EMI
Earthquakes and Megacities Initiative

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Cluster Cities Series - Americas

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Enhancing City-to-City Sharing and Social Participation in Disaster Risk Reduction

Proceedings of the Americas Megacities Forum 2007

19-21 September 2007
Mexico City, Mexico

March 2008

Ciudad México
Gobierno del Distrito Federal

EL COLEGIO DE MÉXICO

International Strategy for Disaster Reduction

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Contents

Abbreviations / Acronyms

3cd - Cross-Cutting Capacity Development Program
BCPR - Bureau of Crisis Prevention and Recovery, UNDP
C2C - City-to-City Sharing Project
CCP - Cluster Cities Project
CEDUA - Centre for Demographic, Urban and Environmental Studies, Mexico
CENAPRED - National Disasters Prevention Centre, Mexico
CIESAS - Centro de Investigaciones y Estudios Superiores en Antropologia Social, Mexico
CoCoS - Seismic Consultative Council
DRM - Disaster risk management
DRMMP - Disaster Risk Management Master Plan
DRR - Disaster risk reduction
EMI - Earthquakes and Megacities Initiative
FOPAE - Dirección Prevención y Atención de Emergencias, Bogota
HFA - Hyogo Framework for Action
IMM - Istanbul Metropolitan Municipality
IPN - National Polytechnic Institute
ISDR - International Strategy for Disaster Reduction
JICA - Japan International Cooperation Agency
MEGA-Index - Megacity Indicators System
MEGA-Know - Megacity DRM Knowledge Base
MEGA-Learn - EMI's training platform for urban and megacities DRM
Mexico D.F. - Mexico Distrito Federal
MEGA-View - Megacity Map Viewer
MIS - See MEGA-Index
MMEIRS - Metro Manila Earthquake Impact Reduction Study
ProVention - ProVention Consortium
RAC - Red Andina de Ciudades
SCEC - Southern California Earthquake Center, Los Angeles
UNAM - National Autonomous University of Mexico
UNDP - United Nations Development Fund
UN/ISDR - See ISDR
UNPD - See UNDP
WB - World Bank
WBI - World Bank Institute

Acknowledgments

The convening of the Americas Megacities Forum 2007 would have been impossible without the help and cooperation of key institutions and individuals. First, we are grateful to the ProVention Consortium, United Nations Development Program-Bureau of Crisis Prevention and Recovery, and the United Nations International Strategy for Disaster Reduction, for their unwavering support, financial and otherwise, to the Cluster Cities Project (CCP). The CCP is EMI's platform for establishing a worldwide network of megacities engaged in disaster risk reduction, under which the Forum has been held annually since 2000.

On behalf of participating cities and institutions, we would like to thank Mexico D.F. Government, under the leadership of its Mayor, Honorable Marcelo Ebrard Casaubon, for hosting the Forum this year. We are particularly indebted to Ms. Marisa Noriega and Ms. Virginia Martinez and their office staff, whose dedication, patience and hospitality made for the organization and hosting of the Forum by Mexico D.F.

We would also like to thank El Colegio de Mexico, through Dr. Sergio Puente Aguilar, not only for their technical inputs to the Forum's agenda, but also for their crucial role in forging the EMI-Mexico D.F. partnership.

Furthermore, we would like to express our gratitude to the Forum moderators and rapporteurs for facilitating and documenting the key points of the panel presentations and discussions, the highlights of which are presented in this proceedings report. We are thankful to Dir. Diana Rubiano Vargas, Dr. Louise Comfort, Dr. Sergio Puente Aguilar, Dr. Roberto Meli, Engr. Jeannette Fernández, Dr. Eduardo Reinoso, Engr. Roberto Quass, Dr. Bijan Khazai, and Dr. Virginia García Acosta.

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Lastly, we would like to thank all the cities and institutions who attended the Forum and participated in the Share Fair. Your contributions have been valuable in meeting the primary objective of the Forum, which was to facilitate the sharing of evidence-based disaster risk reduction in the context of megacities.

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Executive Summary

- ☑ Background
- ☑ Objectives
- ☑ Highlights, Issues, Approaches
- ☑ Policy Implications
- ☑ Directions for the Future

Photo: Marqueza Reyes / 2007

Background

The Americas Megacities Forum 2007 was organized by the Earthquakes and Megacities Initiative (EMI) and the Ciudad Mexico, D.F., in partnership with El Colegio de Mexico, Universidad Nacional Autonoma de Mexico (UNAM), ProVention Consortium, United Nations Development Programme (UNDP/BCPR), and the United Nations International Strategy for Disaster Reduction (UN-ISDR). Held on 19-21 September 2007 in Mexico City, it was conceived as a contribution to the local implementation of the Hyogo Framework for Action (HFA), under the aegis of EMI's Cluster Cities Project (CCP).

Partner Cities' representatives from the CCP network attended the Forum, namely, Mexico City D.F. (host city), Bogota, Lima, Los Angeles, Quito, Istanbul and Metro Manila (Makati City and Quezon City). There were also participants from other Mexican local, provincial and federal governments, universities and civil society, as well as experts and practitioners from regional and multilateral organizations. This is the sixth such forums for the partners of the Americas Cluster.

Objectives

The Forum aimed to serve as a platform to scale up and cascade down knowledge dissemination on evidence-based disaster risk reduction (DRR) in the context of megacities. By gathering local government organizations, city managers, experts, policy makers, local planners, and local officials in the Americas region, megacities' representatives were given the venue to present their practices in DRR that others may validate, adapt, and apply to their respective risk context. It also aimed to facilitate peer-to-peer learning exchange and empowerment among cities so they may benefit from each other's experiences and capabilities in implementing DRR sound practices and models that have proven successful in similar situations. The meeting is an opportunity to review the state-of-the-practice in urban disaster risk management, more specifically as it applies to megacities.

Highlights, Issues, Approaches

The Forum had four plenary sessions, a field trip, one panel discussion and a half-day Share Fair for city-to-city knowledge sharing. The field trip represented an opportunity to reflect on the profound socio-economical and political consequences of the 1985 earthquake, with eyewitnesses' analyses of the issues related to the recovery and reconstruction from the earthquake, and the civil society's organizing that followed and which impacted the socio-political landscape of Mexico to date. The Share Fair provided an informal setting for peer-to-peer information sharing on preparedness and disaster risk reduction projects in various cities.

At the plenary session, the participants pointed to the need to continue developing and improving hazard, vulnerability and risk assessment methodologies, taking into account socio-economic factors for a more holistic and accurate risk modelling. Such an approach can lead to a better definition of preparedness programs and to the development of appropriate indicators to measure progress towards DRR. Discussion also addressed the topic of risk financing and insurance schemes as a means to finance losses especially in view of the difficulties of implementing seismic retrofitting. Mexico has experiences with such schemes having issued the first global "Cat Bond" to cover losses to infrastructure. However, these schemes are for sophisticated investors and costly. One of the major issues is how to make insurance affordable and workable at the household level. Risk analyses can provide a scientific approach for setting premiums and providing financial support through reinsurance, but the insurance schemes need to be developed carefully so that there is access by the poor and real transparency and understanding from the policy holders. The determination of the degree of risk under various conditions of stress, time and resources, such as the consequences of the lack of building code enforcement, was also raised as one important issue for large cities such as Mexico City where various interests are in competition. Addressing risk reduction of the built environment through land use transformation and urban redevelopment could be a promising alternative for cities and as a means to complement purely structural approaches such as seismic retrofitting. The case of Istanbul was highlighted as a model for urban redevelopment for disaster risk reduction.

One of the major issues is how to make insurance affordable and workable at the household level.

Addressing risk reduction of the built environment through land use transformation and urban redevelopment could be a promising alternative for cities and as a means to complement purely structural approaches such as seismic retrofitting.

Furthermore, Mexico City's vision of building a "Culture of Prevention" was lauded as one step towards linking communities to their local institutions, and to ensure success and sustainability of DRR efforts. Examples from Quezon City, Bogota and Quito show that partnerships between communities and local government can lead to sustainable community-based DRR initiatives. The institutional involvement and support can be the catalyst for community action and provide the structure for sustainability. Inter-institutional coordination has been proven to have significant impacts on prevention, mitigation and emergency management activities. The Seismic Consultative Council (CoCos), was cited as a sound practice

linking city authorities to researchers and the public. CoCos help facilitates multi-stakeholder cooperation and coordination among professional associations, researchers, practitioners, universities and the private sector.

The master planning approach, as espoused by EMI through its Disaster Risk Management Master Plan (DRMMP) model, was identified as one model to rationalize and institutionalize DRR planning and action, mainly in large cities which are typically managed through various planning processes. The DRMMP, pursued under the banner of EMI's Cross-Cutting Capacity Development (3cd) Program guides the city planners and managers through a series of steps by which they understand their risk parameters, analyze its impacts on city development and operations, and develop a strategic plan for DRR actions, and indicators for decision-making and for measuring progress.

Efforts should be undertaken to build competency of institutions and of practitioners at the local level, through specialized training programs tailored to the needs of cities, and peer-to-peer sharing programs.

The technical capacity of DRM professionals and managers, particularly in view of the complexities of megacity systems, was also brought to the fore. To this end, efforts should be undertaken to build competency of institutions and of practitioners at the local level, through specialized training programs tailored to the needs of cities, and peer-to-peer sharing programs.

The Forum was opened with addresses from Mr. Marcelo Ebrard Casaubon, Mexico City Mayor, and Dr. Fouad Bendimerad, EMI Chairman. Recalling the 1985 Mexico earthquake, they both underscored the need to learn from experience and use these lessons to plan and implement appropriate DRR programs and actions. The Forum concluded with the signing of a Declaration of Commitment from the partner cities and other institutions that participated in the Forum. During the Closing Ceremony, the Mexico D.F. and EMI signed a Declaration of Cooperation indicating Mexico D.F.'s continuing commitment to work with EMI and other partner cities in CPP's Americas Cluster.

The City of Los Angeles presented its invitation to hold the 2008 Americas Forum, which was accepted by the partners. The Forum will be held in conjunction with the 2008 Los Angeles Earthquake Conference planned in November 2008.

Policy Implications

The Forum highlighted progress and challenges in DRR within the city partners of the CCP Americas Cluster. The presentations reflected the impressive investment

in disaster risk reduction undertaken by cities. At the same time, participants also noted the challenges in terms of the implementation of DRR. In particular in terms of having the appropriate tools to support the planning processes and having internal competency for multi-sectoral city engagements. In parallel, improving societal and institutional awareness within the context of building a "Culture of Prevention" are necessary to influence public policy and stakeholders' engagement. Three major policy implications can be drawn from the above-mentioned presentations and discussions:

1. **Scale up knowledge-sharing of DRR sound practices, tools and technologies among cities.**

Information sharing can be an efficient instrument for pushing DRR action and policy at the city level. It is also a means for mobilizing resources for DRR and for scaling up contributions. Cities have a lot to learn from each other's experiences in DRM, but little information sharing is taking place now. More efficient mechanisms need to be developed to facilitate this exchange of technical and practical knowledge. Peer-to-peer knowledge exchange is a powerful motivator for practitioners. It is generally encouraged by policy makers. Nonetheless, currently very little city-to-city sharing is taking place due to lack of dedicated resources and institutional arrangements that enable cities to share their mutual experiences.

Cities have a lot to learn from each other's experiences in DRM, but little information sharing is taking place now. More efficient mechanisms need to be developed to facilitate this exchange of technical and practical knowledge.

In recognition of this need, EMI has been experimenting with various approaches, one of which is the Share Fair methodology adopted in the Forum. The Share Fair approach allowed cities to present specific DRR sound practices to other cities in "show and tell" sessions. Upscaling this kind of city-to-city sharing could pave the way for a greater level of adaptation of appropriate sound practices, tools and technologies to mitigate the impact of natural disasters in the lives and properties of people living in urban areas. For this purpose, EMI and its partners cities within the Americas Cluster decided to put more structure to the sharing information process by launching the City-2-City Project. In this project, EMI will provide some initial funding and ensure coordination, whereas each of the city will participate by absorbing its own cost and by a commitment to share and participate. EMI will write a concept note to explain the project intent and its functioning. The hope is that this local initiative will trigger the interest of sponsors and donors as well as the interest of other cities to contribute and participate.

