

Module 4 How to Make Self-rescue Evacuation Maps?

Tools/Material:

- OHP/LCD
- Module and Activity Sheet on how to make maps/site plans
- Samples of classroom, school evacuation maps/site plans
- Whiteboard and spidol

Trainer: DASP Consultant

Training objectives

After having finished training, participants will be able to:

1. show the direction points of the compass
2. identify the goods (objects, articles) in the classroom, school and house surroundings which can be hazardous during earthquakes
3. identify hazard places for humankind in the classroom, school and house surroundings when earthquakes occur
4. explain the reason why a certain object or place may be hazardous during an earthquake
5. draw a site plan of an " earthquake alert class"
6. draw a site plan of an " earthquake alert school"
7. draw an surrounding site plan of an " earthquake alert house"
8. present this module to students or training participants.

Training steps:

- Training delivery shall be in line with training steps provided for students. The method is by treating participants as students and tutor as teacher. The steps are as follows:
 - Discuss risks resulting from earthquakes along with relevant photos or slides or newspaper clippings of losses caused by earthquakes.
 - Steer discussion to bring up the question "How can disaster risks be mitigated?"
 - Focus on the answer that one method to mitigate risk disaster is through making evacuation maps of the places where we live.
- Explanation regarding benefit of evacuation maps and what should be done to make them.
- Making evacuation maps by conducting Student Activity Sheets 01, 02, and 03.
- Consolidation by presenting and discussing each respective evacuation map.

Competence

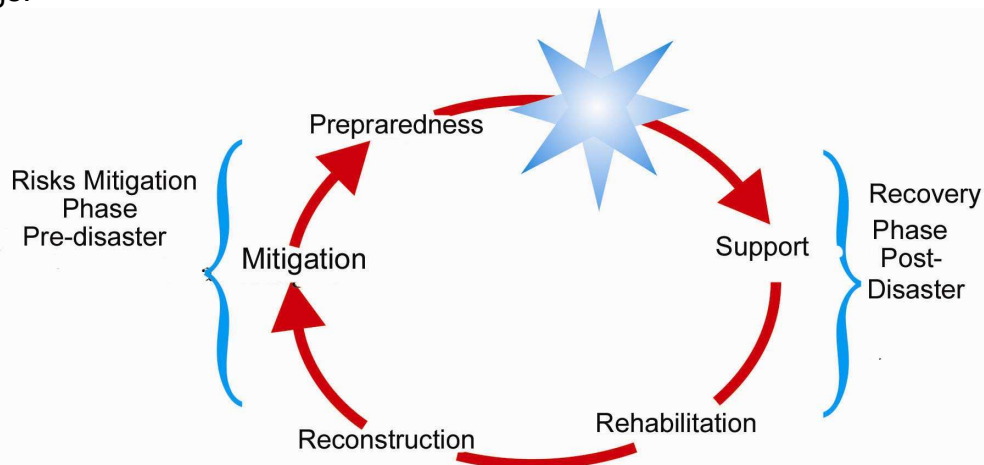
Students will be able to make self-rescue site plans of their classroom, school and house surroundings.

Indicators

1. Students can show the direction points of the compass.
2. Students can identify goods (objects, articles) in the classroom, school and house surroundings which can be hazardous during earthquakes.
3. Students can identify hazard places in classroom, school and house surroundings when earthquakes occur.
4. Students can explain why a certain object or place can be hazardous during earthquakes.
5. Students can draw a site plan of an " earthquake prepared class".
6. Students can draw a site plan of an " earthquake prepared school".
7. Students can draw a site plan of an " earthquake prepared house".

Background Information

Natural disasters caused by earthquakes are disasters that occur abruptly and anywhere in earthquake prone regions, at any moment, and have the potential for causing risks. Ground shaking and trembling during earthquakes seldom cause disasters. Risks frequently occur from debris falling down on victims from damaged buildings.



Picture 1 Disaster risk mitigation cycle

The risks resulting from earthquake events may take the shape of injuries, sickness, threats to life, loss of secured feeling, and may even result in deaths, loss of property and disruption of social activities. To eliminate or at least mitigate risk disasters like these, preventive measures should be undertaken. Picture 1 shows that risk disaster mitigation efforts can be made before a disaster (pre-disaster) occurs and after a disaster (post-disaster) occurs. This module shall place more emphasis on pre-disaster risk mitigation as a form of alertness measure should they sometimes be needed.

Preventive measures can take the shape of realizing preparedness to organize efficient and effective steps. For students, realization of this preparedness shall be the availability of evacuation site plans of classroom, school and house surroundings for self-rescue during earthquakes.

With the availability of evacuation site plans, students will be ready to help themselves as they will be well aware of the situation and condition of places where they currently are. Students well aware of their surrounding condition and situation are accustomed to their surrounding parts (classroom, school or houses), which are representing "hazardous areas", and which are representing safe places, then which are representing safe paths for passing through during self-rescue and where they should go.

Thus it is very important that students know how to make evacuation site plans of their classroom, school and houses. Likewise it is deemed necessary to have evacuation site plans available in the classroom, school, or at home.

Evacuation site plans of classroom, school and house surroundings for self-rescue purpose is a visualization of the condition and situation of the classroom, school and house surroundings which can be used as a guide for rescue and security measures.

Therefore an evacuation site plan should at least include:

1. Layout of earthquake risk disaster prone objects
2. Information on risk hazard prone places
3. Information on safe paths for passage during self-rescue
4. Information on safe places/areas.

Hazard prone objects are objects which location, position, weight, and size can move, shake, or collapse during earthquakes, so that they may crash down on humans or other objects.

