



Mashhad Municipality

Disaster Management Organization

“Samen Project”

30 New projects

in confronting unexpected events and accidents in Iran.

Mashhad esteemed mayor’s speech in Metropolis
training workshops in the Holy city of Mashhad:

“One who frightens people by making the danger large, is
an irresponsible person; and one who minimizes it, is ignorant.”

“Establishing Disaster Management is an important step
in achievement of a unique urban (metropolitan) management.”

Seyyed Mohammad Pezhman

Mayor of Mashhad

In The Name of Allah, the Merciful Beneficent

Preface

Iran has begun a new season of its life and activity after Islamic Revolution victory. It is evident that for fulfilling and perpetuity of our revolution’s ideals and achieving its goals, we necessarily need powerful scientific capacity, which needs to be proportional with our goals and desires. As you know, we are in a year named (the Year of Innovation and Efflorescence) by Iran’s Grand Leader. We can see Iran’s Grand Leader’s message and his emphasis on the



importance of innovation and efflorescence, the Leader's critical view regarding our community problems.

This message shows that by bringing up innovation and efflorescence strategies, it's time for Iranian community to bring new merits with impudence under the light of Islamic revolution and our nation will encounter fruitful results both in innovation and efflorescence fields.

Now, in scientific field, we have come to this belief that rescue tactics for every community is knowledge, research and innovation under the light of science-based revolutionary movements; and the government can create this innovation and efflorescence by supporting expertise and software movement issues.

In this direction, one of the most important matters that should be considered, and the need for effective innovations in this sector seems necessary, is confronting natural disasters. Due to ever-increasing expansion of the cities and gradual increase in population in recent years and also, more constructions, this issue has become a great difficulty, especially in Iranian big cities, which can be turned into an irreparable disaster at any moment.

Considering unexpected nature of natural events and necessity of making quick and correct decisions and performing operations, it is necessary to search for solutions regarding how to prepare and prevent disasters or reduce damages arising from natural events beforehand.

Iran's respected president imparted a law under which with the aim of creating integrated management in the field of policy making, planning, coordinating and versatility in executive and research fields, coordinating in government organizations performance, and effective top supervision on disaster management stages in natural events and unexpected events, Iran's Disaster Management Organization will be established very soon.

Due to importance of having disaster management in metropolis areas, once more due considerations and management of respected mayor of Mashhad, Mr. Engineer Pezhman, has led to establishment of Disaster Management Organization in the body of this municipality, which is a new step in confronting unexpected events and accidents in the Holy city of Mashhad and Iran.

In this direction, in "Maneuver of Managers and Equipment Recall" in the new city of Golbahar held on June 19th, 2008, Engineer Bagheri, respected director general of Iran's Unexpected Events and Accidents Organization in the Ministry of Interior suggested to hold a competition named: Innovation in Confronting Unexpected Events and Accidents which has brought up a new stage in innovation arena to confront natural events.

Then according to letter number 38/44/4723 dated July15th, 2008 Mashhad Municipality was requested to send its projects for this recall. After this communiqué, Disaster Management Organization of Mashhad Municipality established an expert team in order to examine ideas and present projects.



Results of these consistent efforts, benefiting from collective wisdom, experiences of pioneers from successful cities in Iran and the world, local and foreign counselors at International Disaster Management and Quality Managers Conferences, and employing municipality experts during 9 months which were supported by respected Mayor of Mashhad have led to presenting 30 national and regional projects in 2 parts of Software and Hardware under the title of *Samen Project*.

Members of Samen Project Expert Committee of Mashhad Municipality Disaster Management Organization:

<u>item</u>	<u>Name</u>	<u>position</u>	<u>Educational background</u>
1	Abolghasem Baghban Nezhad	Counselor & Director of Disaster Organization	B.S. in Civil engineering & M.A.in Public Administration
2	Husseinali Mazlum Ali Abadi	Assistant Director of Disaster Organization	B.A. in Social Sciences
3	Amir Azizi	Disaster Management Organization Expert	M.S. in Computer
4	Mohammad Sheidaei Mehneh	Disaster Management Organization Expert	B.S. in Geology

Abolghasem Baghban Nezhad

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Project No.1
Establishing Disaster Management
Commanding Chamber in
Northeast of Iran



Project No.1

Establishing Disaster Management

Commanding Chamber in Northeast of Iran

Project Summary:

In order to achieve main objectives of “The 20 years outlook plan” of the country, namely achieving secure city and cooperate between Khorasan Razavi Governor’s Office and Mashhad Municipality, director general of Iran’s Unexpected Events and Accidents Organization will build a place for Disaster Management Commanding Chamber in Northeast of Iran and provide control and support for northeast of the country in top level for the purpose of supervision, coordination in the cycle of disaster management, preparation, prevention, confrontation, reconstruction, rehabilitation, and taking necessary actions before and after possible crises (such as earthquake & flood) in Khorasan Razavi Province and the Holy city of Mashhad.

Disaster Management Commanding Chamber in Northeast of Iran will be designed and built for the purpose of commanding operations before, during, and after any crisis and needs to be resistant against earthquake and also must be equipped with advanced equipment and devices.

1. Disaster Chamber is designed to resist severe earthquakes, fire and other natural events so that no damage would threaten it at the time of a crisis.

2. The above building will have all necessary equipment such as fuel, natural gas storage, first aid, necessary tools and devices, food, clothing, etc and there will be no need to supply any sources from outside the building at the time of a crisis.



3. Job descriptions, required training, and housing of all key personnel have to be near the building so that they will be able to be in the building within a few minutes.

4. Special security police should be ready all the time to protect the building and perform their entrusted matters.

5. The above building must have electricity supplies form the distribution network and also be equipped with emergency electricity power generator.

6. This building must have water supplies form the city network and also be equipped with a well and a pump in order to provide water in emergencies. The water from the well can be used for cleaning and irrigation in normally.

7. This building must have Chiller system and engine room to provide cold and hot water; cooling and heating systems will consume natural gas and gas oil.

8. This center must use the city natural gas network and have strong and earthquake resistant tanks for natural gas storage.

9. Necessary planning must be done for all executive managers who will serve in the control room during crises to perform their own entrusted duties.

10. Special monitors should be installed in the Control Room and throughout the city. All the city corners must be monitored live by cameras and television networks will broadcast them directly and the images can be seen on the main screen in the Disaster Chamber.

