



مشروع دعم بناء القدرات الوطنية لتقليل أثر الخطر
الزلاحي لمنطقة العقبة الاقتصادية الخاصة
Support to Building National Capacities for Earthquake
Risk Reduction at Aqaba Special Economic Zone Project
with the support of:
 Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra
Swiss Agency for Development and Cooperation SDC

Reducing the Impact of Natural Disasters in Aqaba City

- EARTHQUAKES
- SANDSTORMS
- FLASHFLOODS

(Trainer Manual)

Jan, 2011

Introduction:

Natural Phenomena is one of the most important threats and challenges that could be facing the human being throughout history. Many societies in the Arab countries have suffered, and still suffering from the occurrence of such phenomena and the consequences of its social, psychological and economic impacts.

The natural phenomena that occurred in the Hashemite Kingdom of Jordan in the last years has showed the size of the problem that face the country and the need to reduce the risks. For example the flashflood that occurred in the city of Aqaba in 2006 caused number of life losses and casualties, in addition to the economic losses because of the destruction of many buildings as well as the infra structure. The same happened in 2008 and 2009 floods that were above the average is an evidence of bad experiences of the region in the field of natural disaster.

As one of the important indicators of a seismic risk in the region is the earthquake which hit the region in 1995 and led to a situation of terror, fear and confusion because of lack of appropriate preparing for disaster risk reduction.

As a result of climate change and the vagaries of weather that is occurring frequently nowadays causing many sandstorms which make huge damage to the region in the absence of preparedness.

The definition of these phenomena and their hazards as part of the curriculum in the two phases (primary and secondary education) and as a part of the awareness and education programs in public and private institutions and civil society institutions can enhance the process of spreading awareness and education. So everyone in Aqaba can play an active role in the process of reducing the risks or the impacts of natural phenomena.

The employees and volunteers, as well as students can play an important role in the process of mitigating the effects of natural phenomena within the strategy framework to reduce the risk of natural phenomena that carried out by Jordan to sustainable development.

The aim of this guide book which targets teachers, staff and volunteers from schools, universities, both public and private institutions and civil society to provide them with information relating to natural phenomena and the resulting risks as well as to equip them with skills and necessary attitudes for prevention, preparedness and response through a series of practical activities to help them apply what has been learned.

This guide book is part of the efforts made by the United Nations Development Programme in cooperation with the Aqaba Special Economic Zone Authority and the Swiss Agency for Development and Cooperation and with the active participation of the Ministry of Education and the General Directorate of Civil Defense and other government institutions and non-governmental and community organizations to reduce disaster risks through a national project to support national capacity building to reduce the impact of seismic risk of the city of Aqaba.

This guidebook is a part of awareness program in order to contribute in reducing the effects of disasters upon the city of Aqaba and preparing before they occur, this does not mean that a disaster will happen in the near future.

The guidebook contains two main parts, the first is training that aims to provide trainers with information, skills and knowledge for the implementation of training sessions and effective awareness targeting staff of public and private sectors and volunteers from universities and institutions of civil society and students. The second relates to natural hazards face Aqaba City including the definition of risks and ways to deal with them before, during and after the disaster.

The objectives of this training:

1. Raising public awareness of risks which may occur in Aqaba and building abilities to deal with them.
2. Encouraging trainers to take appropriate action to reduce the risk of natural phenomena.
3. Contribute in raising awareness and scientific knowledge in natural phenomena field.
4. Instilling a deeper understanding of disasters risks that may face the City of Aqaba in a way to get rid of fear and confusion in the case of disaster

Before you begin"

Activity No. 1 (brainstorming)



Each trainer should share the trainees in answering these following questions before he/she start the training; (the objective is to create a common environment between the trainer and the trainees on the subject of the training and to know their experiences and give a brief introduction in interactive manner.

- Do you live in risky area or place (subjected to natural disaster)?
- Have you learned about the disasters in your school, home or your community?
- Do you know what a disaster is?
- Do you know your role to reduce the disaster or its impact as an individual in your community or as a student in your school? or as a mother or father at home?

