

Report on
Third East Asia Cluster Cities Meeting
Kobe, Japan
October 6-7, 2003

Conference Venue: Kobe Portopia Hotel, Kobe, Japan

Workshop Organized by
Earthquakes and Megacities Initiative
Kobe University
In cooperation with Kobe City

Inaugural Session

The workshop welcome addresses were delivered by Prof. Toshimichi Moriwaki of Kobe University, Mr. Antonio Villamayor, General Consul of the Philippines in Osaka, and Mr. Matsushita, Deputy Mayor of Kobe City.

During his opening remarks, Prof. Yasuo Tanaka of Kobe University described the workshop agenda and the program overview. This was followed by the address by Dr. Fouad Bendimerad in which he described the meeting background and objectives in the context of the Cluster Cities Project (CCP). He acknowledged the City of Kobe for its hospitality and organization of the first meeting of the East Asian Cluster Cities in 2000. Dr. Bendimerad pointed out that the CCP workshops are usually organized every year. However, since the Third International Workshop involving representatives from all four EMI Clusters, including the East Asia Cluster, was held in Shanghai, China during October 31-November 3, 2002, the East Asia Cluster Cities (EACC) Workshop was deferred until October, 2003. The different activities of regional cooperation under the CCP were then described by Prof. Louise Comfort in her opening address.

Session I – Application of Information Technology in Disaster Management (Theme 1 of Workshop)

This session was moderated by Prof. Louise Comfort and had four presentations.

Presentation 1: Applications of Information Technology, by Prof. Louise Comfort, Vice Chair, EMI.

Prof. Louise Comfort described the importance of Information Technology (IT) tools for disaster management. She informed the workshop participants that the application of information technology tools is a primary theme in all EMI activities. She described how IT tools are very important for disaster management. However, she pointed out that IT tools require integration with local practice to ensure appropriate use. This may require integration of research and practice to ensure that advanced IT tools are made available to the end users in an appropriate form. Prof. Comfort further pointed out that the use of IT

supports coordinated action, which can be possible only if there is a strong linkage between communication and coordination systems. Even though the task appears daunting for complex environments such as for disaster management, Prof. Comfort pointed out that the increase in number of communication exchanges leads to transformation from unordered to ordered action in complex operations.

Prof. Comfort concluded that a very strong theoretical basis exists for the use of advanced IT tools in disaster management to provide decision support which involves all stakeholders in a systematic format.

Presentation 2: Current Practice in Seoul, by Prof. Myong-O Yoon, University of Seoul..

Prof. Yoon stated that the University of Seoul is funded by Seoul Metropolitan Government, and works closely with the city government. Prof. Yoon reported that Seoul does not have high seismic hazard, and the last earthquake with Intensity VIII occurred in 1546. This has led most people to think that Seoul does not have earthquake risk. The seismic instrumentation program was initiated about 30 years ago, and three earthquakes with magnitude greater than 5.0 have occurred since 1978. The building standards in Seoul have included earthquake-resistant design procedures only from year 2000 onwards. The seismic design standards are based on a 50-year return period of ground motions for the functional integrity of the buildings, and a 500-year return period of ground motions for structural integrity. Prof. Yoon also reported that significant research and development (R&D) efforts are in progress on seismic behavior of different types of structures such as concrete, steel and masonry.

Seoul has recurrent problems with flooding, and IT tools have been widely utilized in implementing flood management systems. This system includes flood vulnerability maps showing the different areas that are likely to get flooded during rains. The system is integrated with an emergency command and control center (Phone Number 119) since 1996 and uses GIS for up-to-the-second command and control. He pointed out that the use of IT has enabled Seoul City to integrate information among all agencies and commands.

Presentation 3: Current Practice in Shanghai, by Mr. Yuanqing Zhu, Shanghai Seismology Bureau.

