REVIEW ON THE RADIUS TRAINING COURSE IN BRI

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SUMMARY

This paper describes review of The 12th IISEE SEMINAR on Seismology and Earthquake Engineering titled "Earthquake Disaster Mitigation In Urban Area" at International Institute of Seismology and Earthquake Engineering (IISEE), Building Research Institute (BRI), Ministry of Construction from 11 May to 19 June 1998. The seminar in 1998 was specially designed for engineers and researchers, who are engaged n IRADIUS project by IDNDR secretariat, UN., and was sponsored by BRI and JICA (Japan International Cooperation Agency), and partially by IDNDR secretariat. The seminar was attended by 17 scientific/technical experts from the 9 RADIUS case study cities and other cities pre-selected for the RADIUS case studies. The three international institutes as well as the IDNDR Secretariat participate in the City Report presentation and following discussions.

INTRODUCTION

The course of "IISEE SEMINAR on Seismology and Earthquake Engineering" is originally held each two years at IISEE by BRI and Japan Cooperation Agency (JICA) since 1980. The 12th IISEE SEMINAR on Seismology and Earthquake Engineering titled "Earthquake Disaster Mitigation In Urban Area" was specially designed for the engineers and researchers, who has been engaged in technical and scientific working group in selected nine cities in RADIUS project. The working group are supposed to investigate an earthquake hazard assessment and consequent damage evaluation of buildings, infrastructures and facilities in the city. In addition to nine, participants from other candidate cities also joined the seminar. Summing up, the seminar was attended by 17 scientific/technical experts from the 9 RADIUS case study cities and other cities pre-selected for the RADIUS case studies from May, 13 to June 18, 1998. IDNDR secretariat dispatched some overseas senior experts and lecturers to the seminar. The other expenses were supported by BRI and JICA. The objectives of the seminar are to give the participants advanced knowledge and methodology of earthquake engineering, to give them information on the disasters and experiences of the 1995 Kobe Earthquake, and for them to discuss their own problems through presenting City Reports.

SEMINAR CURRICULUM

At the beginning of the seminar, Dr. T. Katayama, chairman of the STC subcommittee for RADIUS, gave a keynote lecture 1 "International Cooperation in Earthquake Engineering" in the seminar. Professor T. Okada gave a keynote lecture 2 "Promotion of seismic retrofit of Buildings". Table 1 shows the seminar curriculum. The curriculum was devotedly coordinated by Izuro Okawa, Head of Building Division, IISEE.

The lectures are classified into four categories; Category A, "from focal plane via path to soil ground near to a site", consists of seismotectonics and active faults, earthquake source process, geophysical exploration, etc. Category B, "strong ground motions, site effects, and behaviors and damage of soils near to structures", consists

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of strong motion seismology, effects of surface geology on strong ground motion, hazard map, seismic microzoning, soil liquefaction, land slides and slope failure, etc. Category C, “damage, earthquake diagnosis and retrofit of structures”, deals reinforced concrete and steel buildings, pile foundations, highway bridges, lifelines and damage during the 1995 Kobe Earthquake. Category D, “earthquake damage assessment, disaster mitigation planning”, consists of human disaster, earthquake fire countermeasures, tsunami disaster mitigation, damage assessment methodology, earthquake loss modeling, urban planning disaster mitigation, etc. Technical tour is six days trip to Kansai area including Kobe.

The presentation of City Reports was scheduled at the end of the seminar. But all the participants were enthusiastic about the presentations and the seminar. So preliminary presentation sessions of nine days were voluntarily held after the scheduled lectures before formal City report presentation. At the final stage of the seminar, City Report from all participants were presented and discussed with Mr. Kenji Okazaki, IDNDR secretariat. Some members of the three international institutes, INCEDE (The International Centre for Disaster-Mitigation Engineering) /OYO Corporation (Japan), GHI (Geo Hazards International, USA) and BRGM (Bureau de Recherches Geologiques et Minieres, France) also joined the presentation and disscussion.

List of participating cities to the JICA seminar for technical experts (17 cities)

Addis Ababa (Ethiopia), Antofagasta (Chile), Bandung (Indonesia), Bucharest (Rumania), Giza (Egypt), Guayaquil (Ecuador), Izmir (Turkey), Kathmandu (Nepal), Pereira (Colombia), San Juan (Argentina), Santo Domingo (Dominica Rep.), Skopie (TYFR of Macedonia), Sofia (Bulgaria), Tashkent (Uzbekistan), Tbilisi (Georgia), Tijuana (Mexico), Zigong (China)

RESPONSE OF PARTICIPANTS

At the end of the seminar, the participants of the seminar prepared and signed their resolutions shown in Annex 1 . I believe all of the participants satisfied with the seminar. On July 18, 1998, after closing ceremony of the seminar, we had a general meeting with the participants. All of IISEE staff and three members of TBIC (Tsukuba International Center), JICA joined the meeting.