Note to trainer:

- Do not wait for a response from all the trainees to the questions, the goal is to give an introduction for the session and make the participants start thinking.
- There will be a response from the participants, do not make the discussion more than ten minutes.
- The awareness and knowledge of the disaster subject contribute not only to save yourself and your family, but also to save your community and live comfort and secured.
- The purpose of this guidebook is to raise awareness among the local community from schools and universities, housewife, parents and other community members about the disasters risk that could affect the area, and teach them how to deal, mitigate, and reduce their impacts.
- This Guidebook will focus on the risk of earthquakes, flash floods, and sandstorms.

The principles of the Guidebook:

This Guide book was based on the following 4 principles:

1. Participatory approach:

This means paying more attention on implementing the training sessions and awareness, which means the way of dealing positively within the team and the implementation of activities and exercises that form a practical basis in delivering messages to the targeted group through the application of the principle of "what I see may I remember what I hear may I forget and what apply may I fully understand".



2. Partnership:

The ability to establish relations of cooperation between the individuals themselves or individuals and institutions to achieve a common goal. Where the trainers and trainees can get benefit from this guidebook and implement it in collaboration with other institutions in the community.

3. Gender:

Guidebook take into consideration the targeted group (male and female) in its contents and activities, also it focuses on children under five years, elders and unemployed women as the most vulnerable groups.



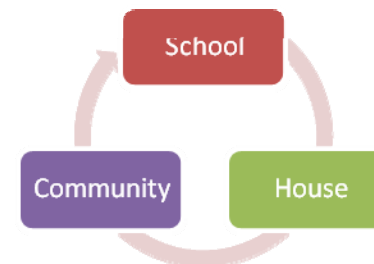
4. Continuity:

Achieving the mentioned three principles, the guidebook will achieve continuity through the transfer of experience.

Mechanism of the guidebook:



Where we can use the Guide Book?



Training and Facilitation

Methods of teaching and learning for adults:

Adults Accept to learn when:

- They want to do it or when they are in need for it.
- Link what they have learned with their past experiences, present and future.
- Apply what they have learned.
- Adults need help and advice in friendly environment and does not constitute an embarrassing to them.



Principles of adult learning:

- Dealing positively; accepting the others point of views and hear their voices on the issues and help them to explain freely.
- More care advocated for the trainees and empathy with their issues, concerns and preferences.
- Always ready for dialogue and discussion with teenagers.
- Avoiding imposing views.
- Develop the skills of choose, analysis and decision-making to the young.
- Develop doses for self-confidence for young.
- Emphasize that freedom and responsibility go hand in hand
- Emphasize that the spirit of adventure and bravery are humanitarian feature and none of which is outside the frameworks for cultural, social and human nature.
- Act as an advanced model in social relations and as Commander and prompt.
- Encourage young to build positive relationships and relieving them from their fear factor.



Participatory training methods:

It is a group of methods used in training situation to give, develop or exchange information, skills or attitudes among the trainees and the trainer all the way "to achieve the objectives of the training program.



There are nine methods of training; the trainer can diversify in using them in one training session in order to obtain the largest possible degree of interaction and to achieve the desired benefit, namely:

1. Brainstorming
2. Simulation.
3. Discussion.
4. The case study.
5. Working Groups
6. Lecture.
7. Breaking Ice.
8. Role play
9. Solving problems



Training facilities:

- Whiteboard.
- Flip chart.
- (Monitor) Data Show.
- Colored cards.
- Television and video.
- Computer.