2. Develop risk communication and planning tools and technologies.

The Forum highlighted the need for cities to develop and institutionalize mechanisms for effective and strategic communication of natural disaster risks. It was reported in the presentations that there is a continuing discrepancy between people's perceptions and the risks that they actually face, which often hinders the way communities prepare and respond to the risk. Moreover, the risk must also be communicated effectively to policy-makers since DRR actions depend on their initiatives and support.

To bridge this gap, a couple of pointers were raised. First, to engage members of society in accepting responsibility for managing disaster risk, scientific information should be made accessible and communicated to various stakeholders according to their concerns and needs. Institution-to-institution knowledge communication is typically more focused and formalized than communication of risk to engage communities, for example. It was noted that cities can make information available to communities through internet, borrowing from successful commercial examples such as Google Earth or Google Map. EMI's MEGA-View, a web-based map viewer has had success in Metro Manila in terms of disseminating risk information from MMEIRS study. Such tools are also very powerful for risk communication, and most important for response and recovery planning, and for preparing realistic drills. Participants agreed that investments in risk communication and planning tools are warranted both on the local level but also on a regional level.

Scientific information should be made accessible and communicated to various stakeholders according to their concerns and needs.

Second, to support informed decision-making and influence policy, a multi-disciplinary approach at communicating risk must be vigorously pursued. DRR engages various functions of government and society. Thus, tools and approaches much adequately and seamlessly blend the expertise from various fields such geology, engineering, urban planning, public administration, social sciences, information sciences, and others.

In summary, there is a recognition that urban DRR will be advanced substantially with: a) the development of more effective risk communication tools that can reach various stakeholders as well as educated communities and their leaders; and b) the development of better DRR planning tools that can adapt to how cities functions and how city policy-making is undertaken.

3. Strengthen social participation in DRR implementation.

The first step towards strengthening social participation is to increase people's awareness of disaster risks. To this end, cities must make full use of available formal and informal channels, technologies and tools to inform, educate and communicate these risks to communities and institutions. Formal channels such as government agencies and institutions must be combined with flexible methods from civil society or non-government organizations (NGO) that could assimilate, channel and leverage aid to citizens. Some cities have been successful in developing constructive Public-Private Partnerships (e.g., Los Angeles and Bogota), where private institutions can provide additional resources and can get involved in information, education and communication campaigns. One of the big challenges faced by cities pertains to the vulnerability of informal settlements and the socio-economic issues that are associated with them. Engaging and raising the level of awareness and consequently influencing the behavior of informal settlers requires significant investments and well-tailored programs. Urban redevelopment projects such as the ones undertaken by Bogota and Istanbul are a way to radically change the vulnerability of informal settlers. Community-engaged projects such as the stream cleaning projects in Quito can also be quite successful provided there is a way to sustain them.

One of the big challenges faced by cities pertains to the vulnerability of informal settlements and the socio-economic issues that are associated with them.

The Forum participants also acknowledged both the importance of and challenges in involving local stakeholders in DRR, especially in the planning process. The DRMMP process espoused by EMI was presented as one framework to involve various stakeholders in the articulation of issues and options for megacities DRR. UNDP-Ecuador is adopting the DRMMP process in a project for Quito Metropolitan City that is sponsored by the World Bank. Other approaches can also be used. The key is to get into a structured communication in a strategic planning process by which outcome is determined by confronting interests and options and in which responsibilities are understood and shared.

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Directions for the Future

The 2007 Americas Forum confirmed specific program goals and themes to pursue for this year. Progress will be measured and further guidance provided during the 2008 Americas Forum in Los Angeles. These include:

1. **Initiating the implementation of the City-2-City Sharing project.**

Develop a Concept Note to define its goals, working mechanisms and agenda. Promote the project among sponsors and donors to get additional input and guidance and to identify donors interests. Look for means to scale up the information sharing process by involving other cities from other EMI clusters or elsewhere. Look at potential partnerships with other regional initiatives (for example within the ISDR system), and also with local government organizations, professional organizations and others. EMI will undertake the initial work and provide initial structure and promotion of the City-2-City Sharing Project. In this context, a potential visit of Mexico officials to Istanbul and possibly Bogota may be arranged for 2008.

2. **Developing and enhancing institutional and technical capacities of city partners by giving them access to training programs and adaptation of planning tools and technologies.**

This can be done through enhancing opportunities for networking both at regional and global levels. In this regard, EMI will look at opportunities for training such as within the current WBI e-learning training programs and JICA-supported training programs. There is also interest in terms of pursuing certification programs to train DRM practitioners as certified professionals.

3. **Keeping the thrust to enhance the knowledge of risk in cities and to further develop risk communication tools.**

These tools would improve social responsibility, through understanding of risk among multiple stakeholders, as well as support preparedness efforts and DRR planning processes. This includes exploring ways of transferring experiences from once sity to another such as Istanbul or Makati in terms of urban redevelopment planning of high risk areas and effective disaster/emergency management processes.

Session Reports

- ☑ Progress in Disaster Risk Mitigation in Mexico City
- ☑ Approaches and Tools in Disaster Risk Mitigation
- ☑ Enhancing City-to-City Sharing in the Americas Cluster
- ☑ Social Participation in Risk Mitigation Programs
- ☑ Other Instruments for Disaster Risk Mitigation

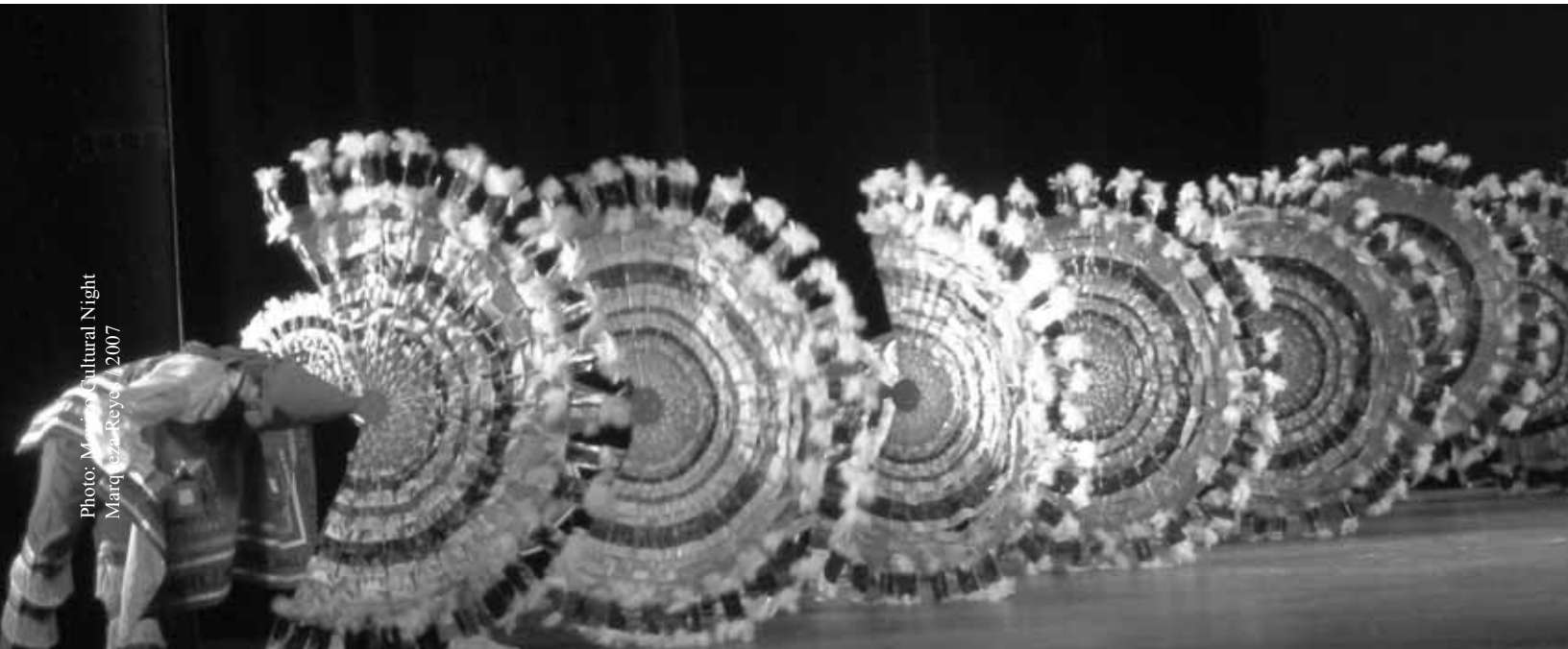


Photo: Museo Cultural Night
Marqueza-Reyes / 2007

Progress in Disaster Risk Mitigation in Mexico City

The first plenary session tackled *Progress in Disaster Risk Mitigation in Mexico City*. It included six speakers from different disciplinary backgrounds who, together, offered a comprehensive overview of the recurring seismic risk confronting Mexico City and the city's current plans and state of preparedness for the metropolitan region. Diana Rubiano Vargas, Director, Dirección Prevención y Atención de Emergencias, Bogotá, Colombia, served as moderator for the session, and introduced the speakers, namely:

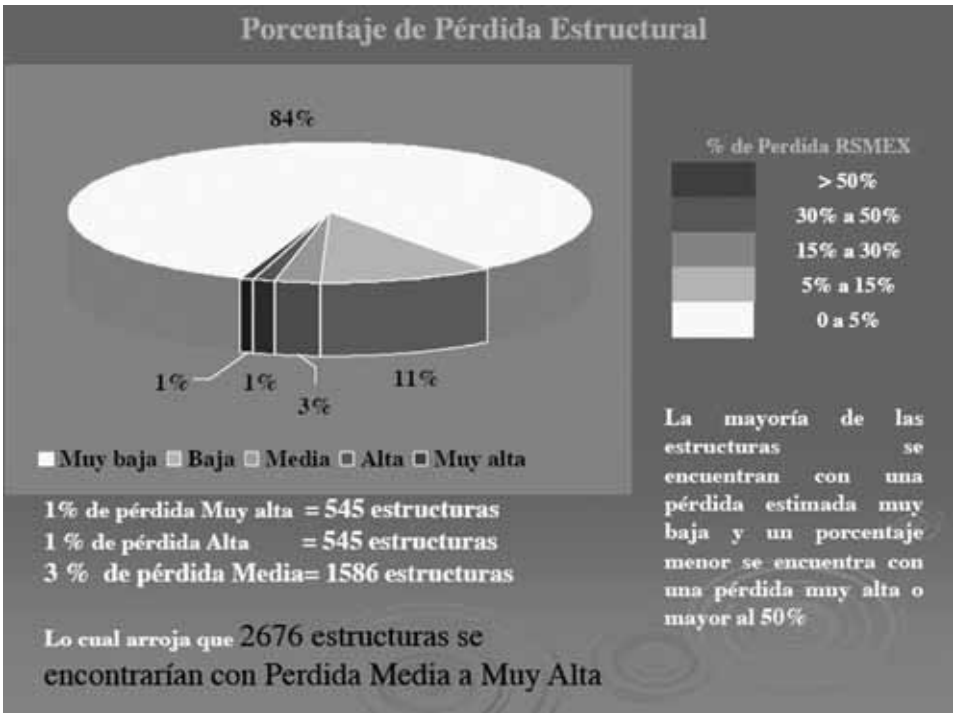
1. Dr. Elias Miguel Moreno Brizuela
2. Dr. Sergio Puente Aguilar
3. Dr. Eduardo Reinoso
4. Dr. Irasema Alcantara Ayala

Dr. Elias Miguel Moreno Brizuela, Secretary, Protección Civil, Gobierno del Distrito Federal, Mėxico City, Mėxico, D.F., opened the session with a presentation on *Mexico City's Disaster Management Program*. Briefly, he addressed the following major issues regarding disaster risk in Mexico City:

1. Diagnosis of disaster risk for the metropolitan region;
2. Organization and mission of the Protección Civil;
3. City Government's concept of disaster prevention and the role of society in risk management;
4. New methods and procedures for disaster risk reduction; and
5. A new vision of an integrated system of civil protection for the metropolitan region.

