

A United Nations Strategy for Support to the Government of the Islamic Republic of Iran Following the Bam Earthquake of 26 December 2003

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ABSTRACT: *After the earthquake on 26 December 2003 with magnitude 6.3 which struck the historic city of Bam and its surrounding villages and took the lives of nearly 26,500 people, left over 25,000 injured and about 75,000 homeless; the United Nations agencies in the Islamic Republic of Iran have worked closely with the Government to respond to the immediate needs of the affected people, by undertaking a rapid needs assessment and launching a Flash Appeal to address the urgent and immediate needs of the affected population, and to facilitate a smooth transition from the immediate rescue and relief phase to a medium and long-term reconstruction and recovery phase. The UN has committed itself to supporting the Government not only in the provision of short-term relief, but also in long-term reconstruction, recovery and risk reduction. UN Secretary-General Kofi Annan offered support for an international conference on the reconstruction of Bam as well as organizing an international workshop on earthquake disaster risk management. Recognizing the value of a concerted UN approach that complements the Government's reconstruction and disaster risk reduction efforts, the UN System in consultation with its national and international partners has prepared a strategy document, using methods of social research such as participant observation, case studies, the use of key informants, group discussions and individual in-depth interviews. The strategy builds on past efforts of the UN System in the Iran and on the UN Flash Appeal of 8 January 2004. It outlines UN support to the Government of Iran for reconstruction, rehabilitation and risk reduction over the next five years, and details specific activities in the short, medium and long term.*

Keywords: Bam earthquake; Rescue, Relief; Recovery; Reconstruction; Disaster; Risk management; United nations; UNDP; Iran

1. Introduction

On 26 December 2003, a powerful earthquake with $M_s = 6.3$ struck the historic city of Bam and its surrounding villages. It took the lives of nearly 26,500 people, left over 25,000 injured and about 75,000 homeless. Approximately 85 percent of the houses, commercial units, health and educational facilities and

administrative buildings in the city and surrounding villages were either severely damaged or completely destroyed. The 2,500 year-old historic citadel of Bam (Arg-e-Bam), an internationally famous heritage site, was almost completely destroyed, dealing a severe blow to the economic prospects of the Bam

region and the livelihoods of its people.

In the aftermath of the earthquake in Bam on 26 December 2003, the United Nations agencies in the Islamic Republic of Iran have worked closely with the Government to respond to the immediate needs of the affected people. At the request of the Government, UN agencies undertook a rapid needs assessment and launched a Flash Appeal to address the urgent and immediate needs of the affected population, and to facilitate a smooth transition from the immediate rescue and relief phase to a medium and long-term reconstruction and recovery phase. The Flash Appeal was launched by the UN Under-Secretary-General Jan Egeland in Bam, Geneva and New York on 8, 9 and 12 January respectively.

The UN has committed itself to supporting the Government not only in the provision of short-term relief, but also in long-term reconstruction, recovery and risk reduction. In his letter of 5 January 2004 to the President of Iran, UN Secretary-General Kofi Annan offered support for an international conference on the reconstruction of Bam. The Secretary-General also proposed an international workshop on earthquake disaster risk management.

International experience has shown that when appropriate technical support is provided early on in the recovery effort, risk management and reduction considerations can be factored into all recovery and reconstruction initiatives from the beginning; discouraging the reconstruction of risk, and laying the foundation for more sustainable recovery and longer-term development. In a highly disaster-prone country such as the Iran, the successful reconstruction of Bam would provide a good opportunity not only to reduce vulnerability to future earthquakes in Bam but also in other areas equally or more vulnerable to earthquakes and other natural disasters.

While it is unlikely that the financial support from the UN will match the resources that will be allocated by the Government, regional and international financial institutions and other international agencies, the UN System with its experience, technical expertise and long history of involvement in natural disaster risk reduction issues is uniquely positioned to provide both technical and coordination assistance to the reconstruction programme on a sustained basis.

Recognizing the value of a concerted UN approach that complements the Government's reconstruction and disaster risk reduction efforts,

the UN System in consultation with its national and international partners has prepared a strategy document. The strategy builds on past efforts of the UN System in the Iran and on the UN Flash Appeal of 8 January 2004. It outlines UN support to the Government of Iran for reconstruction, rehabilitation and risk reduction over the next five years, and details specific activities in the short, medium and long term.