Specifications of Successful Trainer:



- Create a secure environment for the learning process.
- Motivate trainees to deal with any doubts or issues they may face.
- Focus on improving the level of performance.
- Understand the nature of situations.
- Dealing with different cultures and attitudes.
- Team Building.
- Learn the latest techniques and advanced teaching principles.
- Skill in raising participation and creativity.
- Contribution in honor the groups and demonstrate their wisdom.
- Show professionalism and self-confidence.
- Create a sense of humor in case of tensioned atmosphere.
- Good knowledge of the content that appropriate with desired results.
- The ability to increase knowledge and skills within the available time.
- Create a learning environment by highlighting the problems and ask questions, and use other tools to manage the minds and bodies through the journey of learning.
- Self-knowledge, to identify the impact of individual on others.
- Acceptance of others without taking any considerations of positive or negative.
- Real ability to listen and summarize what you may hear of views and perspectives.
- The ability to sense a quite person when he/she has a desire to speak on a subject or to participate in the discussion

Part Two

Natural Hazards Facing Aqaba City

- HOW TO PREPARE.
- MEANS OF MITIGATION.
- HOW TO DEAL WITH THEM.

Earthquakes

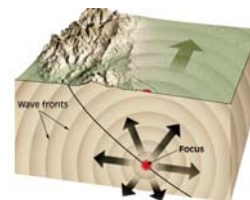


Selected photos of the last destructive earthquake hit the area in the Jordan Valley in July, 11th, 1927. (6.2 on the Richter scale). caused hundreds of victims in the thousands of homes destroyed partially or totally. Victims were focused mostly in Nablus (115 dead), As Salt (85 dead).



Selected photos of the impact of earthquake of November 22nd, 1995, which triggered at 80 km to the south of Aqaba Gulf. (6.2 on the Richter scale). This earthquake was felt in many neighboring countries (Jordan, Saudi Arabia, Palestine and Egypt) did not lead to any casualties in Jordan (panic situation), but some simple destruction and cracks in some buildings.

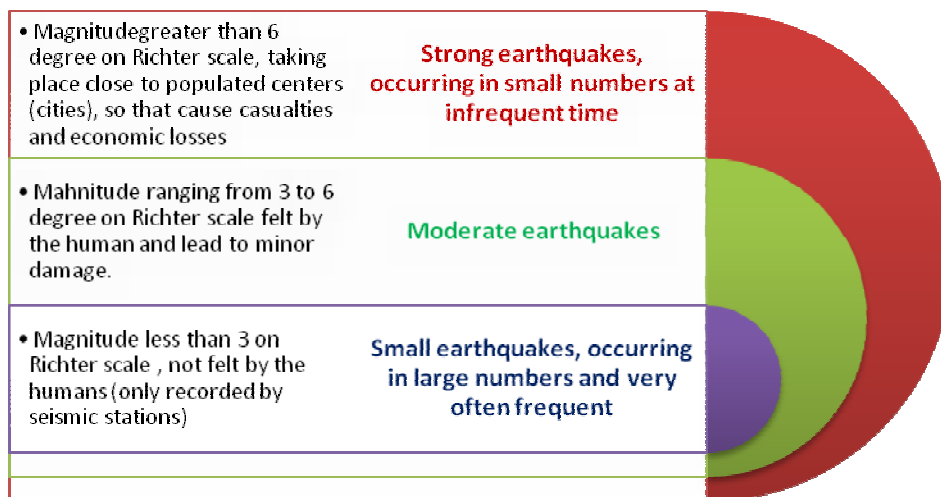
Know



- An Earthquake: is mighty manifestations of sudden release of strain energy accumulated during extensive time intervals in the upper part of the earth. When the strain accumulated in the rock exceeds its elastic limit a fault ruptures, rock masses are abruptly displaced and seismic waves begin to radiate from Its Source, the Focus, in the form of Waves.
- To learn more about the acts of earthquakes follow below links:
http://www.youtube.com/watch?v=4Y-62Ti5_6s&NR=1&feature=fvwp
<http://www.youtube.com/watch?v=KI48vN9HX5w&feature=related>
<http://www.youtube.com/watch?v=gY9kvJQM2u8&feature=related>
<http://www.youtube.com/watch?v=nXdOIXFntjE&feature=related>
http://www.youtube.com/watch?v=ZEzI_pmVG7E

Types of Earthquakes

Earthquakes are classified according to its magnitude and impact into three types:



Types of destruction associated with earthquakes:

Usually due to earthquakes medium or large many types of destruction is taking

place depending on the magnitude of the earthquake, location from populated areas, quality of construction, time of the earthquake and the vulnerability of society.



