casualty risks and to identify the broad causes of those trends;
- 3) Designing a tool for the broad evaluation of the effectiveness of mitigation activities in reducing expected earthquake casualties;
- 4) Dissemination of best practices for seismic risk reduction in cities around the world.

The simplified methodology adopted by the project was based on data collected through the City Team Leaders, who as a focal point, gathered data for eight specially prepared questionnaires. The eight particular fields covered by the survey were: Seismology, soils and landslides; city planning; building inventory; school buildings; emergency response; medical emergency preparedness; hospital emergency preparedness; and fire preparedness.



One obstacle to validating the model and its results was the lack of detailed data on casualty rates and building stock in relation to old earthquake disasters. As such data had not been previously compiled, even for more recent disasters, the scale of impact in each city was uncertain. Nonetheless, continued research of disaster history should provide additional parameters necessary for improving the GESI model, as well as a comparison to observed

events. Such initiatives help raise awareness of prevalent risk and risk reduction measures that ought to be undertaken in cities around the world.

### **2.1.3 HTF III (2001-2002): Focus on Rural Community Vulnerability in Developing Countries (Post-Disaster Rehabilitation)**

During the third year of the project, focus was placed on the vulnerabilities of rural communities after earthquakes. The project focused on post-disaster rehabilitation in rural communities in light of the Gujarat earthquake of January 26, 2001.

Patanka Navjivan Yojna or the Patanka New-life Project (PNY), was named after a model village called Patanka in Patan District in Gujarat, which was the pilot target. The initiative aimed to create a model village with earthquake resilient houses and livelihood development through cooperation amongst different stakeholders including government, NGO, academia, and international organizations towards a model for sustainable rehabilitation. The project had two levels of execution targeting both the community or local level and also the national-international level involving decision makers and policy makers.

UNCRD was the overall project coordinator with Sustainable Environment and Ecological Development Society (SEEDS) taking the lead responsibility of field implementation. Japanese counterparts NGOs-Kobe and EDM also provided support.

As a main component of this initiative, masons and engineers were selected from the earthquake-hit area for training and shake-table demonstrations, which sought to exemplify effective means of disaster resilient construction and impact community practices. Investigations showed that traditional architecture were often resilient and well-suited to the local climatic condition. However, with the advent of "modern" construction designs, many new building copied the superficial style of reinforced concrete buildings without proper

structural techniques and measures, thus exposing its residents to greater risk. The initiative therefore promoted the reinforcement of traditional construction methods with additional earthquake safe features and proper structural measures.

The public demonstration and training were implemented with the goal of increasing the adoptability of such earthquake safe construction measures by rural communities. The objectives at the local level were to:

- Empower communities with earthquake resilient technology;
- Enhance capacity and confidence in local know-how and traditional construction methods;
- Train masons and community members for sustainable application of earthquake-safe technologies and methods; and
- Promote the adoption of safe construction practices among local communities / builders.

## **Sustainability in CBDM 2002-2005**

### **2.1.4 HTF IV (2002-2003): Development of a Framework for Sustainability of CBDM**

In the first year of this project series, case studies were undertaken in six countries, Bangladesh, Cambodia, India, Indonesia, Nepal, and the Philippines to examine the lessons and good practices of CBDM towards creating a guideline for sustainable CBDM.

All six countries are highly vulnerable to disasters and, consequently, have adopted innovative approaches to community involvement as a long-term process. The State of Orissa in India, facing the Bay of Bengal is constantly struck by strong tropical cyclones, whereas the Philippines, located in the Pacific Ocean experiences 19-21 tropical cyclones every year with about 3-4 considered very damaging. Bangladesh and Cambodia share similar hazardous characteristics since their flood-prone communities are affected by annual floods due to intense monsoon rains and

overflowing rivers that are shared by other countries in their respective regions. Nepal and Indonesia are two of the most earthquake-prone countries in the world and there is evidence that their risk exposure to future major earthquakes is very high. The level of community participation differs from country to country, which was considered to be the result of existing socio-political conditions. The following six counterparts were selected from each target country:

**Bangladesh:** CARE Bangladesh

**Cambodia:** Cambodian Red Cross

**India:** Sustainable Environment and Ecological Development Society (SEEDS), NGO

**Indonesia:** Institute of Technology Bandung (ITB)

**Nepal:** National Society for Earthquake Technology (NSET) Nepal

**The Philippines:** International Institute for Disaster Risk Management (IDRM)

Examining how partner organizations in each of the target countries select and collect case studies, UNCRD produced a framework for collecting case studies and its systematic analysis. On February 1<sup>st</sup>, 2003, another international expert workshop was convened in Kobe, drawing together specialists from 13 Asian countries.

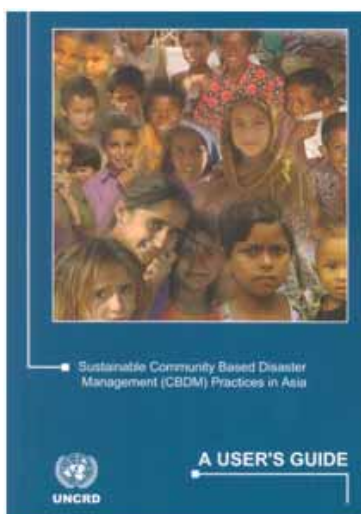
Based on the experiences of the case studies, the following were determined to be the factors that enhance the sustainability of CBDM.

1. Promote and strengthen a “culture of coping with crisis”;
2. Enhance public perception of vulnerability;
3. Recognize the motivation of community initiatives;
4. Increase community participation and empowerment through institutionalization;
5. Focus on needs-based training approaches;
6. Involve diverse stakeholders based on needs and objectives in formal and/or informal ways;
7. Promote tangible / intangible accumulation of physical, technological, and economic assets as project outputs; and
8. Promotion of the integration of community initiatives into regular; development planning and budgeting to ensure sustainability.

### **2.1.5 HTF V (2003-2004): Development of Guidelines for Sustainability of CBDM**

In the second year, the main objective was to produce Guidelines and Tools for CBDM through fieldwork and surveys in selected areas for specific hazards. The fieldwork took place in Bangladesh, the Philippines, and in Vietnam during the process of completing the generic and user-specific Guidelines and Tools. Through the activities, preliminary action plans were drawn up as a basis for producing final guidelines. Comments and suggestions were identified by the counterpart organizations that implemented the fieldwork using the preliminary Guidelines and Tools and also by other countries interested in promoting CBDM. Following each fieldwork, national workshops were convened for consensus-building on CBDM and to raise awareness of the importance of CBDM at all levels.

As a result of the ongoing research activities and discussions, the CBDM User's Guide was developed, based on the pilot application of the CBDM guidelines in Bangladesh, the Philippines, and Vietnam. The User's Guide was targeted to stakeholders of all levels involved in disaster management.



In February 2004, Hyogo Office convened a two-day Working Group Meeting and an open International Symposium on “Community

Legacy in Disaster Management” to widely disseminate the findings of the discussions and research activities. During the two-day Working Group Meeting, members and CBDM project counterparts gathered to share their ideas and insights to finalize the Guidelines and Tools towards the completion of its final version in the next project year. More than 35 experts from 17 countries representing NGOs, UN agencies, and academic experts deliberated on the critical elements of CBDM, seeking ways to improve the User's Guide and to promote its dissemination.

### **2.1.6 HTF VI (2004-2005): Development of a Handbook for Sustainability of CBDM**

In the final and third year of the project, activities focused on applying the completed User's Guide and to promote the application of CBDM. In Mongolia and Vietnam, project activities were designed to apply the User's Guide, with partner organizations familiarizing themselves with the Guidelines and translating them to the local language, and further adapting them to local conditions towards identifying a mechanism for the institutionalization of CBDM.

The concept of participatory methods and thus the distribution of rights was a relatively new concept in Mongolia and Vietnam. However, both countries had started processes of decentralization and there was the beginning of the creation of a basis upon which CBDM and development planning can be applied, following the guidelines of the User's Guide.

By pursuing the investigation of necessary components for the sustainability of CBDM, it was reaffirmed that practical application necessitated not only the understanding and efforts of the local communities, but also government assistance through legislative and budgetary means. As such, partner organizations involved the local government to conduct surveys, community meetings and workshops, engaging in extensive policy investigation. In order to strategically

implement CBDM at the national level, there is a need for a legislative framework, and to communicate this important point, national workshops were convened towards the end of this project. Translated CBDM User's Guides were widely distributed for use by local disaster management personnel and community members.

For the institutionalization of CBDM concepts in Mongolia and Vietnam and towards safe and secure community development and sustainable development, it is important for community to be involved. In January 2005, the UN World Conference on Disaster Reduction (UN WCDR) was convened in Kobe and pre-events were organized by UNCRD and other UN agencies and government institutions to disseminate the CBDM concepts and the User's Guide. The project activities during the three years were also summarized in the "UNCRD Tapestry" and to this day, it is being widely disseminated.