1.1. The Challenge of Rebuilding Bam

The long-term reconstruction and recovery for Bam programme will be a major challenge for the people of Iran. The reconstruction effort will be a massive exercise requiring a multi-sectoral approach ranging from rehabilitation of livelihoods and the local economy, to restoration of water, health and sanitation systems, to the rebuilding of critical infrastructure, to housing and social sector reconstruction etc. It will require significant financial resources, skilled human resources and innovative institutional arrangements, and will involve a wide range of actors at the local, provincial, national and international levels. Initial estimates indicate that the long-term recovery will take a number of years, and that it could cost anywhere between US\$700 to \$1,000 million. Although most of these resources will have to be gathered by the Government of Iran, the international community can provide critical support to some of the more strategic areas.

1.2. Challenges to Disaster Risk Management in Iran

The devastating effect of the Bam earthquake has brought back into focus the fact that Iran is highly vulnerable to natural disasters. On the Global Seismic Hazard Map, Iran, which is crossed by two major fault lines, stands out as one of the most earthquake prone countries in the world. The country however, is not only exposed to earthquakes but also to frequent flash floods and recurrent drought. Annually, Iran suffers an average of 2,393 deaths, or about 3.4 percent of the global annual total of about 70,000 deaths. Yet with a population of 73 million, Iran represents only about 1.25 percent of the global population.

The country has significant technical expertise in almost all aspects of disaster risk management. It is host to internationally renowned institutions such as the International Institute of Earthquake Engineering and Seismology (IIEES). Iran also has some of the best-developed building codes. Seismicity across almost the entire country has been well studied and mapped. In addition, much work has been done

on seismic zonation of the country as a whole, and on micro-zonation of urban areas, such as Tehran. Yet this wide range of technical expertise and know-how has not translated into adequate action for disaster risk reduction. A preliminary analysis indicates that some of the challenges that the practice of disaster risk management faces in Iran are:

- ❖ Inadequate emphasis on comprehensive disaster risk management vis-à-vis disaster relief
- ❖ Lack of awareness among decision makers in key development sectors of disaster risk management issues
- ❖ Absence of multi-disciplinary approaches to assessing and managing disaster risk
- ❖ Inadequate compliance with building regulations and inadequate training for construction workers and labourers
- ❖ Lack of appropriate techno-legal and techno-financial regimes for disaster risk management
- ❖ Insufficient application and use of existing scientific and technical knowledge in Iran towards enhanced city planning, seismically safe construction and disaster risk reduction actions.

2. Towards a Consolidated UN Strategy

2.1. Past UN Initiatives on Disaster Risk Management in Iran

Over the last decade, *UN* agencies in Iran have worked on a wide range of disaster risk management initiatives. While these initiatives have made important contributions, they leave much to be desired. The following are some of the key activities undertaken in the past:

- ❖ Preparation of guidelines for earthquake disaster management: after the Manjil earthquake of 1990, *UN-HABITAT* and *UNDP* collaborated with the Housing Foundation of the Islamic Revolution to prepare detailed guidelines for earthquake disaster management. The guidelines include regional and urban planning and design; production of building materials; quality control; design and construction of engineered and non-engineered earthquake resistant buildings; and upgrading of existing and earthquake damaged buildings.
- ❖ *UNDP-UNESCO* joint project to assist in the establishment of the International Institute of Earthquake Engineering and Seismology (*IIEES*): Based on the decision taken by the 24th Session of the *UNESCO* General Conference represent-

ing the will of the international community to build capacities in Iran and the region, *UNDP* and *UNESCO* launched a project (*UNDP/IRA/90/009*) to support the establishment of *IIEES*. The project included training of *IIEES* technical staff as well as provision of equipment for seismic monitoring and forced vibration testing of existing structures for research purposes.

- ❖ Development of an Integrated National Disaster Management Plan (*INDMP*): The objective of this project was to develop a plan that would provide a strong basis, at the national level, for the sustained protection of population, property and development achievements in Iran. The *UNDP* project emphasised need for improved organizational coordination mechanisms; disaster implication checklists for major development projects; establishment of effective communication and information systems; and the enhancement of earthquake awareness in urban areas. The project also introduced a coherent structure for emergency management at the national, provincial and local levels in preparedness, mitigation and recovery phases. The decree introducing the Plan was approved by the Council of Ministers on 6 April 2003.
- ❖ Capacity development for national disaster response and coordination: The aim of this joint *UNDP*-Iranian Red Crescent Society project was to reduce the loss of lives from natural disasters by improving national disaster response capability and coordination.