11. The Command Room which can control all sound and vision installations must be located next to the Control Room.

12. The Disaster Chamber building and adjoining houses for personnel must have specific and distinct parts.



Project No. 2
Establishing HSE
(Health-Safety-Environment) Assistant
in metropolitan municipalities.



Project No. 2
Establishing HSE
(Health-Safety-Environment) Assistant
in metropolitan municipalities.

Project Summary:

There is no doubt that sustainable and comprehensive development forms the main objective of all developing plans and the 20 years outlook plan of the country. In this direction considering international tactics and accepted principles suitable with our culture and national values can be a precious asset to achieve sustainable development. HSE health oriented (both in material and spiritual aspects) will be an important factor in the process of Iran's sustainable development.

Instruction 21 which is a global and modern plan to achieve sustainable development in 21st century was approved in the "Earth Conference" in Rio de Janeiro.

This instruction is the result of worldwide agreement and political commitment of world leaders to coordinate sustainable development with all economic, social, industrial, cultural, as well as health, safety, and environmental factors.

In this instruction public health, increase in immunity and providing security and assessment of possible dangers, management of leftovers and ecosystem preservation through establishment of fundamental plans at national and regional levels have been followed.

Creation of immunity culture, preventive planning for events and disasters, and reduction of negative effects of accidents with human origin are been considered. Creation or strengthening of professional training programs that help people to find jobs and participate in developing health, safety and environment activities, exchange of information about poisonous chemical materials and possible dangers



of chemicals, prevention and minimizing dangerous leftovers deserve special importance. Effective combination of environment and development in decision making process and planning groups and management in national level and industrial development is in a way that negative effects on environment and lives of people will be minimized and will cause technology advancement.

HSE management is using a special management in a systematic form with the aim of recognizing, assessing, and controlling dangers.

Among specifications of this management system:

1. Controlling health, safety, and environmental dangers.
2. Dangers of recognizing
3. Essential controls for dangers.
4. Members who form disaster staff.
5. Job descriptions for different personnel regarding risk management and HSE matters.

Also recognizing and managing of most dangers which exist in petroleum installations such as OFFSHORE installations that lead to events, have significant importance in security of production operations. Job related risks that threaten workers are identified and reduced somehow. At the time of a danger, especially on petroleum platforms, escape ways, muster point, performance of emergency scenario and rescue operations (Emergency Response Team) have been designed well. This system must be reviewed permanently and available for everyone.



Project No. 3

Establishing Community

Emergency Response Teams (CERT)



Project No. 3

Establishing Community

Emergency Response Teams. (CERT)

Project Summary:

There are volunteers who are trained with necessary base trainings about Disaster Management especially for preparations and confronting against disasters such as how to extinguish fire, seek and save the injured and giving first-aids at crisis time before Disaster Management main teams come or work with these teams in their neighborhoods.

Main reason for organizing these groups is profiting from past disasters experiences and is based on 2 theories:

1. Members of these groups will become more prepared following their trainings.
2. These people will be able to provide assistance and rescue services to their families and neighbors in disasters, as helping forces, before responsible organizations reach the site.

These groups are usually organized by municipalities with the help of Disaster Management Organizations such as the Red Crescent or the Red Cross in every neighborhood.

Normally, a coordinator in municipalities arranges their relationships with the municipality or the responsible organization of Disaster Management.

Internal management of these groups is basically with group members, but municipality or another related organization is responsible for their training, preparation and coordinating with other organizations.

As these people may suffer injuries and problems during their operations, protective laws will be established for their legal protection or they will become under protection of laws covering volunteer forces.



There is no special standard for number and combination of each group but ten-person-group is suggested as follows: group leader 1 person- fire fighting team 2 persons- seek and rescue team 2 persons- medical examinations team 2 persons- medical helping team 2 persons.

The team leader acts as the local operations commander at the time of disaster until responsible organizations settle in the place.

His duties are evaluating primary conditions, determining practical actions, recalling people and making sure that they are healthy and have necessary tools and equipment, division of work, how to use local volunteers, preparing reports, communicating with responsible organizations and generally directing operations according to instructions and his own discretion.

Fire fighting group is responsible for extinguishing possible small fires, helping other people in the group and urgent evacuation of people and the injured.

Seek and rescue members identify the injured and if possible, help other team members according to their trainings.

Medical groups find out problems of the injured and provide temporary treatment as much as possible and transfer them to hospitals.

Training volunteers groups is not a hard job. Classes can be held in large scales and a lot of participants. Classes include experts' lectures and describing finding and rescue operations instructions. Different encouraging and advertising methods may be used for forming groups and attracting people. Volunteers or people who have been trained before can be used to give training. Organizing people and groups who have been trained is very important.

We hope these groups will be established in Tehran and other cities of the country with high quality as soon as possible and will observe their effectiveness and fewer casualties in next possible disasters. Since our beloved country is located on earthquake zone, establishment of Community Emergency Response Teams for unexpected events seems necessary. Therefore, by establishment of such groups in coordination with Disaster Management Organization, we can take a fundamental and effective step toward reducing human losses and influencing on disastrous factors in the community.



Project No. 4

International Relief and Rescue Towns



Project No.4

International Relief and Rescue Towns

Project Summary:

Our country has always been exposed to different events and disasters. So, in order to give rescue and assistance services, it is essential to employ existing facilities and equipment, anticipate and supply essential and urgent needs for the injured in natural disasters. Thus Disaster Management Organization suggests establishment of International Relief and Rescue Towns based on following objectives and duties.

Objectives of International Relief and Rescue Towns are training and equipping human resources and facilities in order to perform rescue and assistance operations during following disasters:

General Objectives:

- 1- Assistance and rescue during earthquakes.
- 2- Assistance and rescue during floods.
- 3- Assistance and rescue during storms.
- 4- Assistance and rescue during land movements.
- 5- Assistance and rescue during fire (fire in forests, petroleum wells, etc.)
- 6- Assistance and rescue of people poisoned by chemicals.
- 7- Assistance and rescue during microbial and non-microbial air bombardments of the cities in wars.
- 8- Training for personal protection against chemical and non-chemical air raids during wars.
- 9- Assistance and rescue and settlement of homeless and injured people during wars.
- 10- Training for finding the survivals operations by people using advanced equipment and animals. (trained dogs)
- 11- Training for confrontation and neutralization of unexploded ammunitions in war fronts and during terroristic operations.



Required applications for International Relief and Rescue Towns

A 40 hectare site with following natural, geographical and regional specifications:

1. Specific applications for rescue and assistance operations.
2. Applications for professional trainings.
3. General applications.
4. Physical applications.
5. Applications for land and air transportation.
6. Entertainment, sporting, cultural, and artistic applications with rescue and assistance performance.