### **2.1.7 HTF VII (2005-2006): Urbanization and CBDM**

A number of case studies illustrate that community disaster management is feasible in rural settings. However, it should be noted that more people tend to live in urban settings than in rural settings, and the growth of urban population in Asia, where a majority of the world's disasters and damages occur, has been especially dramatic. Various disasters take place in urbanizing areas and communities, affecting millions of people each year through the loss of life, serious injury, and loss of assets and livelihoods.

A three-stage activity plan was thus implemented, proceeding from field research to the execution of participatory workshops and the final development of a comprehensive framework for community based disaster management. The participatory workshops were convened in Bangladesh, Nepal, and Sri Lanka. Active participation was achieved both in the planning and executing process of the workshops, with grassroots members from community leaders to residents to project managers and municipal mayors from the local government, as well as representatives from NGOs and UN agencies sharing ideas and planning post-workshop strategies.

Drawing from the results of these studies, certain prevailing issues were highlighted for further investigation and action, reflecting the need to focus on the socially vulnerable to implement sustainable community based disaster management. These were: 1) The need to mainstream gender perspectives including, for example, women's reproductive health, which fall through existing disaster management planning; 2) Women, children, and adolescents are insufficiently represented in formal meetings or training activities in general; 3) The most vulnerable population including women and children may have to remain in slums and/or transitional shelters in the aftermath of disasters for an extend period of time.

In consideration of these issues, further discussion and idea exchange was conducted in each country, many of them transpiring into an unprecedented forum amongst people of different backgrounds. In Sri Lanka, the Mayor and development project leaders of the rapidly urbanizing city of Moratuwa were joined by residents and landless slum dwellers, especially many women, and frankly exchanged ideas and information. With the support of the Japan Overseas Cooperation Volunteers (JOCV) of the Japan International Cooperation Agency (JICA), efforts were made to support the normalization of citizen participation in the monthly development meeting hosted by the municipal office and the mayor, where disaster



management also had become incorporated in the points of discussion.

In Thailand, field research was conducted for post-Tsunami policies and good practices for further project activities in other countries. In Bangladesh and Nepal, field research, training, and workshops were conducted to examine current issues and further project activities.

## Gender in CBDM

### 2.1.8 HTF VIII (2006-2007): Gender in Urbanization and CBDM

Following the research results from the previous project year, focus was placed on the theme of “gender”, which was identified as one of the key issues in CBDM in the context of urbanization. Training and workshops were also conducted in reflection of the local needs and situations to raise community awareness and disaster management capacity.

First, rapidly urbanizing Dhaka, Bangladesh was experiencing a building rush of high-rise apartments as population density increased. In Dhaka, where there is a pending risk of a large earthquake disaster, this artificial disaster risk is expected to cause wide-spread damage. However, most of these risk brought on by faulty construction can be easily avoided, especially because they are brought on by a mistaken belief that structural safety and anti-seismic building measures are costly. Proper training for mason and engineers can help reduce disaster risk and at the same time, raising awareness of choices and technology for consumers who buy homes or those in the community who build it themselves can help lead to the establishment of a culture of safety and disaster management. In reflection of these issues, training of masons was conducted and a public shake-table demonstration was organized using the housing models that they constructed. Dissemination to a wide audience including the media and development project stakeholders, security and emergency personnel and community members was achieved, accompanied by the community

based workshops and trainings that the partner organization had been organizing in each target community.

In Nepal, many old buildings and city blocks are designated world heritages, but in the center of the capital Katmandu, many of the unsafe buildings are densely occupied and therefore there is a recognized risk for widespread destruction in the event of a large earthquake. Therefore, in order to first raise awareness of the residents about the weaknesses and strengths of their own community, emergency training and workshops were organized with Vulnerability and Capacity Assessment (CVA) exercises and town-watching to create hazard maps. The maps showed dangerous areas, evacuation points and open ground, critical facilities during disasters including shops and pharmacies and wells, which was then digitized by specialists and posted in public areas within the community along with disaster management information.



In Sri Lanka, prevalent issues with occupational caste systems and slums arising from urbanization have led to economic disparities, causing a basic issue of communication. Therefore, in cooperation with a group of male former slum-dwellers who were raising awareness on communicable disease and waste management issues in the capital using street drama as a media of communication, collaboration were sought with women’s groups from the Tsunami affected areas and a children’s group engaged in disaster awareness plays. The three groups

banded together for CVA exercises and disaster plays, and also exchanged ideas and opinions towards the application of CBDM.



### 2.1.9 HTF IX (2007-2008): Gender in CBDM

In 2005, the "Hyogo Framework for Action (HFA)" was adopted at the UN World Conference on Disaster Reduction (WCDR), which took place in Kobe, Japan. The HFA reaffirmed that "A gender perspective should be integrated into all disaster risk management policies, plans and decision-making processes, including those related to risk assessment, early warning, information management, and education and training", and that there is a need to "Ensure equal access to appropriate training and educational opportunities for women and vulnerable constituencies; promote gender and cultural sensitivity training as integral components of education and training for disaster risk reduction".

The "Gender in Community Based Disaster Management" put additional focus on the issue of gender relations and gender based disaster management considerations within case communities. The project also sought to achieve the goals set forth under the HFA and the Millennium Development Goals (MDG's) to investigate strategies for sustainable development and disaster management that incorporates viewpoints of gender equality and participation for effective long-term disaster risk reduction.

HTF IX was implemented in order to:

- (1) Evaluate the gender sensitivity of disaster management policies and statistical and social indicators in the target countries;
- (2) Raise the awareness of stakeholders including governments, academic institutions, NGOs and communities;
- (3) Disseminate effective and efficient educational materials through workshops and/or trainings, and policies of gender sensitivities in the target countries; and
- (4) Build the capacity of stakeholders in the target countries for the evaluation and development of gender sensitive policies.

To this end, further practical training and field surveys were conducted in select target communities. In Bangladesh, water related hazards were investigated while extending further CVA exercises and first-aid and disaster training. In Kaynasli of the Duzce region in Turkey, women, mainly widows and mothers who experienced the earthquake in 1999, were given training in collaboration with a local NGO on responding to daily hazards and disaster related hazard. Extensive research was also made on case studies and good practices from post-disaster recovery and disaster management, culminating in the production of a first aid and disaster management booklet, CDs, and personal information cards in the local language based on local and international knowledge.



In Nepal, training for emergency response such as rescue and firefighting and non-structural disaster reduction measures such as securing furniture was given to women of the community and follow-up research showed that the women utilized their social networks to disseminate



their newly acquired capacities and that these were effectively applied within their communities. In Sri Lanka, further training and workshops determined the course for the next set of project activities including water conservation.

#### **2.1.10 HTF X (2008-2009): Gendered CBDM in the Context of Regional Development**

Disaster risk reduction aims to support the achievement of sustainable development, which is mutually linked to the successful achievement of the MDGs. Disasters threaten human security, the key element that embodies human beings' ability to lead long and healthy lives and be knowledgeable, have access to resources, attain a decent standard of living and to be able to participate in the policy decision making process.

Thus, by reducing vulnerability and strengthening capacity to create disaster resilient community, human security is a fundamental requirement towards sustainable development through community participation. Gender equality, which refers to the equal rights, responsibilities and opportunities of women and men, is one of the key elements to achieve the MDGs. Implementation of the project "Gendered CBDM in the Context of Regional Development" under the HTF X will promote gender perspectives and disaster preparedness in the context of regional development at government levels and at the community levels, empowering both women and men through decision-making and planning as members of communities.

Recognizing the intrinsic relationship between urban water related disasters and securing safe water sources, water conservation and disaster prevention through sanitation initiatives were launched in target communities in Old Dhaka. Aside from a high earthquake risk, the lack of capacity and awareness to clear drains and properly manage sewerage has been a source of water borne diseases, water logging, and drinking water contamination. The open water

sources providing non-revenue water for low income slum dwellers have also been a source of constant wastage as water flows freely from them, while the Water and Sewerage Authority (WASA) has been reluctant to upgrade them as they are financial drains. As such, the Ward Commissioner, Ward Disaster Management Committee volunteers and community members took initiative in affordable water conservation measures and installed wooden pegs to reduce wastage and the saved volume and value in Thaka was calculated and presented to the authorities. Impressed by the initiative and surprised by the potential of community mobilization, other counterparts such as WASA and Disaster Management Bureau also agreed to constructively engage in disaster management and sustainable development initiatives with the communities.

In Sri Lanka, gender-segregated community disaster management plan was create in targeted communities, and based on the plan, community model water harvesting tanks were constructed in the schools. The tanks were constructed with community participation after the awareness raising workshops. The initiative was supported by both the community and local government level and led to awareness and capacity building towards sustainable development and disaster risk reduction.