Moderator: Dir. Diana Rubiano Vargas, FOPAE, Bogota, Colombia
Rapporteur: Dr. Louise Comfort, EMI, Univ. of Pittsburgh, USA

In his presentation, Dr. Brizuela characterized the high degree of vulnerability of Mexico City to recurring risk and acknowledged the current lack of capacity in civil protection to manage this risk. He emphasized the Government's priority for meeting the needs of vulnerable groups and introducing new methods of modeling and monitoring risk. These methods include, for example, the development of mathematical models to estimate the degree of risk under varied conditions of stress, time, and resources, and the development of a risk atlas for the region. In his vision, the use of these models and methods would lead to increased coordination among social groups and government in the metro region to improve capacity



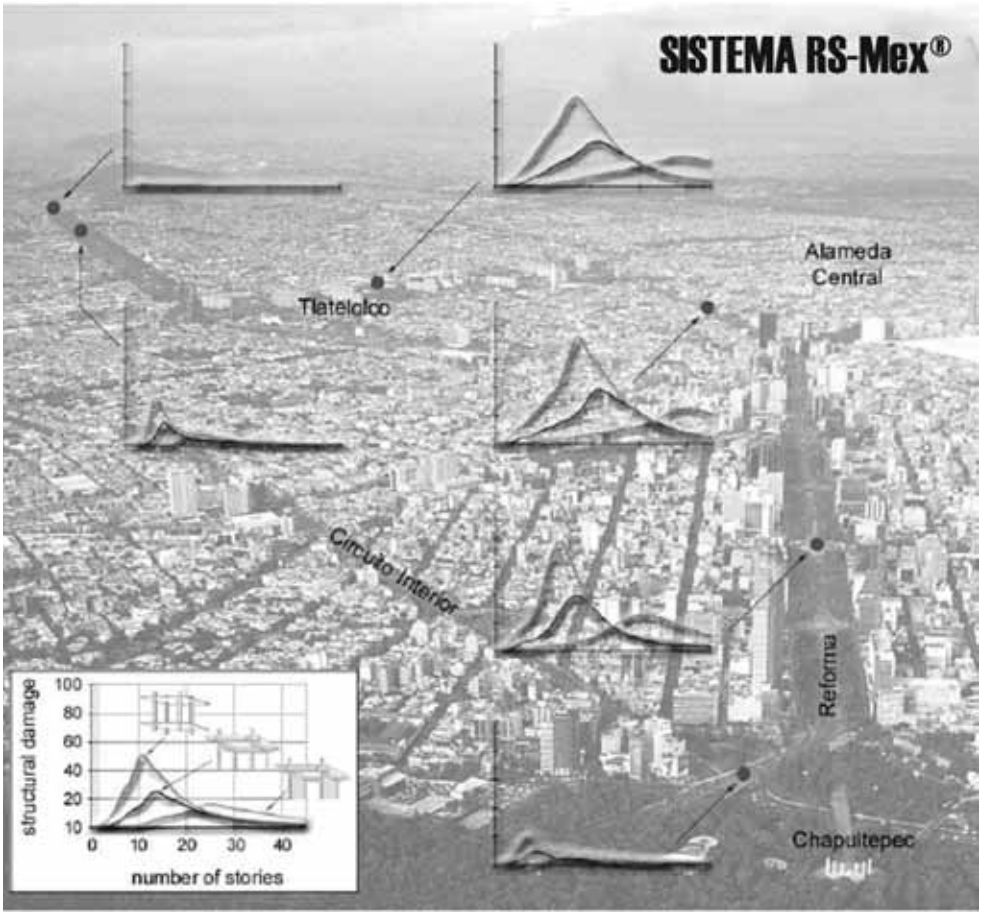
Percentage of structural loss in Mexico (Puente Aguilar).

for risk management and establish an integrated system of civil protection. This system would be supported by a broader vision of a society that is organized and capable of managing its own risk and developing a new culture of prevention.

Dr. Sergio Puente Aguilar, El Colegio de Mèxico A.C., made the second presentation on *The Imperative Convergence of Objective and Subjective Seismic Risk as a Condition of a Culture of Prevention in Mexico City*. He examined the discrepancy between the perception of risk and the actual physical/geological/meteorological risk to which the metropolitan region of Mexico City is exposed. He presented findings from a study conducted jointly with Dr. Eduardo Reinoso, Universidad Nacional Autonomo de Mèxico. The objectives of the study were to evaluate:

1. The degree of vulnerability in land use and social-cultural patterns in the zone of major seismic risk in Mexico City;
2. The degree of awareness and perception of risk among the population in the zone of high seimic risk;
3. The actions taken since the 1985 earthquake to reduce vulnerability to seismic hazards in Mexico City and define the conditions, mechanisms, and actions necessary to create a 'culture of prevention' for the region; and
4. The policies of the government taken to prevent disaster and the extent to which this goal has been achieved.

Dr. Puente concluded that this discrepancy must be bridged through open and candid sharing of information and engaging the members of society in accepting responsibility for managing seismic risk and developing a culture of prevention for the region.



Structural damage, by number of floors (Reinoso).

Dr. Eduardo Reinoso, Universidad Nacional Autonomo de Mèxico, delivered the next presentation titled *Shared Responsibility in the Viability of Financial Instruments of Insurance Against Seismic Risk*. He discussed the unique characteristics of the physical location of Mexico City on the ancient lake bed of Texcoco that make it vulnerable to seismic hazard. He reported the extent of structural damage from the 1985 earthquake, and the fact that only two to three perecent of the buildings were insured against earthquakes. Regrettably, the risk of structural damage from seismic events in Mexico City increases as population and high-rise construction grow. Buildings are being built with more stories; yet, risk of structural damage from earthquakes increases with the number of stories. The building code is clear, but the capacity to enforce it is limited. Other cities, such as Manizales in Colombia, have effectively reduced losses from seismic risk through the implementation of insurance programs that are supported by local, national, and international sources of finance.

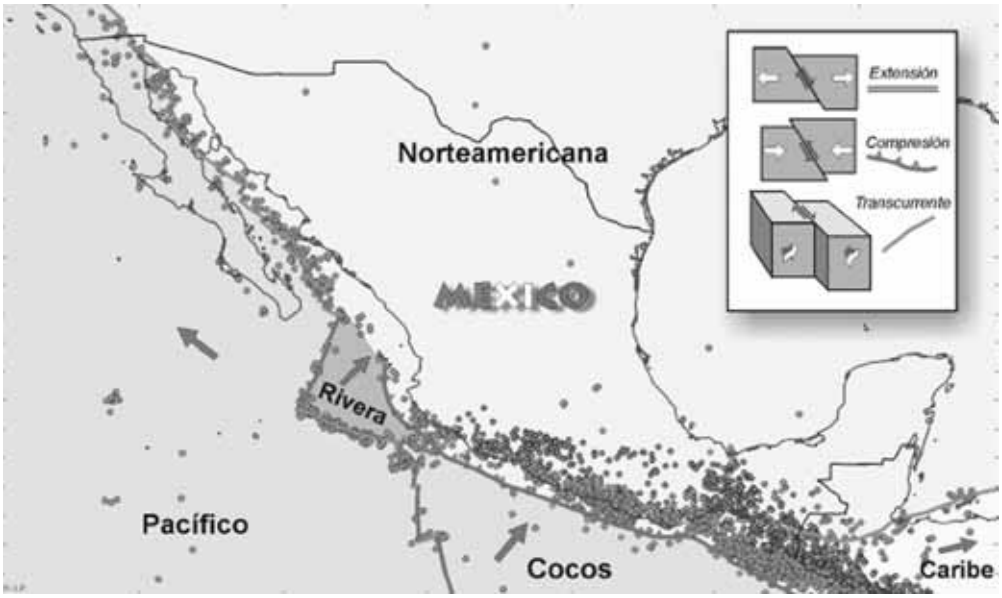
The risk of structural damage from seismic events in Mexico City increases as population and high-rise construction grow.

Dr. Irasema Alcántara Ayala, Universidad Nacional Autonomo de Mèxico, discussed the *Disaster Risk of Removing the Chain of Indicators of Seismicity in Mexico City*. She presented a chronological account of the geophysical evolution of Mexico City, beginning with its initial location on an island in Lake Texcoco in 1325, and advancing through the centuries with expanding construction over the old lake bed. The soft soils are particularly vulnerable to ground shaking. This geological environment, together with Mexico City's hyper-urbanization, has increased the seismic vulnerability of the city. Further, the city, surrounded by mountains, is also exposed to rainfall-induced landslides. Hence, disaster risk to the region is compounded by the interaction between seismic hazards and the flow of water from the hillsides and the rivers. This interaction increases danger to the built environment. Dr. Alcántara presented a typology of risks generated by the interaction of ground motion and rainfall or water flow in the region. She also presented a classification scheme for the rate of change in ground motion and consequences for different types of risks.

Dr. Carlos Valdes, Instituto de Geofisica de Mèxico, talked about *Mexico City and its Earthquakes: Lessons from the Past and Expectations for the Future*. He presented an historical model of the geological characteristics of Mexico City, an analysis of the subsoil, a model of land elevation and the water penetration of the subsoil of the city. He reported data from geotechnical studies of the Mexico City metro region. In these studies, he combined data from various sources to develop an estimate of seismic risk. He noted the active volcanoes in the region that added to the potential risk of the city. He concluded that the processes of ground motion in Mexico City could be measured more accurately by assessing the interaction

between seismicity and precipitation.

The last presentation for the session was delivered by Dr. Josė Luis Lezama, Director, Centre for Demographic, Urban and Environmental Studies (CEDUA), El Colegio de Mėxico. He summarized lessons from the 1985 Mexico City earthquake in terms of initiating change in the social conditions of the city's population and civic participation in the governing process. First, the earthquake changed the political geography of the city. The earthquake revealed another Mexico: unequal, unjust,



Tectonic activities in and around Mexico City (Valdes).

and non-participatory. No one knew of the existence of these groups, for they did not appear in governmental statistics. For two days following the earthquake, governmental agencies were inactive, unable to respond to the enormous damage and destruction. During this period, groups of citizens formed spontaneously to assist one another and to offer relief and assistance to the heavily damaged neighborhoods. This spontaneous action changed the balance of power and revealed the economic problems that confronted the country. The citizens learned that by mobilizing action to assist the victims of the earthquake, they created a constructive and transformative force to intervene in political affairs. This lesson was derived from the necessity of combining the structural forms of government with more flexible methods that could assimilate, channel, and leverage aid to the citizens.

Five key findings emerged from this set of presentations and the discussion that followed. First, seismic risk in Mėxico City is exacerbated by its unique geological and geomorphological conditions, and the interaction of ground

motion with precipitation to create instability in soil structure. Second, the built environment has grown in parallel with its population over nearly seven centuries. Although building codes have been developed in the last century, the government has had little capacity to enforce them. Third, the Mexico City government has a vision of integrated civil protection that includes broader participation of the citizens in managing risk, implementation of new technologies and methods of measuring and diminishing risk, and development of a culture of prevention for the city. Fourth, the integration of disaster risk science with the disciplines of geology, engineering, urban planning, social sciences, and information sciences is essential to inform decision making by public policy makers. Fifth and last, the development of a culture of prevention is a continuing learning process for all members of the community exposed to recurring risk.

Geologic map of Mexico City (Lezama).

Approaches and Tools in Disaster Risk Mitigation

The second plenary session centered its discussion on *Approaches and Tools in Disaster Risk Mitigation* for megacities and complex metropolises. Dr. Sergio Puente Aguilar, Professor at Centro de Estudios Demográficos y de Desarrollo Urbano, El Colegio de México, A.C., moderated the session which featured three presentations, namely:

1. Dr. Fouad Bendimerad, EMI Chairman - Cooperation Program and EMI Mission in Seismic Risk Mitigation
2. Atty. Violeta Seva, EMI General Secretary - The 3cd Program as a Mechanism for Implementing Disaster Risk Management
3. Dr. Marqueza Reyes, EMI Urban Disaster Risk Reduction Specialist -Introduction of EMI Tools and Training Programs

Dr. Fouad Bendimerad, EMI Chairman, opened the session with an introduction of EMI, its history, thrust and partnership programs with cities worldwide, mainly through the Cluster Cities Project, to reduce urban disaster risk. In pursuit of EMI's mission, he then introduced the concept of the Disaster Risk Management Master Plan (DRMMP), a DRR model developed by EMI and implemented in collaboration with its local and international partners. Conceived as part of EMI's flagship program, the Cross-Cutting Capacity Development (3cd) Program, the DRMMP is a rigorous model for mainstreaming disaster risk reduction at the local level, and more specifically to megacities and complex metropolises.

