# International Seminar on Policies and Practices in the Management of Seismic Risks in Urban Areas

Tehran, Islamic Republic of Iran 16-18 November 2004

# 1. INTRODUCTION

This seminar was organized in the framework of the initiatives undertaken by the United Nations in support of the Iranian Government following the earthquake in Bam on 26 December 2003. The UN committed itself to supporting the Government not only in the provision of short-term relief, but also in long-term recovery, reconstruction and risk reduction. As set out in the UN Development Assistance Framework for 2005 to 2009, the UN system in Iran will facilitate a Government-led sustainable risk management program that reduces future natural disaster risks and maximizes the development gains.

This seminar also represented a direct follow-up to the Workshop of Lessons Learnt on the Response to the Bam Earthquake, held in Kerman on 14-15 April 2004.

On top of providing a chance for international experts, practitioners, academics and policy makers to exchange experiences in the management of seismic risks in large cities and to formulate recommendations, the seminar was also expected to formulate a "Tehran message" on earthquake risk reduction to be delivered at the upcoming World Conference on Disaster Reduction.

The seminar was co-organized by the UN Office for the Coordination of Humanitarian Affairs (OCHA), the UN Development Program (UNDP) and the UN International Strategy for Disaster Reduction, with ample support from the Government of Iran and in consultation with UNESCO.

The seminar took place on 16, 17 and 18 November 2004 at a research facility of the Ministry of Foreign Affairs in northern Tehran, and saw the participation of over 150 people, including:

- Senior officials from the Government of Iran
- Governors from nearly all the provinces of Iran
- Local administrators at provincial and city level
- Senior representatives from the Iranian Red Crescent Society
- Representatives from national NGOs
- National and international academics
- Representatives from regional organizations (ADPC and ADRC)
- Disaster managers and experts from some 15 countries
- Representatives from UN agencies and from international NGOs

#### 2. OPENING SESSION

The seminar was opened by the Minster of Interior of the Islamic Republic of Iran, HE Mr. Abdolvahed Mousavi-Lari, who insisted on the need of sound disaster management practices in a country like Iran, where risks abound. He referred to existing laws and building codes, pointing out the difficulties of having such codes respected and implemented. The Minister also advocated an insurance scheme to provide quick access to recovery funds after Iran's floods and earthquakes.

Mr. Mohammad Ali Karimi, Governor General of Kerman, the province where Bam is located, spoke about the relief and reconstruction efforts following the earthquake. He expressed the opinion that it is incumbent on local government officials to police lax builders more stringently.

The UN Resident Coordinator in Iran, Mr. Frederick Lyons, stressed the excellent cooperation between the Government of Iran and the United Nations in the field of disaster management. He also expressed preoccupation for the fact that knowledge and experience on sound disaster management are widely available and yet implementation in most disaster-prone, developing countries is still far from satisfactory.

OCHA Geneva's Deputy Director, Mr. Rashid Khalikov, spoke on behalf of OCHA and ISDR, stressing how this seminar happened at a critical juncture, when the tragic memory of the Bam earthquake was still alive and the international community was preparing for the World Conference on Disaster Reduction, where key recommendations from the seminar would find fertile ground.

# 3. KEYNOTE ADDRESSES

"Earthquake Risk Management in Mega Cities: Issues and Challenges"

## Mohsen Ghafory-Ashtiany

Professor and President International Institute of Earthquake Engineering and Seismology, *IIEES* Tehran, I.R.Iran

Prof. Ashtiany affirmed that the main role of scientists is to develop know-how, whilst the role of engineers, public administrators and communities is to implement such know how. He introduced the concept of seismic risk as the product of hazard times vulnerability times value (none of which is ever zero) divided by management. He stressed that good management means reducing and controlling risks in a holistic approach, looking at all risks and all effects. He took the city of Tehran as an example of the multiple challenges posed by earthquakes to large urban agglomerations due to poor planning, showing the exponential growth of the city over time, and its expansion in relation to known active faults. He pointed out high population density, poor code and law enforcement, lack of technical supervision, high dependency on vulnerable infrastructures and services and poor response preparedness as the problems most earthquake-prone megacities suffer from. He also introduced the Iranian national strategy for earthquake risk reduction, its main goals and challenges. In general, Prof. Ashtiany insisted on three key points: a) disaster reduction is an endurance effort - it requires a great deal of determination and especially patience, as results can only come in the long term and through building internal capacities; b) solutions must be practical and doable from the economic, political, social and cultural point of view; c) the main challenge of seismic risk management is the one of simplifying an enormously complex problem, through the integration of a broad range of diverse knowledge and the involvement of experts from many disciplines.

