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ENHAS Session "Natural Hazards and Disaster Risks in the Middle East Region"

7 May 2011, Antalya, Turkey

Chairs:
Alik Ismail-Zadeh, Karlsruhe Institute of Technology, Germany; Institut de Physique du Globe de Paris, France; Russian Academy of Sciences, Moscow, Russia;
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Scope
Today a single extreme natural event in the Middle East may take up to a hundred thousand lives; result in material damage up to billions of dollars, and cause a chain reaction including economic depression, ecological catastrophe, significant damage to a megacity, and disruption of the military balance in the region. The scientific session as a part of the ICSU project "Extreme Natural Events and Societal Implications" (http://www.enhans.org) will provide an opportunity to discuss and to analyse topics related to extreme natural events and disaster risk management in the Middle East region and to present methodologies and technologies suitable for hazard and risk analysis and disaster management.

Invited speakers
- **Jane Rovins**, IRDR IPO, Beijing, China: Integrated Research on Disaster Risk: A New International Programme
- **Mohsen Ghafory-Ashtiani**, International Institute of Earthquake Engineering and Seismology, Tehran, Iran: *Risk of Natural Hazard in Iran and Experience on Risk Reduction Capacity Building*
- Cuneyt Tuzun, **Mustafa Erdik (Turkey)**, Domenico Giardini, Karin Sesetyan, Bogazici University, Istanbul, Turkey; ETH Zurich, Switzerland: *A Regional Program of GEM: Earthquake Model of Middle East (EMME)*
- **Abdulaziz Al-Bassam**, King Saud University, Riyadh, Saudi Arabia: *Natural Hazards in Saudi Arabia*
- **Tarek Merabtene**, University of Sharjah, Dubai, United Arab Emirates: *Flood Risk Management in the Middle East: Challenges and Opportunities*

Report on the ENHANS Session

The session was chaired by Alik Ismail-Zadeh, who introduced the ENHANS project and presented the first results of the project sponsored by ICSU and co-sponsored by several international and inter-governmental institutions. Dr. Jane Rovin, IRDR Executive Director, gave a talk on the ICSU-ISSC-UNISDR scientific program "Integrated Research on Disaster

Risk" highlighting recent developments and preparation to the IRDR Conference in Beijing in 2011.

Professor Mohsen Ghafory-Ashtiany presented a talk on the topic of natural hazard and risks in Iran and on the experience in risk reduction capacity building. To reduce and mitigate the unavoidable risk of natural hazard; scientists, engineers, government officials and the general public must all be involved in finding realistic, achievable and appropriate ways of applying scientific knowledge to everyday life. Only by capacity building and working together, a nation can mitigate the impact of natural hazards on human life and society, and solve the risk puzzle. The combination of factors that has made visible progress toward a seismically safe Iran, include good and timely response of scientific community to safety demands; the national decision for natural hazard risk reduction following the Manjil and Bam earthquakes, and excellent cooperation among the scientific communities of Iran. The undoubted success of Iran's experience can be easily applied to the developing countries. Prof. Ghafory-Ashtiani showed that the main reason for high human, social and property losses in the past decades were due to vulnerability of the built environment, rapid growth of population, and incompatible urban development with respect to exposed hazard level. To ensure the sustainable development of Iran a multidisciplinary risk reduction strategy is required with the objective of saving human lives and resources. The capacity building in Iran was started with the establishment of the International Institute of Earthquake Engineering and Seismology (IIEES) in 1989 (before the Manjil earthquake) and continued by other related institutions. This capacity building initiative provided an excellent platform for answering the increasing demand for safety, development of the required disaster reduction program and providing the required know-how and expertise for hazard and risk mapping, vulnerability reduction and public awareness and preparedness. He discussed the Iran's achievement in seismic risk reduction during the three main eras: before the Manjil Earthquake, post Manjil Earthquake era (1990-2003), and post Bam earthquake era (2003 - present).

Dr. Cuneyt Tuzun presented a new project EMME (Earthquake Model of Middle East Region) for assessment of hazards and risks. The Middle East region is located at the junction of major tectonic plates, namely the African, Arabian and Eurasian plates, resulting in very high tectonic activity. Some of the major earthquake disasters in human history occurred in the Middle East, affecting most countries in the region. Being one of the most seismically active regions of the world, Middle East, extending from Turkey to India, is also a key region in terms of urbanization, energy reserves and industrialization trend. The region under consideration involves world's most populated capitals and cities with key economical importance such as Istanbul, Baghdad, Tehran, Jeddah, Riyadh, Cairo, Kabul, Karachi and Lahore. Dr. Tuzun told that the EMME project aims at the assessment of seismic hazard, the associated risk in terms of structural damages, casualties and economic losses and also at the evaluation of the effects of relevant mitigation measures in the Middle East region in concert with the aims and tools of the Global Earthquake Model Project (GEM). EMME project encompasses several modules such as the Seismic Hazard Module, Risk Module, Socio-Economic Loss Module and the development of an IT infrastructure or platform for the integration and application of modules under consideration. The methodologies and software developments within the context of EMME will be compatible with GEM in order to enable the integration process.

Prof. Abdulaziz Al-Bassam presented various natural hazards in Saudi Arabia. The Kingdom of Saudi Arabia is quite prone to different kinds of natural hazards. The northwestern region of the Kingdom is prone to earthquakes and volcanic hazards, whereas the central and the

western regions of the country are exposed to floods especially during events of heavy rainfall. Landslides are a common phenomenon in the inhabited mountainous regions in the southwest. Dust storms are quite common in the central and the eastern parts of the Kingdom. Different government agencies and various universities having been working on these issues, to mitigate these hazards and also educate the people. Due to the 2009 Jeddah flood disaster more emphasis is being given to tackle the problems related to hydrological hazards. Similar events like this have the potential to affect other major cities of the Kingdom.

Prof. Tarek Merabtene spoke on flood risk management in the North Africa and the Middle East Region (MENA region). Magnitude and impact of climate change will increasingly take new catastrophic dimensions under the current paradigm shift of our cities if disaster risk management actions and appropriate disaster policies are further delayed. Governments in the MENA Region are aware that countries in the Middle East region are not an exception as translated by the recommendations made during the GCC summit in Kuwait 2010 to unifying efforts on issues related to climate change. In recent years, flash floods in many different countries of MENA region have caused loss of life, social disturbance of business and livelihood and large economical damages to private and public assets. The increasing frequency of floods in the region are clear indicators that urban flood management will have potential implications on the sustainable development of current and future urban infrastructures in the MENA region. Prof. Merabtene emphasized the institutional deficiencies behind the current situation and discussed various strategic measures in the direction of mainstreaming flood risk management high in the political agenda of MENA countries.

The general discussion revealed a need for an international cooperation in the region and for setting up a core group of experts dealing with natural hazards and disaster risk research in the Middle East.