The DRMMP concept was first developed in the context of EMI's work with the Istanbul Metropolitan Municipality in the aftermath of the 1999 Marmara earthquakes. Following this model, the Municipality was able to put in place an

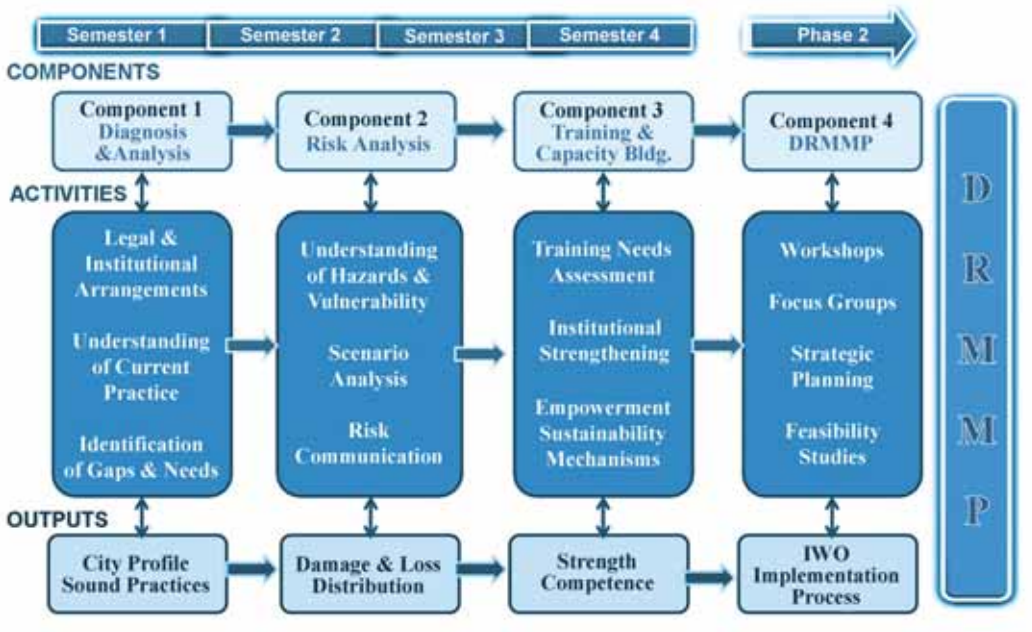
Moderator: Dr. Sergio Puente, El Colegio de Mexico, A.C., Mexico
Rapporteur: Dr. Roberto Meli, Professor Emiritus, UNAM, A.C., Mexico

overall strategy, an action plan and a rational process for undertaking specific disaster management activities spanning several sectoral functions such as the creation of AKOM as the municipality-wide disaster management center, the undertaking of several capital investment projects to strengthen infrastructure, and the adoption of urban renovation projects as a strategy for reducing disaster risk at a large scale. EMI has since then implemented the DRMMP model in Metro Manila, Kathmandu and Amman in cooperation with the local and national authorities of these cities/countries.

Dr. Bendimerad explained that the DRMMP process consists of three distinct phases:

Phase 1 - Diagnosis and Analysis Phase. This investigative step establishes the baseline for building the DRRMP. It provides an understanding of the disaster management practice in the city within the national context, and provides an understanding of the risk profile for the city. This phase also includes an assessment of hazards, vulnerabilities and risks which could potentially affect the city and an analysis of the socio-economic and ecological impacts of these risks.

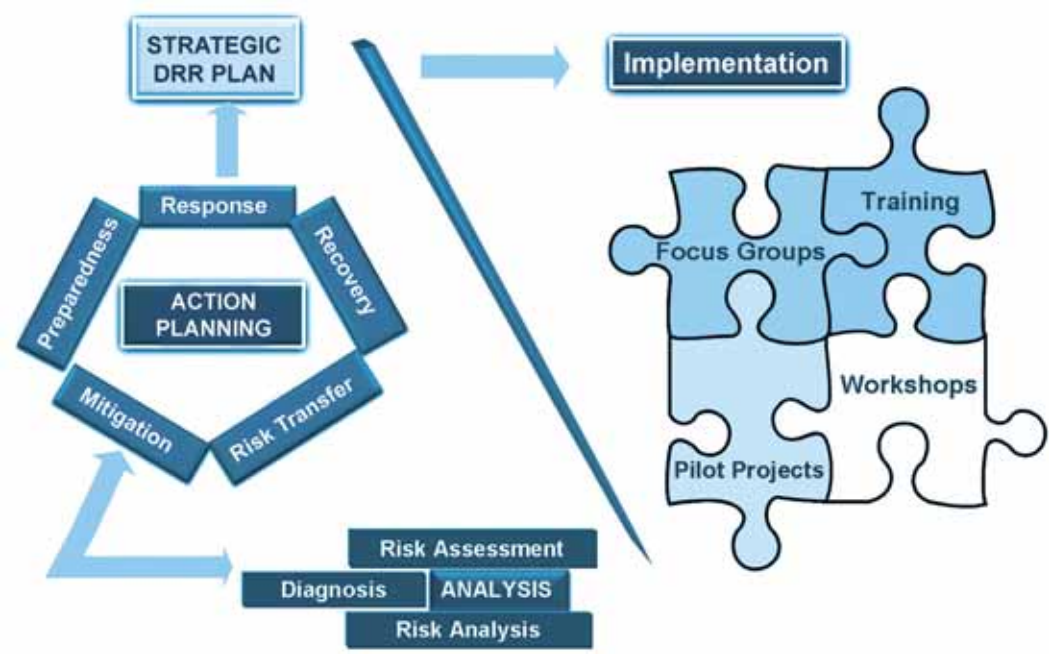
Phase 2 - Master Planning Process. In this phase, a planning process is undertaken on a participatory process to define pre-planning disaster risk management actions related to response, recovery, preparedness, mitigation, and risk transfer. Capacity building needs are also defined at this stage. A second round of consultation is



DRMMP Process (Bendimerad).

undertaken to build a "Strategic Plan" out of the process of master planning. The strategic plan is formulated in terms of specific "Implementation Work Outputs" (IWOs) that represent a consensus of the most practical and achievable initiatives to be undertaken for reducing disaster risk in the city in a reasonably short time (about two to three years)

Phase 3 - Implementation Phase. This phase consists of the implementation process for the IWOs. The various agencies are guided through the process of



DRMMP Components (Bendimerad).

implementation through feasibility studies, pilot studies, and technical and managerial assistance. Further, capacity building is undertaken at the same time to build institutional competency. Sustainability is ensured through the creation of "Focus Groups" which represent concerned institutions in the implementation process, including national and local institutions, academia and the private sector.

He emphasized the DRMMP as a process rather than a rigid plan. The process is based on four fundamental principles: Assess, Empower, Implement, Sustain. The process of developing a DRMMP takes about 18 months to two years depending on the initial stage of disaster management practice in the city.

Moreover, he stressed the importance of stakeholders' participation to sustain

the DRMMP process and ensure the success of the 3cd Program in general. This concern has been addressed by EMI through the creation of focus groups whereby local stakeholders are grouped together to address an urgent and common concern, as identified in the city's Implementation Work Outputs (IWOs). The focus groups form the basis for forging strategic inter-institutional and cross-sectoral partnerships and active participation.

Atty. Violeta S. Seva, Senior Adviser to the Mayor of Makati City, Metro Manila, Philippines, and concurrent General Secretary of EMI, delivered the second presentation focusing on *The 3cd Program as a Mechanism for Implementing Disaster Risk Management*, based on Metro Manila's experience. She shared basic information about Metro Manila, from its territorial scope to its political and economic significance to the country. She noted that Metro Manila's development has perennially been threatened by natural hazards such as earthquakes, flooding and typhoons. For seismic risk, she cited the potential impact of a 7.2 Magnitude earthquake originating from the West Valley Fault, based on the Metro Manila Earthquake Impact Reduction Study (MMEIRS) scenario. In this scenario, she reported an expected death toll of 33,500 people, 114,000 injured and about 1.3 million heavily damaged or collapsed buildings or 38 percent of the region's building stock, among other structural damages.

It is in this context that MMDA forged a partnership with EMI for the implementation of the 3cd Program in Metro Manila. She mentioned that to formalize the city's engagement in the DRMMP process, a Memorandum of Cooperation between MMDA and EMI was signed in 2005, with the Philippine Institute of Volcanology and Seismology (PHIVOLCS) designated as the 3cd Local Investigator. Later, three cities were identified for pilot implementation, namely, Quezon, Makati and Marikina.

Atty. Seva then elaborated on the ten elements of Metro Manila's DRMMP. These are as follows:

1. Strengthen the Metro Manila Disaster Coordinating Council.
2. Promote the adoption of disaster management ordinances by each city and municipality.
3. Promote the revitalization of city/municipal and community disaster coordinating councils.
4. Institutionalize disaster risk management within local government framework and financing.
5. Enhance lateral and vertical inter-agency and inter-governmental communication and coordination.
6. Enhance legal basis for disaster risk management at national level by updating or replacing PD1556.
7. Promote policies that encourage implementation of DRR and

develop mechanisms for mainstreaming DRR within local government functions.
8. Promote local government mitigation planning through existing planning tools.
9. Conduct training needs assessments and develop capacity building programs.
10. Strengthen community preparedness level for disaster response and relief.

She further discussed the five IWOs and corresponding five focus groups that have been created to implement Metro Manila's DRMMP. She noted that numerous trainings, workshops and seminars were also organized during Field Trips by MMDA, PHIVOLCS and EMI together with the pilot cities in order to provide technical assistance and guidance to the Focus Groups in implementing the DRMMP.

According to Atty. Seva, the following have been accomplished thus far:

1. Development of MEGA-View for Metro Manila and training of end-users,
2. Training and capacity building activities for local planners and other DRM professionals,
3. Application of the MEGA-Index methodology in Metro Manila, and
4. Incorporation of risk reduction criteria into the proposed disaster risk management bill for the Philippines.

Moreover, she underscored the challenges that Metro Manila has encountered in the implementation process. These include scarce resources, wavering commitment of focus group members, and changes in institutional leadership. She also noted that continuous support from local government officials, especially the mayors, is crucial. Commitment, cooperation, coordination and communication at all levels are also necessary to sustain the planning and implementation of DRMMP, and that sustained efforts in capacity development and strengthening the commitment of the focus groups are key to successful implementation. Lastly, she discussed the way forward for the DRMMP in Metro Manila in terms

Commitment, cooperation, coordination and communication at all levels are also necessary to sustain the planning and implementation of DRMMP, and that sustained efforts in capacity development and strengthening the commitment of the focus groups are key to successful implementation.

of institutionalizing tools and technologies for risk communication and risk reduction, enhancing institutional and technical capacities and strengthening inter-institutional coordination and legal framework for disaster risk management.

Dr. Marqueza Reyes, EMI's Urban Disaster Risk Reduction Specialist, delivered the last presentation for the session. She first introduced a set of tools called MEGA-Learn, which EMI has developed to support the DRMMP process. These tools currently include the following:

1. MEGA-Know - An online Knowledge Base on Megacity DRM
2. MEGA-View - A web-based GIS map viewer for DRM for Metro Manila
3. MEGA-Index - A megacity indicators system
4. MEGA-Plan - An online eLearning training course on risk-sensitive land use planning
5. WBI Global Distance Learning Program on Natural DRM

She explained that MEGA-Know is an online resource that decision makers and researchers could tap when needing information on urban DRM, particularly in those cities and large metropolises that belong to EMI's network. MEGA-Know contains city profiles and sound practices in megacity DRR, as well as an eLibrary and a directory of persons and institutions involved in the 3cd Program. The MEGA-Know eLibrary houses discussion papers, proceedings reports, and other relevant documentation of the DRMMP process in 3cd partner cities.

MEGA-View provides a visual display of information critical to decision-making, planning, risk communication and emergency response. The GIS-based system contains datasets on transportation, public utilities, emergency services, land use, etc.

MEGA-View, on the other hand, provides a visual display of information critical to decision-making, planning, risk communication and emergency response. The GIS-based system contains datasets on transportation, public utilities, emergency services, land use, etc. She illustrated the application of MEGA-View in Metro Manila using existing data from the Metro Manila Earthquake Impact Reduction Study (MMEIRS) conducted by Japan International Cooperation Agency (JICA), Philippine Institute of Volcanology and Seismology (PHIVOLCS) and Metro Manila Development Authority (MMDA).