All most all comments presented good coordination of the seminar, satisfaction to the seminar, thanks related institutions. To be more specific, many participants pointed out good coordination and well-preparedness of seminar materials such as lecture notes, wide coverage of advanced knowledge and methodology on earthquake engineering field based on accumulated experiences in recent earthquakes such as the 1995 Kobe Earthquake, excellent lecturer and good facilities, etc.

A few participants expected to be more connected with case studies of the selected cities in RADIUS project. The objectives of the seminar are to give the participants advanced knowledge and methodology of earthquake engineering, to give them information on the disasters and experiences of the 1995 Kobe Earthquake, and for them to discuss their own problems through presenting City Reports. I think they expected the lectures that simplified, powerful tools for seismic risk assessment were given. But this is a target of RADIUS project, and a problem to solve by themselves as well as by ourselves through worldwide information exchange.

Table 1: Seminar on Seismology and Earthquake Engineering as of 1998/6/15

Mon	Tue	Wed	Thu	Fri	Sat	Sun
11 Orientation (JICA)	12 Orientation (JICA)	13 Opening ceremony orientation interview (IISEE)	14 International cooperation in earthquake engineering (Dr. Katayama) Promotion of seismic retrofit of buildings (Prof. Okada)	15 Seismotectonics , quaternary geology and active fault (Dr. Kinugasa)	16	17
18 Earthquake source process & Theory of seismic waves (Dr. Yokoi)	19 Survey of deep subsurface structure (Prof. Yamanaka)	20 Effects of surface geology on strong ground motion (Dr. Kawase)	21 Strong motion seismology (Prof. Irikura)	22 Hazard map for seismic microzoning (Prof. Irikura)	23	24
25 Seismic diagnosis and strengthening of RC building (Dr. Sugano)	26 Seismic diagnosis and strengthening of steel building (Dr. Nishiyama)	27 Building damage during 1995 Kobe earthquake (Dr. Midorikawa) Damage to wooden building during 1995 Kobe Earthquake (Dr. Kawai)	28 Seismic Diagnosis and strengthening on bridge (Prof. Kawashima)	29 Lifeline earthquake engineering (Prof. Yamazaki)	30	31
6/1 Soil liquefaction during earthquake (Prof. Sasaki) Damage & behavior of building foundation during earthquake (Prof.Tokimatsu)	2 Observation trip Tokyo metropolitan Disaster Prevention Center move to Kobe	3 •••••••• Human disaster urban planning for earthquake disaster (Prof. Ohnishi)	4 ••••••••• Study tours Visit to Kobe, Awaji Island and Kyoto (Okawa, Yokoi)	5 •••••••••	6 ••	7
8 Earthquake fire (Prof. Tsukagoshi) Disaster mitigation planning (Mr. Nishioka)	9 On HAZUS in the United States (Dr. Scott Lawson)	10 Earthquake damage assessment methods in Japan (Dr. Kaneko)	11 Large scale landslide, slope failure (Dr. Tanaka) Simple damage assessment tool using personal computer (Dr. Zama)	12 Tsunami disaster mitigation technology (Prof. Shuto)	13	14
15 Earthquake damage assessment of Tokyo metropolitan government (Prof. Kumagai) Keynote Lrcture (Mr. Okazaki, INCEDE, GHI, BRGM) Country Report	16 Quito Project (GHI) GEMITIS Project (BRGM) Country Reports	17 Country Reports	18 Closing ceremony General meeting Farewell party	19	20	21

ANNEX I Resolution by the Participants

June 18th, 1998
IISEE, Tsukuba

RESOLUTION

of the participants in the 12th Seminar on Seismology and Earthquake Engineering sponsored by IISEE, BRI, Ministry of Construction, JICA, Government of Japan

The 12th Seminar was organised in support of the RADIUS (Risk Assessment tools for Diagnosis of Urban areas against Seismic disasters) Program launched by the IDNDR Secretariat in Geneva.

We come from four continents: Africa, America, Asia and Europe, from various cultural, geographical and different seismic areas of the world.

We work in the fields of geosciences, civil engineering and planning, and have various national and/or local responsibilities for the evaluation of seismic hazard and vulnerability of existing building stock; for damage and risk assessment as well as for the process of preparation and enforcement of national codes for earthquake resistance of structures.