Hazard area is a place with many objects that may cause hazard or threat to humans present at this place, or because the characteristics of the place are vulnerable against hazards

Safe place is an area with no or minimized risk hazard. A safe place is usually open space, flat, with no large trees, with no high walls that can collapse at any moment and with no hazard prone objects. Safe places inside a classroom are for instance underneath desks, behind doors, and room corners.

Safe path for self-rescue is a route without any risk or with minimized risk, thus possible and safe to pass through during self-rescue.

An evacuation map will benefit as follows:

1. know safe places/locations in the classroom, school, school and house surroundings;
2. know safe paths for passing through during a self-rescue effort;
3. know safe places for taking shelter;
4. know how to make rescue activities effective.

Hazard prone objects and places in classroom and school surrounding

There are many objects and places in the classroom and school surrounding which are hazardous during earthquakes. Risks may result from shaking, crashing, breaking objects, etc. Whereas a certain area or place can be hazardous due to its location, for instance a hilly terrain and a coastal area. Hills may be hazardous because of landslides, whereas coasts are hazardous against tsunamis.

A hazard area can also result from the presence of unstable buildings that may collapse during earthquakes. Objects and places like these should be avoided in order to eliminate or mitigate hazard possibility. Whenever it is difficult to eliminate hazard, particular objects or places should be avoided.

The suggested security measures are among others:

1. Secure hanging objects in the classroom or school office, or at home.
2. Move heavy objects from cabinet tops to a lower place.
3. Isolate storing heavy objects such as metal from fragile goods.
4. Place heavy objects on the floor.
5. Prevent rounded or cylindrical objects from rolling down.
6. Fasten cabinets to walls.
7. Avoid hazard prone places.

In general students will not be able to take security measures easily in the school surrounding, what they should do during earthquakes is avoid hazard prone places for humans. Regrettably, frequently during earthquakes, people are panicking so that they do not know what to do to rescue themselves, they do not know where to go, and they do not know where the places safe enough for taking shelter are and so on. Here is the important role of an evacuation map.

Before making an evacuation map, observation should first of all be conducted against the places/surroundings, for instance classroom, school and house surroundings. In conducting observation, inventory taking should be made against all objects and where the hazard prone places are. Prediction is then made of hazard probabilities, followed by the designing of appropriate measures and efforts to prevent and mitigate risk probabilities. Table 1 shows samples of objects and places with risk hazard and the suggested coping methods.

Table 1 List of Goods and Places in the classroom hazardous against earthquakes and security measure suggestions.

No.	Objects and Places	Security measure suggestions
1.	Large cabinet	Fasten with hooks and lock the drawers
2.	Trophies on top of cabinet	Move to a lower place
3.	Framed wall pictures	Use wire, hooks, and bent nails
4.	Glass windows	Cover the glass with plastic film
5.	White board	Fasten with hooks against the wall
6.	Books in bookshelf	Fasten bookshelf against the wall
7.	Flagpole	Place on the floor

Security measures against objects and places can be done in different ways. There are measures which are easy and cheap, for instance, fasten a bookshelf against the wall or avoiding certain hazard prone places. There are also complex security measures which are quite costly, for instance the designing and reconstructing of school or housing foundations to make them resistant against earthquakes.

Places and objects already secured may mitigate or eliminate hazards. So there is great chance that people who stay at places or near these objects will be spared from risk hazard.

Risk hazard objects and places in house surrounding

Table 2 List of Objects and Places in the house surrounding that are risky during earthquakes and security measure suggestions.

No.	Objects and Places	Security measure suggestions
1.	Plates on shelf	Take down
2.	Books on shelf	Take down or bind
3.	Glass cabinet	Stick to wall, cover glass with plaster
4.	Gas stove	Detach gas hose, switch off
5.	Water tank tower	Avoid whenever possible
6.	Narrow lanes between houses	Do not pass through whenever possible
7.	Large cabinet	Fasten with hooks and lock the drawers
8.	Family photos etc. hanging on the wall	Use wires, hooks, and bent nails
9.	Glass window	Cover the glass with plastic film
10.	River surrounding	Avoid whenever possible
11.	On top of bridges	Avoid whenever possible
12.	Electricity pole cable	Avoid whenever possible
13.	Railway surrounding	Avoid whenever possible
14.	Underneath roof tile	Avoid, do not stay underneath
15.	Road surrounding	Avoid

Most of the time students are at home, so that most possible they are at home when an earthquake occurs. Therefore students also need to keep evacuation maps at home and house surrounding. Students should also be well aware of hazard prone objects and where they are stored at home. See Table

After we have identified dangerous objects and places, we should also identify the location where those objects are stored as well as the hazard prone places. Through knowledge of such objects/places will make security measures more effective in mitigating and eliminating risks. One benefit example is the making of evacuation maps of earthquake prepared classroom, school and house surroundings.

The making of evacuation maps of classroom, school and house surroundings for self-rescue.