Mr. Zhu characterized Shanghai as a very large city, with an area of over 6300 km² and a population over 16 million people. The downtown itself is over 600 km², and the city has over 2000 high-rise buildings, with another 2000 high-rise buildings under construction. The Shanghai city buildings are designed and constructed with due consideration of earthquake hazard. However, the city has a large number of old buildings which were designed and constructed before the seismic design standards were enforced.

Mr. Zhu pointed out that the city relies heavily on IT tools for disaster management. The city maintains a wide network of seismic stations, and the emergency operations center is able to determine the epicenter, and generate projected damage intensity maps within five

minutes of an earthquake. If the earthquake is large, second-level maps are generated which include additional details to refine the damage projections.

During past seismic events, Shanghai had experienced disruption of telephone networks. This experience has been incorporated in the design of the emergency operations center, which uses a distributed computing system so that all 19 districts can independently function after an earthquake event.

Presentation 4: Current Practice in Manila, by Dr. Renato Solidum, PHILVOCS.

Dr. Solidum described the seismic hazard of Metro Manila and showed that the region has very high seismic risk, including an active fault system passing through the city. He reported that several initiatives utilizing information technology tools have been used in Metro Manila. These include fault mapping at 1:50,000 and 1:100,000 scale using GIS. The mapping programs also include GIS-based hazard mapping such as ground rupture, shaking intensity, and liquefaction potential.

Under different programs and initiatives, a wide range of IT-based systems are currently under implementation in Manila. Dr. Solidum described the salient features of the Earthquake Impact Reduction Study program, which will include generation of 1:5,000 scale topographic maps for the metropolitan region. The project is facilitated by a grant-aid of the Japan International Cooperation Agency (JICA) and will include use of all risk scenario data for development of damage scenario. So far, 18 damage maps have already been developed based on different earthquake sources. Another important project aims to rapidly establish earthquake damage scenario at national level. This project also focuses on large cities, and includes earthquakes as well as associated secondary hazards such as landslides and liquefaction.

Session II – The Cross-Cutting Capacity Development (3CD) Program

This session was moderated by Dr. Raymundo Punongbayan and had three presentations.

Presentation 1: 3CD Program – Capacity Building Agenda, by Dr. Fouad Bendimerad, Chairman, EMI.

At the start of his presentation, Dr. Bendimerad showed statistics of deaths caused by major earthquakes from the recent past. The earthquakes that occurred in Turkey, Taiwan, India and Japan resulted in thousands of deaths, while the Northridge earthquake led to less than 60 deaths. He noted that the key to reducing earthquake damage in the USA was to ensure that buildings do not collapse during large earthquakes. The second priority is to set up effective response and management systems to minimize losses for the few buildings that may collapse during the earthquake. Dr. Bendimerad reported that the cross-cutting capacity development (3CD) program has been planned to help large cities of the world develop loss reduction road maps. Dr. Bendimerad then presented the details of the 3CD program. He stated that the main objective of this program is to build

capacity of local governments and local institutions in complex cities to implement proactive disaster risk-reduction actions.

He described the importance of cross-cutting issues in the context of risk reduction and disaster management. It was pointed out that the 3CD program has been structured in 5 phases over 6 years, and that the project is currently in Phase 0 while Phase 1 consists of Assessment of Knowledge and Development of Practice and Tools and will be initiated early next year.

Presentation 2: 3CD Program Phase 1 – City Participation, by Dr. Neil Britton, Team 4 Leader, Earthquake Disaster Mitigation Research Center (EdM).

Dr. Britton described the objectives of Phase 1 of the Cross-Cutting Capacity Development (3CD) program. He pointed out that focus during this phase would be on megacities. The main objectives are to: (1) collect, synthesize and assess current efforts and identify gaps in knowledge and practice; (2) collaborate in the development of a methodological framework for assessing relevant best practice, and (3) initiate a specialized training program aimed at local governments and institutions.