The MEGA-Index is a holistic indicators system developed by EMI and its academic partners at the National University of Colombia-Manizales and the Technical

University of Catalonia. It is a benchmarking and monitoring tool that consists of an Urban Seismic Risk Index (USRi) and a Disaster Risk Management Index (DRMi). The USRi measures the physical risk and impact factors of the city (i.e. socio-economic fragility and resilience); while the DRMi tracks the performance and effectiveness of DRM programs and policies undertaken by the city government. Dr. Reyes showed sample results from the application of the model in Metro Manila.

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Lastly, Dr. Reyes presented EMI's eLearning program, which is meant to increase the capacity of local stakeholders in megacity DRM. She introduced MEGA-Plan, a blended eLearning specialized course for land use planners that aims to demonstrate the incorporation of risk parameters into urban and land use planning process. The said course covers extensive discussions on Natural Disasters, Hazards and Development, Seismic Risk Assessment, Flood Risk Assessment, Sustainable Land Use Planning, and Disaster-Resilient Cities. She also mentioned WBI's Global Distance Learning Program on Natural DRM, which was delivered by EMI in the Philippines from July 2006 to July 2007. The Program covers six courses, namely, Comprehensive DRM Framework, Safe Cities, Financial Strategies for Managing the Economic Impacts of Natural Disasters, Community-Based DRM, Damage and Reconstruction Needs Assessment, and Earthquake Risk Reduction.

In his summary report, Dr. Roberto Meli, Professor Emeritus, Engineering Institute, UNAM, was pleased to see that the Forum tackled other natural hazards, aside from earthquakes, with particular emphasis on risk mitigation. He said that information sharing to educate people on how to prevent and manage the impact of disasters is crucial for its success. He pointed out that the criteria for effective information sharing is availability and clarity. Information can help raise the awareness of decision-makers as well as ordinary citizens to the risks confronting them. According to him, there are major benefits from information sharing, and there is a need to explore these possibilities more in the future.

He noted that in view of the complexity of megacities, running scenarios as indicated by the DRMMP is an appropriate approach. However, one must also be

aware to look at the multitude of risks that are associated with megacities systems. Master planning approach is also a way to standardize the process of disaster risk management and promote sound standards of practice.

Consequently, raising the standards of practice for the construction industry should be considered as a priority in order to prevent collapse of buildings. One continuing problem that Prof. Meli pointed out was the issue of "informal" construction, which remains a difficult one to address. However, according to him, it is important to raise awareness of the population (and specially people who are at risk) on the level of risk caused by informal construction.

What is important is that while there are efforts to improve disaster response, more efforts are needed to advocate for the benefits of mitigation and support the development of tools and methods related to mitigation.

What is important is that while there are efforts to improve disaster response, more efforts are needed to advocate for the benefits of mitigation and support the development of tools and methods related to mitigation. For example, mitigation involves complex interventions such as seismic retrofit or improvement of drainage systems to reduce the risk of flooding. The processes related to these interventions should be well understood in their full context in order to make them more feasible. Moreover, the use of information technology through the development of databases and the use of GIS should be emphasized to promote urban disaster risk reduction.

He further noted that risk indicators are a very useful tool for providing benchmarks and understanding priorities. It also entails a learning process, there is a need to fine tune and improve the original applications, which were a good start but showed room for improvements.

Lastly, he underscored that training is an important component for implementing mitigation. Training packages are now available such as the ones developed by EMI and others that can support the improvement of skills of professionals and managers.

Enhancing City-to-City Sharing in the Americas Cluster

The third session was a Panel Discussion on *Enhancing City-to-City Sharing in the Americas Cluster.* Moderated by Engr. Jeannette Fernández, UNDP Quito, the panelists were:

1. O. Metin Ilkisik, Disaster Coordination Center, Istanbul Metropolitan Municipality
2. Fernando Ramírez, United Nations
3. Óscar Roa Flores, Civil Protection Ministry, Mexico City
4. Chris Chiesa, Pacific Disaster Center
5. Lucía Sánchez Torres, Representative of Ecatepec Civil Protection
6. Nury Bermudes, Municipality of Quito

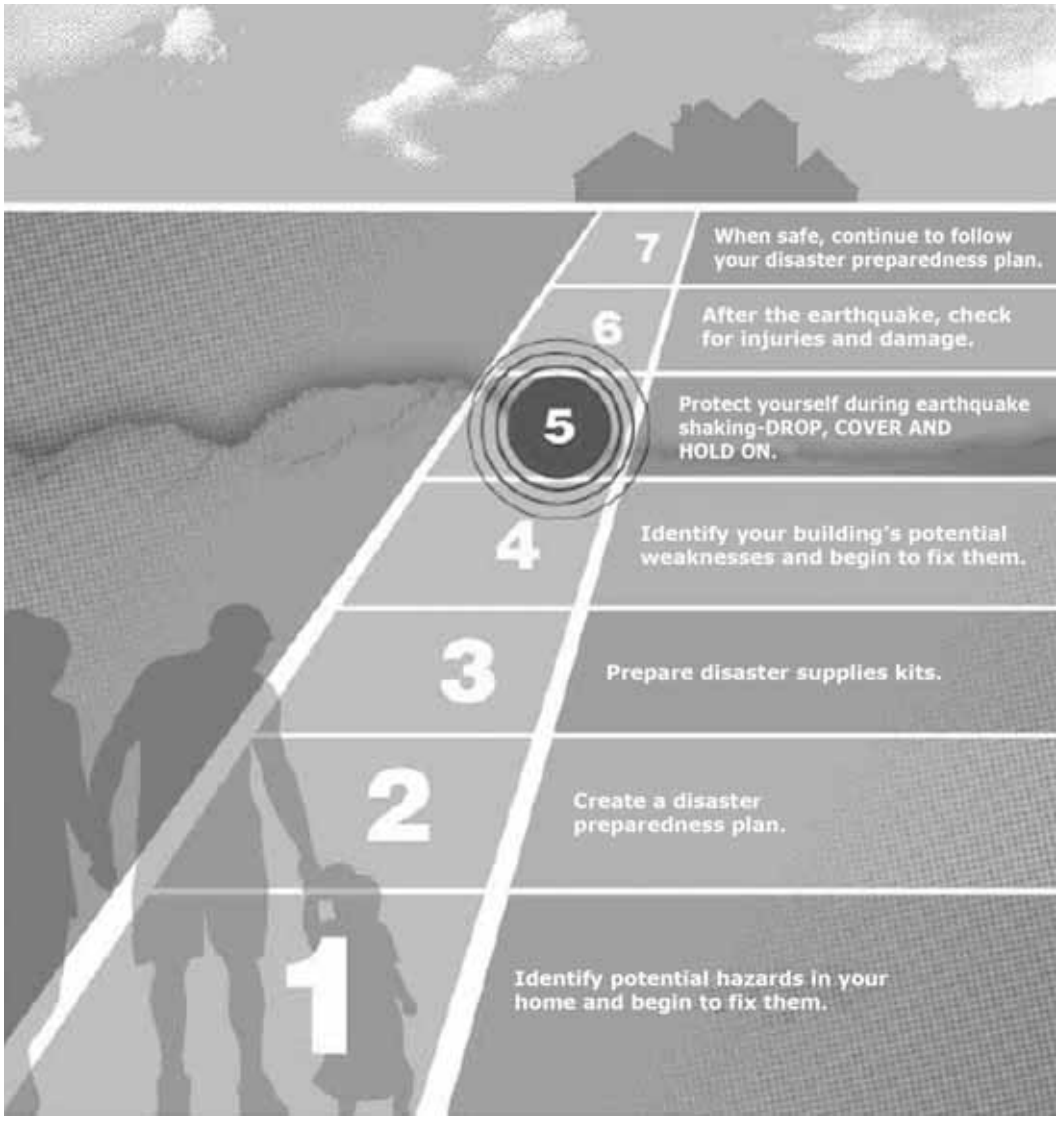
The following are the key issues and challenges that emerged from the discussion:

1. All cities pointed out that social and legal problems are by far the most difficult to solve.
2. There have been good examples of cities sharing their knowledge like the Red Andina de Ciudades (RAC). This suggests that larger and wider collaborations are feasible.
3. There is now a wide range of products, tools and services that cities can avail of in order to improve their civil protection plans and services.
4. It is now possible to have access to international funding for cities to support proposed solutions. This can give cities full control of

Moderator: Engr. Jeannette Fernandez, UNDP, Ecuador
Rapporteur: Dr. Eduardo Reinoso, UNAM, Mexico

civil protection projects.

5. There are many similarities among cities despite being located in vastly different continents, like Mexico City and Istanbul. For instance, the former may benefit from the recent experiences of the latter, since Istanbul is the most recently affected megacity in the world by a large earthquake, and state-of-the-art implementation of the building code, especially those related to construction permits, may improve Mexican practices. Another example of city-to-city sharing can involve Mexican experiences in reconstructing hospitals and schools and relocating badly damaged housing that may be useful to Istanbul.
6. It may be useful to work on a set of minimum standards related to DRR sound practices so city authorities can realize what needs to be done. In this way, it may also be possible to create a multi-national team to review and recommend to local authorities improvement in their DRR plans and programs.
7. The experience of people like Mr. Ellis Stanley may be used by other cities in order to improve civil protection policies and practices. This may be particularly useful for Mexico City plans to create a state-of-the-art Emergency Management Office that draw lessons from the Los Angeles experience.



Seven Steps to Earthquake Safety, from "Putting Down Roots in Earthquake Country, 2007 version, as shared by Mr. Ellis Stanley, Los Angeles, USA.

Social Participation in Risk Mitigation Programs

Session 4 of the Forum consisted of five presentations and was moderated by Dr. Fouad Bendimerad, Chairman of EMI. The topic of the session was *Social Participation in Disaster Risk Mitigation Program: Towards a Culture of Prevention.* The presenters were as follows:

1. Mr. Ellis Stanley, General Manager, Emergency Preparedness Department, Los Angeles, USA
2. Dr. Diana Rubiano Vargas, Director, DPAE, Bogotá, Colombia
3. Arch. Nury Bermudez, Municipality of Quito, Ecuador
4. Hon. Herbert Bautista, Vice-Mayor, Quezon City, Philippines
5. Cta. Carlos Sainz Luna. Undersecretary, Civil Protection, Mexico D.F. Government, Mexico

Each presentation addressed key issues related to the challenges, organizational structures and sound practices for disaster prevention and emergency administration. A comprehensive vision for DRM was highlighted by each presenter who emphasized the social factors that contribute to risk build up. They suggested that the effective way to reduce risk is by including the same social groups in capacity development and awareness raising programs.

A major disaster seems to always cause serious debates regarding the need for improved systems of civil protection and disaster prevention. This was true in the case of the 1985 Mexico earthquake or Armero volcanic eruption in Colombia. Such critical situations should be capitalized in looking for lessons learned and in knowledge sharing.

Moderator: Dr. Fouad Bendimerad, EMI, USA
Rapporteur: Engr. Roberto Quass, CENAPRED, Mexico

In his introductory remarks, Dr. Bendimerad asked the participants to consider alternative strategies for disaster risk prevention from the traditional ones that have promoted engineering and geosciences over the social sciences. Experience from recent years shows that social considerations are a key to improved assess ment of vulnerability and risk.

Mr. Ellis Stanley, drawing from his experience in Los Angeles, one of the biggest cities in the world known for its high seismic risk, argued that having a strategy that emphasizes information and community preparedness along with the collaboration of the local, state and federal governments and support of the international community, would lead to the best possible outcome for DRR.

Mr. Stanley also focused on the role of the private sector in the efforts at risk reduction. Private enterprises need a solid and strong environment in order to operate. Therefore this sector would make an ideal partner to help cities and states to quickly recover from a disaster. Lastly, a new paradigm to build strong alliances to assist the community to be better prepared to face natural disasters has yet to be designed and implemented.

Dir. Diana Rubiano Vargas described the organization and structure of the system for prevention and emergency response in Bogota. She also elaborated on a successful communication program implemented in the city called "You can not play with your life" (*"Tu vida no puede estar en juego"*) which is a comprehensive disaster awareness campaign directed at different stakeholders such as children and schools, senior citizens and the general public. This campaign has resulted

Awareness campaign in Bogota (Vargas).

to increased citizen awareness and a culture of prevention being progressively inculcated in the city and its institutions. Sharing of responsibility between the public and private sector was also highlighted as a good practice in DRR.