2.2. The UNDAF Process

The United Nations Development Assistance Framework (*UNDAF*) is an essential component of the *UN* programme for reform introduced by the Secretary-General in 1997. As a strategic five-year planning framework for *UN* development operations and assistance at the country level, the *UNDAF* provides a collective, coherent and integrated *UN* System response to key national priorities and needs as outlined in the Common Country Assessment, and within the context of the Millennium Development Goals (*MDGs*) and the Millennium Declaration.

Iran's first *UNDAF* (2005-2009), which is scheduled for finalisation in mid-2004, identifies "sustainable development, energy efficiency and disaster risk management" as one of the five priority areas, and envisages "reduced disaster risk from hydro-meteorological and geophysical hazards in

Iran” as one of the key outcomes of *UN* collaboration. Some of the strategies adopted by the various *UN* agencies in the wake of the Bam earthquake are being written into the *UNDAF* document to ensure that the agency country programmes address some of the disaster risk reduction challenges highlighted by the Bam earthquake.

3. Key Elements of a Consolidated UN Strategy, Methodology

While it is unlikely that the financial support from the *UN* will match the resources that will be allocated by the Government, regional and international financial institutions and other international agencies, the *UN* System with its experience, technical expertise and long history of involvement in natural disaster risk reduction issues is uniquely positioned to provide both technical and coordination assistance to the reconstruction programme on a sustained basis. The following are three distinct but inter-related elements of the proposed *UN* Strategy:

- ❖ In the short term, very specific and targeted technical support to the start-up phase of the reconstruction and recovery programme (February-May 2004).
- ❖ Sustained technical and coordination support to the Government for the duration of the reconstruction programme to help ensure efficient and sustainable recovery and long-term disaster risk reduction (May 2004-December 2005).
- ❖ Capacity building for mainstreaming disaster risk reduction into development processes at local, provincial and national levels (2004-2009).

3.1. Methodology of Development

In development of *UN* strategy Paper a number of social research methods for identifying community needs such as participant observation, case studies, the use of key informants, group discussions, and individual in depth interviews were used.

3.2. Technical Support to the Start-Up Phase of the Reconstruction and Recovery Programme (February-May 2004)

In the first five months following the earthquake, the *UN* System has worked closely with the Government of Iran, local and provincial authorities, the affected communities, private sector and subject matter specialists to provide technical inputs for the reconstruction programme for Bam through: focused

workshops, and technical consultations on sectoral themes such as health, water and sanitation, education, livelihoods, shelter, protection of vulnerable groups, urban redevelopment and planning, conservation of cultural heritage, etc; provision of local and international expertise and experience; demonstration projects; advocacy initiatives, and capacity building and training programmes on a variety of subjects for both reconstruction managers and members of the affected communities. Key *UN*-supported activities in this phase have included:

- ❖ Technical workshop on the management of reconstruction programmes (25-26 February)-The workshop brought together members of the Steering Committee for the Reconstruction of Bam, senior Government and *UN* officials and post-earthquake reconstruction experts from Iran, Japan, India and Turkey. Participants shared experiences, lessons learnt and advice on the technological, financial and institutional arrangements for reconstruction; site selection and land tenure; shelter sector reconstruction; rebuilding critical infrastructure; and urban redevelopment and planning. Recommendations from the workshop were submitted to the Steering Committee for the Reconstruction of Bam for inclusion in the Government’s reconstruction programme for Bam.
- ❖ Technical consultation on emergency measures to safeguard Bam’s cultural heritage (10-17 March)-The *UNESCO*-Iranian Cultural Heritage Organization (*ICHO*) consultation reviewed plans for the conservation of heritage structures in need of immediate stabilization, and developed preliminary guidelines for the zonation of the Bam’s historical quarters.
- ❖ Training workshops to support education managers and teachers/educators (April-May 2004)-Workshops in the series focussed on: capacity building for education management in post-crisis situations; communication skills; basics of school health; formal and informal technical and vocational education; etc.
- ❖ Workshop on lessons learned from the health response (11-13 April 2004): The workshop, organised by *WHO*, allowed for an analysis of the lessons learnt and best practices from health response to the Bam earthquake. Topics of discussion included: immediate emergency medical care, delayed medical care, management of dead bodies, communication disease