Dr. Britton pointed out that the activities would include a review of literature in all fields relevant to disaster management as well as the development of a framework to evaluate best practices. During this phase, the program implementation will be limited to two or three cities in order to develop and validate the framework. The most important component of this phase will be the development of a specialized training program to fill gaps in current practice and facilitate development of a Disaster Management Master Plan (DMMP) for the city. Phase 1 of the 3CD program is scheduled to commence in February 2004 and be completed in April 2005. Funding for Phase 1 will be provided by Earthquake Disaster Mitigation (EdM) Center. Suitable linkages will be established with United Nations Habitat Good Urban Governance program and the Local Authorities for Confronting Disasters and Emergencies (LACDE) Safer Cities Award.

Presentation 3: 3CD Program as Platform for Cooperation, by Dr. Peter Colvin, Executive Director, Pacific Disaster Center.

Dr. Colvin described the structure and activities of Pacific Disaster Center (PDC). He pointed out that the PDC is engaged in activities in Hawaii, Alaska, Pacific and Indian Ocean regions, which experience 38% of the world's disasters and 76% of the world's casualties from disaster. The activities of the PDC are aimed at integrating information, science and technology to improve decision support capabilities so that sustainable disaster reduction activities can be undertaken in this region.

Dr. Colvin described the main activities of PDC, which are concentrated in 5 main areas: (1) Policy & Decision Support Networks, (2) Risk & Vulnerability Assessment, (3) Institutional Capacity Development, (4) Humanitarian Assistance, and (5) Security & Sustainability. He also described the urban risk reduction agenda of PDC, which includes development and implementation of multi-hazard decision support systems and

development of a network of excellence for targeting technologies and their application in risk reduction.

The activities of PDC thus include components that can contribute to the 3CD program. Dr. Colvin presented the aspects of synergy between PDC and EMI. He pointed out the PDC expects increased regional engagement with megacities, anticipating trends in comprehensive emergency management in the near future, while the 3CD program provides the framework for developing and implementing this in the megacities. He also mentioned that the strengths of PDC and EMI are complementary and joint efforts in 3CD program will benefit these organizations as well as the cities.

Session III – Regional Cooperative Urban Disaster Reduction Programs

This session was moderated by Prof. Ravi Sinha and had five presentations.

Presentation 1: ADRC's Total Disaster Risk Management Approach in Asia, by Akiko Nakamura, Asian Disaster Reduction Center (ADRC), Kobe.

Ms. Nakamura presented the structure and activities of ADRC. ADRC consists of 24 member countries and its activities are aimed at total disaster risk management. The ultimate objective of ADRC is to ensure that hazards do not result in any casualties. Ms. Nakamura described the experiences of Japan with typhoons and explained how the steps taken for reducing typhoon losses have strengthened the country's disaster management capabilities. She pointed out that the risk reduction approach of ADRC is based on the success of Japan in the typhoon program.

Ms. Nakamura emphasized the importance attached to community participation in ensuring the success of risk reduction efforts.

Presentation 2: UNCRD's Urban Disaster Risk Reduction Agenda, by Kenji Okazaki, United Nations Center for Regional Development (UNCRD), Kobe.

Dr. Kenji Okazaki described the disaster risk reduction agenda of UNCRD. The efforts of UNCRD focus on sustainable disaster risk management, and place great importance on community participation and community empowerment. He stated that UNCRD was founded in 1971, and the Hyogo office was started in 1999. The Hyogo office activities include research, training, and capacity building, wherein the best practices are identified and shared with the community. Some significant past activities of UNCRD were described by Dr. Okazaki including Risk Assessment Tools for Diagnosis of Urban Areas Against Seismic Disasters (RADIUS), Global E-Sustainability Initiative (GESI), Pantanka New Life Plan (PNY), School Earthquake Safety Initiative, and Afghanistan Training and Livelihood Initiative (ATLI).

Presentation 3: DPRI Research in Urban Disaster Management, by Norio Okada, Disaster Prevention Research Institute (DPRI), Kyoto University.

Prof. Norio Okada presented the activities of DPRI in Kyoto University. He pointed out that the main focus of DPRI includes research in the following areas: integrated management of disaster risk, earthquake disaster prevention, geodisaster, fluvial and marine disaster and atmospheric disaster. He stated that all these research projects are carried out in different research centers of Kyoto University. He emphasized the availability of resource persons and facilities to facilitate implementation of relevant portions of the 3CD program.

