

**STATE OF ISRAEL**  
Steering Committee for Disaster Reduction

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The following organizations were consulted with during the preparation of this report:

Supreme Emergency Economy Board

The Ministry of the Environment

The Ministry of Foreign Affairs

The Israel Police

Israel Defense Force (I.D.F.) / Home Front Command

The Geophysical Institute of Israel

**\* All relevant literature is in Hebrew. It will gladly be sent to you, upon specific request.**

## **1. Political Commitment and Institutional aspects**

### **1.1 Are there national policy, strategy and legislation addressing risk reduction?**

In September, 2000, the Steering Committee for Disaster Reduction presented the government with a report that included an analysis of the current state of readiness and a five year plan for improving the country's ability to deal with forecasted earthquakes.

The report's conclusions concerning the current state of readiness were as follows:

- There is an urgent need to upgrade the state of national readiness for earthquakes.
- The absence of an organization or a unit in charge with full responsibility for this matter is greatly felt.
- Lack of assignment of authorities and responsibilities among various government ministries and organizations.

- Certain issues have still not been statutorily addressed.
- The enforcement of building codes is unsatisfactory.
- There is a need for enhancing scientific know-how in this field.
- The resistance of most private buildings to earthquakes has never been investigated, though remains unknown. Moreover, buildings owned by local authorities have also not been examined. Only a selection of government-owned buildings has been inspected.

The Committee's goals are to minimize loss of lives and damage to public health and to improve Israel's ability to cope with a major earthquake on all stages: awareness, prevention and mitigation; response, rehabilitation and recovery; at the national level, across governmental, public and the private sectors.

The government of Israel (GOI) approved the Committee's recommendations on January 2001 and ordered the Committee to move forward with its proposed plans. Fifty million Shekel (approximately \$11 million) over five years were budgeted for the carrying out of these plans, with 2001 as the first year of implementation.

The government has reached several decisions regarding disaster management, such as a decision outlining the responsibilities of all the government ministries and authorities for earthquake mitigation, response and rehabilitation. A decision to approve a plan for the evacuation of citizens in case of an emergency. A decision to allow the Supreme Emergency Economy Board to act during natural disasters (originally restricted to warfare circumstances).

## **1.2 Is there a national body for multi-sectoral coordination and collaboration in disaster risk reduction?**

The government of Israel established in December 1999 the Steering Committee for Disaster Reduction, to lead and coordinate Disaster reduction on its behalf. This is an inter-ministerial committee, subordinated to the government (reporting to a Council of Ministers consisting of 8 ministers).

The following ministries are members of the committee: The Prime minister's Office; Ministry of Communication; Ministry of Construction and Housing; Ministry of Defense; Ministry of Education, Ministry of the Environment; Ministry of Finance; Ministry of Foreign affairs; Ministry of Health; Ministry of Internal Affairs; Ministry

of Industry and Trade; Ministry of Justice; Ministry of Labor and Social Affairs; Ministry of National Infrastructure; Ministry of Science; Ministry of Transportation.

The following organizations are also members of the Committee: Israel's Defense Force (Home Front Command); Survey of Israel; Geophysical Institute of Israel; Geological Institute of Israel; National Building Research Institute of the Technion, Union of Local Authorities; Engineers and Architects Associations, Association of Contractors and Builders; Manufacturer's Association.

The Committee deals with all aspects of earthquake readiness: awareness, prevention, preparedness and mitigation, response, rehabilitation and recovery.

**1.3 Are there sectoral plans or initiatives that incorporate risk reduction concepts into each development areas?**

The Ministry of Education is preparing a new educational program, designed due to all age groups (kindergarten to high school), that deals with "Emergency Education". This program is still under laboration, but a decision was made to give earthquake preparedness precedence. Therefore starting this summer, every teacher and kindergarten teacher will receive 2 hours of instruction on the topic of earthquake preparedness. This lesson will be taught to all the students in the public education system during the first half of the 2005 school year (starting September, 2004). The emphasis in this program is on learning skills for survival.

The Ministry of Interior has prepared a National Outline Plan for the retrofitting of old buildings for earthquake sustainability. This plan will allow all owners of buildings which were built prior to 1976 (a year after the earthquake resistant building code was introduced) to retrofit their building. Financial incentives will be given to encourage owners. These include building rights (adding an additional floor or wing to the building) and a shorter process to receive a building permit.