In Nepal, further training also strengthened the capacity of community members and ongoing partnerships with the communities have led to a set of concrete disaster management strategies and are currently being elevated to national policy-level discussion.



## **2.2 School Earthquake Safety Initiatives (SESI) /**

Reducing vulnerability of school children to earthquakes (2005-2009)

Realizing importance of resilient schools, UNCRD Disaster Management Planning Hyogo Office initiated School Earthquake Safety Initiative (SESI) in 1999. SESI aims at promoting self-help and education for disaster mitigation by building resilient and sustainable communities. The participatory approach to community development and capacity-building among the local people is the key focus area of the initiative. SESI is based on the concept that intervention for resilient schools can be effective medium in building resilience of communities to disasters.

The project on "Reducing Vulnerability of School Children to Earthquake" under SESI has been implemented by UNCRD in 4 project countries: Fiji, India, Indonesia and Uzbekistan. The project has successfully completed many vulnerability assessments of school buildings as pilot projects, retrofitting of selected model schools, training and raising awareness of engineers, technicians, teachers and community people, publication of guidelines, manuals and teachers' handbooks. The project has been instrumental in demonstrating success of the approach of integrating components structural safety and disaster awareness as a part of the school safety program.

### **Reducing Vulnerability of School Children to Earthquakes: Project Activities in Summary**

#### **Seismic Retrofitting of School Buildings**

The project includes seismic vulnerability analysis of about 10 selected schools in the project city in each country and the retrofitting of some of them which incorporate prominent construction typologies of the region. This leads to the development of country-specific guidelines on earthquake safe construction which incorporates solutions to the practical problems experienced during school retrofitting. Following stepwise approach is adopted for retrofitting of school buildings:

- (1) Criteria Development for School Selection
- (2) Guideline Development for Preliminary Assessment / Evaluation
- (3) School Selection
- (4) Preliminary Evaluation of School Buildings
- (5) Detail Seismic Analysis and Retrofit Design of Selected Schools
- (6) Retrofitting of School Buildings
- (7) Retrofitting Guideline Development

#### **Capacity Building of Communities**

Retrofitting of schools in local communities can act as a demonstration of proper local earthquake technology to residents. Masons in these communities get on-the job training during the retrofitting of schools. In addition, technicians in each project city get training on earthquake design and construction of houses. Consideration is given to local practices, material availability, indigenous knowledge, and affordability of earthquake technology during trainings.

#### **Disaster Education and Raising Awareness**

The project includes the development and wide distribution of educational booklets, posters and guidebooks on teachers' training and students' drills for earthquake disaster preparedness and response. The guidebooks gain verification and are updated through training and mock drills.

In order to integrate disaster risk reduction (DRR) education into school curricula, current curriculum has been assessed. Integration modality and plan will be developed for the improvement of school curricula to take the DRR measures into account. The project also develops an interactive educational tool for awareness-raising on earthquake disasters and simple seismic risk assessment of buildings aiming to motivate householders to plan the seismic upgrading of their houses.

#### **Knowledge and Experience Dissemination**

Regional and international workshops on school seismic safety were held to disseminate lessons from the project cities to a wider audience. It is expected that distribution of guidelines on safe construction, training manuals for technicians and education and awareness booklets will help to generate a

sustainable demand for the seismic safety of schools and buildings. Educational interactive software on general awareness and risk assessment at the household level will be published in local languages to facilitate their application and distribution in 2009.

**Pictures of Reducing Vulnerability of School Children to Earthquakes**

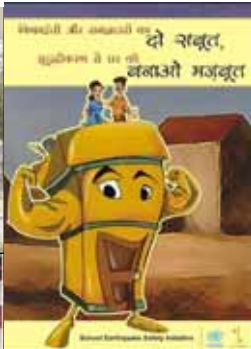
(Indonesia)



(Fiji)



(India)



(Uzbekistan)



(Indonesia)



## **Other SESI related projects**

### **Hyogo - Katmandu Collaboration on Earthquake School Safety (2001- )**

As a part of the SESI, UNCRD Hyogo Office contributed to start an exchange program between schools in Katmandu and Kobe in collaboration with National Society of Earthquake Technology-Nepal (NSET), Nepal based NGO. Recognizing the importance of education for disaster risk reduction especially after the experience of Kobe Earthquake of January 17, Maiko High School, located in Kobe started Environment and Disaster Mitigation course in April 2002 with a purpose to promote culture of disaster mitigation to young generations.

In Nepal, NSET-Nepal started an initiative to raise Earthquake Awareness in Nepal focusing on retrofitting vulnerable school buildings in the Kathmandu Valley, and Bal Vikas Secondary School was selected for this purpose. The retrofitting work of the school started in 2002 through mason-training program, with resources from parents and local villages. The activities aimed not only to protect lives of children, but also to empower communities by providing safer construction practices.

### **Hyogo Gujarat Friendship Fund (2001-2004)**

Hyogo prefecture, Japan was devastated by the Kobe Earthquake (Great Hanshin-Awaji Earthquake) in 1995. The people of Hyogo resolved to do something about rehabilitation in other earthquake affected areas and decided on more concrete, long-term commitment - setting up a task specific fund for a rehabilitation project involving school children. After the devastating Gujarat Earthquake of 2001, UNCRD Hyogo Office assisted them to initiate a project to utilize the fund by giving expert advice and coordinating stakeholders.

The basic concept is to establish a resilient and sustainable community. The overall objective is to conduct the comprehensive earthquake disaster mitigation training-cum-capacity building program for community development and long-term sustainability with special focus

on the school system and the non-engineered construction procedures in the affected areas. The scope of work included construction of one training cum dissemination center in Gujarat, retrofitting of schools, construction of new school cum community centers, and conducting trainings to local masons in the process of construction and retrofitting work.

### **Hyogo Kerman Friendship Fund (2004-2008)**

After the Great Southeast Iran Earthquake 2003, the Hyogo Government, Japan has promoted the friendship with Kerman province in the context that both have similar experiences of severe disasters.

Looking at its own experience of the Great Hanshin-Awaji Earthquake (Kobe-earthquake) and acknowledging the fact that stock of unsafe houses was the main cause of huge loss of life in Bam, the collected donation fund was offered to implement seismic retrofitting of schools in Kerman province aiming to support the children who assume the future of the disaster hit area. The project finished in late 2008 with supports from both UNCRD and SNS, a Japan based NGO.

### **Hyogo Pakistan Friendship Fund (2006-2011) / Yogyakarta Friendship (2007-)**

Hyogo Government is also implementing a friendship program in Pakistan, after the 2005 Pakistan Earthquake to rehabilitate a higher secondary school in Mansehra, Pakistan. The project is being implemented to reconstruct a damaged school building with cooperation of UNCRD Hyogo Office. The project will be completed by 2011. In addition, UNCRD is cooperating with Hyogo Yogyakarta Friendship Fund since 2007 to reconstruct and retrofit schools in 2006 Java Earthquake affected area.



## Pictures of SESI related Projects

Nepal

NSET project that created the concept of SESI in 2002

Before retrofitting



Community seminar during retrofitting



After retrofitting (by NSET)



Exchange project with Nepal and Maiko High School in 2002



Hyogo Kerman Friendship Fund (retrofitting of schools in Iran) in 2007



### 2.3 2005 World Conference on Disaster Reduction (WCDR)

During the WCDR that was held on 18-22 January, 2005 in Kobe, Japan, UNCRD contributed in assessing the achievements on disaster risk reduction in past decade; defining the challenges remaining and developing the objectives and course of actions for implementation in future.

Thematic session on “Community Based Disaster Management (CBDM)” under cluster 4 was organized at the Conference on 21st January 2005. The session gathered a group of experts in CBDM from various sectors. Panelists in the session contributed towards the theme based on their extensive experiences and researches that had been deployed at the grass-roots level. The underlying premise of this session was on how CBDM can sustain and continue to growth over time. The outcome of the session was provided to intergovernmental plenary session of the conference.

Thematic session on “Policies for Safer Building/Housing” was co-organized with Ministry of Land, Infrastructure and Transport (MLIT), Government of Japan under the same cluster 4 on 19th January 2005. The session was attended by experts from seven countries from around the world representing different regions and expertise on various kinds of housing. The session recommended strategy, course of action and indicators for improving the safety of housing and buildings in case of disaster for next decade to the plenary of the conference.

An international symposium was organized on “Building Safer Communities against Disasters” in public forum of WCDR on 20th January 2005. The objective of the symposium was to consolidate and disseminate the concept of Community Based Disaster Management (CBDM) and safer construction practice through the conference forum. The one-day symposium reviewed the achievements of disaster management interventions and evaluates how “community” has been integrated and institutionalized into disaster management.

