



ADRC Peer Review 2010 Mongolia

Asian Disaster Reduction Center

Overview of the Mission to Mongolia

Counterpart in Mongolia:

National Emergency Management Agency (NEMA)



Mission Date:

6-9 December 2010

Theme of Review:

Awareness Raising and Capacity Development for
Earthquake Disasters

(HFA Priority Action 3: Build Understanding and Awareness)

Review Team:



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Organizations & Officials Visited (1)

1. **NEMA (National Emergency Management Agency)**

- Mr. Namsrai Dumaa, Commissioner, Deputy Chief
- Mr. Mijid Sukhbaatar, Senior Officer (EQ Study)
- Mr. Mandakhgerel Batmunkh, Colonel, Senior Specialist, Disaster Protection Department
- Mr. Uuganbayar Batmunkh, Senior Captain, Head, Training and Public Awareness Division
- Ms. Altanchimeg Shaazan, Head, Foreign Relation Division
- Mr. Demberelnyam Baasasuren, LT, Foreign Relation Division

2. **Disaster Research Institute (under NEMA)**

- Mr. Bayarjargal Buyan-Ulzii, Colonel, Director

3. **Emergency Management Department, Ulaanbaatar City**

- Mr. D. Erdenebaatar, LTC, Deputy Director
- Mr. S. Sukhbaatar, Colonel, Senior Officer, Disaster Management Division
- Ms. Tseelei Erdenechimeg, Specialist Responsible for Infrastructure



Organizations & Officials Visited (2)

4. **Mongolian Red Cross Society**

- Mr. Samdan-Dobji Rabdangyn, Secretary General
- Ms. Zoljargal Galsan, Disaster Management Programme Officer

5. **Ministry of Education, Culture and Science**

- Prof. KH. Tsookhuu, Secretary, National Council for Science & Technology
- Mr. Jigmedsengiin Tseveendorj, Department of Science & Technology

6. **Metropolitan Urban Planning and Construction Department**

- Ms. Erdenetuya. T, General Engineer, Urban Development and Planning Dept., Ulaanbaatar City

7. **Information • Post • Communication and Technology Agency**

- Mr. Amgalanbat Batsuren, Director General, Policy and Planning Department
- Mr. Altankhuyag Gantumur, Senior Officer, Policy and Planning Dept.



Organizations & Officials Visited (3)

8. Governor of 4rd khoroo of Sukhbaatar district

- Ms. A.Tangad

9. Research Center of Astronomy and Geophysics, Mongolian Academy of Science

- Dr. Sukhbaatar. U, Director
- Prof. Demberel Sodnomsambuu, Scientific Secretary
- Mr. Ulziibat , Department of Seismology

10. United Nations

- Mr. Onno van der Henrer, Programme Officer, UNDP
- Mr. Luwuer Ihier, Consultant for UNDP
- Ms. Catherine Decker, UN Programme Analyst
- Ms. Munkhjargal Ts., Climate Change Programme Officer



Brief Introduction of Mongolia

Geographical Info:

- ✓ Location: Between Russia and China
- ✓ Area: 1,566,000 km²
(Ulaanbaatar: 1,359 km²)
- ✓ Altitude of Ulaanbaatar:

Population:

- ✓ 2.7 million
(Ulaanbaatar: 1.2 million)

Administrative Structure:

- ✓ 21 Aimag (Province) – Soum (District) – Khoroo (Sub-district)

Buildings in Ulaanbaatar:

Three construction periods;

1950'-1960' :Bricks and masonry

1970'-1980' :Soviet-type Apartment: PC panel structure

1990'- :

GER districts



Disaster in Mongolia

Types of Natural Disasters:

Drought , Dzud, Dust storms, Flood, Forest and Steppe Fires, Earthquake

Earthquake environment in Mongolia:

- Seismic activity is increasing around U.B
- Accumulated earthquake data (RCAG)
- Possible scenario earthquake
- Active faults around U.B (Hustain, Elmeelt, Gunjin)

Also faults (M7 class earthquakes) with distance of 200-300km; Byteel fault, Mogod fault, Deren fault) due to UB geological basin structure

- Past and recent earthquakes 30 eqs with $M > 7$, 4 eqs with $M > 8$
1905(M8.0), 1905(M8.4), 1931(M8.0), 1957(M8.3), and
1967(7.4: damage in UB) historical information

Disaster Risk Mgmt System in Mongolia

Legal System:

Law on Disaster Protection (20 June 2003)

Plans & Programme:

National Security Concept (July 2010)

National Strategy for Climate Risk Management and Action Plan

Integrated Earthquake Response Plan (January 2010)

Organizations:

National Emergency Management Agency (NEMA) : more than 3,000 officials

- Offices in each level of district & sub-district, and U.B city

Current Efforts in Awareness Raising & Capacity Development for Earthquake DRR

NEMA

<Efforts>

- ✓ President's concern on disaster prevention particularly Earthquakes: Increased Budget for 2011
- ✓ Development of disaster protection legal environment, integrated planning and policy system
- ✓ Approval of Integrated Earthquake Response Plan in March 2010
- ✓ Collaboration among NEMA and RCAG for DRR

<Issues>

- ✓ Increased possibility of earthquake occurrence around U.B
- ✓ Insufficient implementation of disaster prevention trainings especially in schools and large scale

Current Efforts in Awareness Raising & Capacity Development for Earthquake DRR

NEMA (cont.)