Project No. 5

Danger Alarming Systems



Project No. 5

Danger Alarming Systems

Project Summary:

The goal for flood anticipation is an estimate of the flow rate of water and floodwater surface which may happen during a specific return period. (For example in a 25, 50, or 100 year period) A result of this anticipation, which is named "Designed Floodwater ", is used as a basis for choosing flood controlling methods. Designed floodwater is chosen based on required expenses for its control and the amount of risk that destruction of proposed flood control system will have for lives of people.

In cases that breaking of water construction leads to a great deal of loss of lives and properties, designing will take place based on lower possible floods and longer period of return such as a1000 year floodwater or even more. Expanding level and heights of these floodwaters are more than those with more possibilities to happen. Designed floodwater anticipating is done in two ways: analytical and geological which are often complementary.

Earthquake anticipation means anticipating its place, gravity, and time. For many people anticipating means just for time of the earthquake. Many efforts have been done to find some physical clues to anticipate earthquakes. In 1975, Chinese could anticipate CHENG earthquakes based on increase in early land quakes and animals uneasiness, and evacuated a large area.

Any parameter that changes before earthquake in a way that by careful examination we can anticipate earthquake is called a pre-indicator. More than 30 pre-indicators have been recognized so far. These pre-indicators are: transformation in earth crust, changes in sea level, contortion and vibration of earth crust, geomagnetic and geo-electrical pre-indicators, changes in gravity extent, early land quakes, Radon gas diffusion, changes in flow rate and height of underground water, animal's behavior, etc.

Main problem in using pre-indicators is the need for their continuous registration and examining changes. For example, the level of underground water



fluctuates naturally in different seasons. Average underground water level in any specific season can be obtained by continuous and long term registration of these fluctuations. Any abnormal changes will be identifiable. On the other hand, since other factors are interfering in existing parameters, it is essential to examine a number of pre-indicators at the same time.

A danger alarming and anticipation system for communities exposed to dangers and disasters must be a combination of information and anticipating tools and experts. In an integrated anticipating system, required time for confronting the danger is estimated and by increasing this time financial and human losses will be reduced. Necessary confidence among communities for confronting dangers will be provided by precise anticipation.

For designing an integrated danger alarming system, a careful assessment of different parts of existing system must be done. After evaluating the existing system, a revised and improved system will be designed.

Flood alarming system is one of the most effective methods for decreasing floods financial and human losses. This is really important in areas exposed to flood danger and areas that need movement and evacuation of people. By making preparations for communities, accurate alarming systems will reduce losses to a great amount during terrifying, sudden and extensive floods.



Project No. 6

Iranian Catastrophe Insurance Pool



Project No. 6

Iranian Catastrophe Insurance Pool

Project Summary:

One of the most important problems of our government for insuring emergencies is protection of low-income masses and necessary encouragements for their participation in public insurance coverage. Buildings of such families are usually more vulnerable and this adds to their problem of inability to buy insurance. Therefore role of government regarding such people will be more important. It is necessary to reduce vulnerability of these buildings and on the other hand, financial conditions of them must be improved to pay appropriate insurance fees.

ICIP, which is introduced by the World Bank and Turkish Government, can be a good example for solving people's inability for purchasing natural catastrophe insurance in dangerous areas in developing countries.

If ICIP is established, it will be the main step is transferring responsibilities for natural events from government to investors and this itself will be an encouragement for people to employ necessary tools to decrease losses. By establishing ICIP, some parts of possible future losses will be undertaken by International reinsurance companies and credits given by the World Bank. Considering problems in insurance system in countries like Iran, ICIP can be an efficient selection. In this system, it has been tried to combine insurance system and government encouragements so that necessary financial sources for repayment of losses will be provided and public participation in decreasing vulnerability will also be increased.

ICIP main goals:

1. Reduce government's financial responsibilities for losses made by natural events



2. Guarantee Iran's insurance industry economical stability against natural events.
3. Transfer more risks of natural events to International reinsurance companies and capital market during early years of establishment.
4. Increase Public knowledge for confronting natural events, tools and risk transfer.
5. Develop Insurance coverage based on real rates affected by vulnerability of buildings.
6. Train personnel and equip inspection organizations; and increase their role in helping people and insurance industry to realize risks realistically.
7. Absorb, transfer of know-how and necessary professional training for correct risk management arising form natural events.
8. More influence of catastrophe insurance and legal comprehension of insurance law as an effective factor in risk management.



Project No. 7
Disaster Management Software Tools
(GIS, GPS, RS)



Project No.7

Disaster Management Software Tools

(GIS, GPS, RS)

Project Summary:

An earthquake Disaster Management System must have high capacity and potential and have good access to information. 3 systems of GPS, RS and GIS are desirable software tools and play important roles (especially in earthquake disasters) in Disaster Management System's desirable performance. Considering diversity of different data in each of these techniques, main problems are data transfer among three techniques and integration among them. As a solution, following diagram shows how to integrate data.

In this system, GIS is the core data integration; GPS and RS are connected to each other using DLL technique. Improvement in precision and accuracy of data are the most important duties of this system.

RS		GPS
Image Disposes and identify		Data Disposes and transform
Data Transform	Interface	Output and Display
Other Data Input	GIS	Analysis Method

Integration of 3 technical systems GIS, GPS, RS



Project No. 8

**Training pilgrims and passengers
(with the aim of becoming familiar with
Disaster Management Aspects)**



Project No. 8

Training pilgrims and passengers (with the aim of becoming familiar with Disaster Management Aspects)

Project Summary:

Mashhad as the world's second religious metropolis has more than 2.5 million people population and receives more than 20 million pilgrims every year; in other words, Iran's whole population travel to Mashhad every 4 years. So, based on Iran's Grand Leader's statement: "Serving Mashhad is serving Iran", we would like to suggest "Training passengers and pilgrims" with the aim of becoming familiar with disaster management aspects in cooperation with Khorasan Razavi General Governor's Office, Astan Quds Razavi and Mashhad municipality and with support of Iran's Unexpected Events Organization as a national project.

These programs are suggested for improving public knowledge and alertness since most people living in high risk areas have little knowledge about the risks. The aims of this project are making people familiar with dangers of the region, preliminary methods to confront with disasters and maneuvers.