At WCDR, UNCRD has also conducted public demonstration of “Improvise Shake-table Tests” on vernacular buildings in a public forum as special event at WCDR. The demonstrations were carried out in association with Hyogo Prefecture Government, Building Research Institute, Japan and NSET Nepal. A total of 5 demonstrations were carried out on Adobe, stone, concrete block masonry and wooden buildings, two sets on 18th and 21st January each and one set on 20th during the symposium. In demonstration, a pair of 1/10th scaled model building was placed on tabletop of an improvised shake-table. The shows revealed the weaknesses of the conventional construction models where as it was observed, in same shaking, the mechanism of resistance and the effectiveness of the earthquake resistant features in the other model. Comparing the damages, it was easily understood and convinced on the simple techniques of safer construction.





## 2.4 Housing Earthquake Safety Initiative (HESI)

In January 2007 UNCRD Hyogo Office launched a project titled “Housing Earthquake Safety Initiative (HESI)”. The project aims to improve the safety of houses and protect them from earthquake disaster through effective implementation of building code. The project is implemented in Algeria, Indonesia, Nepal and Peru. Although building code is only a part of large dialogue of building safety, it is important and key element.

Under this initiative, UNCRD provides an international information exchange platform to share policy experiences as well as the cases of school safety project. The activities included perception and implementation gap analysis of target countries, raising awareness, developing policy recommendations on improving safety of houses and developing capacity of national and local officials to implement building safety regulations effectively. One of the major activities envisaged in HESI is creation of platform for networking, information exchange, sharing of knowledge and sharing of good practices in mitigating earthquake risk throughout the world.

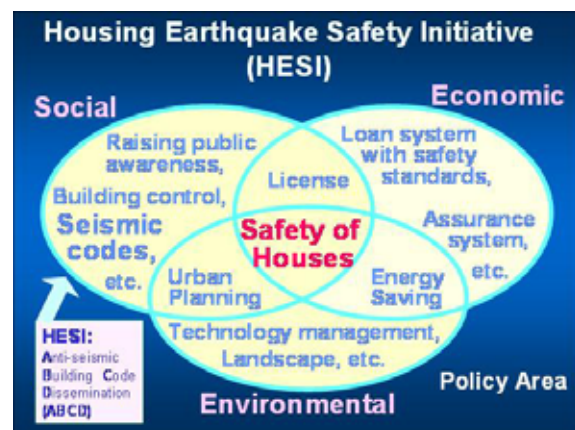
The project aims to improve structural safety of houses and other buildings to reduce impact of earthquakes in life and livelihood of people through effective implementation of building safety regulations. Because the collapse of buildings and houses is the single largest cause of human deaths and economic losses resulting from earthquakes, anti-seismic building code dissemination (ABCD: the first year of HESI) and effective enforcement of control systems can reduce the loss significantly.

Though many earthquake prone countries now have building codes, there is serious challenge for effective implementation of the codes because of lack of awareness, lack of institutional mechanism for implementation and insufficient capacity of authorities.

There are several effective tools to reduce or prevent life and property losses during an earthquake. The experiences from past

earthquakes show that effective enforcement of earthquake resistant codes can reduce the losses significantly. This is because the collapse of houses is often the single largest cause of human deaths and economic losses resulting from earthquakes. However, there are many vulnerable houses with structural deficiencies in developing countries situated in earthquake prone regions in the world.

These vulnerable houses and buildings including schools are constructed using traditional techniques without the aid of an architect or engineer. The research seeks to tackle this situation and to protect vulnerable people from possible future disasters. The first challenge is to define the process that is appropriate for individual country’s contexts. The second challenge is to disseminate the code to communities. It is verified that effective building code implementation requires not only the capable national institutions for strict enforcement but also means to engage community people through disseminating the information and involving professionals for community consultations.



**Pictures of HESI Project**

(Nepal)

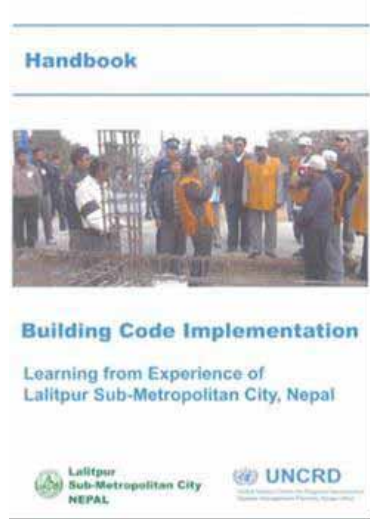
Mayors Seminar on HESI (Aug. 2007)



Site Guidance Prof. Otani (Patan) 2007



Manual for Building officers



(Peru)

HESI Seminar in Peru (Aug. 2007)



(Indonesia)



## **2.5 Other Projects**

### **2.5.1 Afghanistan Training and Living Livelihood Initiative (2002-03)**

Afghanistan was emerging out of more than two decades of conflict and internal strife. The urgent need at that time was to build houses and to provide necessary infrastructure. A preliminary seismic map shows that more than 50% of the country is prone to earthquake risk, where around 30% has high risk of severe earthquake. During the rehabilitation process, thus, it was of utmost importance to focus on the seismic strengthening of new construction, and retrofitting of already existing houses at earliest possible. Additionally, the rehabilitation programme should be the leadership of the Afghan people, a strong collaboration between the government and non-government, and capacity building of the local government organizations.

Based on the guidelines by UNCRD, guidelines and manuals for safer construction were developed, targeting local masons and communities. They were illustrative and easy-to-understand for the locals, and were distributed to the masons and community leaders for its wider usage. Training programmes were conducted in the earthquake threatened areas, with specific focus on the north and northeast part. Two workshops were conducted in the most earthquake threatened areas: Kunduz and Taloqan. During the programmes, Shake Table Demonstration Testing was conducted. Two 1/10 models were constructed, one with normal construction and the other with improved construction with seismic safety measures. This demonstration provided confidence to people and masons for the need of earthquake safer construction.

### **2.5.2 Recovery Assessment for Sustainable Cities; (2008)**

Joint Research Project with Asian Disaster Reduction Center (ADRC), International Recovery Platform (IRP) Disaster Reduction and Human Renovation Institute (DRI)

A joint project for conceptualizing the assessment of post-disaster recovery

Since the Great Hanshin-Awaji Earthquake in 1995, there have been many recovery initiatives towards “safe and secure cities”. In 13 years of 2008, most of these projects have been completed and we are at a stage of evaluation.

Disaster reduction organizations, such as UNCRD, ADRC, IRP and DRI have been seeking to collect and assess various recovery initiatives and apply them internationally. However, there is no conceptualized methodology for disaster recovery assessment.

This project therefore seeks to investigate cases from the recovery effort in Hyogo, and to use this data to research and develop methodology for the objective assessment of recovery for sustainable cities. Our partners for this effort will include Hyogo Prefecture, Kobe City, Urban Renaissance Agency and Kobe University.

Assessment methodology has been researched on several occasions, such as “Investigative Research for Assessment Methodology towards City Planning Based on Participatory Planning and Action” which produced by the Department of Land Development of Hyogo Prefecture in 2004.