- urveillance and control, water and sanitation, national and provincial responses etc. Recommendations from the workshop were presented at the *OCHA* workshop on lessons learned from the response operations in Bam (14-15 April).
- ❖ Workshop on lessons learned from the response operations in Bam (14-15 April)-Given the magnitude of the disaster, the immediate response to the Bam earthquake was impressive. The workshop, organised by *UN-OCHA* and the International Search and Rescue Group (*INSARAG*), provided an opportunity for a systematic analysis of those aspects of the immediate response that worked and those that did not. Recommendations from the workshop were presented at the *INSARAG* conference in Tunisia in April.
 - ❖ Technical consultation on urban redevelopment and planning for the “new” city of Bam (15 April) -The workshop provided an opportunity for members of the Steering Committee for the Reconstruction of Bam, the Bam city planners, representatives from key Government departments, technical and scientific organisations, *UN* agencies and civil society to discuss issues such as long-term disaster risk management, creative recovery and the preservation of cultural heritage, in the context of urban redevelopment and planning. Concepts such as a “child-friendly city” and a “healthy city” were also explored. As a result of the workshop, a decision has been taken at the national level to make microzonation studies mandatory before the start of all future redevelopment and planning exercises.
 - ❖ Preparation of technical guidelines for the conservation, restoration and management of Arg-e-Bam and other historic monuments in Bam (18-20 April)-The consultation resulted in the preparation and adoption of detailed guidelines for the mid-to-long-term conservation, restoration, and management (including risk preparedness, presentation, tourism development, and capacity building) of the Arg-e-Bam and other historic monuments.
 - ❖ Workshop on livelihoods recovery and reconstruction (1-2 May)- The workshop explored livelihoods rehabilitation strategies for various sectors including shelter, agriculture, health, education, industry and tourism.
- Economic reactivation of micro-enterprises and self-help groups, and community integration in the reconstruction process as an interim economic recovery tool also featured heavily in the discussions. In follow-up to the workshop, *ILO* and *UNDP*, in collaboration with the Kerman Chamber of Commerce and the Bam City Council will conduct rapid surveys to assess the labor market and business opportunities in Bam.
- ❖ Consultation on social sector and basic services recovery (3-4 May)- The *UNICEF*-supported workshop was held as the first in a series of participatory consultations involving the authorities, *NGOs* and the people of Bam on recovery strategies for water and sanitation provision, health and nutrition, education, child and family protection and psychosocial support. “Child-friendly city” and “healthy city” concepts were also discussed in detail.
 - ❖ Meeting on professional partnerships (4 May): Reconstruction is likely to involve thousands of architects, engineers, planners and builders from across the country. Most of these specialists belong to professional associations such as engineers and architects associations. The half-day meeting provided a networking opportunity for members of various professional associations involved in the physical reconstruction of Bam. Partnerships and networks between the various associations at the regional and national levels would allow for transference of cutting-edge knowledge that could be cross-linked to the practical initiatives being undertaken. It could also help improve efficiency and cost-effectiveness, result in a unified strategic framework for decision making on issues of common concern, reduce duplication of efforts, and ensure better division of responsibilities.
 - ❖ Meeting on public-private partnerships for reconstruction (5 May): The meeting brought together public and private sector representatives. Topics of discussion included enhanced market access for the products from the affected areas; training and capacity building of skilled workers; and financing for reconstruction.
 - ❖ Technical workshop on lessons learned from reconstruction programmes in Iran (6 May) - The workshop was an opportunity for disaster management specialists and reconstruction managers in the country to share experiences

from past reconstruction programmes, identify lessons learnt and best practices, and brainstorm on strategies for disaster risk assessment and risk reduction in Iran.

- ❖ Technical workshop on appropriate building technology designs, construction and delivery mechanisms for shelter and public lifeline infrastructure (8-9 May)- International experience has shown that a wide variety of building construction technologies are often introduced into post-disaster reconstruction activities. While some of these technologies may meet the requirement of rapid delivery and high earthquake resistance, many will not lend themselves to easy replication and integration into the local construction industry because they do not correspond to the needs and lifestyles of the affected people. The workshop showcased a range of building technology options that are earthquake resistant, cost-effective and locally appropriate for the Bam region. It provided an opportunity for policy-makers, reconstruction managers, engineers, architects and contractors to consider the pros and cons of different building technologies for Bam reconstruction. In follow-up to the workshop, resource materials for seismically safe design and construction are being developed and will be disseminated through a number of smaller, hands-on training workshops for the various categories of building workers.