# "Earthquake Response in Megacities - Specific challenges"

#### Dr. A. Hassani

Advisor to the National Disaster Management Task Force

Dr. Hassani introduced the subject by saying that large cities are at a particular risk because of greatly increased dynamic and static consequences of earthquakes. The potential damage increases exponentially with time, as megacities continue to grow at a fast rate. He reminded that on top of the human and economic losses, huge psycho-social long-term consequences on victims and rescuers exist and have to be taken into account. He also warned of potential consequences for political and economic context of the entire country.

In terms of the specific challenges posed by large-scale disasters in megacities, Mr. Dr. Hassani identified a) mobility difficulties (rescuers cannot move around because of large quantities of debris; b) public services difficulties (e.g. water not being available through the public distribution system for firefighters to put out secondary fires); c) secondary disasters (such as fires, toxic spills and other industrial accidents); d) direct consequences of secondary disasters on rescue efforts (e.g. fire, smoke, gases); information management leading to decision making (the larger the town, the more difficult). He insisted on the importance of redundancy of emergency services (distributed and redundant capacity of the civil defense on the urban territory), on the importance of community preparedness and of civil society organizations as well as on the importance of investing in management and do not stop at the technical/scientific knowledge.

# 4. SESSION I - "TECHNICAL/SCIENTIFIC KNOWLEDGE AND TOOLS"

"Policies and Practices for Seismic Risks"

#### Frederick Krimgold

Virginia Polytechnic Institute and State University Alexandria, Virginia, USA

Prof. Krimgold introduced a comprehensive conceptual model for risk management based on risk identification, risk reduction and risk transfer. In terms of risk identification, he outlined the process of seismic microzonation, and explained how this can be effectively turned into policy and administrative decisions concerning urban planning, land use regulations and location of critical and other public service facilities. In terms of reduction of the buildings' vulnerability, he said that, in the case of new buildings, this was the outcome of professional education, construction industry training, modern building code, plan review, site inspection and, in particular, enforcement. In the case of existing buildings, he said that vulnerability reduction depended upon the establishment of public safety priorities, vulnerability assessments, rehabilitation codes, economic and social incentives and, again, enforcement. He concluded by stressing that good tools exist to identify seismic hazards and reducing vulnerability to earthquakes. What is needed is to apply a) knowledge, b) authority and c) capital to promote seismic safety.

# "The New Arg e Bam Fault"

# Fatemi Aghda

Natural Disasters Research Institute of Iran

Prof. Aghda introduced the results of a extensive study carried out in cooperation with a Japanese university on the hypocentrical determination of aftershoks, concluding that the Bam earthquake of 26 December 2003 was caused by movement along a new secondary fault, called Arg e Bam, located some three kilometers to the West of the Bam fault, directly under the inhabited area.

# "Financial Natural Disaster Risk Management"

# Reinhard Mechler

International Institute for Applied Systems Analysis Vienna, Austria

Dr. Mechler introduced the role of financial disaster risk management by outlining its role in alleviating the consequences of residual risks (i.e. risks that have escaped prevention and mitigation measures). He explained that the current approach to loss financing is essentially reactive, and therefore leads to huge liabilities and financing gaps: the insurer of last resort becomes the State, and in many cases the State itself has to turn to reinsures of last resort, i.e. the multilateral financial institutions and this mechanism can only cover a fraction of the real losses.

Dr. Mechler indicated that several ex-ante mechanisms can be set up to provide funds for relief and reconstruction, including at the macroeconomic level. He provided the example of a public-private partnership in Turkey, where the Government act as an insurer, re-insurer and regulator for the private sector, and of Taiwan, Colombia, Mexico and Honduras, where the international community supports risk financing for public assets. He reviewed in some depth some of the strengths and weaknesses of the public-private partnership schemes, discussing in particular the issue of incentives.

## "Mobilization After the Bam Earthquake"

## Massood Khatamee

Clinical Professor of Obstetrics and Gynecology NYU School of Medicine

Prof. Kathamee described the efforts of the Iranian-American community to support the relief and recovery operations following the Bam earthquake. He also described advocacy initiatives undertaken by the same community with the United Nations in support of a global strategy for seismic risks reduction.