## **SECTION 3**

# **IMPLEMENTATION OF VARIOUS EVENTS**



年月日	場所	プロジェクト	タイトル (WS:ワークショップ)
1999年4月20日	神戸		UNCRD防災計画兵庫事務所開所式
1999年5月24日-29日	タシケント/ウズベキスタン	GESI	ラディウス(RADIUS/地震危険度評価方法)準備WS
1999年7月19日-20日	北京/中国		シンポジウム「中国における持続可能な防災管理」
1999年7月22日-28日	雲南大理/中国		中国における持続可能な防災管理
1999年10月11日-14日	ティファナ/メキシコ	GESI	ラディウス(RADIUS)国際シンポジウム1999
1999年11月7日-18日	神戸、名古屋、東京、静岡		中国地震防災法律視察団来日
1999年11月7日-18日	神戸、名古屋、東京、静岡		日本と中国における地震防災法制度に関する比較研究
2000年2月3日	ジャカルタ/インドネシア	GESI	GESI(都市地震対策の取り組み)シンポジウム
2000年2月7日	バンドン/インドネシア	GESI	GESI(都市地震対策の取り組み)シンポジウム
2000年2月9日	ニューデリー/インド	GESI	GESI(都市地震対策の取り組み)シンポジウム
2000年2月12日	ムンバイ/インド	GESI	GESI(都市地震対策の取り組み)シンポジウム
2000年5月21日-25日	徳島		第8回自人為災害に関する国際会議「ハザード2000」
2000年6月26日-28日	北京/中国		地震災害法制度比較研究国際ワークショップ
2000年8月1日-13日	大阪、名古屋、東京		大都市における地震防災に関する研修視察
2000年11月19日-12月3日	大阪、京都、名古屋他		中国都市計画研修使節団による研修視察
2000年12月11日-23日	上海/中国		「持続可能な都市開発と防災管理」国際研修コース
2001年1月28日-2月8日	大阪、神戸、名古屋、東京	SESI	防災教育に関する研修視察
2001年1月29日-31日	神戸	CBDM	国際防災ワークショップ「地震に負けない世界へ向けて」
2001年4月8日-18日	大阪、名古屋、川崎、東京他		地方防災法体制に関する研修視察
2001年5月15日-28日	大阪、京都、名古屋、東京		地震観測技術に関する研修視察
2001年12月3日-14日	上海/中国		第2回「持続可能な都市開発と防災管理」国際研修
2001年12月10日-16日	グジャラート州/インド	CBDM	地震に負けない建物研修/グジャラート復興プログラム
2002年1月21日	神戸	SESI	国際シンポジウム「地震にまけない世界に向けて」SESI
2002年1月30日	アメダバード/インド	SESI	グジャラート地震復興ワークショップ
2002年1月31日	グジャラート州/インド		第2回グジャラート地震復興ワークショップ
2002年2月21日-22日	神戸	CBDM	国際ワークショップ「地震にまけない世界に向けてII」
2002年6月9日	グジャラート州/インド		グジャラート地震復興ワークショップ2: NGOの役割
2002年8月5日-10日	グジャラート州/インド		第4回地震に負けない建物研修/グジャラート復興計画
2002年11月7日	神戸	CBDM	コミュニティ防災プロジェクトに関する神戸専門家会合
2003年1月30日	神戸	CBDM	第2回神戸専門家会議「持続可能なコミュニティ防災」
2003年1月30日-2月1日	神戸	CBDM	国際ワークショップ「地震にまけない世界へ向けて」
2003年1月30日-2月1日	神戸		アフガニスタン災害対策室職員研修(ADB研修活動)
2003年6月17日-19日	カブール/アフガニスタン		アフガニスタン復興プロジェクト:地震にまけない建物WS
2003年7月28日-30日	バンコク/タイ		UNU/UNCRD WS「アジア・太平洋の大洪水リスク評価」
2003年9月30日	ガンディダム/インド		地震後の復興経験に関する国際ワークショップ
2003年11月20日	ドゥシャンベ/タジキスタン	CBDM	「タジキスタンにおけるコミュニティ防災」グループWS
2003年12月12日	ハノイ/ベトナム	CBDM	コミュニティ防災に関する国別ワークショップ
2003年12月14日	ダッカ/バングラデシュ	CBDM	コミュニティ防災に関する国別ワークショップ
2003年12月17日	マニラ/フィリピン	CBDM	コミュニティ防災に関する国別ワークショップ
2004年2月5日-6日	神戸	CBDM	関係者会議「持続的なコミュニティベースの防災」
2004年2月7日	神戸	CBDM	国際シンポジウム「コミュニティが育む防災」
2004年7月28日-30日	モンゴル	CBDM	コミュニティ防災に関する国別ワークショップ
2004年8月24日-26日	デリー/インド	CBDM	アジアでの持続的なコミュニティ防災の連携国際会議
2004年9月13日-10月6日		CBDM	コミュニティ防災の連携国際会議/オンラインフォーラム
2004年9月14日	ハノイ/ベトナム	CBDM	コミュニティ防災(CBDM)地域ワークショップ
2004年10月9日-10日	ウランバートル/モンゴル	CBDM	コミュニティ防災(CBDM)ナショナルワークショップ
2005年1月18日-22日	神戸		国連防災世界会議(WCDR 2005)
2005年4月	ズバ/フィジー	SESI	学校防災に関する国別会合
2005年4月	タシケント/ウズベキスタン	SESI	学校防災に関する国別会合
2005年4月	ジャカルタ、バンドン/インドネ	SESI	学校防災に関する国別会合
2005年4月	シムラ/インド	SESI	学校防災に関する国別会合
2005年8月23日	ズバ/フィジー	SESI	学校の子供たちを地震から守るプロジェクト関係者会合
2005年8月30日	バンドアチェ/インドネシア	SESI	学校の子供たちを地震から守るプロジェクト関係者会合
2005年9月5日-9日	カトマンズ/ネパール	CBDM	ネパールにおけるコミュニティ防災関係者会合
2005年9月10日-13日	ダッカ/バングラデシュ	CBDM	バングラデシュにおけるコミュニティ防災関係者会合
2005年10月14日-15日	ニューデリー/インド		津波被害復興におけるマイクロファイナンスに関するWS
2005年11月30日	タシケント/ウズベキスタン	SESI	学校の子供たちを地震から守るプロジェクト関係者会合