3.3. The Key Recommendations from Technical Workshops and Consultations

3.3.1. General

- ❖ The local authorities (municipal governments) should play a central role in planning and implementation of the reconstruction program. Reconstruction effort can be used as an opportunity for the empowerment and capacity building of the local government.
- ❖ Continuity of leadership of the reconstruction program at all levels-policy, programme design as well as implementation levels-should be ensured.
- ❖ The institutional arrangements for the reconstruction program should reflect strong ownership of the program at the provincial and local levels. The reconstruction program should continue to derive strength from high-level political support.

- ❖ While ensuring smooth and rapid recovery in the affected area, the institutional arrangements for the reconstruction program should also pave the way for longer-term disaster risk reduction.
- ❖ Special attention should be paid to the most vulnerable groups (such as orphans, women headed households, lone survivors in the family, severely injured and permanently disabled), affected by the earthquake. The institutional arrangement should provide for a review of the situation of these vulnerable groups after every six months for the next several years.
- ❖ "Participation" of the affected communities in decision-making and implementation is a key success factor in making any reconstruction and recovery program sustainable. The institutional arrangements should make use of existing structures at the local level (such as village Islamic councils) to ensure participation at all levels and at all stages of decision making. Appropriate methodologies, tools and techniques need to be devised and applied to ensure effective participation.
- ❖ The civil society organizations should have an important role in the institutional arrangements for the reconstruction program. As required, their capacities also need to be developed to play an appropriate role in the reconstruction program.
- ❖ Recognizing that a reconstruction program requires a different (quicker and flexible) way of operating, appropriate operational guidelines/manuals should be developed for the implementation of the program.

3.3.2. Urban Redevelopment Planning, Site Selection and Land Tenure

- ❖ Given the proximity of Bam to seismically active fault lines, the location of some of the critical facilities will have to be revaluated and if required, changed to safer location. Overall, it is likely that the reconstruction will follow a combination of reconstruction on the same site and relocation of some of the critical buildings to a new location.
- ❖ The main cause of extensive damage to Bam city was due to bad quality of construction. Therefore the main emphasis will have to be on improving the quality of construction to ensure adequate level of earthquake resistance.
- ❖ In the newly reconstructed Bam, the issues of security of tenure for the inhabitants will have to be addressed. The security of tenure of not

only the permanent inhabitants of Bam but also those living on rented land and property needs to be ensured.

- ❖ Land and property ownership records (through existing official registration documents, aerial maps, mutual confirmation by local people etc.) should be systematized in order to avoid competing claims at later stages of the reconstruction process. It may be useful to set up an Area Development Authority to deal with day-to-day problems and disputes that might emerge as the reconstruction progresses. The government has already taken steps by bringing in a legislation to stop the buying and selling of land in Bam area (during the reconstruction phase) to avoid any ownership disputes.
- ❖ Appropriate arrangements need to be put in place to ensure enforcement of safety standards and building codes. The architects and engineers need to be made responsible for the safety of new buildings. Approved drawings of the newly constructed buildings in Bam city should be digitized and kept for posterity in government records.
- ❖ The process of urban redevelopment and planning after an earthquake is a complex one. It will be beneficial for a team of relevant officials to visit Gujarat and to learn from the experience of reconstruction of urban centers after the Gujarat earthquake.
- ❖ The process of debris removal should be seen as an opportunity to improve the habitat of affected communities. Several potential uses of the debris can be explored such as salvaging of reusable house building components and construction of flood protection dykes.
- ❖ The reconstruction program also offers opportunities to promote improved environment management practices and to reduce vulnerability to other natural hazards. In the case of Bam, there is an opportunity to introduce water management practices that help re-charge ground water resources. Like wise, application of roof water harvesting and wastewater-recycling processes can also be explored.
- ❖ Urban redevelopment planning should be closely linked to economic recovery processes in the affected area. There should be adequate emphasis on making the existing livelihood options more resilient as well as exploring new livelihood options.