Presentation 4: Kobe University's Research Agenda in Disaster Risk Management, by Professor Yasuo Tanaka, Kobe University.

Prof. Yasuo Tanaka presented the details of Kobe University's research agenda in disaster risk management. He informed the participants that the Research Center for Urban Safety and Security (RCUSS) was established in 1996 after the experiences of Hanshin-Awaji earthquake of 1995. The research activities at RCUSS are divided into 7 research groups that work on different areas, namely, Urban Structure Systems, Urban Infrastructure, Seismology and Earthquake Disaster Prevention, Health Informatics and Sciences, Urban Administration and Economy, Advanced Information Processing for Wide Area Networks, and Division of Urban Safety Management. The Division of Urban Infrastructure is further subdivided into two research teams, Geo-Structure and Geo-Environment.

Prof. Tanaka pointed out that the research projects undertaken in RCUSS have a very strong application and inter-disciplinary component. This ensures that the research projects are relevant for disaster risk management.

Presentation 5: Network for Earthquake Engineering Simulation, by Dr. Vilas Mujumdar, National Science Foundation (NSF), Division of Civil and Mechanical Systems, Project Coordinator.

Dr. Mujumdar presented the purpose and organizational structure of the Network for Earthquake Engineering Simulation (NEES) in the United States. The purpose of NEES is to encourage and support interdisciplinary and inter-university collaboration in the design, conduct, and evaluation of large-scale research projects on earthquake engineering. The project has funded a network of research centers at 16 universities in the U.S. that have built facilities for collaborative projects to test the behavior of buildings, bridges, and critical facilities under seismic stress. This approach encourages the development of interdisciplinary, multi-university teams to address major engineering problems beyond the scope of any single university or discipline.

Session IV – Training Needs and Training Agenda for Organizations and Local Officials (Theme 2 of Workshop)

This session was moderated by Prof. Kuniaki Uehara and had five presentations.

Presentation 1: The Training Agenda of the 3CD Program, by Professor Ravi Sinha, Indian Institute of Technology, Bombay and Board Member, EMI.

Prof. Ravi Sinha presented details of the training component of 3CD program. He pointed out that the ultimate objective of the 3CD program is to help the cities develop a disaster management master plan (DMMP). However, such plans cannot be developed and sustained unless the local institutions are strengthened through institution-building and training. The main objective of the training component of the 3CD program is to improve a city's process of planning, designing and delivering construction projects. In addition, training focuses on providing capacity and a knowledge-base on disaster management to the local institutions. The goal of the 3CD program and its training approach is to enable the local institutions to take ownership of their disaster management efforts.

Prof. Sinha stated that the training component in the 3CD program is designed to be multi-layered to suit the needs of different stakeholders such as town planners, engineers, emergency managers, etc. He pointed out that the training program provides both theoretical and practical knowledge to build a customized training program for each city, depending on its needs and vision. In addition, the training program is intended to supplement the existing programs in the city.

Presentation 2: Kobe University Training Agenda, by Professor Yasuo Tanaka, Kobe University.

Prof. Yasuo Tanaka presented the training agenda under RCUSS that has been recently prepared for possible funding by JICA. Prof. Tanaka mentioned that the overall project to develop mitigation strategy for urban earthquake disaster of megacities is a 5 year program, and 6 weeks long training is included under it. This training program is unique since it not only provides strong knowledge, also uses Kobe City for field demonstration.

The training program under RCUSS program includes risk assessment, risk management as well as risk communication. Prof. Tanaka pointed out that the last aspect is often neglected in other training programs. Neglect of risk communication creates conditions in which risk management plans are not fully implemented.

Presentation 3: Presentation and Inputs from Kobe City, by Mr. Masamichi Kakimoto, Assistant Manager, Crisis Management Office, Kobe city.