<Discussion and suggestion>

- ✓ Importance of sharing disaster information, development of human resource, and enhancement of communities' capability
- ✓ Utilization of new technology for disaster reduction
- ✓ Establishment of "Disaster Reduction Day" and conducting regular activities

Current Efforts in Awareness Raising & Capacity Development for Earthquake DRR

- Disaster Research Institute

<Efforts>

- ✓ Initiation of research of disaster management, risk reduction and risk transfer for 10 types of disasters
- ✓ Undertaking of research on potential earthquake
- ✓ Launching of laboratory test (chemical/radiation/fire)
- ✓ Recommendation of relocation to the people living in the houses vulnerable to earthquake

<Discussion and suggestion>

- ✓ Expected loss considering potential scenario earthquakes
- ✓ Seismic performance depending on construction periods
- ✓ Dissemination of the research outcomes

Current Efforts in Awareness Raising & Capacity Development for Earthquake DRR

- Emergency Management Department, Ulaanbaatar City

<Efforts>

- ✓ Development of Contingency Plan for the City and periodical revision
- ✓ DM Training for public
- ✓ Development of brochure for earthquake preparedness in collaboration with Red Cross
- ✓ Learning remote sensing technology by Korea

<Issues>

- ✓ Insufficient fire facilities for centralized city
 - 13 fire stations and 50 fire trucks
- ✓ Lack of knowledge of staff members on earthquake

<Discussions and suggestions>

- ✓ Risk assessment and seismic performance of old buildings, e.g. PC panel buildings constructed in 1970-1980

Current Efforts in Awareness Raising & Capacity Development for Earthquake DRR

- Red Cross

<Efforts>

- ✓ Development of good earthquake disaster education materials
 - Pamphlet, DVD, poster, and calendar
- ✓ Development of 80 persons as trainers and 300 volunteers for disaster risk management activities
- ✓ Implementation of simulation exercises in 1 school & 1 kindergarten

<Discussions>

- ✓ Education materials based on research of disaster prevention and regional characteristics for Mongolia

Current Efforts in Awareness Raising & Capacity Development for Earthquake DRR

Ministry of Education, Culture and Science

<Efforts>

- ✓ Recognition of earthquake disaster risk reduction
 - Implementation of EQ disaster preparedness and risk reduction program from 2009
 - EQ conference in 2012
- ✓ Accumulation of earthquake data information in RCAG
- ✓ Establishment of disaster training and resource center

<Discussions and Suggestions>

- ✓ Utilization of recent technology
 - Retrofit of old public building
 - Earthquake early warning system for centralized city
- ✓ Education based on not only general but also recent research achievement
- ✓ Retrofitting of school buildings

Current Efforts in Awareness Raising & Capacity Development for Earthquake DRR

- Metropolitan Urban Planning & Construction Department

<Efforts>

- ✓ Introduction of building certificate & monitoring since 2010
- ✓ On-going development of GIS building database

<Discussions>

- ✓ Seismic performance of existing buildings
- Collaboration with Irkutsk City for Soviet Union Standard building
- Collaboration with RCAG for Monitoring
- Current building code form 1998
- Check system for building materials
- ✓ Methodology of seismic retrofit
- ✓ Emergency sirens with public awareness

Current Efforts in Awareness Raising & Capacity Development for Earthquake DRR

- Information, Post, Communication and Technology Agency
<Efforts>

- ✓ Intra network for disaster reduction among government agencies
- ✓ Telecommunication technology used as a tool for early warning
- ✓ Nation wide coverage of cellular services and fiber optics network
- ✓ Non-functional emergency siren system developed during the early 1970's

- <Discussions and suggestion>

- ✓ Necessity and possibility of earthquake early warning system for centralized city, U.B.
- ✓ Real-time data transmission by ICTPA
- ✓ Necessity of information provision for isolated damaged area
- ✓ Utilization of IT for public awareness and education for disaster prevention

Current Efforts in Awareness Raising & Capacity Development for Earthquake DRR

- 4rd Khoroo of Sukhbaatar district

- ✓ Many old buildings constructed in 1950's on soft-soil site along river; vulnerable apartments altered ground floor columns
- ✓ Sub-district with 4 kindergartens ,1 primary school, 1 secondary school, 3 historical museums, 35 apartments

<Efforts>

- ✓ Activities on evacuation training and education in a school
- ✓ Planning of evacuation drill for schools and museums
- ✓ 5 officials in charge for emergency management
- ✓ Designation of people's roles in emergency