3.3.3. Shelter Sector-Appropriate Delivery Mechanisms

- ❖ The linkage between temporary or intermediate shelter and permanent needs to be carefully examined. The experience of past reconstruction programs in some countries indicates that temporary shelter should be used to buy some extra time for building permanent shelters. It is not always advisable to easily upgrade or integrate a temporary shelter into a permanent one.
- ❖ Shelter sector reconstruction is likely to be the largest component of the reconstruction program. It should be closely linked to local economic recovery and enhancement of livelihood options.
- ❖ Systems for producing locally appropriate, low cost building materials (such as stabilized earth blocks) need to be put in place. A lot of technological innovation has taken place in other countries. Possibilities of technology transfer from other countries can be explored.
- ❖ Buildings codes, in their existing format, are not easily understandable to local builders and contractors. Easily understandable and locally usable guidelines and manuals need to be developed for earthquake resistant construction.
- ❖ Training programmes for a large number of supervising engineers need to be instituted to facilitate the delivery of safe housing at such a large scale.
- ❖ Financial mechanisms to support delivery in shelter sector should be linked to application of earthquake safety standards. An appropriate system of incentives and disincentives needs to be put in place.
- ❖ There should be a provision for retrofitting owner built new houses that are not built to earthquake safety standards.
- ❖ While owner-driven housing reconstruction has its merits, it may not always be possible to apply this approach. The house-owners may be pre-occupied with their other livelihood activities and may not be able to participate in the reconstruction activity. Therefore, a combination of owner-driven and contractor-driven approach should be adopted. There may be other innovative approaches such as establishment of family cooperatives for owner-driven construction that can be explored.
- ❖ The assistance package to the affected house-

holds can be structured in such a way that it is more targeted towards the less affluent, less privileged and the most vulnerable groups.

- ❖ While promoting low-cost and locally appropriate technologies, aspirations of the affected population should be taken into account.

3.3.4. Rebuilding Critical Infrastructure and Enhancing Standards of Safety

- ❖ For all critical infrastructure performance based codes need to be established.

3.3.5. Response

- ❖ A comprehensive planning process for disaster risk management, taking into account national and international capacities should be put in place.
- ❖ A permanent, full-time structure for disaster management should exist.
- ❖ In particular, managers should be given a chance to participate in simulation exercises of large-scale emergencies with the participation of international actors.
- ❖ More “discipline” on the part of internationals such as contacting with local authorities choosing one contact point should be taken.
- ❖ Proactive information sharing should be followed up.
- ❖ The Government needs to establish stronger institutional mechanisms to deal with international assistance.
- ❖ More effective mechanisms should be available to decline offers for assistance and/or prevent unwanted assistance from reaching the country.
- ❖ More commitment should be put by agencies and donor Governments towards respecting a) the will of the Government, b) the indications provided by the United Nations and c) existing technical standards.
- ❖ The involvement and participation of beneficiaries is indeed fundamental.
- ❖ A number of practical and easy-to-implement procedures for a greater participation of beneficiaries should become standard for international agencies.
- ❖ During emergencies, information management is as important as the provision of actual relief assistance.
- ❖ Informing the affected population in the immediate aftermath of the disaster (and even before) is extremely important.

The detail recommendation and proceedings of the workshops can be obtained from the *UNDP* office

in Tehran.

3.4. Sustained Technical and Coordination Support for Sustainable Recovery and Long-Term Disaster Risk Reduction (March 2004-December 2005)

The main focus in this phase is on supporting the Government of Iran in the implementation of the Bam reconstruction programme. Efforts will be targeted to gathering additional financial and technical resources for the institutional arrangements, strategies and plans that the Government has put in place, and on managing, tracking and coordinating the use of these resources. The *UN* will also use the opportunity to draw attention to the importance of all aspects of earthquake disaster risk management, with particular emphasis on identifying best practices and lessons learned from the Bam earthquake. Key activities during this phase include:

- **Establishment of a Public Information System**

The aim of the initiative is to empower the affected communities through enhanced access to information resources on disaster recovery and reconstruction programmes and projects. The *UNDP*-supported project will entail mapping of potential community learning and information sharing points; collection and collation of data for an electronic Central Resource Database Centre; design and development of an Information Bank and query-based portal for the generation of various information products for the print and electronic media; and the establishment of *ICT* kiosks in various locations throughout the affected areas to provide families with information on Government policies and activities, updated damage reports, entitlements, land status, rehabilitation schemes etc.

- **Educational Materials for Earthquake Risk Preparedness (May-December 2004):**

The loss of around 12,000 student and teachers and destruction of several schools in Bam earthquake has highlighted the high vulnerability of schools and children. It has also highlighted the need for earthquake-preparedness training in schools. *UNESCO* and *IIEES* are supporting the development of a school-text that will contain: success stories from the Bam earthquake survivors on the efficacy of the earthquake preparedness training; information on seismicity and seismic hazards in the region; and basic earthquake-preparedness training information.