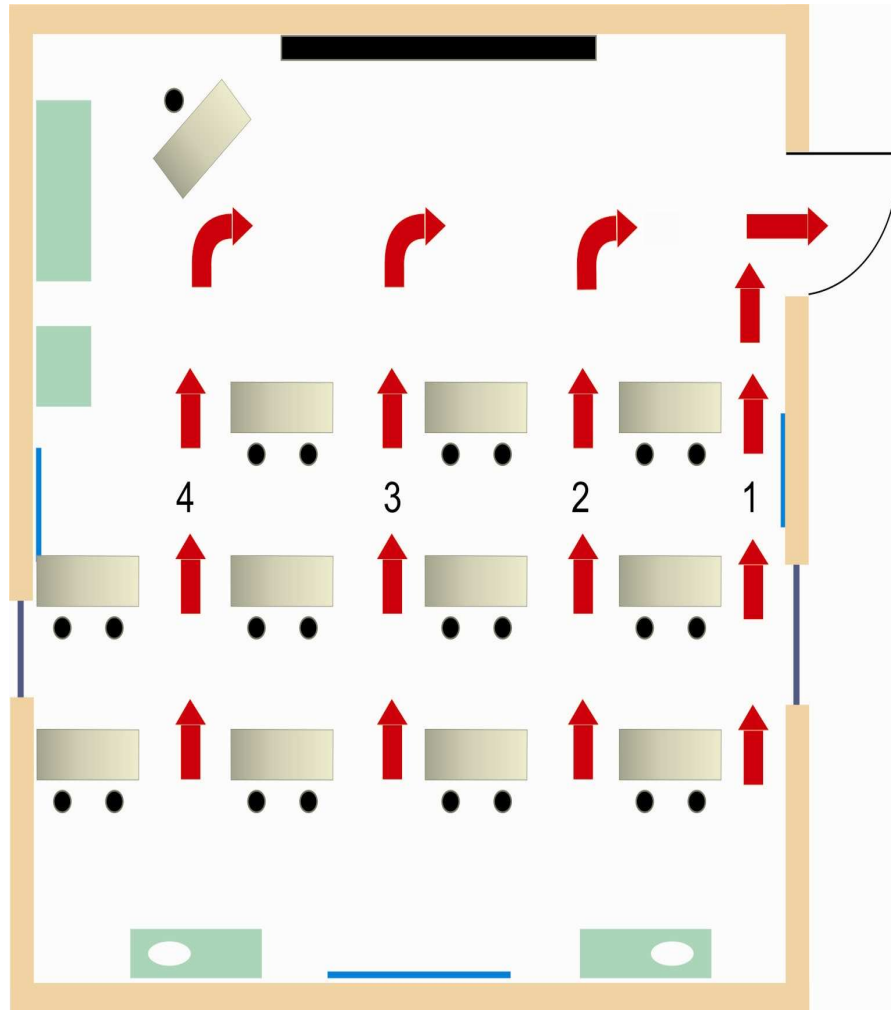
Maps of classroom, school and house surroundings for self-rescue are pictures or site plans that visualize the location, direction, and position of various components within the mapped area.

Picture 2 A Sample of classroom site plan



Caption :

Paintings	small Coupboard	Wall
Blackboard	Door	Plant
Table	Window	Flower Vase
Chair	Books	Trophy
large Coupboard	Books	Dustbin
	Bookshelf	Penholder