#### DISCUSSION

During the discussion, it was noted that although widespread expertise and a certain degree of commitment exist, great deficiencies exist at the implementation level. It was asked how incentives and motivation towards disaster reduction measures can be created. The example of a particularly successful school building program in the US, started in 1933, was cited as an example. The program was successful because it was based on the social consensus that the loss of children is unacceptable and this was the key to overcome political and economic problems. Similar programs were said to exist in Nepal, Ecuador and elsewhere. School safety was indicated as a good starting point as it is easy to motivate the public around children safety issues.

It was noted that one of the reasons of difficult implementation is that risk management is not mainstreamed enough in development programs. In fact, it should be given almost priority in development strategies.

In response to a specific question, it was said that the public-private insurance scheme in Turkey was generally considered a success. There are now 2 million families with insurance with a relatively low premium. It is no magical solution, but it solves some problems as it transfers some risks. It has actually worked after a few minor earthquakes, and people were very satisfied. The program is expected to expand even further through a series of collateral measures on the part of the Government. In general, people go to insurance if they are sure that a) nobody will cover their losses otherwise, b) the insurance will pay.

It was also said that fully private insurance is not the only method. Other mechanisms involving the state and the communities themselves exist and work. What is needed is a combination of incentives and coercion. The French system was considered interesting, as it combines regulations for both building codes and insurance in the same package.

It was suggested that perhaps those who are responsible (in the government and in the local administrations) should be held financially accountable to the victims. The idea was met with support, as a measure to increase accountability of government officials. The system was said to have worked quite well in California after the introduction of the 1933 school safety law.

# 5. SESSION II - "PRACTICAL IMPLEMENTATION OF KNOWLEDGE AND TOOLS"

"Japan's experience of the 1995 Kobe earthquake and advancement of design standards"

#### Tetsushi Kurita

Asian Disaster Preparedness Center

Mr. Kurita provided an accurate description of the 1995 earthquake and its effects of the city of Kobe. He then illustrated the results of a study showing that, according to the number of deaths vs. the number of rescues, investment in prevention and mitigation measures can save up to 92% of the victims, whilst the maximum achievable with preparedness is 8%. This led into a detailed explanation of how the legislation concerning building codes has developed over the years in Japan and of the dramatic consequences that better and better enforced building and retrofitting codes had on the rate of collapse/damage of the buildings.

Mr. Morita illustrated the Japanese Government's initiative to subsidize through public funds the retrofitting of private houses, showing how this is much more cost-effective compared with rebuilding after an earthquake. Finally, Mr. Morita outlined the Fundamental Policy on New Seismic Design for Infrastructures, including performance-based design against earthquake loads and considering two levels of input earthquake motion for seismic design.

# "Policies and practices in Turkey"

#### **Murat Bursa**

Director, Prime Ministry-PIU Republic of Turkey

Mr. Bursa provided a description of Turkey's vulnerability to natural disasters, noting that two thirds of the losses are a consequence of earthquakes. 70% of the Turkish population was said to live on active faults and Turkey was said to be at 6th place in earthquake vulnerability in the world. He then made an analysis of the investments in recovery/reconstruction versus preparedness/mitigation, showing a growing trend between 1992 and 1999. He also presented an analysis of the costs of investing in better buildings: 5% at the moment of building, 25% for retrofitting once the building is constructed. He pointed out the excellent financial returns: 1 USD invested in construction saves 40 USD if the building has to be rebuilt after an earthquake; 1 USD invested in retrofitting saves 8 USD.

Mr. Bursa also presented some lessons learnt from the Marmara earthquake of 1999, showing that consequences of poor enforcement of existing building codes led to total losses of 5-7% of the entire Turkish GDP. He finally outlined the policy shift in Turkey from crisis management to risk management, indicating that Istanbul is being used as a test case for comprehensive disaster management.

## "Crisis Management in Mazandaran Province"

#### **Behzad Pour Mohammad**

Head of the Mazandaran Disaster Task Force

Mr. Pour Mohammad opened his presentation providing a definition of crisis and crisis management. He then insisted on the theoretical need for strong coordination structures and mechanisms. He provided a description of what and ideal coordination center should look like and stressed the need for effective information management. Finally, in light of this ideal system, he reviewed the many shortcomings the surfaced during the management of a recent medium-intensity earthquake in the Province of Mazandaran.