In addition to the social and economic aspects that have been incorporated in DPAE's strategy, studies on basic engineering, geology, microzonation, standards and regulations have also been conducted. The degree of information that the city has produced is very high, including a detailed study on financial protection, which is one of the few studies undertaken in the region.

The third presentation was made by Arch. Nury Bermudez. She referred to the efforts that the municipality is making to implement a metropolitan DRM system integrated into the current structure which combines citizens' safety, civil protection and land use planning. A proactive view towards risk reduction requires a planning process where DRR is seen as a cross-cutting issue.

Disaster management unit set-up in Quito (Bermudez).

Arch. Bermudez showed a successful model of community participation and capacity building through mock-drills, awareness raising and educational campaigns to help the community to understand how to live with a nearby active volcano. She described in particular a simulation called "Cotopaxi House" as a tool to raise the level of disaster awareness and prevention. Mt. Cotopaxi is an active volcano 60 km. from the city of Quito.

Hon. Herbert Bautista discussed the experiences and challenges for DRR in Quezon city, a city of 2.4 million within a megacity of at least 10 million. He described an

Four pillars of resilience (Luna).

early warning system developed and managed by the community in response to the recurrent flooding in several neighborhoods of the city, particularly in San Bartolomé due to its hydrological conditions. The community is fully trained not only to operate the system but to take immediate actions, including evacuation.

He also reported that Quezon City was engaged in a community program called Disaster Town Watching in these communities or barangays. It seeks to conduct risk assessment using a multi-sectoral approach to identify natural and man-made hazards and reduce the vulnerability in the city. One output is a disaster mitigation plan rooted in the community and supported by the local government and the academic and private sectors, thus emphasizing community participation in DRR.

Mr. Carlos Sainz Luna discussed the concept of resilience for disasters. Resilience was defined as the capacity to cope with a crisis situation leading to a culture of prevention, solidarity and social consciousness. Four pillars for a strong coping capacity were identified: cultural identity, national values formation, social and gender equality, and access to information.

All the presentations pointed out the need of incorporating a social perspective in risk mitigation. A realistic and active culture of prevention that addresses the root causes of vulnerability and risk creation is needed in this regard. An effective multi-institutional and multidisciplinary approach is also a necessity for disaster risk management.

Other Instruments for Disaster Risk Mitigation

The fifth plenary session on *Other Instruments for Disaster Risk Mitigation* included two presentations and was moderated by Dr. Bijan Khazai from Karlsruhe University. Dr. Sergio Alcocer, Director of the Engineering Institute, UNAM, presented the *Inter-institutional Cooperation: The Implementation of the Seismic Consultative Council, CoCoS,* while Dr. Mario Ordaz, also of UNAM, discussed *Financing and Insurance Schemes for the Implementation of Structural Retrofitting Programs*.

This session focused on the holistic perspective of Disaster Risk Management and how hazards defined spatially and within a time frame. It also looked at the what, when and how to do DRM and particularly prevention. Both presentations touched upon those aspects in different perspectives:

1. The CoCos initiative that builds upon coordination, cooperation, and capacity building for risk reduction and mitigation, and
2. The concepts and mathematical models of risk transfer, which should include "recovery capacity" linked to adaptation strategies.

This session highlighted three key issues, to wit:

1. It is evident that there is still a great confusion between different terms that are frequently used: preparedness and prevention, and risk and vulnerability (social and structural).
2. Knowledge creation: design of public policies both for the scientific community and for the general public.
3. Community Ownership: local participation and social co-responsibility.

Moderator: Dr. Bijan Khazai, U. Karlsruhe, Germany
Rapporteur: Dra. Virginia Garcia Acosta, CIESAS, Mexico

Dr. Alcocer referred to the role of "Inter-institutional Cooperation" that the Seismic Consultative Council, CoCos, has undertaken in Mexico, with the main purpose of improving seismic mitigation through concentrated efforts for coordination and cooperation among professional associations, researchers, practitioners, universities and the private sector in order to have a multi-stakeholder perspective.

The goal is to link local authorities with researchers and the community to reduce the high structural vulnerability through practice, standards and quality control in the construction field, particularly in the so-called indispensable structures and self-aid construction.

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CoCos aims to be a citizen's organization, independent and multi-sectoral to coordinate actions among different organizations and act as a consultative body for seismic risk reduction.

Dra. Virginia Garcia Acosta, Director of the Social Anthropology Research Centre (CIESAS), called upon the need to incorporate other organizations that look into the social aspects such as CIESAS in Mexico. Also Dr. Sergio Puente noted that a permanent link between the "hard" sciences and those groups that work on social aspects need to be activated on regular basis.

Dr. Mario Ordaz, from the UNAM- World Bank alliance discussed risk transfer options and the "Financing and Insurance Schemes for the Implementation of Structural Retrofitting Programs".

Ordaz suggested that at least four public policies should be considered from the disaster risk management perspective:

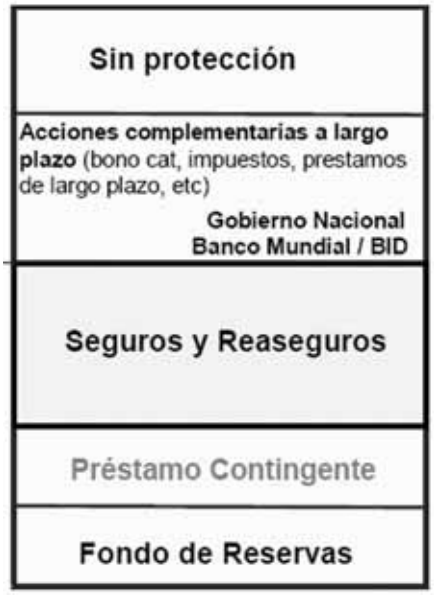
1. Risk identification
2. Risk reduction
3. Disaster management
4. Risk transfer seen as financial protection schemes and recovery capacity.

He also added that the following questions should be addressed:

1. Who should bear the costs of building dwellings/buildings?

2. What are the annual expected losses?
3. What is the maximum probable loss?
4. What is the loss distribution?

Ordaz showed important applications made for Bogota-Colombia and advanced studies done for Mexico and certain cities or particular areas.



Proposed structure for risk transfer (Ordaz).

It was highlighted that not evaluating the risks and implementing risk reduction policies have direct economic implications on countries and cities. This is in addition to its social and human implications in terms of death and injured, loss of means of life, etc.

Recommendations from the floor included:

1. Dealing with institutions. Dr. Fouad Bendimerad made the point that it would be also important to look at institutional vulnerability/resilience, as a very important factor for disaster risk management.
2. How to avoiding the growth of those cities that have been already identified areas of high vulnerability and risk.
3. Dare to prepare – dare to really prevent. Emergency preparedness is an important element in the overall process of DRM, nevertheless prevention and mitigation are a must for minimizing the impact of natural hazards.

4. CoCos is a sound practice that works well for inter-institutional coordination that could impact how prevention, mitigation and emergency management are handled.
5. Other elements for risk reduction that have to be looked at comprise: (1) environmental degradation, (2) inadequate land use and planning, (3) lack of land use plans and enforcement, (3) deforestation, and (4) desertification .
6. The Dr. Garcia Acosta stressed the need for a deeper consideration of the human and social considerations in improving the design of risk reduction and risk management policies.

Share Fair

Photo: Marqueza Reyes / 2007

The Americas Megacities Forum 2007 saw the incorporation of a Share Fair into the normal proceedings of EMI meetings. A Knowledge Fair was originally intended as a social session during breaks in the meetings where participants could display their public education materials, research products, videos, etc. and the conference attendees could mill around to learn in an informal way about each other's activities.

The Share Fair concept stepped up the idea of a usual Knowledge Fair to a peer-to-peer learning community, more interactive and included one-on-one sessions -- presenting cities shared their first hand knowledge and experiences with visiting cities.

The Share Fair aimed to facilitate city-to-city knowledge sharing and learning, whereby specific DRR sound practices being successfully implemented by different cities could be presented in a kind of "show and tell" sessions. Each participating city in the Share Fair had a "show and tell" session with visiting cities in their respective booths.

This could pave the way to build relations between cities and be the first step towards adaptation and replication of sound practices if a participating city found the practice adaptable and replicable to its context.

Mr. Christopher Chiesa of PDC explains their DRR programs to Share Fair participants.

Given the limited time allocated for the Share Fair, it was decided that each visit would last 20 minutes, and then all visitors would rotate to the next city's booth. At the end of the one-on-one sessions, there would be an open period for people to visit booths they missed or to seek additional information.

Prior to the beginning of the Share Fair, an announcement was made about how the Fair would work. Once everyone was in the Share Fair Hall, another announcement was made to get visitors to the right starting booths. As the Share Fair began, visiting groups simply moved to the next booth in a clockwise motion. While the organizers understood the need for the city-to-city exchange and time requirements, it seemed that most participants just wanted to visit the booths on their own schedule, which may be a more familiar process for such events.

The Share Fair method tried to achieve the sharing of best practices and DRR activities and facilitate city-to-city exchanges in one-on-one sessions at the same time. In the future, these objectives may best be met by having a Share Fair with a more open format (with participants milling on their own, and discussions going on between multiple cities at a time), and another format where cities can be paired in separate discussions, perhaps in brief time periods throughout the Forum. The city-to-city discussions could be held between plenary sessions of the meeting, and each could be allotted more time for participants to discuss sound practices and plan for potential collaborations.

Appendices

- ☑ Forum Agenda
- ☑ Opening Speech
- ☑ Declaration of Commitment from Participating Cities and Institutions
- ☑ EMI - Mexico D.F. Declaration of Cooperation
- ☑ List of Participants
- ☑ Timeline of Selected EMI Events

Photo: Marqueza Reyes / 2007

Forum Agenda

September 19

9:00-10:30	Registration. 2nd Floor, Don Diego 1 Hall
11:00	**Opening Ceremony** *Mr. Marcelo Ebrard Casaubon*, Mexico City Mayor *Dr. Fouad Bendimerad*, EMI Chairman
11:30	**Plenary Session 1: "Mexico City Disaster Management Program"** Moderator: *Dir. Diana Rubiano Vargas. Director,* FOPAE, Bogota, Colombia / Rapporteur: *Dr. Louise Comfort.* EMI Trustee. U. Pitt., USA
11:40	*Miguel Moreno Brizuela,* Civil Protection Secretary, Mexico City Government, GDF. "Mexico City Risk Management Program"
12:00	*Dr. Sergio Puente,* Centro de Estudios Demográficos y de Desarrollo Urbano, El Colegio de México, A.C.: "The imperative of convergence between objective and subjective seismic risk, as a precondition for a Culture Prevention in Mexico City"
12:20	*Dr. Carlos Valdés,* National Autonomous University of Mexico, UNAM.: "México City and its Earthquakes: Lessons from the Past and Future Risks"
12:40	*Dr. Eduardo Reinoso,* UNAM. "Co-Responsibility in Financial Schemes Feasibility for Seismic Risk Insurance"
13:00	*Dr. Irasema Alcántara,* UNAM, and Dr. Pedro Vera Sánchez, IPN: "Disaster Risks for Mass Removal Processes, Triggered by Seismic Hazards in Mexico City"
13:20	*Dr. José Luis Lezama,* El Colegio de México, A.C: "Public Policy Issues in Seismic Risk Mitigation: A Cross-Cutting Issue"
13:40	Discussion
14:00	**Lunch**
15:30	Field Visit to Tlatelolco, Building Structural Systems
19:00	Dinner at the Sheraton Hotel
21:00 – 23:00	The Amalia Hernández, Folkloric Ballet at the Fine Arts Palace

September 20

9:00	**Plenary Session 2: "Approaches and Tools in Disasters Risk Mitigation"** Moderator: *Dr. Sergio Puente Aguilar,* El Colegio de México, A.C./ Rapporteur: *Dr. Roberto Meli,* Emeritus Professor, UNAM