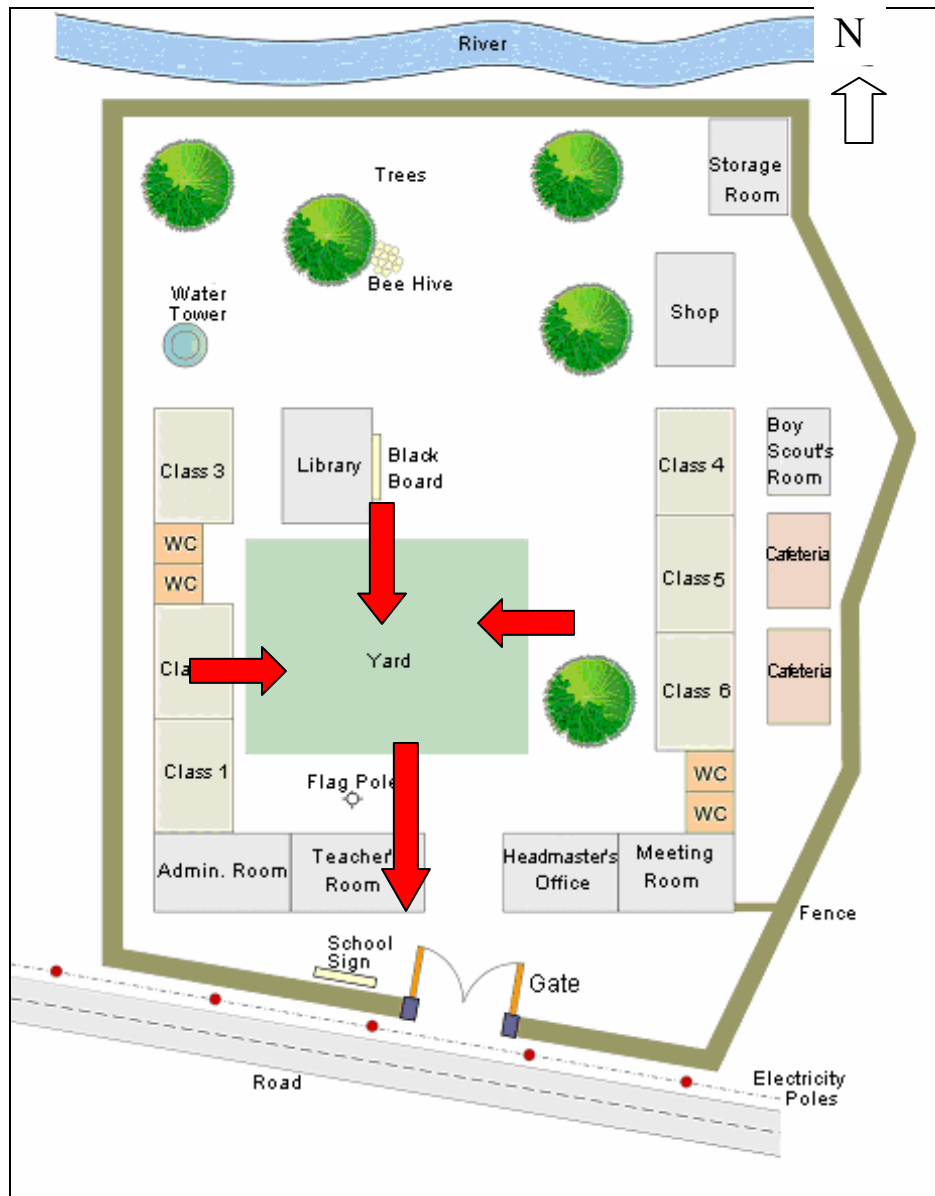


Picture 2 B Sample of evacuation path

The evacuation site plans of classroom, school and house surroundings for self-rescue purpose include information regarding all objects existing in the classroom, school and house surroundings, their risk hazard, location of safe areas, location of hazard areas, and the locations where students should exercise caution. Such kind of site plan contains a guideline regarding self-rescue paths, where to come together and take shelter when earthquakes occur.

Pictures 2 A and B show samples of classroom evacuation maps, and Picture 3 shows a sample of a school surrounding site plan.

Sample of a school surrounding site plan.



Picture 3 Sample of a school surrounding site plan and evacuation path.

The following steps are necessary to make earthquake alertness evacuation maps of classroom/school surrounding/house surrounding:

1. Register all objects and places in classroom, school or house surroundings that contain risk hazard. This risk hazard identification can be done through observation of the position of goods, stability of the goods, sturdiness, weight, and shifting possibility during an earthquake occurrence.

2. Reach agreement for using symbols in the maps to depict a mapped object at a location. Symbol samples are for instance arrows to show directions, small rectangulars for desks, small circles for chairs, etc.
3. Identify safe places in classroom, school and house surroundings. A place in the classroom or school surrounding or house surrounding is considered safe, when there are no risk hazard objects at the place or the place is free from falling debris. Therefore safe places are usually open or flat space, without large trees or earthquake prone buildings.
4. Draw site plans of classroom, school and house surroundings, by using classroom walls as reference to place objects or apply markings. When making a site plan outside the room, fix the direction, school/house position by using natural objects or direction points of the compass as orientation point. When using direction points of the compass, always place the north position on the upper side of the site plan.
5. Apply markings on site plan places in classroom, school and house surroundings by numbering, based on places to be first evacuated.
6. Discuss and then do arrow marking to mark safe evacuation paths for passing through during earthquakes.
7. Discuss agreement on a place for taking shelter during earthquakes, apply marking of that place.
8. Also discuss regarding a certain preferable place to come together during and after earthquakes. This is very important because it is most possible that during an earthquake everybody is panicking so that they become separated from one another.
9. If needed, an alternative evacuation path can be chosen which should only be used if the main evacuation path cannot be used.
10. All members of the school community should agree on one place to come together during earthquakes.

Learning Activities

a. Tools/Material

- Several photos/pictures depicting damage caused by earthquakes
- Sample of a classroom evacuation site plan
- Sample of a school surrounding site plan
- Song text for scouts North-North East
- Colored pencils (Red, Yellow, and Green)
- Drawing paper

b. Preparation

- All tools and material should be ready before the learning activity begins, if not available, probably teacher can make by him/herself, for instance a “fictitious” classroom site plan

d. Learning Steps

Initial Activities

- The learning activity is started by teacher by giving information about earthquakes and through questions and answers, teacher identifies hazard.
- The teacher emphasizes that when an earthquake occurs, ground surface may be shaking and trembling. Teacher also emphasizes to students that earthquake risk hazard can take the shape of injuries, loss of property, fear, and even deaths, and concur with opinions made by students, by showing pictures of damage caused by earthquakes, for instance as follows (or any other suitable pictures):



Pictures 4 and 5 Damage caused by earthquake at Nias Island.

- Teacher also says that risks are often not caused by the shaking or trembling of the earth’s surface, but on the contrary by falling objects or getting stricken by heavy articles or debris from damaged and fallen objects.

- Teacher informs that to prevent or at least mitigate possible risk hazard, we should be well aware of our surroundings, such as our classroom, school, and houses.
- Teacher informs that students will today learn about their surroundings and learn how to make “earthquake alert” evacuation maps of the classroom, school and house surroundings.

Core Activities

- Teacher divides students into groups of 3-4 persons and provides information that they should work in groups to identify all objects existing in the classroom, and then discuss the safe places in the evacuation plan that the teacher has already distributed, and begin with making an evacuation plan of their own classroom.

Activity-1: Register all risk hazard objects in the classroom

- Teacher distributes Student Activity Sheet-01 on risk hazard objects in the classroom.
- Students are asked to discuss what is likely to happen with those objects during an earthquake.
- Each group is requested to work in line with the guideline stated in Student Activity Sheet-01 that is already distributed. They are also requested to record obtained information onto the table enclosed with the Student Activity Sheet.
- Follow observation table sample to record observation results, and student discussion results.

No.	Names of objects	Estimations during earthquake	Security measure suggestions
1.	<i>Wall picture</i>	<i>Shaking or falling down on someone or its glass broke and injures someone</i>	<i>Secure its hanger with wire or bent nail</i>
2.			
3.			
4.			
5.			

- Each group is requested to make a conclusion based on information obtained of risk hazard places in the classroom and which places do not have or are of less risk hazard. Ask them to record their answers in Student Activity Sheet.

