

International Institute of Earthquake Engineering and Seismology: Theran, Islamic Republic of Iran

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The IIEES is a comprehensive Research Institute in Seismology and Earthquake Engineering which aspires toward playing an international role. IIEES as the first International research institute in Iran was founded in December 1989, based on 24th UNESCO General Conference Resolution DR/250 and Iranian government approval. The main goals of IIEES is to promote research and education in science and technology related to various aspects of seismotectonic, seismology, as well as earthquake engineering and to utilize the research results for the purpose of seismic hazard reduction in the region.

IIEES organization is composed of President, Board of Trustee (including government officials and earthquake specialists), Planning Council (with seven members including UNESCO representative), Research, Education and Executive Divisions.

It was only six months after the establishment of IIEES that the devastating earthquake of June 21 1990 (Manjil-Rudbar) highlighted the severe vulnerability associated with the Iranian urban and rural areas, and triggered the public awareness. The Manjil-Rudbar earthquake was indeed a turning point in the earthquake mitigation planning of Iran and made various governmental agencies seriously concerned with the seismic hazard risk mitigation. As part of its policy of conducting applied research, IIEES defined a "Five-Year Program for Earthquake Risk Mitigation and Prevention" in the country. At present, this program is under implementation with the cooperation of other related institutions and universities in Iran.

IIEES has promoted International Cooperation since its establishment and presently is cooperating with various known scientific and international organization such as UNESCO, UNDP, IDNDR, UNDRO, Geotechnic Earthquake Engineering (TC4), IISSE, etc. Many

researchers from various countries have visited IIEES and have participated in ongoing research activities, and given lectures and short courses. Recently IIEES was selected as the Regional Center for the Global Seismic Hazard Assessment Program (GSHAP) as a part of IDNDR activities. IIEES also plans to expand its educational activities by offering courses in seismology for international students in December 1992.

Researchers from around the world and from this region are invited to cooperate with IIEES staff in order to achieve higher level of excellence. The works done so far were possible only by the dedication and sincere contribution of IIEES faculty, researcher and supporting staff, and consultants toward the establishment, growth and success of IIEES. Thanks are due to UNESCO and other international agencies and organizations support.

Five year earthquake risk prevention and mitigation program in Islamic Republic of Iran:

The devastating Earthquake of June 21, 1990 in the Northern part of Iran that caused the loss of thousands of lives and inflicted great damages to vital installations of the country is regarded as the dreatest natural disaster of the century in Iran. Nevertheless, experiences and lessons that have been learned are valuable for developing mitigation measure against similar future events.

With the knowledge of constant threat of major earthquakes in Iran, IIEES planning council decided to implement a multi-disciplinary program for prevention and mitigation of seismic risks with the main objectives being: (i) to reduce the risk of failure in different types of construction; (ii) to increase public awareness of the risks and the need to build safer structures; and (iii) to develop plans for post earthquakes actions. In order to achieve these objectives, a program has been prepared

consisting of the following parts:

- (1) Research on seismic zoning and micro-zoning
- (2) Research on seismic safety of structures
- (3) Updating building codes and engineering practices
- (4) Education and training
- (5) Risk assessment and reduction
- (6) Public awareness and disaster management

The first two parts contain the research needed for updating the seismic design codes and to improving the resistance of structures to earthquakes. The third part includes the actions necessary to update building codes based on the lessons learned from real earthquakes and research, as well as the actions required to facilitate the application of these codes by engineers and architects. The fourth part refers to improving the knowledge about earthquake-resistant construction by educating various professionals who participate in the preparation of building codes, the design of structures, and in the construction processes. The fifth part aims at the identification of important classes of structures in Iran, studying their seismic safety, and making recommendations for enhancing their seismic safety. Finally, the sixth part consists of dissemination of information to the general public on how to build safer structures and how to act in case of seismic emergencies. The following is a brief list of activities in each of these various aspects. The institutes responsible for implementing each activities are also identified:

1. Research on seismic zoning and microzoning
 - 1.1- Iranian National Seismic Network (IIEES)
 - 1.2- Expansion of Existing Strong Motion Network (BHRC)
 - 1.3 - Seismological Studies (IIEES, BHRC)
 - 1.4 - Seismotectonic Maps (GSI)
 - 1.5 - Geotechnical And Geological Studies (IIEES)
 - 1.6 Seismic Hazard Studies (IIEES)
 - 1.7 - Earthquake Amplification Study in Theran and Selected Sites (IIEES)
 - 1.8 - Seismic Zoning of Iran And Microzoning Maps of 3 important Cities (IIEES, GSI)

2. Research on seismic safety of structures

- 2A. Projects for Development of Installations
 - 2A.1- Structural Dynamic Laboratory and Workshop (IIEES)
 - 2A.2- Computer and Shaking Table of Sharif University (SUT, IIEES)
 - 2A.3- Soil Dynamics Laboratory (IIEES)

- 2B. Research Projects on Seismic Safety of Structures
 - 2B.1- Seismic Response of Actual Structures (BHRC)
 - 2B.2- Vulnerability of Existing Structures (IIEES)
 - 2B.3- Vulnerability of Lifelines (IIEES)
 - 2B.4- Material Listing and Quality Control (BHRC)
 - 2B.5- New Materials for Structural and Nonstructural Members, Energy Dissipation and Devices (BHRC)
 - 2B.6- Geotechnical Studies: Land Slides, Liquefaction,... (IIEES)
 - 2B.7- Experimental Study of Typical Iranian Masonry Construction (IIEES)
 - 2B.8- Experimental Study of Typical Reinforced Concrete Urban Construction (BHRC)
 - 2B.9- Experimental Study of Base Isolation Systems for Small Buildings (IIEES)
 - 2B.10-Experimental Study of typical Structural Joints (BHRC)
 - 2B.11-Shaking Table Tests and Study of Models of Typical Rural Houses (IIEES, SUT)
 - 2B.12-Analytical Studies of Structural Response (IIEES)

3. Building Code (BHRC)

- 3.1- Updating of Existing Buildings Codes
- 3.1- Preparation of Written and Graphical Material

4. Education and training (IIEES, GSI, BHRC)

5. Risk Assessment and Reduction (IIEES)

6. Public Awareness (IIEES, BHRC, GSI, MI)

IIEES: International Inst. of Earth. Eng. and Seismology
BHRC: Building and Housing Research Center
SUT: Sharif University of Technology
GSI: Geological Survey Institute
MI: Ministry of Interior