# "Earthquake Vulnerability Reduction Initiatives of ADPC"

# Rajesh Sharma

Asia Disaster Preparedness Center, Bangkok, Thailand

Mr. Sharma provided an historical overview of ADPC and outlined its mission and vision. He then continued describing the Center's structure and its main programs, namely: hazard mapping and assessment, action planning, promotion of safer building constructions, various capacity building initiatives (including a Program for Enhancement of Emergency Response, PEER), public awareness and support to national, regional and international cooperation.

#### "Seismic Risk Education in Iran"

#### Mr. I. Parsizadeh

Ministry of Education

Mr. Parsizadeh started his presentation by describing the elements of a successful public education program. He said that in Iran the focus is on students, as the represent one third of the total population, are very vulnerable and have huge capacity for learning. He provided comprehensive statistics on training courses provided at all different levels and on drills. He then went on describing textbooks, radio, and TV programs, posters, leaflets. He described the different curricula depending on the school grade and introduced special instruction manuals created for teachers and principals.

#### DISCUSSION

During the discussion it was observed that taking diversity into account is paramount for risk reduction programs: 1) cultural diversities among nations; 2) diversity in the long-term development plans of the countries; 3) legislative framework in different countries; 4) resources and capacity of the different countries. All these factors have impact on feasibility of risk reduction programs.

In response to a comment indicating that the rich have better buildings and survive more often than the poor, it was said that a) data show that the worst hit by earthquakes are not the poorest but the poor-to-medium class, who typically invest significant resource in houses that may look good but are not aseismic, and b) programs exist that address the needs of the poorest strata of the population, including in Iran. They are moving slowly, but they work.

One comment insisted on the importance of making training compulsory in schools – from extracurricular to curricular. Another pointed to the importance of protecting the cultural heritage. In particular, when refurbishing monuments after destruction from earthquake, seismic considerations have to be taken into account, as the already refurbished parts are typically the ones that collapse again.

In response to a specific question, it was said that the cost of retrofitting varies – as an example, in Turkey retrofitting a building is considered worthwhile if a) the cost is less than 1/3 of the cost of the new building and b) the building has a reasonable expected life. It must also be technically feasible and socially acceptable, otherwise retrofitting won't work.

# 6. SESSION III - "EXPERIENCES FROM DISASTER RESPONSE AND RECONSTRUCTION"

# "National Set-up for Disaster Management in Iran"

# Seyed Abbas Jazayeri

Director, National Disaster Management Task Force

Mr. Jazayeri explained that in Iran, the overall responsibility for disaster management rests with the Ministry of Interior. Operational and policy matters are dealt with by a Task Force comprising representatives of all concerned ministries and agencies. The Ministry of Foreign Affairs provides an interface with international actors. As the level of decision-making varies with the extent of the disaster, Task Force structures are present with the same composition at the provincial level (chaired by Provincial Governor, who has the power to call upon national bodies for assistance) and at city level (where the chair can call upon the Province for assistance). Auxiliary Provinces can step in as required.

He also explained that all Task Forces have hazard-specific Committees (earthquakes, floods, droughts, etc.), chaired by a representative of the Ministry responsible for responding to that particular hazard. The Task Forces also have thematic working groups (Prevention Working Group, Operations Working Group, Communications Working Group, Training Working Group, Media Working Group, Foreign Aid Working Group). Significantly, these working groups deal with all phases of the disaster management cycle – disaster response is therefore integrated in a much broader risk management concept

# "How Can Coordination in National and International Disaster Response be Improved?"

# Mostafa Mohaghegh

Operations Coordinator International Federation of Red Cross and Red Crescent Societies, Geneva, Switzerland

Mr. Mohaghegh started by saying that risk reduction is important but reality shows that response is unavoidable, so the two should progress in parallel, and that response is not only response but is also preparedness. He than introduced some data concerning global trends in disasters, noting that earthquakes account for some 14% of all disasters. He also outlined some of the main negative impacts of disasters in urban settings.

Mr. Mohaghegh continued describing in depth the characteristics of effective urban disaster management and then introducing some specific issues concerning coordination at the national and international level. These included information management, quality and accountability of assistance, regional mechanisms, international coordination tools and on-site operational coordination mechanisms.