- ***Training Sessions and Workshops in the Education Sector (May-December 2004)***

These *UNESCO*-supported workshops will cover: communication skills; access to psychosocial support for school-aged children, including treatment and care; basic health education; life skills training, inclusive education for orphans; etc

- ***International Conference for the Reconstruction of Bam (September 2004)***

As proposed by the *UN* Secretary-General, once the Government of Iran has formulated its strategy for the long-term reconstruction programme in Bam, and has put in place institutional arrangements to manage the reconstruction, the *UN* will assist in organising a forum for the Government to present its strategy to the international community. The forum will provide an opportunity for the Government of Iran and its partners to discuss the different proposals outlined in the strategy, from technical, financial, institutional and social perspectives.

- ***International Seminar on Earthquake Disaster Risk Management (October 2004)***

The Bam earthquake has underscored the need for greater emphasis on earthquake disaster risk management not only in Iran but also in other earthquake prone countries of the developing world. As proposed by the *UN* Secretary-General, an international seminar on earthquake disaster risk management, held in the wake of the Bam earthquake could help stimulate more serious discussion on the need for careful and coherent planning to mitigate the impact of future disasters. The seminar could bring together experts and decisions makers from twelve to fifteen of the most earthquake prone countries to address real issues of concern, such as what financially and politically-viable mechanisms or programme approaches exist to reduce earthquake risk in mega-cities such as Tehran. The seminar would also be an opportunity for the Iran launch of *UNDP*'s global report on "Reducing Disaster Risk: A challenge for Development".

4.4. Capacity Building to Mainstream Disaster Risk Reduction into Development Processes at Local, Provincial and National Levels (2004-2009)

Iran's development objectives clearly emphasise sustainable and equitable development. However, progress in this regard will only be possible when

development policies and plans succeed in reducing vulnerability to natural disasters. A greater awareness of this, generated by the Bam earthquake, can be channelled towards the mainstreaming of disaster risk reduction approaches in national development policies and processes. Under the *UNDAF*, the *UN* system is developing a comprehensive programme in support of national disaster management efforts that will focus on: the mainstreaming of disaster risk management at the local, provincial and national levels; increased public participation in disaster risk management; and enhanced coping mechanisms of local communities to deal with natural disasters. The following are a few areas where the *UN* could work with the Government:

- ***Urban Earthquake Disaster Risk Reduction Programme for Iran***

Given the level of seismic activity in the country, and given the concentration of population and economic activities in urban areas, the level of earthquake risk faced by Iranian cities is very high. The Bam earthquake should act as a wake up call and mobilise concerted efforts for urban earthquake disaster risk reduction. Such efforts are already being made in Tehran. However, most of the ongoing work focuses on purely technical aspects. These efforts need to be mainstreamed into urban development policy making and greater emphasis needs to be put on public awareness raising. Ultimately, urban earthquake risk reduction issues will also have to be linked to issues of good governance. Over the next year, *UNDP*, capitalizing on its experience of governance issues in Iran, could help initiate an urban earthquake disaster risk reduction programme in Iran.

- ***Promoting an Appropriate Techno-Financial Regime for Disaster Reduction***

While there is easy access to engineering and technical solutions for earthquake-resistant buildings, few financial mechanisms exist in Iran to put these solutions into practice. Now would be a good time to explore possible kinds of financial support mechanisms or systems of incentives and disincentives that could be established to foster greater compliance with earthquake safety standards in all sectors.

- ***Promoting an Appropriate Techno-legal Regime for Disaster Reduction***

Iran has one of the best developed building codes for earthquake resistant construction? However, the rate of compliance, even in urban areas, is very low. Even

where the building designs follow building codes, the execution of those designs on construction sites is usually poor. Laying down interim standards and simple quality control methods for building materials, a construction method etc. is essential. It may be time to undertake a thorough review of the legislative and institutional arrangements for the enforcement of building codes in Iran.

- ***Enhancing Cooperation with the Government of Iran on Natural Disaster Response and Strengthening Disaster Response Capacities at Local, Provincial and National Levels***

The *UN* will contribute to strengthen capacity for natural disaster response at all levels in Iran. *OCHA* has developed a module for this training and is able to start at 6 to 8 weeks notice. The *UN* is interested in continuing the training of Iranian experts for the United Nations Disaster Assessment and Coordination (*UNDAC*) teams. Capacities of various Iranian agencies and departments to deal with the international community (search and rescue and health response teams etc.) in times of disasters will also be enhanced.

- ***Development of a Sub Regional Programme on Urban Earthquake Risk reduction:***

The *UNDP* Country Office is managing a ten-country preparatory assistance on disaster risk management in Central and Southwest Asia. As a part of the preparatory assistance, a multi-country urban earthquake risk reduction programme could be designed that would link selected mega-cities from the region that are earthquake prone, and foster an exchange of experiences, expertise and strategies on earthquake risk reduction. The Government of Iran has been very supportive of this preparatory assistance and has shown an inclination to play a leadership role.