People and groups who may participate in passengers and pilgrims training programs are:

1. Passengers and pilgrims who travel to Mashhad by airplane.
2. Passengers and pilgrims who travel to Mashhad by train.
3. Passengers and pilgrims who travel to Mashhad by bus.
4. Passengers and pilgrims who travel to Mashhad in their own cars.



Training Methods:

In order to introduce disasters, methods of confronting with disasters and reduce losses and informing different groups of people, following ways can be suggested:

1. Using publications and magazines
2. Preparing and distributing advertising brochures along with Mashhad's tourists and pilgrims' information in entrances of the city especially in the trains, airplanes and passenger's bus terminals.
3. Sending SMS.
4. Preparing advertising posters, security messages and billboards throughout the city.
5. Setting up earthquake exhibitions and museum.
6. Appropriate educational activities in radio & television with emphasis on earthquake.
7. Creating websites and centers for presenting different catastrophes and practical training in order to confront with them.
8. Running maneuvers, presenting suggestions and professional educational conferences in the holy city of Mashhad.



Project No. 9

Improve General Structure of Constructions in Iran



Project No. 9

Improve General Structure of Constructions in Iran

Project Summary:

Improving general structure of constructions is a major and long term preventing tactic for cities and villages. Unfortunately, construction industry is under control of people who are not trained in this field and due to unusual profits in housing sector, safety principles in constructions have been ignored. National determination is needed to improve construction process and every person has to make his/her utmost effort to achieve it.

Following tactics for improving structure of constructions are suggested:

1. Implementing article 33 of Engineering System and Building Control Law.
2. Benefitting from standard construction materials and world's modern technologies.
3. Employing experienced and authorized executive workers.
4. Preparing conditions for insurance in order to guarantee the quality of constructions.
5. Activating civil constitutions.
6. Supporting projects for making important government buildings, infrastructures and vital routes of Iran withstanding.
7. Accurate supervision and assessment on executive organizations performances, counselors and contractors, and enforcing encouraging and preventive reactions seriously and consistently.
8. Performing encouraging plans for making residential buildings resistant using inexpensive methods.
9. Integrating Urbanization Management and Disaster Management in construction aspect of cities comprehensive plans.



Project No. 10
Planning By-laws, Standards and Indices
for Disaster Management



Project No. 10

Planning By-laws, Standards and Indices for Disaster Management

Project Summary:

By-laws, standards and indices are important tools in disaster management. Generally, they must be prepared, regulated and notified by disaster managers in every organization and by top managers throughout the country. Specific by-laws, executive standards and national indices are used for construction of hospitals, infrastructures such as water, electricity, sewage, transportation systems, and fundamental facilities like governmental and communicative installations, etc.

In every organization, a standard plan is used for responding to the needs. Some of these plans are as follows:

1. Foodstuff supply plan.
2. Housing and sheltering plan.
3. Training program for making buildings.
4. Plans for distribution of construction materials.

Since a standard plan will not satisfy all the needs of victims in different conditions, it is still necessary to recognize different needs for standardization of disaster management and national indices.

Therefore, most organizations try to expand standard programs in order to recognize essential conditions in urgent situations, and prepare a more comprehensive organizational chart and arrange necessary sources for after – disaster programs.



Project No. 11

**Changing Technical Outlook to
Managerial Outlook in confronting with
earthquake**



Project No. 11

Changing Technical Outlook to Managerial Outlook in confronting with earthquake

Project Summary:

Experiences of Successful countries in confronting with earthquakes indicate that software (managerial) thoughts and methods are generally superior to hardware (engineering) ones. In fact, managerial outlook is more comprehensive and far-reaching than engineering outlook. Domination of engineering outlook on Iran's Disaster Management has caused inability in solving the country's difficulties. Since instructions have been on basis of hardware outlook and thought, we shouldn't neglect main managerial software parameters I.E., time, cost, human resources and their supervision.

Giving priority to merely engineering thought for making buildings resistant, due to numerous managerial problems, is not practical except in special cases and requires many years of time, expenses and high quality human resources. Insistence on this though as basic priority in disaster management will have many consequences in terms of human casualties and financial losses. Of course, making buildings resistant may be very useful in long-term and some possible cases if emergency actions, renovation, anticipation and alarming in short-term and mid-term have more priority to making building resistant which is a long-term action. To clarify some of these issues we can use following table:

Managerial(software) outlook	Engineering(hardware)outlook
Making buildings secure	Making buildings resistant
People won't be killed	Buildings won't be demolished
Assessing time and costs conditions	Assessing conditions of programs and changing places
Optimal use of human resources and facilities	Optimal use of construction materials
Prevention of secondary damages and events	Prevention of physical damages
To train people well	To construct buildings well
To Prepare people and facilities	To prepare constructions wells



Differences in managerial & engineering outlooks to earthquake

Project No. 12
Management of Flood, Surface Waters
and water problems in streets



Project No. 12

Management of Flood, Surface Waters and water problems in streets

Project Summary:

Flood is one of the most important geological events and most natural environmental disasters which cause lots of damages and casualties. Statistics show that in the last decades of previous century more than 100,000 times floods happened which caused lots of casualties and financial losses. Generally, floods are not usually reported and just events which lead to lots of casualties and financial losses make their way into mass media. Floods are seldom related to unnatural events such as washing dams. Floods often happen naturally and their occurrence can be forecasted to some extent.

Human application of land in urban areas has caused an increase in strength and number of floods in small water basins. This increase depends on percentage of land that is occupied by roofs, sidewalks, impenetrable construction buildings and areas covered with sewage. Sewage collection networks have an important role in gathering urban current water because they avail urban current waters to reach canals and carrying channels quickly from impenetrable surfaces. Therefore, if an effective sewage collection network does not exist, the risk of floods will increase.

Safety issues for preventing urban floodwater:

1. Altering transversal slopes of streets.
2. Effective and constant supervision on canals and streams constructions.
3. Performing field studies by observing remaining water in different spots by constructing collecting streams and canals.



4. Serious confrontation with throwing garbage, waste and constructional rubbish in floodways.
5. Adaptability of canals dimensions with increase in amount of running water.
6. Effective management in maintenance of floodways, canals and streams.
7. Prevention of any construction in floodways and their limits.
8. Inspecting several parts of the city and recognizing exiting problems.
9. Recognizing places where suitable canals and streams need to be constructed.
10. Correct placement of manholes.
11. Using self-cleaning screens for separating particles, garbage and urban rubbish which are thrown to floodways and cause blockage of canals and bridges.
12. Preparing floodwater risks maps in the area and city.
13. Suitable designing and installment of an appropriate forecasting and alarming floodwater system with topographic and hydrologic conditions in the area.
14. Providing different levels of training based on cultural aspects and local habits and traditions in order to maintain urban floodwater discharge systems in a more correct and logical way.
15. Controlling and examining facilities and equipment like pump engine, machineries, and etc. to be prepared at the time of disaster.
16. Performing training maneuvers and briefing related personnel to be prepared and on the alert at the time of disaster.