Destruction of bridges, roads and railways



Liquefaction



Ground Movements



Fire



Tidal Waves (Tsunami)



Collapse of Buildings

How we behave toward the earthquakes?

(Activity 2) brainstorming "Share your experience"

This exercise aims to stimulate interest for the trainees to know how to do in case of earthquakes through experiencing their previous knowledge and skills.

The trainer should begin to raise the following questions and assess the knowledge and interest of the participants.

- Have you ever felt an earthquake before?
- Do you know the impact of earthquakes on people, buildings and streets?
- Is there an evacuation plan in (your school, place of work)?
- Does your family has plan for disaster management?
- Do you know how can we prepare an emergency bag?

Exercise 1 - A "write your comments"

The trainer shows a short movie concerning the proper actions in case of earthquakes, which explains what you should do before, during and after the earthquake in the following places (in the home, school, office or in the street).

The trainer should ask participants to write their notes on the movie, and to be discussed after the end of the film.

Note to trainer:

- Trainer should divide participants into three working groups according to their number, so that each group writes notes of what to be done before, during and after the disaster. After that the members of the same group discusses their notes.
- A spokesman is appointed from each group to share the results with other groups.
- The time of exercise is an hour.

Ask the following questions (question within the showed movie)

- What are the right actions towards the earthquakes before they occur if you were at home, school, office or in the street?
- What are the right actions during earthquakes if you were at home, school, office or in the street?
- What are the right actions after earthquakes occurrence if you were at home, school, office or in the street?

The right actions to be followed before the earthquake hits:

1. At School or Office:

- The administration and teachers at school and the management in public and private institutions and civil society institutions should design emergency plans before earthquake hits.
- The administration and teachers at school and the management in public and private institutions and civil society institutions should conduct evacuation drill at regular base (twice a year).
- The administration and teachers at school and the management in public and private institutions and civil society institutions must investigate possible impact of earthquakes on the school, place of works, students and employees.
- The administration and teachers at school and the management in public and private institutions and civil society institutions must take into consideration the more vulnerable groups such as female, pregnant women, people with special needs and elders while developing emergency plans.



2. At Home or Office:

- Ensure the existence of adequate amount of drinking water.
- Discuss with your family or your colleagues in the office earthquakes and how to avoid its impact.



- Arrange your furniture at home and office in a way that allows easy movement, and discover the most appropriate places for protecting yourself in case of earthquake.
- Fix shelves and storage containers and ornamentals that prevent tip over or fall of heavy objects from above.
- Share your family at home and collages at office how to shut down electricity power and water and gas pipes in case of emergency.
- Make sure that the emergency and first aids bags are ready. For pregnant women make sure that you have all you need during pregnancy or the birth (ex. vitamins and suitable cloths)
- For women, make sure that you have adequate inventory of your monthly required hygiene stuff.
- Keep all the papers and important documents in a safe place (certificates, family card, bonds, property and contracts) at home and place of work.

Exercise 1 - B "write your comments"

Choose your partner and think together within two minutes, the most important materials to be included within the emergency kit and first aid bag, you can use pictures below

Five people will be chosen to share their result



The Right Actions to be Followed During the Earthquake:

1. At School:

- Act quietly and don't panic and self-control
- Stay away from windows of the school
- Protect your body (hide under tables or desks)
- If you were in the school yard be away from the building.
- Stay away from electrical wires and towers
- Avoid the stampede and run and do not talk during the evacuation.
- Don't return to scene of the disaster before it is cleared.
- When you can, help colleagues of special needs.