9:05	*Dr. Fouad Bendimerad,* Chairman, EMI "Cooperation Program and EMI Mission in Seismic Risk Mitigation"
9:25	*Atty. Violeta Seva.* EMI General Secretary: "The 3cd Program as a Mechanism for Implementing Disaster Risk Management"
9:45	*Dr. Marqueza Reyes,* EMI Urban Disaster Risk Reduction Specialist: "Introduction of EMI Tools and Training Programs"
10:05	Discussion
10:45	Invitation by the Hon. Greig Smith, Council Member, City of Los Angeles, to the 2008 Los Angeles Conference **SHARE FAIR - Peer-to-peer exchange and continuation of exhibits (Don Diego 3)** *Mark Benthien,* SCEC, University of Southern California, Los Angeles,
USA:	"Preview and Objectives of the Share Fair"
14:30	Lunch
15:30	**Continuation of the Share Fair. Comments and Discussion**
16:15	Break
16:30	**Plenary Session 3: Panel Discussion on Enhancing City-to-City Sharing** Moderator: *Engineer Jeannette Fernández,* UNDP. Quito / Rapporteur: *Dr. Eduardo Reinoso,* UNAM
17:30 – 18:00	Discussion
19:00	Dinner at "Hotel de la Ciudad México"

September 21

7:30	Meet at the Hotel Lobby
8:00	Transfer to El Colegio de México, A.C.
9:15	*Dr. Manuel Ordorica,* General Secretary, El Colegio de México, A.C.: Welcome Speech
9:30	**Plenary Session 4: "Social Participation in Risk Mitigation Programs: Towards a Culture of Prevention"** Moderator: *Dr. Fouad Bendimerad,* EMI Chairman / Rapporteur: *Engr. Roberto Quass,* General Director, CENAPRED
9:35	*Dr. Ellis Stanley.* General Manager, Emergency Preparedness Dept., LA
9:55	*Dr. Diana Rubiano Vargas*. Director, FOPAE. Bogota, Colombia
10:15	*Arch. Nury Bermudes.* Informatics' Director, Head, Quito, Ecuador
10:35	*Hon. Herbert Bautista,* Vice Mayor, Quezon City, Philippines
10:55	*C.T.A. Carlos Sainz Luna*, Mexico City Deputy Secretary of Disaster Prevention Plans and Programs Coordination, Mexico City
11:15	*Ms. Patricia Guibu,* CISMID.Perú: Latin-American Solidarity: "Emergency and Mitigation Policies: Assessment of the last Peruvian Earthquake."
11: 35	Discussion
12:00	Break
12:15	**Plenary Session 5: "Instruments for Disaster Risk Mitigation"** Moderator: *Dr. Bijan Khazai,* EMI and Karlsruhe Univ. / Rapporteur: *Dr. Virginia García,* Director, CIESAS
12:20	*Dr. Sergio Alcocer,* Director, UNAM: "Inter-institutional Cooperation: The Implementation of the Seismic Consultative Council, CoCoS"
12:40	*Dr. Mario Ordaz,* UNAM: "Financing and Insurance Schemes for the Implementation of Structural Retrofitting Programs"
12:40	Discussion
13:30	**Closing Ceremony and Declaration** *Dr. Elías Miguel Moreno Brizuela*, GDF *Dr. Fouad Bendimerad*, EMI
14:00	Lunch at El Colegio de México, A.C.
16:00	Transfer to Sheraton Hotel

Opening Speech

Dr. Fouad Bendimerad, Ph.D., P.E.
Chairman, EMI

Buenos Dias!

Senior Marcelo Ebrard, Jefe de Gobierno de Mexico City Distrito Federal,
Secretary Moreno Brizuela,
Prof. Sergio Puente,
Dignitaries, friends, colleagues, ladies and gentlemen,

In June of this year, the United Nations organized a major disaster management conference in Geneva, Switzerland, where representatives of more than 180 countries, UN Organizations, inter-governmental organizations such as the World Bank, and many other relevant institutions and organizations participated.

The conference concluded that there were two major natural threats to human kind:

1. Climate Change
2. Urban Risk, and principally the risk to megacities and fast growing metropolises such as Mexico City

This recognition of the threat of urban risk by the United Nations is a clear wakeup call of the critical importance of dealing with the risk to cities.

Mexico and other major metropolises such as Bogota, Lima and others are the hearts and souls of their countries, and in some cases of their regions. A major earthquake in these cities would cause losses of unimaginable proportions. It would cause enormous human suffering. It would push back progress in development. It would destroy families and communities, reduce economic potential and increase poverty.

Ladies and gentlemen, we have to remember that earthquakes by themselves do not kill people. The buildings that collapse are the cause for loss of life and property. The way we build and develop our cities determines their faith in the face of earthquakes and other hazards. If we build faulty buildings and structures, the earthquake will find their weakest links and will destroy them. Yet, megacities offer the best opportunities to reduce risk and to protect the future.

There are many ways to reduce disaster risk in megacities:

- We can make sure that the city is built following urban plans that incorporate hazards and vulnerability parameters and have provisions for reducing disaster risk. Urban and land use planning is a first tool to ensure that we stop accumulating risk in our cities through proper zoning and other planning parameters.
- We can make sure that our cities have effective building codes and procedures for implementation and enforcement of these codes so that buildings, bridges, schools and hospitals do not collapse on children, patients and other occupants
- We want to make sure that professionals and practitioners who plan and build cities are trained properly so that they exercise proper professional care in the design and construction of buildings and other structures
- We want to make sure that our communities, populations and institutions that serve them are aware of the hazards around them, and can take steps to increase their resilience and protect their families and communities, so that we can build a culture of prevention in the long term.

Ladies and gentlemen, as we are here to remember the 1985 Mexico City earthquake, and to reflect on the past, we are also here to ensure that we do not repeat the mistakes of the past; it is important to identify the lessons learned, but it is more important to apply the lessons learned. By applying what we have learned, we will engage in building safe and enjoyable cities for this generation and for future generations.

We have created EMI (the Earthquakes and Megacities Initiative) to be the partner of cities, to be a resource to cities and their adviser on how to manage disaster risk from earthquakes and other hazards. The creation of EMI came at the realization that we have the knowledge for preventing buildings from collapse, but that knowledge often stay in the hands of a few experts. Buildings, schools and hospitals continue to collapse and kill thousands of people at each strong earthquake.

EMI's only interest is to work with you - the ones who manage cities - as trusted partners in the quest to protect cities and their populations; in building a safer and more prosperous future. Safer cities means achievable sustainable development, cleaner environment, and protected investments. EMI is not a humanitarian organization. We do not know how to do humanitarian work, but we have knowledge on how to relate disaster risk management to developmental planning and other development functions. We support cities on improving their disaster response capabilities, but mostly, we want to guide them towards engaging in disaster risk reduction. We engage them in an active network where they can learn from other cities and benefit from the experience of others. We help cities build an understanding of their risk and develop options for disaster risk reduction through strategic planning, awareness, and capacity building. This is the mission of EMI.

Dear guests and hosts, I very much look forward to this sixth meeting of the Americas Cluster, which this year is under the theme of "Sharing Knowledge". We have the knowledge to make our cities safer, but we need to pull our resources together in order to put this knowledge in place. City officials have to work closer with researchers and academics who have the knowledge and build coalitions of concerned stakeholders to develop consensus and create an environment that enable effective public policies.

Finally, I want to thank our host, the Mexico City government, its leadership and its people for their warm welcome. I want to convey my personal thanks to Jefe of Gobierno Marcelo Ebrard and his staff for their hospitality.

I look forward to a successful 2007 Americas Megacities Forum. *Muchas Gracias.*

Declaration of Commitment from Participating Cities and Institutions

EMI - Américas Megacities Forum 2007
Mexico City
September 19 -21, 2007

Declaration

- Whereas cities, and especially megacities and other fast growing metropolises, are increasingly exposed to disaster risks,
- Whereas these risks put citizens and development at harm way,
- Whereas cities carry large responsibilities over the general welfare of their citizens and ensure their safety and well-being,
- Whereas cities are aware of the critical importance to reduce the risks faced by their cities and to be prepared to respond to hazard occurrences,
- Whereas the HYOGO Frame Work of Action urges adhering Disaster Risk Reduction at all level of governments,

We, the participants of the Americas Megacities Forum 2007 that took place in Mexico City the 19th. – 21st September 2007, declare:

1. Our willingness and commitment to engage in Disaster Risk Reduction in our respective cities.

2. Our engagement in knowledge sharing to improve our capacities to deal with disasters.

3. Our commitment to work with multi-lateral organizations , regional organizations, financing institutions and others, in establishing sound practices for Disaster Risk Reduction.

4. Our willingness to partner with the above, to improve the resources and capacities of cities to deal with disasters risk hazards and reduce the potential for disaster risk.

Adopted

September 21st. Mexico City, Mexico.

The Participants

Foro – EMI de las Américas 2007
Ciudad de México
Septiembre 19 -21, 2007

Declaración

- En la medida en que las ciudades, y específicamente las Megaciudades y otras metrópolis, estén cada vez más expuestas al Riesgo de Desastres,

- En la medida en que sus habitantes y su desarrollo sigan expuestos a la incertidumbre del daño que implican estos Riesgos,

- En la medida en que las ciudades conlleven una alta responsabilidad sobre el bienestar y la seguridad de sus ciudadanos,

- En la medida en que las ciudades no tengan la suficiente conciencia de la importancia de reducir los riesgos que confrontan y no estén preparados para afrontarlos,

- En la medida en que el Marco de Acción de KYOGO ha recomendado, a todos los niveles de gobierno, la adopción de Políticas de Mitigación de Riesgo de Desastres,

Nosotros, los participantes del Foro – EMI de las Américas 2007, que tuvo lugar en la Ciudad de México del 19 al 21 de Septiembre 2007, declaramos:

1. Nuestro deseo y compromiso de comprometernos en la Reducción del Riesgo de Desastres en nuestras respectivas ciudades.

2. Nuestro compromiso de compartir nuestro conocimiento, para mejorar nuestras capacidades en el manejo de los riesgos.

3. Nuestro compromiso para trabajar con las diferentes Agencias de Gobierno, organizaciones multilaterales, organizaciones regionales, instituciones financieras y otras, para implementar medidas eficientes de Reducción del Riesgo de Desastres.

4. Nuestro deseo de asociarnos con ellas, para incrementar los recursos y capacidades de las ciudades en la gestión de riesgo de desastres y reducir la probabilidad de su ocurrencia.

Adoptada

El 21 de Septiembre de 2007, en la Ciudad de México, México.

Los Participantes

EMI - Mexico D.F. Declaration of Cooperation

Ciudad México
Capital en Movimiento
Gobierno del Distrito Federal

EMI
Earthquakes and Megacities Initiative
Cluster Cities Project

EL COLEGIO DE MÉXICO

Proyecto de Nodos de Ciudades
Acuerdo de Reconfirmación de Participación

El Gobierno de la Ciudad de México reconfirma por medio de este documento, su intención de continuar participando en el proyecto del grupo de ciudades relativo a la Earthquakes and Megacities Initiative (EMI) (Iniciativa sobre Temblores y Megaciudades). Mediante la firma de este documento, el Gobierno de la Ciudad de México sigue siendo en una de las ciudades asociadas a la EMI y miembro del grupo de EMI-Américas, que a la fecha incluye a las ciudades de Los Angeles, E.U.A.; Santa Fe de Bogotá, Colombia y Quito, Ecuador. El proyecto del grupo de ciudades tiene como propósito promover el intercambio de conocimientos, experiencias y tecnologías, en un esfuerzo para reducir las pérdidas humanas, económicas y sociales provocadas por sismos y otros desastres. El Gobierno de la Ciudad de México está consiente de que su participación en el proyecto de ciudades EMI es voluntario y que es del interés del público en general y no tiene interés comercial alguno. Aún más, no implica obligación financiera alguna de sus participantes.

Esta confirmación de participación sirve para reconocer y apoyar el concepto y el espíritu de cooperación de este proyecto. Significa la intención de El Gobierno de la Ciudad de México de participar en las actividades organizadas por EMI en el contexto de este proyecto y de cooperar con otras ciudades integrantes de EMI, en particular con el grupo de las Américas. EMI apoya estas actividades y sirve como promotor y coordinador del proyecto. Aún más, EMI está dedicada a apoyar a sus ciudades asociadas, en sus propósitos de reducir el impacto de los terremotos y otros desastres en sus habitantes, en su economía y en el medio ambiente.