Project No. 13

**Combining Comprehensive Urbanization
Plan and Comprehensive Disaster
Management Plan**



Project No. 13

Combining Comprehensive Urbanization Plan and Comprehensive Disaster Management Plan

Project Summary:

Urban disaster management conformity with city development programs is an effective and advanced solution for reducing damages. It is necessary to predict reduction of economical and physical vulnerability of families in urbanization plans in many cities and especially in metropolitan areas. For example, housing plans can be coordinated with urbanization plans economically and buildings become more resistant to dangers. But, unfortunately, urban planners ignore these measures because of lack of awareness

Therefore, one of important Disaster Management functions is adapting urban progressing programs like housing plans, establishment of new residential areas, land management, and etc. with plans for confrontation with dangers in such a way that will help reduce or prevent the danger. In other words, reducing vulnerability in urban areas will be realized when security of the city against natural disasters is considered as a main objective in all planning levels.

In order to improve and alter the city, urbanization, and prevention of disasters, it is necessary to identify dangerous factors and increase security facilities against disasters. Human and natural disasters lead to destroying a great part of countries' human, social, economical and cultural resources. But, on the other hand, they cause an increase in countries' executive and managing strength and creating essential capabilities to take appropriate preventive actions in order to confront with disasters, and eventually normalize the situation and compensate losses. Because before the event, the community has obtained necessary readiness to take preventive actions considering previous dangers happened before and their negative impact on the society.

Although preventive actions require a big deal of budget and capital, but experiences have indicated countries which allocate most of their budget for disaster prevention, have obtained positive results and losses have been reduced greatly in long-term.

The first step in disaster prevention is public and specialized training of those who are involved directly at the time of disasters. In developing countries, training of government organizations and the public is the first step in this direction, because the government and the people can not be very successful by themselves.



Project No. 14

**Confronting with Drought and Gradual
Crisis**



Project No. 14

Confronting with Drought and Gradual Crisis

Project Summary:

Undoubtedly, naming the present century as "Water" by political and economical experts means paying special attention to this vital liquid more than ever. Water has had significant importance since ancient times. One of the most important issues that strategists consider is water and "water crisis" and consequences of water deficiency that may create for people, society, or even a bioenvironmental area.

It is important to remember that need for water is not confined to time or place limits and it can not be replaced with any other liquid. Furthermore, the population of the world, our country, and metropolitan areas has an increasing trend. On one hand, water resources in countries such as Iran are limited and amount of rainfall is $\frac{1}{3}$ to $\frac{1}{4}$ of average rainfall in other parts of the world. And on the other hand, water contamination, surface water & underground water, is increasing.

Iran has been threatened by a phenomenon called drought because it is geographically located in dry and semidry region. Drought has very destructive effects like earthquake and flood.

Therefore, in order to decrease effects caused by drought some points are mentioned as follows. We hope to go through drought situations bearing the least losses and expenses by following these points individually:

1. Training family members how to use water correctly.
2. Training families to change and repair broken faucets.
3. If possible, giving free needed materials to citizens especially for repairing leaking faucets.
4. Checking all underground water pipes for preventing possible leakage.
5. Saving and optimal use of water by all people, organizations, etc.
6. Not using drinking water for washing cars, yards, etc. by citizens.
7. Authorities' supervision over washing streets by tankers.
8. Separating the system of watering plants from drinking water.
9. Modification of watering system projects (Under pressure and dropping systems) for saving in water consumption.
10. Prevent cultivating plants which need more water.



Project No. 15

Snow Management, White Crisis



Project No. 15

Snow Management, White Crisis

Project Summary:

Snow and frost create many difficulties for the city, the citizens, and city organizations every year. Usually, this ecological phenomenon will be resolved gradually and without any planning.

After each snowfall, municipalities mobilize all their resources and equipment to remove frost from routes and streets and return the city conditions back to favorable conditions for citizens. Since management of city streets and routes is a part of municipalities' duties and authorities, they do their bests to make suitable conditions for progress of activities and jobs at the time of snow and storm disasters by previous planning and accurate implementation of those plans and try to prevent stoppage of city activities as much as possible.

As this is a complicated issue and accompanied with many difficulties and a great deal of resources and equipment are employed for a short time, previous planning is very important.

Therefore, for planning and better performance of cleaning the city at the time of snow disasters following points are noticeable and should be observed before and after snowfalls.

1. Preparing tools and equipment before winter.
2. Inspecting routes and streets which have been identified as snowy routes.
3. Training for human resources.
4. Weather forecast and necessary planning for their reinforcement.
5. Plans for using anti-freezing liquid and special reliable installations to supply and produce salt.
6. Plans for determination and announcement of snow disaster conditions.
7. Preventing snow movement into the streets and routes that are exposed to wind.
8. Plans for shoveling snow and clearing routes from snow.
9. Determination and enforcement of street regulations especially for snow disasters.
10. Permanent monitoring of roads and routes conditions in winter and presenting information to organizations involved in Disaster Management.



Project No. 16

**Complete Documentation of the
Earthquake in Bam**

**as an educational pattern all over the
country**



Project No. 16

Complete Documentation of the Earthquake in Bam as an educational pattern all over the country

Project Summary:

In addition to problems and sufferings that unexpected events in the world create for human communities, they can also be a lesson and experience in order to prevent other unexpected events which will occur again sooner or later.

The Earthquake in Bam which has been discussed as one of the greatest events in recent decade, can be useful as an educational headline in all sciences such as disaster management, urbanization, architecture, geology, and etc. In this direction, it is suggested that:

The collection of all data and documentation of all performed stages in the Earthquake in Bam from the beginning up to now and foreign and local NGOs as a national experience be presented to other Iranian cities or even other countries to benefit from them in similar events.

Following items can be considered in this plan:

-Complete identification of NGOs and active International organizations in the Earthquake in Bam in order to them in possible similar events.

-Using all the executive agents' experiences (in all levels) in the Earthquake in Bam...

-Reviewing performances of governmental and non-governmental organizations after the Earthquake and in reconstruction stages.