2. At Home or Office:

- Don't panic or confused, sometimes the impact of the panic and confusion could be more than the impact of damage of buildings.
- Leave the doors open, and don't rush outside.
- Protect your body (hide under tables or desks)
- Try to shut down electricity power and water and gas pipes.
- Don't use elevators, use only stairs.
- Do not use lighters or matches in order to get light, use battery-powered lamp.
- Stay away from things susceptible to fall due to shaking like chandeliers, shelves and cabinets that are not fixed.
- Do not rush towards the doors, and select the most appropriate time to leave the building.
- There may be a need to evacuate the house, all members of the family, especially if the woman alone or with their children at home should evacuate quickly and not wait until the collapse of the house.

3. At the Street:

- Avoid fear and panic and confusion.
- Stay away from buildings, especially high ones, in order to avoid the possibility of collapse.
- Stay away from and electricity poles and telephone towers and electric power.
- Avoid passing under electric wires.
- Avoid passing over or under bridges.
- Keep away from the beach (there is a possibility of high tides).



The Right Actions that must be Followed after the Earthquake:

- Make sure of your safety as well as the others.
- Wear shoes to protect you from the remains of glass and broken windows.
- Do not use lighters or matches in order to get light, use battery-powered lamp.
- Make sure of the integrity of the plumbing, gas and electricity systems.
- If there is any leakage of gas, open doors and windows, and evacuate the place immediately.
- Left the building quietly and without a stampede.
- Don't use elevators, use only stairs.
- Listen to the radio, follow the urgent instructions and do not listen to rumors
- Help to rescue the injured and evacuate the wounded.
- Beware of possible epidemics in the affected, and don't enter these areas without permission.
- Make sure of the safety and integrity of building where you stay in.



Sand Storms



Sandstorms:

What are the sandstorms?

Sandstorms are fast winds loaded with grains coming from the soft sandy deserts; occur when the wind speed exceeds 5 meters per second. Sandstorms may occur in the city of Aqaba in the autumn season from September to early spring in April.



The Risk of Sandstorm:

- Low visibility and in some cases lack of visibility.
- Stop road transport , increase in traffic accidents, and air transport stops
- Damaging properties and crops.
- Air pollution, which threatens to the respiratory system, especially when those who suffer from asthma and chest infections

Interest

How is the Sandstorm?

(Activity No. 3) The trainer shows short movie on the development and effects of the sandstorms.

Trainer can follow the following links below to watch several movies about sandstorms:

- <http://www.youtube.com/watch?v=-9YTVYrwyic&feature=related>
- <http://www.youtube.com/watch?v=cMGpBmiKEyc&NR=1>

The trainer leads a discussion about what observed in the movie (sandstorms) and the possibility of impact on participants, their land and their facilities?

Note to the trainers:

- The trainer has the choice to choose the appropriate movie (see above links).
- Give the participants two minutes to think before starting discussion
- The time of the discussion does not exceed 15 minutes.

How we behave toward the Sandstorms?**(Exercise 2) "Role Play"**

The trainer write the right actions in 3 colored cards, and divided the participants into three working groups, and ask each group to express these behaviors in one of the following forms (painting, singing, acting).

Before the Sandstorm:

- Know about sandstorms that occurred in the past in the region where you live.
- Contribute to a forestation activities.
- Prepare rooms of the house to be healthy safe when sandstorm blows up by closing the windows tightly to prevent the entry of the dust, when necessary install a device to purify the air.
- When the sandstorm is near to blow, stay at home.
- Ensure the presence of masks and handkerchiefs and goggles to protect eyes

During the sandstorms:

- Avoid going out of the house.
- Wherever you are (home, car, office or at school) avoid turning on air conditioners
- If you have to get out cover your nose and mouth with a mask or wet handkerchief and wear the glasses to protect eyes.
- If you were on the road go to the nearest shelter.
- If you were in a vehicle reduce the speed to a rate commensurate with the level of visibility and you must turn on the appropriate lights.

- If the visibility is low, leave the main road to the path of a sub if possible, then stop and keep the lights on.
- Avoid being in open spaces if you have allergic.