(Answers may be variable, for instance: Risky places are places in the classroom with many hanging objects that can fall down, and crash during an earthquake. Whereas less risk hazard places or safe places in the classroom are those without many hanging objects that may fall down or crash).

- It is deemed necessary to inform students that in fact during an earthquake the school itself may collapse and fall on all objects inside. Then ask them to discuss how to rescue themselves, or what they should do, and then write discussion results into the space provided in the Student Activity Sheet.
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(Most possible student answers are variable, for instance running out of the classroom or taking shelter underneath a strong desk).

Activity-2 Identify safe places and hazard prone places in the classroom

- Based on information obtained by students during Activity -1, they are requested to define safe or hazard places onto a classroom site plan, by different colors. For instance red color to indicate a hazard prone place, yellow for caution, and green for safe area. Activity -1 Student Activity Sheet-02.
- Each group is also requested to discuss safe paths for passing through during earthquakes. They can provide suggestions for improvement of the path already mentioned on the map.
- They are requested to discuss their work results before exchanging these with other groups for the purpose of receiving criticism and input.

Activity-3 Make a classroom evacuation map regarding self-rescue

- Students are informed how to make site plans, for instance north should be placed on top, a tree is illustrated with a certain symbol, a room is illustrated with a square etc.
- They are asked whether they can still remember the direction points of the compass. To refresh their memory and motivation, invite them to sing "Song of the scouts"

*East – southeast
South – southwest
West – northwest
North – northeast*

by pointing to the directions, teacher should first sing the song so that students can follow along.

- In order to clarify information, teacher can make use of the school surrounding site plan sample (Picture 2).

- Students are requested to make their own classroom and school surrounding site plans by applying symbols of certain objects and places in line with the true classroom condition. So is also the case with school surrounding, students should draw buildings or trees or other natural signs at positions which are more or less in line with the original condition.
- Students are requested to apply color markings against the places in the classroom and school surrounding in red, yellow, and green for hazard, cautious, or safe places.
- Together with students, teacher concludes today's meeting, among others:
 - *There exist hazard prone objects and places in the classroom and school surrounding.*
 - *Hazard occurs as the result of unstable condition of objects, which may easily fall down or collapse, or easily break in pieces during the shaking and trembling.*
 - *In order to mitigate risk hazard, these objects should be stabilized as a measure of security.*
 - *Security measures are for instance tying up, strengthening by nails.*
 - *Because risk hazard objects are placed in different places in the classroom, the classroom places also have different security levels.*
- Teacher gives homework to each student to make his/her own house site plans with suggestions from parents in order to make their houses earthquake prepared. Teacher distributes Student Activity Sheet-02 for carrying out this task.

Assessment

Assessment includes cognitive, cooperation, and performance. Cognitive is assessed through written or verbal tests, cooperation is assessed during the learning process through observation, whereas performance can be assessed during the learning process when making site plans as well as the actual site plans produced.

Sample of cognitive assessment

1. What makes a certain place in the classroom unsafe when an earthquake occurs?
2. According to your estimation, the school roof is not strong enough to withstand shaking during an earthquake. What do you suggest should best be done during an earthquake while you are still in the classroom?
3. Why are you not recommended to take shelter under trees during an earthquake or why should you not stay above a bridge?

Sample of sheet to access site plans made by students

The aspects assessed are among others:

1. Completeness of site plans in line with true conditions
2. Defining accuracy of hazard, safe, and cautious places
3. Accuracy of evacuation/self-rescue paths, taking the security into account.

Portfolio Assessment Sheet

Name:

Place a checking mark (√) in the appropriate scoring boxes

No.	Assessed aspects	Scoring			
		4	3	2	1
1.	Heading of site plans				
2.	Indicating north sign by pointing upwards				
3.	Distribution of places and object positioning in proportion with original				
4.	Defining of hazard and safe locations in line with and meeting the given color criteria				
5.	Evacuation paths are made and meet criteria for safe evacuation paths				

Assessment criteria:

4 if this component is available, correct, and complete

3 if this component is available and correct but incomplete

2 if this component is available, but has incorrect aspect

1 if this component is not available.

Sample of assessment for cooperation

Observation Sheet for Cooperation within Groups

The numbers in the boxes represent students as group members. Observe interaction or cooperation such as helping and discussing with one another. Make an arrow sign to connect the interactive students.

By the end of the activity, the quality of cooperation and contribution of a student can be counted in a quantitative manner based on the number of arrows aiming at the student.

1

2

3

4

References

Anonym. 1992. *Tinjauan Umum Manajemen Bencana*. Tanpa Kota: UNDP Program Pelatihan Manajemen Bencana- UNDRO.

Encarta Club. 2004. "Earthquake Destruction" in *Encarta Encyclopedia Deluxe. 2004*. Microsoft, Encarta.com

Tim Program Kesiapan Sekolah terhadap Bahaya Gempa – LPPM ITB. 2004a. *Program Kesiapan Sekolah Terhadap Bahaya Gempa, Buku 2: Bahan Ajar Guru*. Jakarta: Depdiknas.

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Attachment to Module 4 Student Activity Sheet – 01

TOPIC: Risk hazard objects in the classroom and school surrounding

Objektives:

1. Students will be able to identify objects in the classroom and school surrounding which are presenting risk hazards.
2. Students will be able to forecast types of risks which may be caused by certain objects in the classroom and school surrounding during an earthquake.
3. Students will be able to formulate suggested measures for mitigating or eliminating risk hazard caused by certain objects in the classroom and school surrounding.