Project No. 17

**Disaster Management Communication
Network**

Introduction of TRUNK TETRA system



Project No. 17

Disaster Management Communication Network

Introduction of TRUNK TETRA system

Project Summary:

Iran is one of the countries which is exposed to different natural events. Although it is impossible to prevent natural events completely, damages and losses can be reduced by using technological tools of data and communication know-how. Among different common know-how which may have special applications in Disaster Management, wireless technology provides a permanent and economical source for natural events coverage and management. Experience has shown that standard communications will not operate within first hours of events like earthquake. Now wireless technology has reached its maturity and is developing quickly for these conditions.

In this project, experiences of different countries in using wireless technology as one of applications of data and communication know-how in Disaster Management has been mentioned. Different countries use different wireless communications in different stages of Disaster Management based on their ecological conditions, population dispersion, economical conditions and existing know-how infrastructures. Using wireless Internet booths in India, comprehensive wireless network for disaster management in Japan, experiences of organizations like NLM in medical emergencies management in disasters, Spear Project in the Netherlands aimed to reduce casualties, and using satellite communications in Catherina hurricane in the United States are some examples.

Trunk Tetra system which is the latest existing technology, completely digital and has many capabilities helps a lot in infrastructure of electronic cities and plays an important role in disaster management of the city. The system is completely professional and expandable to make communications throughout the province and after start up can be economized, I.E., current expenses, maintenance, repair and expansion costs of the system can be determined based on a specific tariff and charged to organizations other than municipality.

System Applications:



1. Providing Information and coordination among all executive organizations.
2. Giving electronic information within the organization, between organizations, to outsiders, and the public.
3. Decreasing parallel expenses of all organizations to establish urban networks.
4. Optimal use of frequency spectrum.
5. Providing communication coverage, efficiency, 100% communication security, and flexibility.
6. Common application of channels by users.
7. Controlling and managing is done by computers.
8. Communications are done by pushing buttons in simplest ways.
9. Using GPS system for supervising and controlling transportation fleets.
10. Ability to transfer data and send texts.
11. Requirements for designing the system and predicting radio broadcasts are similar to mobile systems.



Project No. 18
Preparing Earthquake Scenarios
for Metropolitan areas



Project No. 18

Preparing Earthquake Scenarios for Metropolitan areas

Project Summary:

If you ask the main reason for widespread casualties and destructions in previous earthquakes in Iran and other similar countries, the answer will be: lack of preparedness.

In other words, lack of physical preparedness in constructions such as buildings and installations against forces and other effects of earthquake, lack of preparedness among people spiritually, mentally and physically to face with earthquake, and finally lack of preparedness of the unexpected events management organization, and rescue & rehabilitation personnel have led to following consequences of earthquakes in our country:

A: Widespread destructions including high human casualties and abundant financial losses.

B: Losing “golden time” of relief operations because of high amount of casualties.

C: People’s lack of knowledge and familiarity with sheltering operations and safety actions.

D: People’s lack of familiarity with self-rescuing actions and lack of necessary equipment.

E: Lack of necessary security in the area after earthquakes.

F: Having no plans for housing, reconstruction, and rehabilitation.

Therefore, in order to increase preparedness against earthquake disaster designing earthquake scenarios are suggested.



To prepare an appropriate scenario for after earthquake conditions in an urban area, following information is needed:

1. Detailed diagrams for areas with quake risks to show the amount of seven earthquake risks as accurately as possible.
2. Precise statistics of different constructions and installations in the area and their distribution in different parts.
3. Subsiding diagrams for different constructions including existing buildings and installations in which the scope of damage on every construction is calculated based on an appropriate risk index.
4. Population distribution at the time of earthquake that depends on time, location, and other factors.

Only by having these four items, we can present practical scenarios to use in disaster management.



Project No. 19

Managing river plains floodwater by combining hydraulic model and GIS



Project No. 19

Managing river plains floodwater by combining hydraulic model and GIS

Project Summary:

Flood is one of natural dangers and its harness or reduction of possible losses requires a special planning.

First step for floodwater control is recognizing inundating areas and rating them according to the amount of danger for flood in order to reduce flood damages considering results of studies.

Determining floodwater areas is done based on hydraulic modeling in permanent conditions. In other words, hydraulic of currents along with the route of the river which introduces maximum flow rate of flood's hydrograph during a specified returning period to permanent current conditions will be studied.

Obviously, for parts of a river which pass through cities and villages a correct analysis about passing time of floodwater can not be calculated. To reach this goal, it is necessary to examine hydraulic of currents in non-permanent conditions or introduce hydraulic of floodwater as a boundary condition.

Results of these analyses in city or rural areas may be used in floodwater management in those places. In other words, by using this method, extent of water on river banks in different times is specified; and on this basis, and by enforcing appropriate management financial and human losses will be prevented.

In this method, first essential data is obtained from earth's numerical model, then modeling will be done and afterward, location of existing constructions on the river banks can be defined three-dimensionally and time of reaching floodwater to them can be determined in GIS software.



Project No. 20

**Necessity of reviewing and unity in
policies
of government departments in city
divisions**



Project No. 20

Necessity of reviewing and unity in policies of government departments in city divisions

Project Summary:

Unity in policies of unique urban management infrastructures in most cities of Iran requires a new approach toward establishment of solidarity and coordination among supervising, executive, and service organizations and eventually reaching urban sustainable development. The system of urban interdivision is not based on a unique and goal-oriented system at present. Citizens' confusion is one of the most important problems caused by different divisions in government organizations. For example, a person who lives in southern part of Municipality 9th district is located in Water & Wastewater 4th district, Education department 6th district, Electricity Company 5th district, Post Office 7th district, and so on. Therefore, he has to refer to these offices to do his administrative works and this difference in division of districts leads to confusion of citizens who are considered as sources of supplying financial resources for services of such organizations. This disorder has made problems even for organizations and Institutions.

Since providing services such as health & treatment, education, security, banking affairs and etc. requires planning, and population factor and its specifications are the most important factors in planning science, recognition of the population which every organization is responsible to provide services for is completely necessary for each organization. As limits of each service providing organization do not match the statistical limits of "Management & Planning Organization", this matter causes many problems for any precise and scientific urban research, planning, and budgeting and in some cases makes them even impossible. In other words, one of the most important reasons for not having even distribution and coordination among organizations is lack of unique city limits in order to serve citizens in every district.