年月日	場所	プロジェクト	タイトル (WS: ワークショップ)
2006年1月8日-14日	コロンボ/スリランカ	CBDM	都市化に対応するコミュニティ防災 (CBDM)関係者会合
2006年1月18日	神戸	SESI	国際防災シンポジウム2006
2006年1月25日-31日	バンコク/タイ	CBDM	都市化に対応するコミュニティ防災 (CBDM)関係者会合
2006年2月27日-3月4日	ダッカ/バングラデシュ	CBDM	都市化に対応するコミュニティ防災 (CBDM)関係者会合
2006年3月4日-12日	カトマンズ/ネパール	CBDM	都市化に対応するコミュニティ防災 (CBDM)関係者会合
2006年3月25日	ムザファラバード/パキスタン		パキスタン地震被災地の復興ワークショップ
2006年4月7日-9日	ブーケット/タイ	ADPC	地域ワークショップと研修
2006年4月17日-20日	ガレ/スリランカ	CBDM	ガレ州におけるハザードマップに関するWSと研修
2006年5月15日-17日	ソウル/韓国	ADRC	災害被害軽減に関するアジア地域会議
2006年6月1日-2日	カトマンズ/ネパール	SESI	「学校安全のための地震対策」国際ワークショップ
2006年7月10日-14日	ダッカ/バングラデシュ	CBDM	都市化に対応するコミュニティ防災 (CBDM)WS
2006年7月19日-21日	カトマンズ/ネパール	CBDM	都市化に対応するコミュニティ防災 (CBDM)WS
2006年7月28日-29日	モラトゥワ/スリランカ	CBDM	都市化に対応するコミュニティ防災 (CBDM)WS
2006年11月17日	神戸	HESI	コミュニティ向けの耐震建築技術についてのWS
2006年12月1日-8日	タシケント/ウズベキスタン	SESI	地震にまけない学校計画 (SESI)プロジェクトWS
2006年12月3日-8日	ジャカルタ/インドネシア	SESI	地震にまけない学校計画 (SESI)プロジェクトWS
2006年12月5日	サマルカンド/ウズベキスタン	SESI	教師のためのトレーニングセミナー
2006年12月7日	ジャカルタ/インドネシア	SESI	自然災害管理-予防と復興の展望-に関するセミナー
2006年12月19日-1月2日	ニューデリー/インド	SESI	地震にまけない学校計画 (SESI)プロジェクトWS
2007年1月17日-19日	神戸	HESI	耐震建築基準普及プロジェクト専門家会議
2007年1月18日	神戸	CBDM	国際防災シンポジウム「知っておこう、世界の防災文化」
2007年2月28日	ズバ/フィジー	SESI	地震にまけない学校計画 (SESI)プロジェクトWS
2007年4月2日-11日	シムライ/インド	SESI	学校の耐震に関する公開シンポジウムとワークショップ
2007年4月3日-4日	シムライ/インド	SESI	地震にまけない学校計画 (SESI)プロジェクトWS
2007年5月12日-13日	マータラ/スリランカ	CBDM	ジェンダーと都市化に対応するコミュニティ防災 (CBDM)
2007年5月21日	ダッカ/バングラデシュ	CBDM	ジェンダーと都市化に対応するコミュニティ防災 (CBDM)
2007年6月5日-7日	ジュネーブ/スイス	HESI	災害リスク軽減についてのグローバルプラットフォーム
2007年6月12日-14日	カトマンズ/ネパール	CBDM	ジェンダーと都市化に対応するコミュニティ防災 (CBDM)
2007年6月22日-7月7日	タシケント/ウズベキスタン	SESI	学校の耐震に関する技術者と教育関係者への研修
2007年6月25日-27日	アスタナ/カザフスタン	ADRC	災害被害軽減に関するアジア地域会議
2007年7月8日-10日	ジョグヤカルタ/インドネシア		災害被害後の復興に関する国際セミナー
2007年7月22日-25日	ケルマン/イラン	ADPC	建築許可過程の改善に関するナショナルワークショップ
2007年8月2日-4日	カトマンズ/ネパール	HESI	耐震建築基準普及に関するナショナルワークショップ
2007年8月23日	リマ/ペルー	HESI	より安全な住宅のための耐震建築基準普及WS
2007年9月25日	ズバ/フィジー	SESI	安全な学校に関するトレーニング・ワークショップ
2007年10月8日-10日	バンコク/タイ	SESI	アジア太平洋地域ワークショップ”防災教育と安全な学校”
2008年1月17日-18日	神戸	CBDM	コミュニティ防災専門家会合
2008年1月18日	神戸	CBDM	国際防災シンポジウム「持続可能なコミュニティ」
2008年3月18日-19日	ダッカ/バングラデシュ	CBDM	ワークショップ”ジェンダーに配慮したコミュニティ防災”
2008年3月24日-27日	カトマンズ/ネパール	CBDM	ワークショップ”ジェンダーに配慮したコミュニティ防災”
2008年3月29日、4月1日	ラトナブラ/スリランカ	CBDM	ワークショップ”ジェンダーに配慮したコミュニティ防災”
2008年4月10日	カイスナリ/トルコ	CBDM	ワークショップ”ジェンダーに配慮したコミュニティ防災”
2008年5月12日-14日	ラトナブラ/スリランカ	CBDM	ワークショップ”ジェンダーに配慮したコミュニティ防災”
2008年5月14日-16日	イスラマバード/パキスタン	SESI	地震にまけない学校計画国際会議”学校防災”
2008年5月14日-19日	カトマンズ/ネパール	HESI	「建築基準実施のためのアクションプラン作成」WS
2008年5月26日-6月2日	ダッカ/バングラデシュ	CBDM	ジェンダーに配慮したコミュニティ防災フォローアップ研修
2008年5月29日	カイスナリ/トルコ	CBDM	ワークショップ”ジェンダーに配慮したコミュニティ防災”
2008年6月1日-10日	カトマンズ/ネパール	CBDM	ワークショップ”ファーストエイドトレーナー・トレーニング”
2008年6月11日-14日	カトマンズ/ネパール	CBDM	ワークショップ”ジェンダーに配慮したコミュニティ防災”
2008年9月9日-10日	ズバ/フィジー	SESI	太平洋地域における学校防災と防災教育ワークショップ
2008年9月18日-19日	タシケント/ウズベキスタン	SESI	中央アジアにおける学校防災と防災教育ワークショップ
2008年10月13日-16日	バンダアチ/インドネシア	HESI	「耐震建築の実現に向けて」トレーニングワークショップ
2008年10月28日-11月21日	神戸他	SESI	災害に強い学校(コミュニティへの耐震建築の普及)研修
2008年11月5日-7日	神戸	SESI	地震にまけない学校計画専門家会合
2008年11月6日	神戸	SESI	地震にまけない学校計画国際防災シンポジウム
2008年11月28日	東京	HESI	地震に強い住宅に関する国際シンポジウム
2008年11月29日	東京	HESI	地震に強い住宅に関する専門家会議
2009年1月17日-20日	神戸	CBDM	国際防災シンポジウム2009-災害にまけない地域づくり
2009年3月25日26日	アヌラダブラ/スリランカ	CBDM	WS”地域開発・ジェンダーに配慮したコミュニティ防災”
2009年3月29日	ダッカ/バングラデシュ	CBDM	WS”地域開発・ジェンダーに配慮したコミュニティ防災”
2009年4月7日	バンドン/バングラデシュ	CBDM	ワークショップ”学校安全のよい実例の普及戦略”
2009年5月20日	ダッカ/バングラデシュ	CBDM	WS”地域開発・ジェンダーに配慮したコミュニティ防災”
2009年6月4日-6日	カトマンズ/ネパール	CBDM	WS”地域開発・ジェンダーに配慮したコミュニティ防災”
2009年7月21日	北京/中国	SESI-HESI	学校・住宅の耐震化に関するワークショップ
2009年9月30日-10月	ジョグヤカルタ/インドネシア	HESI	学校建築の耐震化に関する国内ワークショップ
2009年10月15日	神戸	HESI	歴史都市防災シンポジウム(立命館大学と共催)
2009年10月28日	バダグ/インドネシア	HESI	バダグ地震被害と住宅の耐震化に関する緊急セミナー
2009年11月27日-28日	神戸	SESI-CBDM	UNCRD防災計画兵庫事務所10周年防災シンポジウム



## **SECTION 4**

# **SUCCESSIVE STAFF**

## Staff List (1999-2009)

	1999.4	2000.4	2001.4	2002.4	2003.4	2004.4	2005.4	2006.4	2007.4	2008.4	2009.4	2009.10
Coordinator	KOBAYASHI, Masami		OKAZAKI, Kenji				ANDO, Shoichi					
Sr.Researcher	SUGAI, Michiyo											
Researcher	SHRESTHA, Bijaya K						PANDEY, Bishnu Hari		SUBEDI, Jishnu		TRAN, Phong	
Researcher	Akazawa, Akira				NARITA, Eiko		YAMADA, Mayumi		SAITO, Yoko			
Researcher	DODO, Atsuhiko											
Researcher	SHAW, Rajib K.											
Operations Assistant	OHNISHI	NAKAGAWA, Yuko			YOSHIZUMI, Miki							
Operations Assistant	HIRATA, Yoko		TSUNEHIRO, Yuriko									
Research Assistant								SUMOTO, Edward Yutaka				
Research Assistant							FUJIEDA, Ayako					
Research Assistant								MISHIMA, Naoko		NAKAMURA, Hayato		
Associate Expert	KOBUNA, Kiyoshi											
Associate Expert	WATANABE, Ikuko											
Seconded Personnel	MAKI, Kazushi			IWATA, Daichi		SHIMODORI, Noriko	SATSUKAWA, Shuya		YOSHIKAWA, Yuka			

## Interns (2004-)

-2005	Akiko Iizuka, Ayako Fujieda, Koichi Shiwaku,
2006-2007	Yuko Wakamiya, Kritinee Pongtanareert, Kaori Kurihara
2007-2008	Gerald Potutan, Bryan Norrington, Ashmanta, Emi Tsudaka, Vicas Gora
2008-2009	Coolican Mariana, Makito Ohikata, Harumi Higa
2009-	Hitomi Hashimoto, Wu Guo Chun, Chihiro Wakamiya

## **UNCRD DISASTER MANAGEMENT PLANNING HYOGO OFFICE**

### **1999.7-2000.6**

KOBAYASHI, Masami Disaster Management  
Planner  
AKAZAWA, Akira National Expert  
DODO, Atsuhiko National Expert  
SUGAI, Michiyo National Expert  
SHAW, Rajib K. UN Researcher  
SHRESTHA, Bijaya K. UN Researcher  
KOBUNA, Kiyoshi Associate Expert  
(Amagasaki City Fire Department)  
MAKI, Kazushi Associate Expert  
(The 21st Century Hyogo Creation  
Association Foundation)  
WATANABE, Ikuko Associate Expert  
(NTT)  
HIRATA, Yoko Jr. National Expert  
NAKAGAWA, Yuko Jr. National Expert

### **2000.7-2001.6**

KOBAYASHI, Masami Disaster Management  
Planner  
SUGAI, Michiyo Sr. Researcher  
DODO, Atsuhiko Researcher  
SHRESTHA, Bijaya K. Researcher  
NAKAGAWA, Yuko Operations Assistant  
TSUNEHIRO, Yuriko Operations Assistant  
KOBUNA, Kiyoshi Associate Expert  
(Amagasaki City Fire Department)  
MAKI, Kazushi Associate Expert (The 21st  
Century Hyogo Creation Association  
Foundation)  
SHAW, Rajib K. Associate Expert (Earthquake  
Disaster Mitigation Research Centre)

### **2001.7-2002.6**

OKAZAKI, Kenji Disaster Management Planner  
SUGAI, Michiyo Sr. Researcher  
SHAW, Rajib K. Researcher  
NAKAGAWA, Yuko Operations Assistant  
TSUNEHIRO, Yuriko Operations Assistant  
MAKI, Kazushi Associate Expert (The 21st  
Century Hyogo Creation Association Foundation)

### **2002.7-2003.6**

OKAZAKI, Kenji Disaster Management Planner  
SHAW, Rajib K. Researcher  
NARITA, Eiko Researcher  
NAKAGAWA, Yuko Operations Assistant  
TSUNEHIRO, Yuriko Operations Assistant

### **2003.7-2004.6**

OKAZAKI, Kenji Disaster Management Planner  
NARITA, Eiko Researcher  
PANDEY, Bishnu Hari Researcher  
TSUNEHIRO, Yuriko Operations Assistant  
YOSHIZUMI, Miki Operations Assistant  
SHIMODOI, Noriko Seconded Personnel  
(Nippon Telephone and Telegraph(NTT)Group)