Firmado por la autoridad del Gobierno de la Ciudad de México:

Nombre: Lic. Marcelo Ebrard Casaubon

Cargo: Jefe de Gobierno del Distrito Federal

Fecha: 19 de septiembre de 2007

El representante de la Ciudad de México es:

Nombre: Dr. Elías Miguel Moreno Brizuela

Cargo: Secretario de Protección Civil del Gobierno de la Ciudad de México

Email: _____

Fax: _____

Firmado por el oficial de EMI que autoriza:

Nombre: Dr. Fouad Bendimerad

Cargo: Presidente del Consejo

Fecha: 19 de septiembre de 2007

El representante de EMI para este Proyecto es:

Nombre: Dr. Sergio Puente Aguilar

Cargo: Miembro del Consejo

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CLUSTER CITIES

Americas Cluster:
Bogotá, Los Angeles, Mexico City and Quito

East Asia Cluster:
Jakarta, Kobe, Manila, Seoul and Shanghai

Euro-Mediterranean Cluster:
Cairo, Istanbul, Naples and Tehran

Oceania Cluster:
Tianjin and Wellington

South-Central Asia Cluster:
Beijing, Dhaka, Kathmandu, Mumbai and Tashkent

Observer Cities:
Amman: Euro-Mediterranean Cluster
Karachi: South-Central Asia Cluster
Lima: Americas Cluster

EMI

MISSION

The Earthquakes and Megacities Initiative (EMI) is an international not-for-profit scientific non-governmental organization dedicated to the acceleration of earthquake preparedness, mitigation and recovery of large urban areas. EMI serves as a catalyst for the delivery of scientific and technical knowledge to the end-users. EMI focuses its efforts on developing capacity in megacities of the developing world where the effects of earthquakes and other disasters could be devastating to the people, their economy, their culture and their environment.

OBJECTIVES

Partner with Megacities to Reduce Disaster Risk.

Develop Sustainable and Strategic Partnerships.

Build Local Capacity and Ownership.

Generate Knowledge for Capacity Development.

Facilitate Proactive Regional Engagement.

World Wide Network of Megacities.

RECENT COLLABORATION

2002
Istanbul and Naples
Disaster Risk Reduction Planning

Bogotá and Quito
Microzonation

2003
Bogotá, Kobe, Los Angeles, Mexico City and Pittsburgh
Interactive Information Exchange

2004
Seoul/Makati City: Information Management
Bogotá/Quito: Community Awareness

2005
Metro Manila
Disaster Risk Assessment and Planning

2006
Bogotá and Manila
Megacities Risk Indicators

Jakarta, Kobe and Pittsburgh
Tsunami Risk Reduction and Recovery

Timeline of Selected EMI Events

1997-1999

September 1997
1st International Earthquake and Megacities Workshop
Seeheim, Germany
96 Participants from 30 Countries. An inter-disciplinary group of researchers established a framework for research, social learning, and collaboration that would help to mitigate risk of earthquakes in large cities.

December 1999
2nd International Earthquake and Megacities Workshop
Manila, Philippines
120 Participants. Focused on identifying and developing themes pertinent to disaster preparedness, mitigation, response and recovery in large urban areas under the risk of earthquakes. Participants also discussed the need for collaboration between researchers, policymakers and end-users.

2000

January
East Asia Cluster Meeting
Kobe, Japan

May
Americas Cluster Meeting
Los Angeles, Untied States

August
Established the Clusters City Project, Istanbul, Turkey
15 cities organized into 4 collaborative clusters
Representatives identified critical areas of collaboration among member cities, including: research activities; information sharing;and risk analysis and reduction techniques.
Participants established an agenda for coalition building among city governments and academic leaders.

Oceania Cluster Cities Meeting, Wellington, New Zealand

November
Americas Cluster Cities Meeting, Bogotá, Columbia

Euro-Mediterranean Cluster Cities Meeting, Naples, Italy

East Asia Cluster Cities Meeting
Seoul, South Korea

2001

February
EMI/WSSI sponsored reconnaissance trip following the Bhuj, Gujarat Earthquake, 26 January

April
EMI/WSSI issued Interdisciplinary Observations Report on the Bhuj, Gujarat Earthquake of January 2001

June
Americas Cluster Cities Meeting, Quito, Ecuador
Participants agreed that they could cooperate on issues of: community-based vulnerability reduction; population needs and health care delivery in disasters; and promoting the culture of prevention.

November
Urban Development and Disaster Planning
Meeting, Tianjin, China

December
Urban and Safety & Sustainable Development
Meeting, Naples, Italy

2002

March
Representatives from Naples, Italy and Istanbul, Turkey met to develop a coordination plan for research and disaster management activities between the cities.

July
Americas Cluster Cities Meeting
Mexico City, Mexico

October
3rd International Earthquake and Megacities Workshop
Shanghai, China
157 Participating Organizations from 26 Countries. Brought together a group of stakeholders that shared experiences and current state-of-the-art disaster management practice and procedure. Also discussed the lessons learned in reducing the vulnerability of cities to earthquakes & other perils.

2003

March
Americas Cluster Cities Meeting
Pittsburgh, United States

May
An interdisciplinary group of researchers sponsored by EERI/EMI went to investigate effects of the earthquake that struck Boumerdes, Algeria.

October
Issued Istanbul Metropolitan Municipality Study that examined risk reduction planning within Istanbul.

East Asia Cluster Cities Meeting
Kobe, Japan

December
International Workshop: Reducing Disaster Risk through International Cooperation
Mumbai, India
250 Participants from 11 Countries
Participants discussed three themes: (1) administrative structure and procedures for implementing disaster management plans, (2) development control regulation and techno-legal issues, and (3) role of corporate and nongovernmental sectors in urban disaster risk reduction.

Euro-Mediterranean Clusters Cities Meeting
Naples, Italy

2004

March
Americas Cluster Cities Workshop
Los Angeles, United States

June
Representatives from the five Clusters and 17 partners institutions met in Seeheim, Germany and were introduced to the 3cd Program. Participants provided input and feedback that assisted with the development of the 3cd Program.

August
Began the process of reviewing the disaster management plan of Mumbai, India with the goal of identifying both sound practices as well as deficiencies in the cities' disaster plan.

October
Kobe University , with support from EMI, launched a training program and website to develop a network of disaster management scholars and professionals.

2005

January
Symposium on Disaster Risk Management for Megacities in Asia: Planning and Implementation, Kobe, Japan
Participants explored planning as a theme for mainstreaming disaster risk reduction. Issues focused on collaborative lanning and implementation strategies, the use of information and communications technology, gap analysis, risk communication and building sustainability mechanisms.

April
EMI/PDC/EDM conducted study trip to Metropolitan Manila , Philippines to discuss with officials the design and implementation of the cities' disaster risk management plan.

October
Americas Cluster Cities Meeting
Bogota, Columbia

December
Seminar-Workshop in Metro Manila, Philippines to discuss linking disaster risk reduction plans and practices across Metro Manila's 17 cities and towns.

2006

January
Two Seminar-Workshops on Mainstreaming Disaster Risk Reduction were held in Manila, Philippines.

February
A meeting was held in Seeheim, Germany to discuss the details of the Metro Manila project.

March
EMI implemented an initiator system that promotes risk communication among stakeholders and assists policy decision-making and monitoring at the local level for the megacity context.

April
EMI launched the Megacity Disaster Risk Management Knowledge Base, in alliance with the PDC, to collect the sound practices and city profiles of megacities in the EMI network.

June
Americas Cluster Cities Meeting
Quito, Ecuador

November
EMI held the Asia Megacities Forum 2006 to contribute to the implementation of the HFA, Kobe University, Kobe, Japan

2007

February
Announced a new partnership with the Kingdom of Jordan and the City of Amman, Jordan towards the development of an integrated disaster risk management program for the city.

April
Representatives presented EMI programs and projects at the International Conference on Earthquake Risk Management held in Islamabad, Pakistan.

June
Issued numerous publications, including: Urban and Megacities Disaster Risk Reduction: Manual of Sound Practices. Application of Indicators in Urban & Megacities Disaster Risk Management: A Case Study of Metro Manila.

July
EMI published a new informational website: www.emi-megacities.org

September
America's Megacities Forum
Mexico City, Mexico

October
Asia Megacities Forum
Jakarta, Indonesia

EMI Publications

Proceedings Report

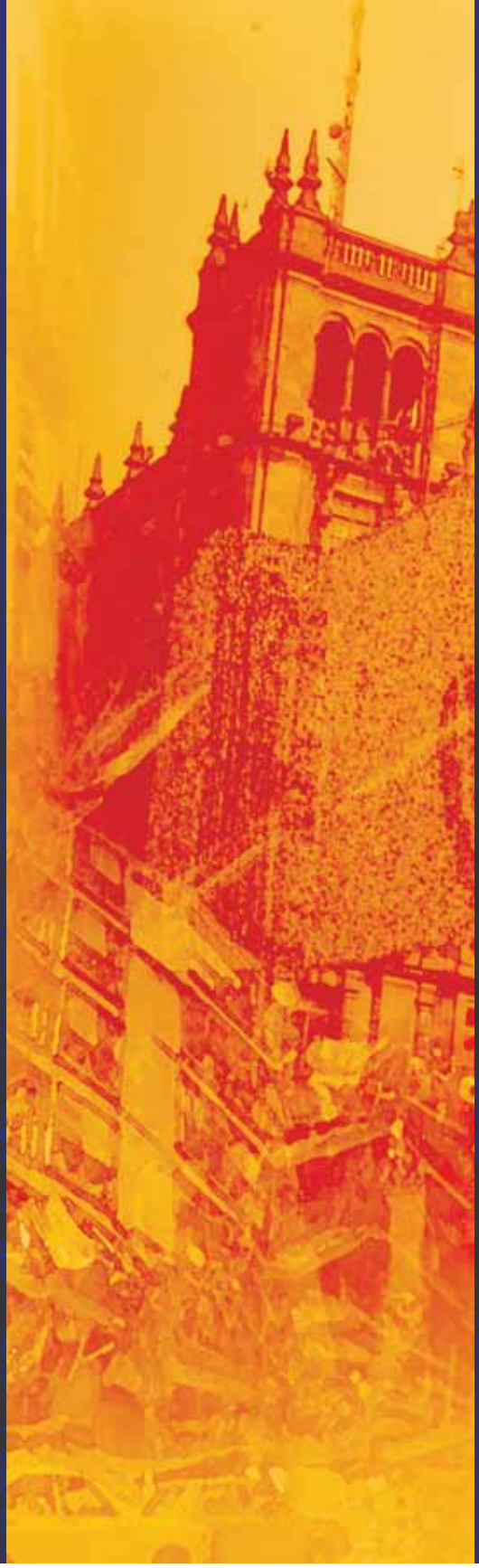
PR-08-01: Enhancing City-to-City Sharing and Social Participation in Disaster Risk Reduction
PR-07-01: Stakeholders' Evaluation of the Cross-Cutting Capacity Development Program in Metro Manila, Philippines, Phase 1, 2005-2006
PR-07-02: Science, Knowledge Sharing and Planning for Megacities Disaster Risk Reduction
PR-06-01: Mainstreaming Disaster Risk Reduction through Land Use Planning and Enhancing Risk Management Practices
PR-06-02: Enhancing Local Partnership and Stakeholders' Ownership: Implementing the Disaster Risk Management Master Plan in Metro Manila
PR-06-03: Disaster Risk Reduction of Mega-Urban Regions

Topical Report

TR-07-01: Application of Indicators in Urban and Megacities Disaster Risk Management: A Case Study of Metro Manila
TR-07-02: Urban and Megacities Disaster Risk Reduction: Manual of Sound Practices

Brochure

BR-07-01: EMI Brochure, 2nd ed
BR-06-01: EMI Brochure, 1st ed.
BR-06-02: Megacities Disaster Risk Management Sound Practices in East and South-Central Asia



About the Cluster Cities Project

The Cluster Cities Project (CCP) is EMI's platform for the establishment of a worldwide network of megacities supporting the paradigm shift from reactive disaster response to proactive risk reduction. Its main activities include awareness raising, capacity strengthening, and coalition building among city governments and academic leaders to develop a culture of increased communication, transparency, and cross-sectoral and multi-disciplinary practices. It is also EMI's mechanism for understanding the gaps and needs within each city, for introducing sound practices and for helping develop strategic approaches that have the support of local stakeholders.

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A member of the U.N. Global Platform for Disaster Risk Reduction