Considering following goals:

1. Maximum availability to urban services for most of the citizens in every district.
2. Preparing facilities for most of the citizens' especially low-income class people of the society.
3. Not confusion of citizens among organizations and urban service constitutions and appropriate distribution of them.
4. Adjusting organization districts with municipalities by designing based on common borders.
5. Enforcing Comprehensive Plan's criteria and designing to accomplish its strategies.
6. Providing balance in urban activities.
7. Balanced distribution of population, area, and service centers.

Also, with the aim of removing deficiencies in administrative and service divisions in cities, important scientific & technical efforts have been made to receive division maps from different active organizations in cities and to scrutinize existing common borders which constitute most of common borders on maps in the municipality. Therefore, it is necessary that all afore-mentioned organizations follow district divisions stipulated in Comprehensive Plan and provide the ground for giving desirable services and achieving unique urban management plans. In Comprehensive Plan important factors such as population, area, relative congestion, availability radius, facilitating citizens' affairs, traffic networks, existing situation, sources of revenues, coordination among service organizations, the city texture and shape, and combination of neighborhoods have been considered.



Project No. 21

Establishment of a Data Bank for available equipment and facilities



Project No. 21

Establishment of a Data Bank for available equipment and facilities

Project Summary:

Disaster has different aspects and can be defined in under different titles such as economics, politics, culture and nature. When a challenge occurs under one of above-mentioned aspects extensively and in a short time, it is necessary to harness the conditions. In this direction, mobilizing facilities and better usage of situations which can possibly serve to control and prevent expansion of the disaster effects are among priorities that cannot be ignored. Naturally, sources and facilities management requires the most effective tools be employed in shortest possible time in such a way that expansion of the disaster itself will not cause more consumption of resources.

Irregular expansion of cities and increase in constructions which are not based on engineering principles in recent decades are among problems that have put big cities into trouble especially in our country. This has been among important factors to intensify natural and non-natural dangers and increase the amount of risk-taking in cities. There is the fear that any unimportant event will turn into a great and irretrievable disaster at any time. And this adds to importance of unique urban management in timely employment of personnel, facilities, and equipment.

Therefore, in order to define quantity and amount of facilities and equipment available to every office, organization, etc. and planning for timely employment of them at the time of disasters and emergencies, it seems necessary to establish a comprehensive data bank for available facilities and equipment to every office or organization and eventually deliver them to disaster management of that city.



Project No. 22

**Preparing an atlas for Natural Disasters
in metropolitan areas and provinces**



Project No. 22

Preparing an atlas for Natural Disasters in metropolitan areas and provinces

Project Summary:

Preparing and compilation of atlases for natural disasters for metropolitan areas and provinces based on amount of vulnerability against different natural disasters is essential in disaster management organizations of developed countries to reduce vulnerability against natural disasters. According to studies, our country is faced with 32 types of natural, climatic, and ecological disasters. Different provinces are faced with some or many of them.

Every region in our country is sensitive to a special type or types of disasters depending on its natural abilities. Since threatening natural disasters in every province are numerous, collection and summing up of data for compilation of atlases must be done as fourth factor.

Preparing atlas for natural disasters will determine sensitivity of every province or city toward disasters which may happen there such as flood, earthquake, severe cold or hot weather, drought, frostbite, etc and planning for forewarning about confrontation methods will be done.

If plans are adapted to existing conditions and proportionate to the country's special situation, we will not face crises and problems in confrontation with natural tensions.

In international structures, natural disasters include two parts. One part is quick alarm or forewarning, and the other one is quick reaction or confrontation plans. In confrontation plans, adaptation is one of most important factors. Therefore, if our plans are basically adapted to the country's ecological plans, we will not face crises and problems in many cases.



Project No. 23

**Applying for membership of Disaster
Management**

**Organizations of metropolitan
municipalities in Quality**

**Management Organization of Asia and
Oceania**



Project No. 23

Applying for membership of Disaster Management

Organizations of metropolitan municipalities in Quality

Management Organization of Asia and Oceania

Project Summary:

The international Quality Management Organization of Asia and Oceania Conference was held in Tehran in July 2000 for the first time participating 273 quality managers from all over the country and some companies and organizations involved in quality issues. Such conferences are held annually based on different management topics such as efficiency and effectiveness of processes a step toward organizational elevation, result orientation a necessity for organizational persistence and dynamism, organization's social responsibility a necessity for organizational elevation and management of change, and strategy & persistent improvement.

In the eighth conference which was held based on "Quality Managers & Management Challenges in 21st Century" title, up to 5000 top executives, experts, quality specialists, and foreign & local quality managers with support of 45 international and national quality organizations from 35 countries from all over the world (Europe, Asia, Oceania, Latin America, and the Middle East) participated.

Main objectives of these conferences are: examination of latest managerial results in the world, benefitting worldwide managerial experiences by using outstanding key people's lectures in this science, management & quality management tools and techniques, human resources management, quality management & information technology, and generally up-to-date issues in the fields of management and quality management.

As a constructive suggestion to use these national and international experiences, we can apply for membership of our disaster managers and specialists in this organization so that they can benefit from discussed issues in annual conferences and improve the quality of services rendered by disaster managers in their organizations.



Project No. 24

**Establishment of a joint Publication and
an Internet Data Center for Disaster
Management**



Project No. 24

Establishment of a joint Publication and an Internet Data Center for Disaster Management

Project Summary:

Disaster Management has changed to a combination of art, science and knowledge in the world.

The need for establishment of a unique center to provide information has become more obvious in order to make disaster managers acquainted with different sciences, exchange of views and information, make people's awareness and inform them about news and accidents in Iran and the world, and training people in all the levels. In this direction, following suggestions can be presented:

1. Design and start up of an Internet information center so that disaster managers, mayors, governor generals, and officials in charge of unexpected events organization can exchange views, transfer information, discuss about disaster management problems, and all public users can also use the information on this site.

2. Establishment of a disaster management publication in cooperation with municipalities and governor general offices in which latest news, laws, training and other related matters about disaster management can be discussed.



Project No. 25

Placing Training Disaster Management

Headlines

in Metropolis Courses



Project No. 25

Placing Training Disaster Management Headlines in Metropolis Courses

Project summary:

In Disaster Management cycle, one of basic stages is disaster prevention stage. Prevention can play a fundamental and important role in other stages and its results will be very effective in disaster management cycle.

One of the methods which can be used in prevention stage is training. Training in all levels of management, experts, universities, schools, districts and so on is a need. Compilation and approval of disaster management educational headlines, notifying them to involved organizations and precise & accurate implementation of them will increase knowledge about disasters in all levels of the society and reduce casualties.