**1.4 Is disaster risk reduction incorporated into your national plan for the implementation of the UN millennium development goals, national environmental action plans, Sustainable development Johannesburg plan of implementation?**

n/a

**1.5 Does your country have building codes of practice and standards in place, which takes into account seismic risk?**

The first earthquake resistant building code was introduced in 1975. The name of the code is: "Design provisions for earthquake resistance of structures".

The code was updated several times over the years and lately in 2003. This code is compulsory by law, though very little is done in terms of enforcement.

Fortunately, there was no severe earthquake in Israel during the last decades, to authenticate the validity and effectiveness of the code.

A new code published at the beginning of the 2004 set guidelines for seismic resistance assessment and for strengthening of existing structures.

The Standards Institution of Israel is currently in the process of publishing 13 sets of more standards; these will give guidelines for the planning of non-building structures.

**1.6 Do you have an annual budget for disaster risk reduction?**

The government of Israel approved the Committee's recommendations on January 2001 and ordered the Committee to move forward with its proposed plans. Fifty million Shekel (approximately \$11 million) over five years were budgeted for the carrying out of these plans, with 2001 as the first year of implementation.

**1.7 Are the private sector, civil society, NGO's, academia and media participating in disaster risk reduction efforts?**

Apart of the government ministries, the Committee includes representatives of the National Building Research Institute of the Technion, Local Government, the Association of Contractors and Builders in Israel and the Manufacturers Association of Israel. The research institutions mentioned above take part in the implementation of the Committee's programs.

## **2. Risk Identification**

### **2.1 Has your country carried out hazard mapping/ assessment?**

Earthquake hazard assessment is mainly facilitated using novel software which calculates and graphically demonstrates scenarios, using GIS databases of Demographics, Buildings and seismological parameters (ground motion and frequency). This software exists for the entire state of Israel and is available for all emergency and rescue teams and forces. At this time the software is being used only as a tool for contingency planning. Hopefully, with the advancement of research which comprises the data for the software, it will evolve and become appropriate as a management tool for during a real time earthquake.

### **2.2 Has your country carried out vulnerability and capacity assessments?**

Again, considering earthquake scenarios, we do have some vulnerability assessments:

- a. social: A GIS layer describing the population distribution including the time factor; i.e. different values for different hours, days and season. The survey of Israel is currently working on the improvement of this GIS layer. The improved layer will include data regarding the distribution of the population during different hours of the day (eg. day/night, commuters), holidays, festivals and other special event.
- b. Economic: We do have some figures of the economic impact due to an earthquake, though the model is in need of refinement.
- c. Physical: buildings' vulnerability is defines by sorting and defining buildings by types and year of construction. Accordingly, a new GIS layer will be created for this data.
- d. Environmental: In the future, the scenario system will also include data on hazardous materials.

### **2.3 Does your country have any mechanisms for risk monitoring and risk mapping?**

Israel has a seismological network monitoring earthquakes used for the seismic risk map. The Geophysical Institute of Israel is the responsible entity.

## **2.4 Is there a systematic socio-economic and environmental impact and loss analysis in your country after each major disaster?**

Luckily, Israel does not suffer from many disasters. The main Natural Risks are Earthquakes, which occur on average, once every 80 - 100 years. Due to Israel's small size, a severe earthquake could cause vast damage to almost all parts of the country, and could affect most of Israel's populated areas. In addition to human casualties, there is a potential for great harm to infrastructures, vital utilities such as schools, hospitals, means of transportation, communications, electricity, water and gas supplies and a great deal of damage to industries and businesses.

## **2.5 Are there early warning systems in place?**

Precautions are still under investigation and there is no commercialized warning system. The Geological Institute of Israel is researching Radon gas flux as a warning system for earthquakes. Though this research received positive reviews, it is still under progress.

# **3. Knowledge Management**

## **3.1 Does your country have disaster risk information management systems?**

Israel is mid-way process of creating a Governmental Disaster Information Network (GDIN). This is performed by one of the 11 sub-committees working under the Steering Committee which is called the sub-committee for Earthquake Meta-data. At this time the information gathered by the system consists mainly of building distribution, vulnerability, population distribution and seismological parameters. The main use is for the scenario system described above. The plan is to expand the scope of information available by this system to all issues regarding earthquake readiness: mitigation, preparedness, response and recovery, enlarge the number of users and make this tool available to all the relevant authorities and in some parts, to the public.