<Discussions and suggestion>

- ✓ People's awareness for old buildings
- ✓ Difference of evacuation drill for specified persons and unspecified persons (public spaces)
- ✓ Development of volunteers for DRM activities

Current Efforts in Awareness Raising & Capacity Development for Earthquake DRR

Research Center of Geophysical and Astronomical (RCGA)

<Efforts>

- ✓ Accumulation of earthquake data and increasing seismic activity around UB: Mongolian National Data Center
- ✓ Basic information of scenario earthquakes- three levels
 - Active faults around U.B
 - Also faults (M7 class earthquakes) with distance of 200-300km
- ✓ Past and recent earthquakes 30 >M7, 4 >M8
- ✓ Increased budget from 2011
- ✓ Planning of hosting Asian Seismological Commission in 2012

<Discussion and Suggestions>

- ✓ Accumulation of geological information for earthquake damage prediction in U.B
- ✓ Awareness for earthquake early warning and installation of EEW system
- ✓ Utilization past earthquake information for earthquake disaster education

Current Efforts in Awareness Raising & Capacity Development for Earthquake DRR

- United Nation

<Efforts>

- ✓ Project implementation for increasing capability of NEMA to prepare for and respond to disasters: cluster approach
- ✓ Planned emergency training for earthquake preparedness in collaboration with USAID in April 2011
- ✓ Sichuan earthquake study tour
- ✓ On-going support for search and rescue training and review of guideline for SAR standard
- ✓ On-going UN planned activities; education for pandemic disasters, incorporation of disaster education in school curriculum by UNICEF

<Discussions>

- ✓ UN's contribution to seismic retrofit in developing countries
- ✓ Earthquake disaster training considering seasons and time
- ✓ Utilization of earthquake early warning
- ✓ Comparison of seismic design standard
- ✓ Disclosure of Contingency Plan

Advantages

Based on Observation and Analysis

- ✓ President's concern on disaster prevention particularly Earthquakes
- ✓ Develop disaster protection legal environment, integrated planning and policy system
- ✓ Budget allocation for earthquake disaster risk reduction from 2011
- ✓ Collaboration among NEMA and RCAG for DRR
- ✓ Integrated data base of social information such as buildings
- ✓ Seismic and geological information for earthquake scenario
- ✓ Collaboration with Irkutsk experts on seismic performance of buildings

Advantages

Based on Observation and Analysis (cont'd)

- ✓ Sub-district level activities have been undertaken
- ✓ Red cross has developed good disaster education materials and trained 80 persons as trainers and 300 volunteers for disaster risk management activities
- ✓ Telecommunication technology used as a tool for early warning
- ✓ Nation wide coverage of Cellular services

Points to Be Considered for Further Improvement Based on Observation and Analysis

- ✓ Lack of public awareness on earthquake risks
- ✓ Non-identification of amount of earthquake damage for the earthquake scenario
- ✓ Weak dissemination of information to public
- ✓ Expansion of fire during earthquakes is not identified in the Ger districts
- ✓ Lessons learnt from the past earthquakes were not sufficiently used
- ✓ Non-functional emergency siren system developed during the early 1970's
- ✓ Insufficient fire services including man power, equipments and fire stations

Points to Be Considered for Further Improvement Based on Observation and Analysis (Cont'd)

- ✓ Lack of collaboration of Scientists and structure engineers for earthquake disaster prevention
- ✓ Seismic inspection of existing buildings not enough especially for PC panel structures
- ✓ Insufficient knowledge of seismic retrofit
- ✓ Checks and balances on the quality of building elements used by builders

Findings and Recommendations of Reviewer(I)

1. Necessity of Earthquake Damage Prediction based on possible earthquake scenario

- * Combination of Social Information (population distribution, building distribution) and Natural information (Earthquake Data, Geological information, deep underground structure and surface geology)
- * Collaboration of Scientists and Engineers

2 . Application of Disaster Prevention Research

- * Not only Seismic retrofit but also Earthquake Early Warning for Centralized city
- * Establishing Testing Laboratory for Building Structures

Findings and Recommendations of Reviewer(II)

3. Education /Training for Disaster Prevention
 - * School and sub-district
 - * Incorporation of materials based on disaster prevention research
 - * Early Warning System (due to scientific and engineering collaboration)
 - * Introduction of “Earthquake Shaking Table Car”
 - * Community-based Disaster Prevention Organizations
4. Determination of Mongolian Disaster Prevention Day
5. Earthquake Disaster Prevention Committee
 - Government, Academic (Scientist and Engineer) , Utility Companies, NGO’s and International Organizations
6. Risk Consistent Disaster Prevention Counter Measures
7. Legal Framework for More Active Involvement of Relevant Organizations on Earthquake DRR Activities

Thank you very much for your kind cooperation!

Keywords:

- Preparedness before earthquake
- Multi-disciplinary collaboration
- Closer relation between research and education
- Natural science, engineering technology, and social science