# "The Iranian Red Crescent Experience in Disaster Response"

#### Bijan Daftari

Head of Relief and Rescue Organization, Red Crescent Society of the Islamic Republic of Iran, Tehran

Mr. Daftari described the program for preparedness of IRCS, insisting on their work at community level. He stressed the importance of participation and involvement of the communities in planning and implementing preparedness and response activities. He said that law is important, but encouragement is better. He also described the challenges deriving from a relative scarcity of means (transport, shelter: existing stocks and capacity only for 500,000 people, which is nothing should something serious happen in Tehran). He spoke about the need to further develop the emergency telecommunication system to cover the entire nation. He said that training is crucial in promoting a culture of survival (1,200,000 trained so far by IRCS). He said that coordination in crisis remained a big problem, both at national level and at the interface between national and international. He praised the role played by NGOs and international organizations.

# "Sustainable Post-Disaster Recovery"

#### **Kamal Kishor**

United Nations Development Program Bureau for Crisis Prevention and Recovery, New Deli, India Mr. Kishor described the main challenges in post-disaster recovery as being: a) the predominance of emergency assistance; b) the permanent gap between emergency assistance and reconstruction; c) the fact that reconstruction often means rebuilding risk; d) the widespread use of spontaneous rebuilding as a coping strategy; e) the presence of ad-hoc legislative and institutional frameworks; f) uncoordinated and fragmented action. He said that a new approach to recovery should be based on building on local and national capacities, decentralized planning and programming, effective risk management and reduction, the demonstration effect and effective coordination.

# **DISCUSSION**

During the discussion, a question on the use of tents as emergency shelter triggered a considerable controversy. It was said that generally people do not want to leave the remains of their houses and it is difficult to move them to camps that are far away. Experience shows that prefabricated housing compounds far from original residential areas are not liked by the people. On the other hand, it was also noted that camps facilitate considerably the delivery of emergency services and that this is in fact a contradictory demand with the one above. It was said that camps tend to become permanent solutions in crises, and that human rights violations tend to take place more often in camps. Camps/compounds are organized along different social lines, generally artificial and therefore not liked. At the end, it was agreed that camps are often unavoidable, but should be planned to last for the shortest possible time.

In response to a comment on problems of coordination between government and bilateral donors, it was noted that the law in Iran says that all international donations are to be given to the IRCS, who will then distribute. All donations have to be approved, but we have to admit that there was quite some pressure in certain cases for accepting. It was suggested that donations should be sent in cash so that commodities can be purchased in country (cheaper and culturally appropriate).

#### 7. SESSION V - WORKING GROUPS

# Working group on "Policies and Institutions" - main conclusions

- Governments should adopt comprehensive, strategic and integrated approaches in disaster management, including all aspects and levels and with due consideration to preparedness and mitigation;
- The approach should seek maximum level of decentralization and ensure participation on NGOs, civil society, local communities, private sector and women;
- In all areas of disaster management, technical capacities of different professions and specializations should be utilized and respected as required;

- Governments should provide enough provisions to strenghten organizations regarding their manpower, equipment and financial requirements;
- Safer buildings and environment should be a demand-driven objective of the general publich through awareness programs, education and information sharing;
- Governments should fight against corruption and strictly enforce existing building codes;
- Governments should take the necessary technical, administrative and financial measures to ensure and enforce acceptable levels of security in land use and building construction;
- Vulnerability assessment of life-lines and existing buildings should be conducted;
- Constructing safe buildings and retrofitting existing buildings should be technically feasible, financially affordable and socially acceptable.

# Working group on "National Preparedness" - main conclusions

- Our approach to risk reduction and disaster response should be from local to global;
- Risk reduction and disaster preparedness and response should be multidimensional and comprehensive, including physical and non-pyisical, as well as individual and organizational preparedness;
- More work should be done to clarify definitions and concepts and improve communication at the national level;
- Effective inter-sectoral interaction among players of national and local disaster preparedness is a key for success;
- Particular emphasis should be given to information management;
- Scientific and technical knowledge should be better utilized in all areas of disaster preparedness;
- A sustainable disaster preparedness should recognize capacities at all levels.