Activity Steps:

3. Work in groups of 3-4 students each. Observe overall surrounding of your classroom, then list classroom objects that may present risk hazards should there be an earthquake. Write output of your work results into box 2 of the provided observation table.
3. Discuss with your friends regarding risk types that may emerge from these objects if there is an earthquake. Write your discussion results into box 3 of the same table.
3. Discuss also with your friends what measures can be taken to prevent or mitigate risk possibility. Write your discussion results into box 4 of the same table.
3. If not clear enough, please pay attention to the sample stated in line 1 of the same table.

3. Discuss with friends within your groups which places in your classroom or school surrounding present higher or lower risk hazards, or the places that are safe and not hazardous. Use the information you have collected in the table. Write your discussion results into the provided space.
3. Discuss also with friends within your groups, what measures you are going to take if you are in the classroom when an earthquake occurs. Write your answers into the provided space.
- 3.

No.	Name of objects	Estimation during an earthquake	Security measure suggestion
1.	<i>Wall picture</i>	<i>Shaking or falling down on someone or its glass breaks and injures someone</i>	<i>Strengthen hanger with wire and a bent nail</i>
2.			
3.			
4.			
5.			
6.			
7.			

- What are the places in the classroom and school surrounding classified as safe, hazardous and very hazardous?

- What measure are you going to take, if you are still inside the classroom during an earthquake?

Attachment to Module 4

Student Activity Sheet - 02

TOPIC: Classroom Evacuation Site Plan

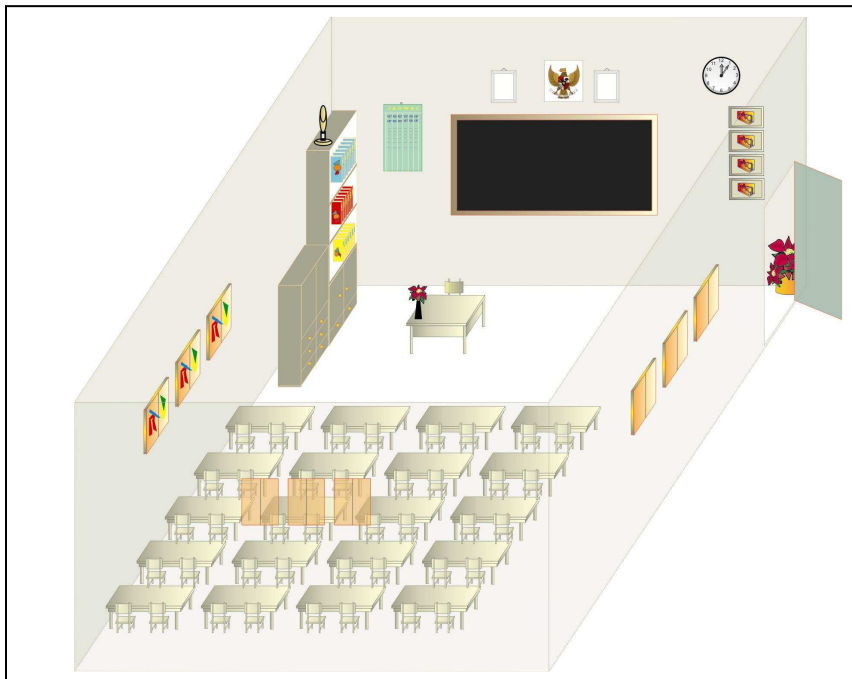
Objectives:

1. Students will be able to indicate the places in the classroom and school surrounding that present risk hazard as: hazardous, quite hazardous or safe places, whenever they are presented with a classroom site plan or school surrounding site plan.
2. Students will be able to make their classroom and school environment plans.
3. Students will be able to indicate the places in their classroom that are very hazardous, quite hazardous, and safe (not hazardous) on the site plan that they have made.

Activities:

Activity-1: Indicate the safe places and hazardous places in the classroom

1. Work in groups of 3-4 students each. Pay attention to the classroom picture which is hereby presented. Use the information that you have collected in student activity sheet 01 regarding objects and their risk hazard.
2. Apply red colors to places that according to you are very hazardous during earthquakes, apply green color for safe places, and keep white for places with a slight risk hazard.