### **2004.7-2005.6**

OKAZAKI, Kenji Disaster Management Planner  
PANDEY, Bishnu Hari Researcher  
YAMADA, Mayumi Researcher  
YOSHIZUMI, Miki Operations Assistant  
FUJIEDA, Ayako Research Assistant  
SATSUKAWA, Shuya Seconded Personnel  
(Nippon Telephone and Telegraph(NTT)  
Group)

### **2005.7-2008.6**

ANDO, Shoichi Disaster Management Planner  
PANDEY, Bishnu Hari Researcher  
SAITO, Yoko Researcher  
FUJIEDA, Ayako Research Assistant  
SUMOTO, Edward Yutaka Research Assistant  
MISHIMA, Naoko Research Assistant  
YOSHIKAWA, Yuka Seconded Personnel  
(Nippon Telephone and Telegraph (NTT) Group)

## **SECTION 5**

# **PUBLICATION LIST**

## Project Reports

1999



Disaster-Safe City  
Planning Rooted  
Culture and Climate

2000



Wooden  
Architecture and  
Earthquakes in  
Istanbul

2001



GESI

2002



Report on CBDM  
1999 - 2001

2003



Disaster-Safe City  
Planning Rooted  
Culture and Climate



Patanka New Life Plan



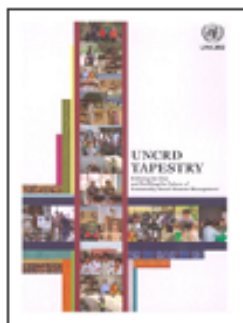
Kizuna

2004

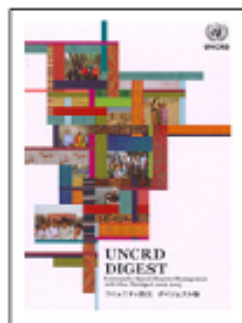


Report on CBDM  
2002 - 2004

2004



UNCRD Tapestry



UNCRD Digest

2008



Gender  
Perspectives in  
Community Based  
Disaster  
Management  
(CBDM)



School Earthquake  
Safety Initiatives  
Reducing  
Vulnerability of  
School Children to  
Earthquakes



## Project Reports

2009



Joint Research on the Assessment Methodology for Recovery Community Development (Eng, Jp)



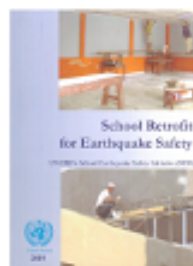
Implementing the Hyogo Framework for Action through Gendered CBDM



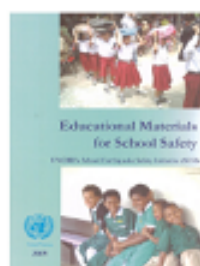
Report on the 2008 Great Sichuan Earthquake (Eng, Jp, Ch)



Reducing Vulnerability of School Children to Earthquakes (Eng, Jp, Ch, Ru, In)



School Retrofit for Earthquake Safety



Educational Materials for School Safety



Report on 2008



10<sup>th</sup> Anniversary Report (1999-2009)

## Proceedings

2001



International workshop on Earthquake safer world in the 21<sup>st</sup> century

2002



Report on 2002



Proceeding 2002



Proceeding on 2002

## Proceedings

2002



Proceeding on 2002

2003



Proceedings of  
ACTAHEAD  
International  
Workshop



Proceedings on 2003

2004



Proceedings of  
International  
Symposium on  
"Community Legacy  
in Disaster  
Management" on 2004

2005



Proceedings on 2005

2006



International  
Workshop on  
Keeping Schools Safe  
from Earthquakes



Proceedings of  
Hyogo Trust  
Fund (HTF) VII  
(Eng. Sishah)



Proceedings on  
Participatory Workshop  
on Urbanisation &  
Community Based  
Disaster Management  
(Eng. Nepal)

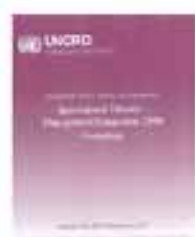
2006



Proceedings of Creating  
safe Schools, Homes, and  
Communities:  
International Disaster  
Management Symposium  
on 2006 Vol I



Proceedings of Creating  
safe Schools, Homes, and  
Communities:  
International Disaster  
Management Symposium  
on 2006 Vol II



Proceedings of  
International Disaster  
Management  
Symposium on 2006



Wide Application of  
Building Code for Safer  
Housing  
Proceedings of National  
Workshop 23 August 2006 //  
Tana, Port (Eng. Sp)

2007

## Proceedings

2007



International  
Disaster  
Management  
Symposium on  
2007



Hyogo Trust Fund VIII  
Participatory Workshop on:  
"Gender in Urbanization  
and Community Based  
Disaster Management"



Proceedings of Expert  
Meeting on The Anti-seismic  
Building Code Dissemination  
Project for the Housing  
Earthquake Safety Initiative  
2007

2008



International  
Disaster  
Management  
Symposium 2008  
(Eng. Jp)

2008



From Code to  
Practice



International  
Disaster  
Management  
Symposium 2009  
(Eng. Jp)



UNCRD's  
School  
Earthquake  
Safety  
Initiative: SESI  
in Fiji / South  
Pacific



School  
Earthquake  
Safety Initiatives  
in Central Asia

## Users Guide



The Sustainable  
Community  
Rehabilitation  
HANDBOOK  
(2002)



Guideline for  
Earthquake  
Resistant Design,  
Construction, and  
Retrofitting in  
Afghanistan (2003)



User's Guide  
Sustainable  
Community Based  
Disaster  
Management  
(CBDM) in Asia  
(2004)



Building Code  
Implementation:  
Learning from  
Experience of Lalitpur  
Sub-Metropolitan City,  
Nepal (2008)

## Users Guide



Housing Earthquake Safety Initiatives (HESI) in Nepal Framework for Building Code Implementation (2008)



Constructing Seismic Resistant Masonry Houses in Indonesia (2009)

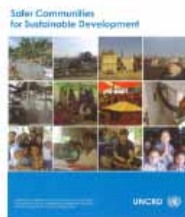


Constructing Seismic Resistant Masonry Houses (2009)



Safer Non-Engineered Construction for All (2008)

## Pamphlet



Safer Communities for Sustainable Development (Eng, Jp, Sp, Indonesian)



Sustainability in Community Based Management (Bangladesh, Cambodia, India, Indonesia, Nepal, Philippines)



Kobe-Katmandu Collaboration on School Earthquake Safety



地域開発ってなに?



UNCRD Pamphlet



UNCRD Disaster Management Planning Hyogo Office



UNCRD Disaster Management Planning Hyogo Office Information Kit



Others



RDD: Disaster management for Sustainable Development: Focus on Community Initiatives (2003)



RDD: Earthquake safety of School Children (2007)



RDD: Gender and Disaster Management (2009)



Proceedings of the Participatory Workshop in Dhaka, Bangladesh (Bengali, 2007)



Proceedings of the Participatory Workshop in Kathmandu, Nepal (Nepali, 2007)



Proceedings of the Participatory Workshop in Tallala, Matara, Sri Lanka (Sinhala, 2007)



Training Manual for Masons and Technicians in Uzbekistan (Russian, 2009)



Russian educational material of Uzbekistan (2009)



School Retrofitting Project, Fiji (2009)



School Earthquake Safety (2009)



A Sourcebook on Disaster Management for Teachers (2009)



Manual for Technician on Seismic Construction: India (2009)



## **SECTION 6**

# **FIELD SURVEY (DISASTER EXPERIENCES)**

## Abstract

This Section records the recent field surveys conducted as a part of activities of UNCRD Disaster Management Planning Hyogo Office,. The paper taken up recent five missions to the sites of massive earthquake (related) disasters: Indian Ocean Tsunami (2004), Pakistan Earthquake (2005), Java Earthquake (2006), Peru Pisco Earthquake (2007), China Wenchuan Earthquake (2008) and floods in Bangladesh (2009), and explains what UNCRD has seen in the context of enhancing regional development.

Besides of the fact that natural hazards occur constantly so far, the society faces adding risks of disasters as follows: i) expansion of populations and city (urban areas), ii) trends of heavier damages to the poor in the Least Developing Countries, and ii) degradation of ecosystem and/or climate change. Particularly in the case of earthquake, hazards affect heavily not only the least class of the society but to those who have middle incomes. Both groups, then, occupies the major part of the populations in the society as a whole, which obviously leads serious effects to any activity in the country.

## Indian Ocean Tsunami (2004)

Indonesia has been extremely vulnerable to natural hazards. It is located on the ring of fire, and as such prone to earthquakes, volcanic eruptions as well as to tsunamis caused by seismic activity. The tropical climate with heavy rain showers during the wet season can cause flooding and landslides. These natural hazards combined with high population densities, poverty, often poorly constructed buildings and deficient urban planning, inadequate warning systems and poor institutional disaster preparedness contribute to natural hazards to turn into disasters.