# Working group on "Involving Local Communities" - main conclusions

Recognizing that the communities bear the brunt of a disaster and they respond to the emergency before help arrives, the group recommends:

- Training of local communities on earthquakes for enhancing their capacity for preparedness and response;
- Materials and equipment (such as showels, first aid kits, etc.) should be made available to the communities to help them to respond in time;
- NGOs, civil society members and Imams should be involved in imparting training keeping in mind the cultural needs of the communities;
- Emergency response training should be made compulsory as part of education at all levels;
- City- and district-level disaster management and response plans should be prepared with the participation and in consultation with local communities;
- Accountability and responsibilities of key government officials for public utilities (water, health, etc.) should be made known to the local communities.

# 9. TEHRAN MESSAGE ON EARTHQUAKE RISK REDUCTION FOR THE WCDR¹ AND BEYOND

The Bam earthquake occurred on 26 December 2003, causing over 30'000 causalities and as many injured. It served as a painful reminder of the growing vulnerability and risk of people living in cities around the world, as well as the set back caused by disasters on development processes.

Over 150 participants, including authorities in charge of disaster risk management, practitioners, experts and representatives of international organizations from 20 countries gathered in Tehran, 16-18 November 2004 to build on the experience of the Bam tragedy and other recent catastrophic events. The seminar and its proceedings are aiming to further strengthen commitments and enhance consensus on modalities to successfully reduce earthquake risk.

The discussions at the seminar highlighted the fact that broad understanding of what constitutes effective earthquake risk reduction is very often available, although not sufficiently and appropriately applied. Urgent and sustained actions are required for the efficient application of available know-how in developing countries, with the main objective of saving human lives and reducing economic losses.

The following priorities were identified as initial requirements to ensure effective implementation:

- 1. Risk reduction policies should take highest priority in development plans at all levels. A genuine balance between post-disaster response and pre-disaster preparedness, prevention and reduction is essential.
- 2. Authorities need to adopt an integrated, comprehensive and multi-hazard strategy for disaster risk reduction including prevention, mitigation, preparedness, response, recovery and rehabilitation. This can most appropriately be provided through multi-disciplinary and inter-sectorial interaction taken into consideration socio-economic and cultural issues, including the civil society, from international to the local level;
- 3. Maximum public participation, appropriate decentralization of responsibilities and resources and clarification of accountabilities are key considerations;
- 4. Development planning processes, including urban and land-use plans, poverty reduction strategies and development frameworks, with active participation of the communities at risk, should systematically and fully integrate disaster risk reduction;
- 5. Collective prevention and safety culture should become an integral part of national development programmes and be promoted through risk

<sup>&</sup>lt;sup>1</sup> World Conference on Disaster Reduction (WCDR), 18-22 January 2005, Kobe, Hyogo, Japan, http://www.unisdr.org/eng/wcdr/wcdr-index.htm

communication, awareness and educational activities, with a focus on children and families and using all types of media;

- 6. Women should play an active in ensuring the effective implementation of all the phases of disaster risk reduction and their contribution should be emphasised;
- 7. Local authorities should ensure sustainable development of urban and rural areas and make sure that all structures, especially essential buildings and infrastructures, such as schools and hospital, are safely built with the full implementation of codes. Providing incentives is an effective tool for enforcing safety standards and zero tolerance is required for any type of violation;
- 8. Scientific communities also have a responsibility to provide effective, useful and affordable solutions for vulnerability reduction and earthquake safe design and construction;
- 9. Local capacity building supported by appropriate transfer of knowledge, experience and technology, at community, national, regional and international level is required;
- 10. The provision of necessary resources to implement earthquake risk reduction is a prerequisite for effective action. Guidance is required to develop cost benefit analysis as incentives to finance risk reduction measures. Risk sharing mechanisms through public-private partnership can contribute to enhancing resilience to earthquake impacts.

Sustained commitment and actions to the above priorities would be enhanced if Governments adopted voluntary targets, as well as mechanisms to monitor their achievements.

With this message, participants call on Governments, international organizations and non-governmental organizations preparing for and participating in the WCDR\* to integrate the above priorities in the outcomes of the Conference and in particular the framework for future action to be adopted. Implementing these priorities will support the achievements of the International Strategy for Disaster Reduction (ISDR) and thus sustainable development.

Appreciation is expressed to the Government the Islamic Republic of Iran and the United Nations organizers<sup>2</sup> of the seminar.

Prepared at Tehran, 18 November 2004

\_

<sup>&</sup>lt;sup>2</sup> Office for the Coordination of Humanitarian Affairs (OCHA), United Nations Development Program (UNDP), International Strategy for Disaster Reduction secretariat (ISDR)