Mr. Masamichi Kakimoto presented the activities of Kobe City since the Awaji-Hanshin earthquake of 1995. He stated that the city briefly witnessed decrease in population after the earthquake, but the population has subsequently increased signifying economic recovery. Kobe City is currently implementing the Kobe Medical Industry Development Project, under which a training center for human resources development will be set up in Port Island.

Mr. Kakimoto also pointed out that Kobe City produces regular status reports on disaster management and also carries out regular workshops for city residents, which are crucial

elements in increasing awareness of disaster risk reduction and management strategies. He also stated that Kobe City officials visited Turkey following the 1999 earthquakes to provide assistance as well as learn from their experiences. The learning component has thus been accorded significant importance in the Kobe City disaster management strategy.

Presentation 4: Presentation and Inputs from Manila, by Ms. Marjorie A. de Veyra, Department Head, Makati Social Welfare Department, Makati City.

Ms. de Veyra presented the status of the disaster management strategy for Makati City. She stated that the city is the commercial nerve center of Philippines, with the headquarters or main offices of 40% of the country top 1000 companies being based in the city. The city's daytime population is about one million while its actual population is around half a million. This can impose tremendous pressure on the city's infrastructure if a disaster were to occur during office hours.

She stated that the city has set up the Makati Disaster Coordinating Council (MDCC) for disaster management activities. All activities of disaster management, including establishing a Disaster Operations Center are managed by the MDCC. The MDCC is responsible for developing disaster management plans, raising public awareness through campaigns and, where possible, providing early warning for disasters. The MDCC is also responsible for organizing a large number of training programs and orientation seminars. The MDCC has organized these courses on a wide variety of topics, and the training program has been widely appreciated by the officials as well as NGOs. Ms. de Veyra said that the MDCC needs to acquire expertise through short- to medium-term training courses on IT application in disaster management, use of newly-developed tools and techniques for search and rescue of earthquake and bombing victims, technology transfer of Japanese government-developed measures for the prevention and mitigation of earthquake disasters, as well as for upgrading of its training modules.

Presentation 5: Presentation and Inputs from China Seismological Bureau, by Mr. Zhu Shilong, Director, Department of International Cooperation, China Seismological Bureau.

Mr. Zhu Shilong discussed the details of training on earthquake disaster emergency response system in China, which is managed by the China Seismological Bureau (CSB). Presenting a brief background of seismic risk of China, Mr. Zhu informed the participants that China has experienced 7 earthquakes with magnitude greater than 8.0 during the last 100 years, and another 65 earthquakes with magnitude between 7.0 and 7.9. The frequent occurrence of large earthquakes has caused extensive destruction and loss of life. As a result, preparedness and mitigation have been accorded special focus in the country. The CSB has adopted a three-pronged approach focusing on (1) monitoring and prediction, (2) prevention and (3) emergency response.

Mr. Zhu mentioned that the CSB has been mandated to form earthquake emergency response team. Since CSB is a paramilitary force, it can react rapidly to earthquake

disasters. The training agenda for CSB is very elaborate and includes suitable scientific, technical and structural engineering knowledge. The CSB has also developed several training manuals on different topics. The CSB agenda includes training on methodology for estimation of direct earthquake losses, in-situ situation analysis, and has a very strong focus on social obligations.

Presentation 6: Presentation and Inputs from Earthquake Disaster Mitigation Research Center, by Mr. Toshihiro Urayama, EdM-NIED, Kobe.

Mr. Toshihiro Urayama presented the application of spatial temporal information systems for disaster management applications. He described the experiences of the Hanshin-Awaji earthquake in 1995, in which diverse pieces of information such as location of casualties, building damage and road blockage were not integrated. He also described how lack of spatial information system hindered demolition of earthquake-damaged buildings and clearing of debris due to various limitations of physically processing data.

Mr. Urayama pointed out that an integrated GIS-based information system has been now proposed by EdM for these applications. This system has extensive multi-layer information on the city such as the building footprint, details of the building area and its occupants, and other useful information. The use of a GIS-based system also permits simulation of damage during scenario earthquakes that can provide information on which houses are likely to be badly damaged.