Metadata or "data about data" describes the content, quality, condition, and other characteristics of data presented. The Metadata is tasked by to develop procedures and assist in the implementation of a distributed discovery mechanism for digital

geospatial data. Using the data elements defined in the Digital Geospatial Metadata; governmental, non-profit, and commercial participants can make their collections of spatial information searchable and accessible on the Internet using free reference implementation software developed by the FGDC.

The Metadata represents "data you can trust" -- the best available data for an area, certified, standardized, and described according to a common standard. It provides a foundation on which organizations can build by adding their own detail and compiling other data sets. Many of the resources organizations spend on geographic information systems (GIS) go toward duplicating other organizations' data collection efforts.

The Metadata will greatly improve this situation by leveraging individual geographic data efforts so data can be shared. It provides basic geographic data in a common format and an accessible environment that anyone can use and to which anyone can contribute.

Geographic data users from many disciplines have a recurring need for a few themes of basic data: geodetic control, orthoimagery, elevation, transportation, hydrographic, governmental units, and cadastral information. Many organizations produce and use such data every day. The Metadata provides basic information for decision makers, in any organization concerning Readiness upgrading within the Disaster Management discipline. These benefits can be implemented either for training or real case.

The metadata database can provide a strong tool for any risk assessment, vulnerability studies or hazards evaluation post/pre a disaster event.

### **3.2 Are the academic and research communities in the country linked to national or local institutions dealing with disaster reduction?**

The main earth science research institutions are members of the Committee -- the Geological Institute of Israel and the Geophysical Institute of Israel. The National Building Research Institute of the Technion is also a member.

The University of Haifa will start this fall, a new graduate program for emergency management studies. This program is intended for under graduates from the faculties of social studies, earth science, exact science and natural science and for mid-level management from national and local organizations involved with emergency management. The program includes theories for coping with emergency situations;

natural disasters; technological disasters; accidents and terrorism; Damage assessment; legal issues and operative planning.

### **3.3 Are there educational programs related to disaster risk reduction in your public school system?**

The Ministry of Education is preparing a new educational program, designed for all age groups (kindergarten to high school), that deals with emergency education. This program is still under construction, but a decision was made to give earthquake preparedness precedence. Therefore starting this summer, every teacher and kindergarten teacher will receive 2 hours of instruction on the topic of earthquake preparedness. This lesson will be taught to all the students in the public education system during the first half of the 2005 school year (starting September, 2004). The emphasis in this program is on learning skills for survival.

### **3.4 Are there any training programs available?**

The Home Front Command holds courses for training rescuers on different levels. The basic course is intended mainly for volunteers. The course is 5 days long and teaches the principles of rescuing and the use of rescue equipment. The second level course is 10 days long and includes the study of a wider variety of rescue technologies. The third level course is 4 weeks long. It includes intensive training and acquiring greater expertise. Another course is designed for the training of civil engineers as rescue engineers. This course is 10 days long.

The Supreme Emergency Economy Board runs an 80 hours course on prevention, preparedness, response and rehabilitation to large scale sudden disasters. Participants include members of the board, security officers with local authorities, governmental ministries and important infrastructure companies.

### **3.5 What kind of traditional indigenous knowledge and wisdom is used in disaster related practices or training programs on disaster risk reduction in your country?**

n/a



### **3.6 Do you have any national public awareness programs or campaigns on disaster risk reduction?**

The government of Israel reached the conclusion that a central pillar of risk reduction is training the citizens of Israel. A 24 hour course was prepared which includes basic knowledge and training for surviving emergencies. During the years 2004 - 2005 over 2 million people will be trained (every teacher and student in the country and employees of large companies and industries). In the years to come this program will be open to every citizen in the country. It will be delivered through the local community centers, the work place and through volunteer organizations.

A leaflet with instructions on appropriate behavior during an earthquake and preparations to be done for such an event was sent to every household in the country. The Leaflet was prepared by the Steering Committee and was sent by the Electric Company with the electric bill for the month of March, 2004. Over 2.5 million leaflets were sent. (There are approx. 6 millions citizens in Israel).

The Ministry of Education together with the Home front Command conduct a yearly drill in all schools. During the last two years and next year as well, the drill theme will be earthquakes.

## **4. Risk management Applications/Instruments**

### **4.1 Is there any good examples of linking environmental management and risk reduction practices in your country?**

The Ministry of Interior has prepared a National Outline Plan for retrofitting old buildings for earthquake sustainability. This plan will allow all owners of buildings which were built prior to 1976 (a year after the earthquake resistant building code was introduced) to retrofit their building. Financial incentives will be given to encourage owners. These include building rights (adding another floor or wing to the building) and a shorter process to receive a building permit.