From the point of widespread training scale and international aspect, considering existence of metropolis organizations in metropolitan areas and position of disaster management and risk-taking, we can suggest metropolis training headlines to these organizations and with the help of metropolis & other international organizations and benefitting from international budgets perform disaster management training courses all over the country for all different ages and in all neighborhoods.



Project No. 26
Resilience Models in Natural Events



Project No. 26

Resilience Models in Natural Events

Project Summary:

Natural events have always caused great challenges on the way to sustainable development in the world and examining different ways to achieve this development by reducing vulnerability patterns is necessary. Therefore, decreasing danger of events is very important and it needs to have a prominent position in policy making in every country so that appropriate conditions for reducing effective dangers in different levels can be created.

Different patterns and models about disaster management have been presented in the world. The latest one is Resilience Model before, during and after natural events (especially earthquake). Characteristics of a resilient society are:

1. The society can withstand shocks and strikes caused by a danger in such a way that those dangers will not change to accidents and can reduce possibilities of defeat.
2. It should have the ability to return to previous situation after the event and decrease failure consequences.
3. It should have possibility and opportunity for change after the events and reduce needed time for improving and amount of vulnerability.



Progressing Stages toward Development

1) Withstanding shocks & reducing danger	3) Changes in the society until it will become resilient	
2) Movement to the past or Sudden fall (after the event)	Improvement after the event	Minimum acceptable Resilience

By comparing resemblance between trees (because they have resilient structure) and Resilience Model we will reach to a model named Bamboo. Bamboo is an obvious instance of a resilient tree: strong and flexible.

Finally, for establishment of a resilient society against unexpected events, following characteristics have to be considered:

1. Giving information and preparedness.
2. Planning for events.
3. Appropriate leadership.
4. Security criteria.
5. Trained courses from past events.



Project No. 27
**Community Based Disaster Risk
Management**



Project No. 27

Community Based Disaster Risk Management

Project Summary:

CBDRM is disaster management based on groups. Experience has shown that more than 90% of the wounded have been rescued by local residents during early hours of natural disasters. Therefore, community based disaster management trainings for confrontations with natural disasters like earthquake in city neighborhoods are very necessary. The aim of CBDRM trainings is to increase community's security to confront with natural disasters and reduce people's vulnerability.

Community Based Disaster Risk Management (CBDRM) is a stage of disaster management where endangered groups actively work in identifying, analyzing, confronting approaches, controlling, and assessing risk of the crisis in order to reduce vulnerability and increase abilities. It means that people are situated in the center of decision making and performing disaster management activities. Participation of the most vulnerable people and supporting them is very important. In CBDRM national and local governments are participants and helpers.

There are 7 stages in community based disaster risk management which include:

1. Choosing a group.
2. Making group understanding.
3. Assessing risks of participation in the disaster.
4. Planning for participation in disaster management.
5. Establishing and training community based disaster risk management organization.
6. Implementing management & control in the group.
7. Assessing participation.

Community Based Disaster Risk Management emphasizes on importance of the public in management of different crises.

Importance of disaster management and assessment about people's participation in crises will be presented and some issues regarding how to perform community based disaster risk management will be discussed.



Project No. 28
Establishment of Disaster
Management Counselors
Team in Metropolitan Municipalities



Project No. 28

Establishment of Disaster Management Counselors

Team in Metropolitan Municipalities

Project Summary:

Today, disaster management has become a science which requires having widespread interrelated knowledge in different sciences such as earthquake, flood, fire fighting, meteorology, environment, assistance & rescue and so on. So, it is inevitable to have different counselors in order to obtain information about disaster management in national & international levels.

In this direction, it is very necessary to establish a consulting team from people with different expertise for metropolitan municipalities (in the fields of earthquake, flood, civil defense, GIS and so on).

This counseling team can be chosen by mayors and meetings among mayors, disaster managers and the counseling team may be held at least quarterly not only to benefit from national & international experiences but also to discuss & exchange views about latest crises in the world and present different approaches and developments in the field of disaster management.

The suggested consulting team can recognize existing crises, compare with the world's metropolitan areas, present executive approaches to prevent events, implement & perform new projects in disaster management and localize them.



Project No. 29

Establishment of Disaster Management College and presenting Disaster Management Courses in Universities



Project No. 29

Establishment of Disaster Management College and presenting Disaster Management Courses in Universities

Project Summary:

In disaster management cycle, disaster prevention is one of basic stages. Prevention can have a fundamental and important role in other stages and its outcomes will be very effective in disaster management cycle.

One of the methods which can be used in prevention stage is training. Training in all levels of management, experts, universities, schools, districts and so on is a need. Compilation and approval of disaster management educational headlines, notifying them to involved organizations and precise & accurate implementation of them will increase knowledge about disasters in all levels of the society and reduce casualties.

In this direction and in order to provide basic education, following suggestions can be presented:

1. Presenting educational courses under the title of "Acquaintance with Disaster Management Concepts: in schools and universities.
2. Performing educational disaster management maneuvers in universities and schools similar to defensive preparation operation camps.
3. Establishing disaster management colleges and presenting master or doctorate degrees with different specialties in disaster management.
4. Supporting and giving special privileges to M.A, M.S. and PH.D theses about "Disaster Management"



Project No. 30
Producing Educational Animations
regarding Disaster Management



Project No. 30

Producing Educational Animations regarding Disaster Management

Project Summary:

In disaster management cycle, disaster prevention is one of basic stages. Prevention can have a fundamental and important role in other stages and its outcomes will be very effective in disaster management cycle.

One of the methods which can be used in prevention stage is training. Training in all levels of management, experts, universities, schools, districts and so on is a need. Compilation and approval of disaster management educational headlines, notifying them to involved organizations and precise & accurate implementation of them will increase knowledge about disasters in all levels of the society and reduce casualties.

In this direction and in order to provide public education, following suggestion can be presented:

Designing and making educational animations (similar to traffic animations) and broadcasting them on nationwide and provincial networks with different subjects such as security against earthquake, flood and so on to make all the community members familiar with disaster management concepts.

These animations should create simple characters and teach concepts like unexpected events & accidents, methods of confrontation with unexpected events, approaches to prevent crises and so on.

Considering attractiveness & effectiveness of this type of education on children and teen-agers, this great part of society will become familiar with concepts of disaster management which will result in reduction of vulnerability during events. Also, we can expect to have a society where all people, at any age, will be familiar with basic concepts of crises and methods of disaster confrontation & prevention.