Mr. Urayama stated that the proposed system can be used during normal times as well as after a disaster and will be found very economical for the municipalities.

Field Visits to Training and Learning Facilities in Kobe City

The workshop also included field visits to several training and learning facilities in Kobe City. The visits included JICA Hyogo International Center, Asian Disaster Reduction Center and Earthquake Disaster Mitigation Research Center. At the JICA Hyogo International Center, a tour of the training and residential facilities was provided. The list of proposed and on-going training programs was also presented to the tour participants.

An overview of the major activities of the Asian Disaster Reduction Center was presented during the tour of ADRC. The activities of different teams of Earthquake Disaster Mitigation Research Center were described during the visit to ADRC. Detailed presentations were made by Team 1 and Team 4 on their on-going activities. The EdM project in Metro Manila, which aims to develop a 1:5000 scale GIS map useful for disaster management applications was described. The opportunities for participation of international participants in these activities were also discussed.

The disaster reduction training and education programs of each of these centers are summarized in more detail in the Appendix to this report.

Closing Session: Chair, Dr. Fouad Bendimerad; Co-Chair, Dr. Yasuo Tanaka

At the closing session, the participants confirmed their acceptance and support for the following accomplishments achieved during the Workshop:

1. Commitment from the East Asia Cluster Cities and their related research institutions to further reinforce their partnership and collaboration
2. Expression of interest from the representatives of the cities to participate in the 3CD program
3. Expression of support by Kobe University for the goals and activities of EMI and statement of its interest in partnering with EMI on training activities and also IT development (Note: Kobe University has already submitted a 5-year proposal to JICA for specialized earthquake training)
4. Better formulation of training needs for local governments and understanding of current gaps
5. Better formulation of IT modeling currently used by East Asia Cluster cities and identification of gaps
6. Cooperation between Seoul and Makati City in the development of a disaster information management system. The city of Seoul will invite officials from Makati City to visit Seoul Metropolitan Region to learn more about the new disaster information system recently implemented by Seoul.
7. Next East Asia cluster cities meeting to take place in Manila in the fourth quarter of 2004.

Report prepared by Dr. Ravi Sinha, Dr. Raymundo Punongbayan, Dr. Fouad Bendimerad, and Dr. Louise Comfort, *Earthquakes and Megacities Initiative*.

Submitted on November 2, 2003.

Appendix

Report on Visits to Training and Learning Facilities in Kobe City

Three organizations were visited: Asian Disaster Research Center (ADRC), Earthquake Disaster Mitigation (EdM) Research Center and Japanese International Cooperation Agency (JICA) Hyogo International Training Center.

Visit to Asian Disaster Research Center (ADRC)

The visit to ADRC was facilitated by Mr. Kazuyuki Yoshinaga, Administrative Manager of ADRC. Mr. Yoshinaga gave a presentation on the reasons for establishment, structure, role and activities, and training programs of ADRC.

Mr. Yoshinaga explained that ADRC was established in 1998 to actively promote multinational cooperation for disaster reduction in the Asian region, where natural disasters, many of which are devastating, occur at high frequency. There are 24 Asian member countries and four advisory countries of ADRC. Mr. Yoshinaga pointed out that compared with other regions, Asia is the most affected by natural disasters. Data from 1991-2000 show that although the number of natural disasters that occurred in Asia accounted for only 38% of world's total, the impact was much larger as the number of people killed was 78%, the number of people affected was 89% and amount of damage was 54% of the global figure. He also emphasized that disaster reduction is very important for sustainable development in Asia because a single disaster can significantly affect the economy of a developing country.