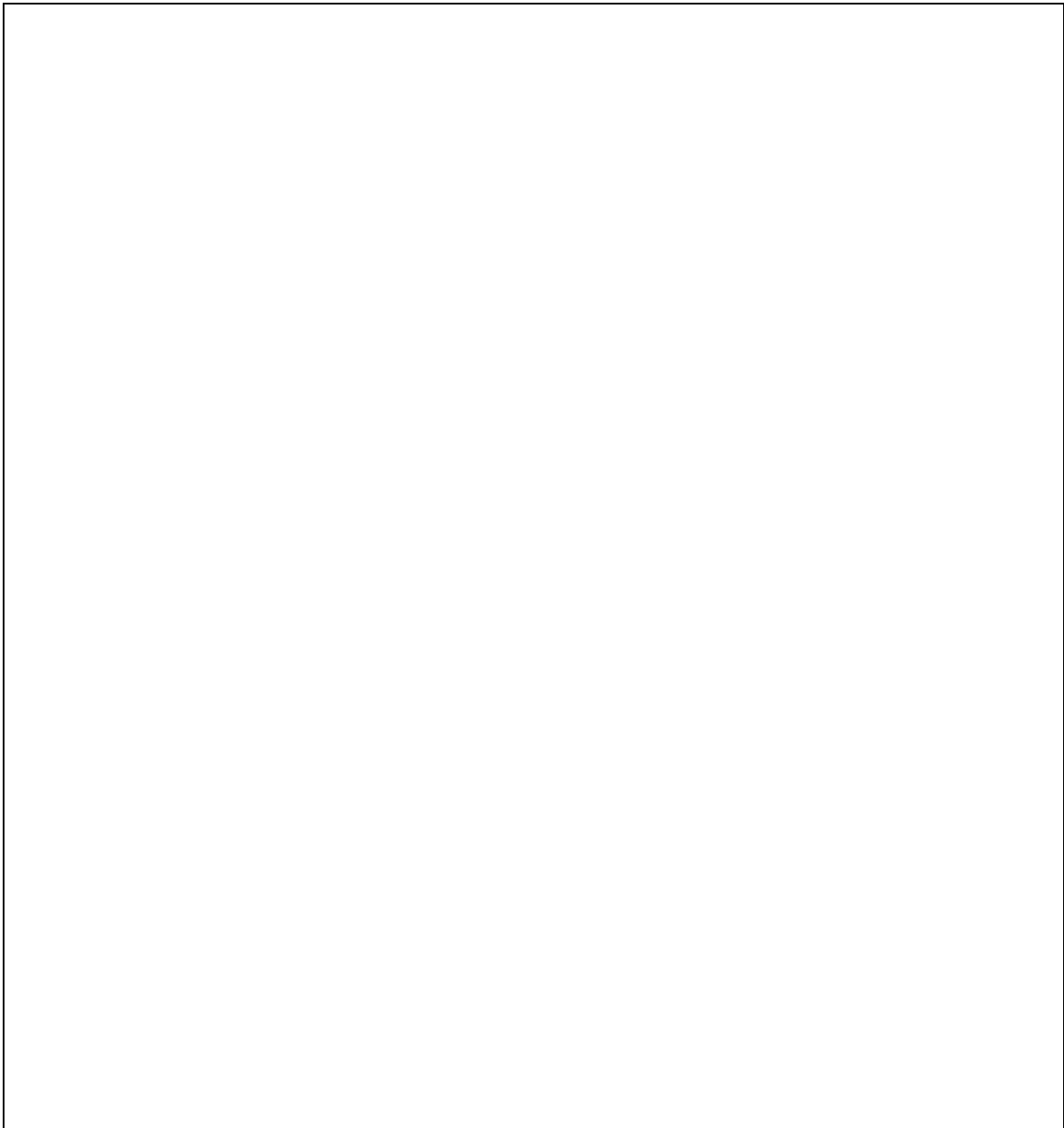
Create a path for your self-rescue when an earthquake occurs by applying markings using arrows on the site plan.

3. Why did you choose this path? _____

Activity-2: Make an Evacuation site plan

1. Make your classroom site plan on the space provided; use symbols to illustrate the objects inside.
2. Apply red color for places that according to you are very hazardous, green color for safe places, and keep white for places that are slightly hazardous.

Drawing space:



3. Draw a safe path for passing through during an earthquake, by applying arrows on the site plan that you have made.

Attachment to Module 4 Student Activity Sheet- 03

TOPIC: House Surrounding Evacuation Site Plan

Objectives:

1. Students will be able to make their own house surrounding evacuation site plans
2. Students will be able to indicate the places in their school surrounding that are very hazardous, quite hazardous, and safe (not hazardous) on the site plans they have made.

Activity Steps

Activity 1: Identify risk hazard objects in house surroundings

1. Within your house surroundings, register all existing objects; think about hazard possibilities when an earthquake occurs. Write your work results into columns 2 and 3 of the following table. You may extend the table in line with the objects you have defined.

No.	Name of objects	Estimation during an earthquake	Security measure suggestion
1.			
2.			
3.			
4.			
5.			
6.			

Activity 2: Making a house surrounding evacuation site plan

1. Make site plans of your house surroundings on the space provided using symbols to illustrate the position of objects inside.
2. Apply red color for places that according to you are very hazardous, green color for safe places, and keep white for less hazardous places.
3. Drawing space:



4. Create safe paths to pass through for self-rescue during an earthquake, by applying arrows on the site plans that you have made.
5. Apply colors: red for the places that according to you are very hazardous during an earthquake, apply green color for safe places, and keep the places with a slight risk hazard white.
6. Create safe paths to pass through for self-rescue during an earthquake, by applying arrows on the site plans that you have made.

Module 5 What must be Done During and After an Earthquake?

Tools and material:

- Transparent OHP sheets
- Overhead projector (OHP)
- Classroom evacuation map
- School surrounding evacuation map
- Poster of self preservation
- Poster of an earthquake's impact
- Whistle and siren if available

Trainer: DAPS Consultant

Training Objectives:

After having finished training, participants will be able to:

1. identify measures that should be taken during the occurrence of an earthquake
2. identify measures that should be taken after an earthquake has occurred
3. conduct a self-rescue simulation
4. conduct an evacuation simulation
5. present this module to students or training participants

Training steps:

Training delivery should follow training module steps for students, i.e. by treating participants as students and the tutor as a teacher.

Competence:

Students will be able to take evacuation measures towards a safe place.

Indicators:

- Students will be able to identify measures that should be taken during an earthquake
- Students will be able to identify measures that should be taken after an earthquake
- Students will be able to conduct a self-rescue simulation
- Students will be able to conduct a evacuation simulation

Background Information

We never know when an earthquake will occur. Earthquake events cannot be avoided or prevented, and may occur abruptly at any moment, any time, unexpected and without warning, and also during school hours.

During a large earthquake, at first we may feel slight vibrations for a few seconds which may turn into shaking so strong that we will not be able to stand erect any longer. Or we may also be jolted straightaway by a dreadful first shock, a shock as strong as if our house is being hit by a bulldozer. Then, one or two seconds later we feel the earth shaking, and like the first condition, we feel difficulties to stand erect or have to walk staggering to move from one place to another.