After the Sandstorm:

- Help your family to remove the sand from the house.
- Contribute in cleaning the trees and shrubs from the sand.

Note to the Trainer:

- The time of exercise is an hour and a half includes the preparation and implementation.
- Each trainee must be involved in the exercise
- Each group should recognize a leader, who summarize and display the work of the group after its implementation in front of others for a period of 5 minutes for each group.



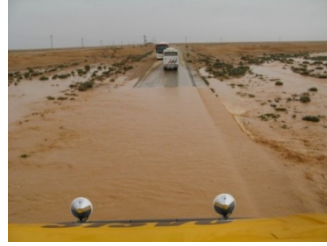
Flash Floods



Flash floods:

What are the flashfloods?

Local flooding that caused by the flow of a large amount of rain in a very short period. Which is usually a result of heavy continuously rain within a short period of time.



The impact of flashfloods:

- The flash flood that occurred in 2006, caused life losses and many wounded among citizens.
- Destruction many houses and facilities, and caused power outages and water pollution.
- Traffic disruption and road closures.



(Activity No. 4) "The types flash floods and their impacts"

The trainer shows short movie on the development and effects of the flashfloods and its impact.

Trainer can follow the following links below to watch several movies about flashfloods:

<http://www.youtube.com/watch?v=PgsfPrTnV4k>

<http://www.youtube.com/watch?v=pqQLtBISD14&feature=related>

They can also view a movie from the links below to identify the impact of the floods on people, buildings, lands and streets...

<http://www.youtube.com/watch?v=gbCz7nKc4JY>

http://www.youtube.com/watch?v=3jZrcjz68_U&feature=related

<http://www.youtube.com/watch?v=TDtBby7IJX0>

Questions for discussion:

- Have you had any such experience before, or similar, or heard about it from your colleagues or your family? Let us know about
- Is there an early warning system for flash floods in your school or your home or your community? What is it?
- Give 10 minutes for each question

**How do we behave toward the flash floods?****(Activity No. 5) "What should I do"**

The trainer reminds the participants of the last flood of Aqaba in 2006 and its impacts. Ask 5 people to tell their experiences with the flood, then the trainer divides the participants into three working groups, and writes three questions on three different cards, namely:

- What can we do before flash floods?
- What can we do during flash floods?
- What can we do after flash floods?

The trainer distributes questions to the groups as one question for each group.

Note to trainer:

- The Exercise is an hour, half hour to prepare and half hour for presenting the results and discussion.
- Each group should present their answer to the other groups

What you should do before flash floods:

- Follow the instructions and warnings by the official media.
- Clean entrances and exits of water in order to facilitate the drainage of water.
- Put the furniture and tools inside home.
- Move people and proprieties (if possible) to the upper floors to protect them.
- If there is evacuation you should close all the main entrances of the houses to protect proprieties.
- Pre preparation for evacuation, especially when women are alone at home or with her children, you should always be ready to evacuate your house if necessary.

What to do during the flash floods:**At home**

- Collect the emergency equipment (lamps, batteries, and audio media (radio) materials, first aid materials, drinking water, sturdy shoes, and a wireless means of communication, a communication plan for emergencies).
- Follow the official media instructions.
- If necessary, evacuate immediately, the woman should not wait until the damage of her house, ask help.
- Follow the instructions of the civil defense.

In the street

- Don't approach the water during bad weather.
- Don't walk or swim at places of water flows.
- Don't passage water in any ways.
- Be away from the narrow valleys in thunderstorms and heavy rain.
- Move up to high area quickly.

- Remember that the flood may extend to long period after the rains and increase in rocky areas.
- Work to change the direction of roads to walk away from heavy rain.
- If the vehicle can't move leave it.

What you should do after the flash flood.

- Check up the buildings from various dangers such as falls.
- Be aware from animals especially harmful ones such as snakes and others.
- Beware of gas leaks and other flammable materials.
- Beware of the dangers of electricity.
- Check up food and drinking water and its suitability for use.
- Get water out from buildings.
- Check up water lines and sewage.