- ***An Open Alliance for Earthquake Risk Reduction:***

The Bam earthquake has provided a challenge to governments to make the best use of existing know-how on earthquakes, and to integrate it into their development programmes. It has also provided an opportunity to the scientific and engineering community to provide more socio-economic and culturally compatible solutions to national needs. To facilitate discussion in this regard, *UNESCO*, *UNDP*, *ISDR* and *IIEES* (as the host institute in Iran) have agreed to form an alliance which will be open to a wider partnership among both Iranian and international institutions and organizations. The objective is to

initiate a series of activities to protect people, building stock, lifelines and critical infrastructure from the impacts of future earthquakes. The alliance will advocate a shift in emphasis from post-disaster reaction to pre-disaster prevention and risk reduction actions. It will stress the importance of preventive approaches through the enhancement of research and knowledge capacities, the design and dissemination of risk mitigation measures as well as increased information, education and public awareness. The alliance's vision is: expanded scientific and applied research, technical infrastructures and capacities for implementation of an effective risk mitigation action; reduction of risk in all types of built structures; initiatives for earthquake risk mitigation in rural areas with emphasis on the provision of realistic, doable, affordable, simple methods and methodologies; and enhanced disaster preparedness through public awareness. In the short term, the alliance will ensure that post-Bam earthquake scientific and technical studies and investigations are conducive to the production of comprehensive and authoritative compendium on lessons learnt from the earthquake and guidelines for reducing future losses in similar cases. The long-term objective will be to enhance the monitoring of seismic activity; assessment of seismic hazards; investigation of geotechnical issues; improvement of building design, resilience of important public buildings, lifelines, critical infrastructure and historical monuments; and the promotion of earthquake preparedness and disaster management. The detail is given in a separate document in this issue of *JSEE*.

4. The Way Forward

Effective reconstruction and recovery of Bam will require concerted efforts by the local, provincial and national authorities, national and international *NGOs*, the *UN* and other international agencies. A number of regional and international organizations have shown an interest in contributing to different aspects of the reconstruction programme. Making the most of these inputs, however, will require close coordination. Within the *UN* system, efforts are being made to develop a collective, coherent and coordinated response through the *UNDAF*. Under the *UNDAF*, disaster management has been identified as a top priority by the *UN* and the Government. Sustainable reconstruction of Bam and disaster risk management in Iran will therefore guide the future programmes of the *UN* system.

On a more general level, the *UN* is committed to providing coordination support to the Government

and the international community throughout the reconstruction process. In the initial rescue and relief phase, the *UN* assisted the Government in coordinating the donor and *NGO* support by organizing sectoral meetings both in Bam and in Tehran. Through the *UN* Coordination Office in Bam and the Resident Coordinator's Office in Tehran, the *UN* System has continued to provide coordination assistance during the transition from the immediate rescue and relief phases to medium term recovery. Recognising that the recovery and reconstruction

offer an opportunity for wider participatory planning processes at all levels, the *UN* System, in collaboration with the local authorities, has attempted to engage and bring together the earthquake-affected communities, local *NGOs* and the private sector in a series of consultative meetings, entitled “The Bam That We All Want”. An Inter-Sectoral Recovery Manager has also been recruited to facilitate coordination between the various *UN*, national and international actors for the sustainable recovery and reconstruction of Bam.

Annex 1. Abbreviations and Acronyms.

FAO	Food and Agricultural Organization
ICHO	Iranian Cultural Heritage Organisation
ICRC	Iranian Red Crescent Society
IIIES	International Institute of Earthquake Engineering and Seismology
INDMP	Integrated National Disaster Management Plan
INSARAG	International Search and Rescue Group
ISDR	International Strategy for Disaster Reduction.
ILO	International Labour Organization
MDGs	Millennium Development Goals
MOI	Ministry of Interior
NDTF	National Disaster Task Force
NGOs	Non-Governmental Organizations
UNDAC	United Nations Disaster Assessment and Coordination Team
UNDAF	UN Development Assistance Framework
UNDP	United Nations Development Programme
UNDMT	United Nations Disaster Management Team
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFPA	United Nations Population Fund
UN-HABITAT	United Nations Human Settlements Programme
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organisation
WHO	World Health Organization
YICLD	Yazd International Centre for Living with the Desert