The Ministry of the Environment is responsible demanding an environmental impact assessment for all major development projects; this includes an assessment of seismic risks in the area.

It is compulsory for industries to prepare risk evaluations and emergency procedures protocols.

The ministry of the Environment has written emergency procedures in case of an accident involving hazardous materials. The ministry is also in charge of licensing industries and giving out poison permits.

The Steering Committee together with the Ministry of the Environment have ordered a study from the national building research institute. The purpose of the research is to create a method for deciding the degree of retrofitting required for containers of hazardous materials. This method takes into account the costs of the damage to life, environment, and economy in case the container does not stand an earthquake and the price of retrofitting the container. This calculation is processed for several earthquakes of different magnitudes. The degree of retrofitting is based on the balance between the least amount of damage with the least cost of retrofitting. During 2004 this method will be processed in 5 industries, as a pilot project and later will become compulsory for all industries dealing with hazardous materials.

**4.2 Are financial instruments utilized in your country as a measure to reduce the impact of disasters?**

n/a

**4.3 Please identify specific examples of technical measures on disaster risk reduction that have been carried out in your country.**

The Ministry of Health has issued guidance notes for maintenance managers of hospitals, for strengthening of non-structural elements in the hospital for earthquake resistance. Implementation is in progress.

As described above, a method for deciding the degree of retrofitting required for containers of hazardous materials was developed. Hopefully this method will be put to use in all the factories holding hazardous materials, after the completion of the pilot project.

## **5. Preparedness and Contingency Planning**

### **5.1 Do you have disaster contingency plans in place? Are they prepared for both national and community levels?**

The supreme Emergency Economy Board has a plan for the evacuation of up to 25,000 citizens in case of an emergency. The Evacuees will be settled in hotels, hostels, boarding houses etc. according to pre-signed contracts with these facilities.

The Supreme emergency Economy Board is Preparing, together with the Steering Committee a national plan for rehabilitation after an earthquake. The plan is based on a detailed scenario that was prepared. It includes the examination of the abilities all the relevant bodies, accentuation of the gap between the abilities and the scenario and preparing a plan for response.

A portfolio was prepared outlining the actions needed to be taken by local authorities, explaining how to prepare and what to do in case of an earthquake.

The supreme Emergency Economy Board holds yearly drills on national, regional and local levels.

### **5.2 Has your government established emergency funds for disaster response and are there national or community storage facilities for emergency relief items – mainly food, medicine, tents/shelters?**

The government holds in storage a stock of blankets, mattresses and beds, to be used in emergencies. There is a yearly budget for renewing and buying of stocks such as: equipment, medicines, essential food items and fuel. There are many water containers for use in emergencies. The Electric Company and the water Company have many power generators.

### **5.3 Who is responsible for the coordination of disaster response preparedness and is the coordination body equipped with enough human and financial resources for the job?**

The Police are responsible for the coordination of disaster response. The government authorized a protocol for delivering the responsibility to the army in the event that the disaster is larger than the police's abilities to control. No matter which organization is

in charge, coordination will be arranged between the Police, the I.D.F., the Supreme Emergency Economy Board, the fire fighting forces, the red Magen David Association (equivalent to a Red Cross society), the hospitals and local authorities. After the search and rescue stage is over, the main responsibility for recovery is turned over to the Supreme Emergency Economy Board. The Board is responsible for coordinating all recovery operation. The police and army assist.

## **6. Call for good practices in disaster risk management**

The Ministry of Education is preparing a new educational program, designed for all age groups (kindergarten to high school), that deals with emergency education. This program is still under construction, but a decision was made to give earthquake preparedness precedence. Therefore starting this summer, every teacher and kindergarten teacher will receive 2 hours of instruction on the topic of earthquake preparedness. This lesson will be taught to all the students in the public education system during the first half of the 2005 school year (starting September, 2004). The emphasis in this program is on learning skills for survival.

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## **7. Priorities you want addressed at the World Conference on Disaster Reduction**

We gracefully offer to present the following projects during the World conference on Disaster Reduction:

- Training the citizens of Israel for surviving emergencies.
- The earthquake scenario software
- The method developed for deciding on the degree of retrofitting required for containers of hazardous materials
- Search and rescue techniques of the Israeli National Search and Rescue Unit
- Technological support system for civilian intelligence (please see further details on page 14)
- The medical search and rescue response - is it more than a multiple casualty event? (please see further details on page 16)

## **8. Please describe your government's current international policy on risk reduction, including within development or other donor agencies as well as trans-border agreements or regional cooperation.**

Over the years Israel has sent many help and rescue missions to countries who suffered a severe earthquake with many casualties. Missions were sent to Mexico, El Salvador, Turkey, Greece, India and Armenia to name just a few.