We are deeply impressed by the very broad scientific coverage and by the high level lectures given in IISEE by distinguished scientists from prestigious Japanese Universities and Research Institutions.

Unanimously, we appreciate the knowledge acquired from: (1) the introductory lecture on international cooperation in earthquake engineering; (2) the lectures on seismotectonics, seismic source and waves, geophysical exploration, effect of near-surface geology on ground motions; (3) strong ground motion and seismic microzonation topics; (4) the lectures on earthquake diagnosis and retrofit of reinforced concrete, steel and wooden structures and lifelines; (5) damage of structures, foundations and soil during Kobe event, (6) seismic fire consequences and (7) emergency response and disaster mitigation planning.

We are particularly very satisfied by the results of the technical trip to Tokyo Metropolitan Government Disaster Management Center, Kobe City, Kobe University and base-isolated buildings, Akashi-Kaikyo Bridge, Awaji Island, Nojima fault and the site of a strengthened building in Osaka.

We, representatives of 17 cities world-wide: Addis Ababa (Ethiopia), Antofagasta (Chile), Bandung (Indonesia), Bucharest (Romania), Giza (Egypt), Guayaquil (Ecuador), Izmir (Turkey), Kathmandu (Nepal), Pereira (Colombia), San Juan (Argentina), Santo Domingo (Dominican Republic), Skopje (Macedonia), Sofia (Bulgaria), Tashkent (Uzbekistan), Tbilisi (Georgia), Tijuana (Mexico) and Zigong (China), taking into account that:

- the impact of natural disasters on our societies is increasing;
- the number of natural disasters in the last decade is three times higher worldwide than in 1960's;
- the last decade's economic losses were eight times greater than in 1960's, normally exceeding $60 billion a year; and the
- efforts of the International Decade for Natural Disaster Reduction in increasing international attention to reduce the impact of natural disasters,

are aware of the necessity and are proposing to strengthen mutual cooperative activities among RADIUS Cities, considering that RADIUS Program is catalyst for increased commitment to World-wide hazard awareness, risk management and disaster mitigation engineering.
The RADIUS net of cities shall be regarded as an instrument of exchange and cooperation among the cities, and its aim should be to exchange information, learn from one another's experience, and promote regional policy of cooperation, covering the following items in particular:

- scientific and technical questions (prevention, forecasting, protection and recovery);
- policy on communication and public information;

- training;
- study of existing legislation on major hazards and methods for the management of emergency situations;
- Promotion of co-operation and strengthening the links between professionals, local governments and local communities on local, national and international level.

We, the participants in the 12th Seminar on Seismology and Earthquake Engineering are indebted to the Japanese Government, JICA and BRI for giving us the opportunity to learn the most recent and advanced studies and technologies in Japan.

Finally, we would like to extend our gratitude to the IDNDR Secretariat, Geneva, Switzerland, for the initiative on the RADIUS Program.

Addis Ababa, Ethiopia, Dr. Fekadu Kebede Alamneh _____
Antofagasta,Chile, Mr. Patricio Enrique Tapia Gutierrez _____
Bandung, Indonesia, Dr. I Wayan Sengara _____
Bucharest, Romania, Dr. Dan Maniu Lungu _____
Giza, Egypt, Dr. Mohamed Mohamed Ezzat Sobih _____
Guayaquil, Ecuador, Mr. Walter Vicente Mera Ortiz _____
Izmir, Turkey, Ms. Fugen Behiye Selvitopu _____
Katmandu, Nepal, Mr. Jitendra Kumar Bothara _____
Pereira, Colombia, Ms. Ana Campos Garcia _____
San Juan, Argentina, Mr. Aldo Carlos Zaragoza _____
Santo Domingo, Dominican Republic,
Mr. Emilio Euripides Cruz Herasme _____
Skopje, Macedonia, Dr. Zoran Milutinovic _____
Sofia, Bulgaria, Ms. Antoaneta Dineva Kaneva _____
Tashkent, Uzbekistan, Dr. Bakhtier Nurtaev _____
Tbilisi, Georgia, Dr. Zurab Javakhishvili _____
Tijuana, Mexico, Mr. Ernesto Rocha-Guerrero _____
Zigong, China, Mr. He Yulin _____

FIG. 1 PRESENTATION OF CITY REPORT

FIG. 2 AUDIENCE OF CITY REPORT

FIG. 3 VISIT TO NIED AT TSUKUBA