Mr. Yoshinaga also described the role and activities of ADRC which can be grouped into a) information gathering and sharing, b) capacity building, and c) international cooperative projects. To facilitate information gathering and sharing, ADRC holds an international conference every year to enable representatives of member countries to share up-to-date information on disaster reduction activities. ADRC also maintains an internet web site which provides information on disasters all over the world, disaster reduction information from member countries and other parts of the globe, and a list of training courses and training organizations. The capacity building role of ADRC is designed to increase the disaster reduction capacity of each member nation. For this purpose, ADRC has initiated projects including a one-month seminar on disaster management for officials from developing countries, a six-month visiting research on disaster management from member countries, and capacity building programs in cooperation with member and other partner organizations. ADRC likewise annually implements collaborative projects with member countries and provides technical and financial assistance to implementing countries. The lessons and results of the projects are disseminated to other ADRC member countries.

Visit to Earthquake Disaster Mitigation (EdM) Research Center, National Research Institute for Earth Science and Disaster Prevention

The visit to EdM was facilitated by a team of researchers: Drs. Masashi Matsuoka, K. Hasegawa, Nelson Pulido and Antonio Fernandez.

Dr. Masashi Matsuoka, in behalf of their Director Dr. Hiroyuki Kameda, presented an overview of the EdM Research Center by describing its purpose and research themes, and briefly introducing its major activities and accomplishments. Dr. Matsuoka emphasized that the main purpose of EdM is to conduct frontier research on earthquake disaster mitigation for urban regions. The research involved is multi-disciplinary with contributions from experts in the physical, engineering and social sciences and specialists in information and disaster management.

Dr. Matsuoka explained that EdM's major activities are being performed by four research teams. These are a) Disaster Process Simulation Team, which addresses the societal agenda b) Disaster Information System Team, which covers the information agenda, c) Structural Performance Team, which handles the physical agenda and d) International Disaster Mitigation Strategies Research Team, which looks into the policy agenda. He also reported that EdM is the institution-in-charge for the research study "Development of Earthquake and Tsunami Disaster Mitigation Technologies and their Integration for the Asia-Pacific Region," supported by the Japanese government and in which several Pacific-rim countries participate. This project is envisioned to a) develop disaster mitigation technologies for geo-hazards, civil infrastructures and buildings, b) develop disaster risk assessment and management technologies, c) understand and evaluate regional characteristics of damage and d) formulate a master plan for earthquake and tsunami disaster mitigation.

Following the overall presentation on EdM, several researchers explained the activities of the various research teams. Dr. Matsuoka, a member of the Disaster Information System Team which aims to develop an information system with remote sensing and communication technologies, presented applications of satellite remote sensing for gathering disaster information, applications of airborne remote sensing for urban modeling and damage detection and their methodology on seismic damage assessment and data base development. Dr. Hasegawa, a member of the Disaster Process Simulation Team that tries to develop computerized visualization of disaster processes, explained the projects on crisis management for effective post-event operations, computerized visualization of disaster processes and multi-media response simulation system. Dr. Nelson Pulido, a member of the Structural Performance Team that aims to develop an accurate earthquake response analysis and reliable vulnerability assessment of urban structures, described their projects on strong ground motion evaluation, soil liquefaction and foundation processes and prediction of structural earthquake responses. Dr. Antonio Fernandez, a member of the International Disaster Mitigation Strategies Team which aims to develop integrated policy programs for effective hazard management, explained the risk management approach that their team is following.

Visit to JICA Hyogo International Training Center

The visit to the JICA Hyogo International Training Center was facilitated by Mr. Ippei Hattori, Administrative Manager, JICA Hyogo International Office.

Mr. Hattori explained that JICA is a government agency dedicated to implementing human resources development and technical assistance such as technology transfer to developing nations. He presented the various training programs for 2003 offered by JICA Hyogo Office, in coordination with other research institutions within Hyogo Prefecture. There were several trainings designed for disaster management. These include group training course on a) comprehensive health and medical care in disaster in coordination with Kobe University and b) seminar on disaster management in cooperation with ADRC and country focused training on a) disaster management and post-disaster reconstruction, b) disaster prevention and c) medical management in disaster. After the brief presentation about JICA Hyogo Office, Mr. Hattori showed the participants the various facilities of the Training Center.