Hopefully, the World Conference on Disaster Reduction will create new opportunities for cooperation in the field of risk reduction both on a national and international level.

## Presentation of technological support system for civilian intelligence

### Background

In any disaster involving a large number of casualties the main goal is to reach potential trapped and missing individuals as soon as possible, as well as obtaining an accurate assessment of the situation based on the thousands of bits of information from differing sources.

The conversion of these bits of information into the needed accurate picture of the situation requires processing in such a manner that the immediate results contribute to the following:

### First and most importantly saving lives

Among emergency crews the first hours of action are called the "Golden Hours". This is the time period when the chances to save lives are the highest.

In order to focus rescue efforts in areas of greatest threat, the emergency crews need this coherent information.

### Assistance to rescue commanders

This tool gives the person in charge the ability to plan his moves and to change crew assignments during the rescue. Information acquired should redirect rescue efforts as follows:

- A. The mission must focus on saving lives based on this information.
- B. Bringing in human and other resources based on expected needs
- C. Work and contingency plans- taking into account expected fatigue of crews and duration of the mission.

### Information System

In a disaster with multiple casualties, the uncertainty and demand for information by the public are among the principle problems facing the authorities. A coherent picture can minimize the uncertainty factor and help reassure the public. As accurate information flows to the public in early hours, pressure on the authorities dealing with the disaster eases and better enables them to concentrate on the rescue effort and first steps of reconstruction.

The system should be able to answer the following questions:

- A. Was the missing person(s) located?
- B. What is their location?
- C. Is the person(s) alive?
- D. Is the person(s) injured?

#### Identification Tool

The system is able to crosscheck information and facilitate in the identification process of casualties. Identification is based on DNA profiles, dental records, body markings and personal possessions.

A timely identification process enables closing the gap between missing person lists and those accounted for. This avoids situation in which valuable time is lost searching for people already accounted for in "clean" areas.

\* A presentation showing some of the abilities of our system is sent by a separate file.

**The medical search and rescue response - is it more than a multiple casualty event?**

Dan Nemet MD., Nachum Neshet MD.

Israeli National Search and Rescue Unit, Home Front Command, Israeli Defense Forces.

The medical management of a major multiple-casualty event whether caused by natural or man-made disaster is a challenging task of utmost importance. Although primary prevention is the most effective mean of reducing casualties, this is unfortunately not always possible.

In the case of a disaster, medical preparedness is critical, response time is important especially in a setting in which resources may be limited and population might be overwhelmed by the event.

The Israeli National Search and Rescue Unit was established at its current strength in 1984, it combines all the specialist units that were involved with S&R until that time. The unit has participated in many special search and rescue operations in Israel and abroad and has gained tremendous breadth of experience and knowledge in medical S&R - disaster medicine.

In order to optimize our ability to deal with the medical consequences of natural disasters and acts of terrorism, it is clear that we must share knowledge and experience of our physicians and others actively involved in the medical management of this specific field of trauma and other disasters.

Based on our growing experience, we have found unequivocal needs from trauma medicine toward S&R needs. We have figured that in many cases, what we have practiced during the past years does not fit and changes should be carried according to our growing needs. According to our knowledge, things should be changed in order to optimize the long lasting treatment of the trapped victim.

The Israeli Home Front Command has recently completed its new medical disaster manual of operations focusing on the new S&R guidelines.



We propose the following fields of discussion:

1. Disaster medicine triage- why and how is it different?
2. Treatment of Crush injury- controversies and guidelines.
3. Supporting the long lasting patient while rescue efforts being done.
4. Anesthesia and analgesia in the field.
5. Field amputation and treating the crushed extremity.
6. Treatment of specific population; elderly and pediatric.
7. Special equipment development and usage in S&R events.
8. Basic training for medical communities- a two day S&R Medicine course.
9. Training the community- from preschool to the elderly.
10. The psychiatric support - for the population as well as for the S&R team.

We feel that sharing our experience and exchange of information with an international team of experts in the field will help to establish guidelines for this growing field of disaster medicine and improve the ability to operate in the case of a disaster.