**Figure:** Reconstructed House (Left) and Traditional Buildings in the Aceh Region (Right), Banda Aceh, Indonesia, December, 2007



There were remaining ships in the residential area where is located a few kilometres from the coast line. There are huge amount of construction sites of new houses in the areas. Most of public facilities have been reconstructed while the houses are still under the process of recovery.

**Figure:** Damaged Masonry School (Left) and Remained Ship in the Residential Area (Right), Banda Aceh, Indonesia, December, 2007



### **Pakistan Earthquake (2005)**

Barakot is the most heavily damaged city by the Pakistan Earthquake that occurred on 8 Oct. 2005. More than 70 % of buildings in the city were collapsed and the destructed materials still remain all over the city when UNCRD reached to the site in March 2006. The reconstruction work started finally in early 2006, as having improved the weather in winter.

A model house was built by a Nepali NGO; National Society for Earthquake Technology Nepal-NSET, funded by HABITAT Pakistan and the local government. Their construction system can be adapted only to the new construction. However, because the system is familiar with local construction engineers and technicians, it may be the best way to construct earthquake resistant buildings and houses in the affected areas. UNCRD also had experience to promote same type of (reinforcement) construction system in the past with NSET in Afghanistan, Iran, and India.

**Figure:** Reconstructed House (Left) and Traditional House in the Region (Right), Pakistan, March 2006



In April 2007, a field survey of earthquake hit area of northern Pakistan was carried out in order to get insight of the vulnerability, the efforts of reconstruction and future prospects of seismic construction in the earthquake hit areas. Comparing the situation on the mission in March 2006, the reconstruction of houses and towns then had been achieved significantly. In particular, most of the hospitals have been reconstructed, whilst some of schools still remained as they

were affected. The mission found that the cause of the large scale devastation is basically the total ignorance of the earthquake risk and not because of the large shaking intensity.

**Figure:** City of Muzaffarabad (Left) and the Operation of Reconstruction Works (Right), Muzaffarabad, Pakistan, March 2006



### Java (Yogyakarta) Earthquake (2006)

In September 2006 UNCRD team visited some important sites where were affected by the May 2006 Earthquake in the south part of Yogyakarta City (approximately 5-20 Km south and south-east of the central areas): a governmental (regional revenue office) building, where its ground floor was totally collapsed as well as the “Institute SENI Indonesia Yogyakarta” and its “Departemen Pendidikan Nasional” in the Sewon District.

The team also visited the reconstruction works conducted by UII in Bantul Region where is the most affected area by the earthquake. For the purpose of public demonstration, the UII constructed, with some financial support from the Japanese embassy, a model house for the local people using bricks with reinforced concrete columns and beams (so-called confined masonry structure) in the middle of the damaged areas and very close to the trunk cross-roads of Pleret District.

**Figure:** Recovery Works (Left) and the Traditional Construction of Java (Right), Yogyakarta, Indonesia, Sept 2006





In December 2007, the second mission of UNCRD was conducted along with the team of Hyogo prefecture to see the reconstruction of vital regional facilities, particularly schools and kindergarden in Yogyakarta Special Province with the guide of the chief of planning section of the Regional Development Bureau of the Provincial government. Hyogo prefecture decided to support for retrofitting the Margoyasan elementary school in the city, which was constructed in 1901 and has approx. 240 students.

**Figure:** Poster for public awareness on earthquake resistant methods for non-engineered houses (Left) and Reconstructed (Temporary) House using local materials (Right), Java, Indonesia, Sept. 2006



### Peru Earthquake (2007)

Peru has an old history for developing National Building Code; established in 1963 and enacted in Lima in 1968. With the advanced building code in place, however, the implementation of the code is still not effective owing to various reasons. Particularly, the lack of awareness and sensitization of the importance of the latest building code amongst professionals, lack of capacity of municipal authority to deal with the building code and related urban planning issues are the major constraints. In order to achieve the essential objectives of the code earthquake safety, there is an indispensable need for capacity building of local governments for effective enforcement as well as guidance of citizens for the building code compliance.

**Figure:** Recovery Works (Left), the Traditional Construction in Peru (Right), and the Damage caused by the Earthquake (Bottom), Pisco, Peru, Aug 2007







**Figure:** A Family Desperate after Losing their House by the 2007 Earthquake (Left) and Damage of Adobe-made House (Right), Pisco, Peru

The international conference and the PERU HESI workshop that was coincidentally held just one week after the August 2007 Pisco (Peru) Earthquake, established an important foundation to implement the HESI project in Peru. The earthquake that occurred off the coast of Pisco on 15 August 2007 claimed more than 500 lives, most of them died as a result of the collapse of houses. Following the event, safety of houses became a major concern in Peru. Nevertheless, majority of the people remain unaware of the national building code and continue to live in potentially vulnerable houses.

### **Wenchuan Earthquake (2008) in Sichuan Province**

With the Wenchuan Earthquake, occurred on 12 May 2008 in the afternoon, the human damage of the disaster amounted to more than 69,000 casualties except the lost and to one millions of people who lost their houses.

The first mission of UNCRD was conducted early June 2008 in order to verify the main damage and action taken in the community in relation with the implementation of national policy. Mianzhu city got severe damage in its north-west part, particularly Zhundao town and Hanwang town. Although the central part of the city did not have severe damage the mission found that people were afraid to stay in the apartment houses with cracks. A number of tents were distributed alongside of the trunk road all over the city.

**Figure:** Temporary Shelters in Dujiangyuan (Left) Damage on Traditional Construction (Right), and Traditional Construction in the Region (Bottom), Sichuan Province, China, Aug 2008





The mission also visited Dujiangyan city, part of Chengdu city municipality area, where locates 50km west of the downtown of the Chengdu City, which has renowned historical monuments designated as the World Heritage. Although having attracted tourists, the historic monumental area had a lot of refugees then – no tourist service available at all. Having visited the Libing Middle (Junior-high) School, the mission found that the debris was removed whilst it was distributed dozens of white tents donated by the Hyogo Prefecture through the Japanese government in May 2008.

**Figure:** Damages in Middle Storey Apartment Houses- 5-6 Storeys Buildings (Left), Hospital in Hanwang (Right), Sichuan Province, China



The second mission of UNCRD to Sichuan conducted early August 2008, in order to examine closely the reconstruction work conducted by local governments and the issues emerged from the operation. The mission conducted meetings with local government officers, particularly from the Planning Directorate of the Mianyang city, one of the major affected cities in the Earthquake.

Mianyang city has more than two thousand years history and now became the 2<sup>nd</sup> largest city in Sichuan with 0.7 million population live in the city central area (70km<sup>2</sup>) amongst 5 million populations. The city has 22 famous research institutes where guards 170,000 researchers, who are taking the key factor for launching Science and Technology City development of the city to attract people, based upon “scientific tourism”- which is quite unique initiative in China.

### **Cyclone Aila (2009)**

A Cyclone Aila caused severe damages and left hundreds of thousands homeless in the coastal area of Bangladesh and South-east India on 25 May 2009. Bangladesh is affected by cyclone every year, so that the government of Bangladesh in cooperation with NGO agencies enhanced disaster preparedness strategies in coastal area through establishment of early warning system and fostering volunteers. As a result, when the devastating cyclone Sidr swept

through Bangladesh in November 2007, it resulted in a significant lower mortality rate in comparison to past disasters. However, UNCRD observed that poorer people who suffer the most were still living in cyclone shelter and partially damaged houses in two affected districts a half year after the cyclone. Many of land are still submerged due to the collapse of dikes. Therefore, women and children need to go fetch drinking water to another area by small boats.

**Figure:** Cyclone shelter in coastal area of Bangladesh (affected area by the Cyclone Aila in 2009) and residents



UNCRD has conducted interviews with local government officials, NGO staff, and community members in regards to construction of cyclone shelters in the area and its management method.

### **Brief Analysis and Concluding Remarks**

In each site-visit mission, the collapse of buildings causes major tragedies in the earthquake related disasters. In order to achieve resilient social infrastructures with earthquake resistant buildings, cooperation of engineers and governments is essential.

In order to meet with such practices in the field, the UNCRD launched the Housing Earthquake Safety Initiative (HESI) since 2007, and conducted various activities throughout the three (four) target countries: Indonesia, Nepal, Peru. The field survey showed above, then, signifies the strong needs for implementing various measures, including capacity building, on the building related preparedness for various stakeholders, particularly those who might face directly preparedness operation for the disastrous situation; community workers who motivate community residents directly, local government officials who enforce important policy directly at the local level, and the policy (decision) makers at the national level.

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12 Nov. 2009