What measures should we take during conditions like these? A wrong measure can be fatal and may result in a larger loss. Therefore, we should be able to take quick and accurate measures during an earthquake.

In order to avoid undesired incidents, i.e. deaths or injuries in school surrounding during an earthquake, the teachers should understand the preferable measures to be taken in school surroundings to protect the school community from hazardous threats resulting from earthquakes that may occur any time.

The necessary measures to take before and after an earthquake are meant to help participants understand how to respond in a quick, accurate, and safe manner during an earthquake, and what should be done after the earthquake has stopped.

a. During an earthquake

What measures should we take to save ourselves during an earthquake? The measures are much dependent on the situation that we are in. The following are measures to take during an earthquake, depending on what location we are at during the occurrence.

1. At home (inside a building)

Keep calm inside your room; do not try to run out of your house unless you are close to a door, in which case you should run out of the house and to an open and flat space. A vast field or open space around the house is quite a safe place for self-rescue.

If you happened to be trapped inside a room, be alert of any possible collapsing walls. Take shelter underneath a sturdy table or a safe place in case cabinets or walls should collapse, until no more shaking is felt.

2. At school

The teachers may ask students to take shelter underneath their tables/school desks. After the shaking stops, wait until the teacher gives instruction that the situation is safe again. Protect your head with your schoolbag and get out from underneath the table, then leave the classroom quickly as demonstrated during the evacuation exercise. Do not scramble when leaving the classroom. Pay attention to the surrounding conditions and walk out of the building calmly, without panic, but remain alert and cautious.

3. Outside the room

Do not try to enter your house or building, but leave for an open space/vast and flat. Avoid presence near structures, tall trees, brick walls, high buildings, electrical cables and other objects prone of crashing or collapsing. Keep your distance from hills, slopes, and coastal areas. Try to remain calm and alert, draw deep breaths.

4. Inside vehicles

If you are driving a car, stop the car by the roadside. Avoid stopping your car underneath electrical cables or near a multistoried building, above a bridge or underneath a flyover. If you are forced to stop in an unsafe area, get out immediately, and keep your distance from the car. Remain cautious, provided there is ground fissure or fire.

It is advisable that passengers ask the driver to stop the car in a safe area, and remain in the car by holding on tight.

5. Inside a multistory building

Descend by using emergency stairs. Do not use the elevator. Do not panic, but remain calm. Use existing objects to protect your head from falling debris.

6. In the kitchen

Switch off the stove if it is on at the time. Detach the gas hose from the gas stove. Immediately search for shelter at an area safe from possible ruins.

b. After an earthquake

A moment after an earthquake abates, pay good attention to the situation around you, and make sure that there are no more dangerous objects falling down. Immediately carry out evacuation i.e. self-rescue measure to move to another place which is safer. A schoolyard, field, or an open space can present an appropriate evacuation place.

In order to make security measures effective, everyone should realize his/her respective role. The teachers have the responsibility to assist and guide all students when taking evacuation measures. Students carry out evacuation measures and help themselves by following the teacher's instructions.

In order that students are accustomed and take evacuation steps without any doubt when an earthquake occurs, or after an earthquake abates, also in facing the possibility of aftershocks, it is necessary for students to undertake routine evacuation exercises.

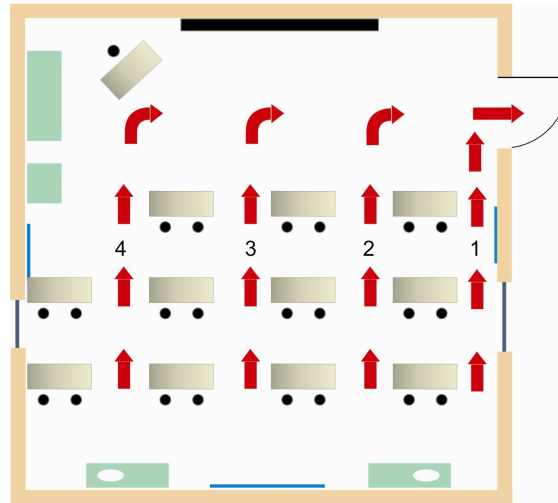
Before carrying out evacuation exercises, the teachers should understand the basic evacuation principles for students beforehand, which are:

- An evacuation must be instructed by the school headmaster, teachers, or another appointed person, and not done alone.
- The teachers should count the total number of students before they leave the room and after they arrive at the shelter place.
- It should be realized, that maybe more hazard exists outside the room than inside the room. Therefore be cautious about ground fissures, broken electrical cables, water flooding.
- There might be an electricity blackout; flashlights will be needed for the evacuation. Do not use candlelight or lanterns.
- In order to anticipate the time length of staying at the shelter place, an adequate supply of instant food and medicine (P3K) is needed.
- Before deciding to evacuate, a teacher should know the safest route to leave the building and the existence of a safe place beforehand to come together. Use the evacuation map to facilitate evacuation measures.

Evacuation procedures for students in the school include:

1. Leave the classroom in a disciplinary fashion, starting with the seating position closest to the door. The teachers should leave last. Do not forget to take P3K equipment along.
2. If there are injured students who are unable to leave on their own, the teacher should ask for help from others to take them outside the classroom.
3. Do not panic, remain cautious. Protect your head with your schoolbag or other suitable objects. Get out in a disciplinary fashion towards a safe field/schoolyard.

4. Make sure of that the total number of students before they leave the room and after they arrive at the shelter place matches.
5. If the total number is short from the previous total, the teacher should search for the absent students
6. The teacher should remain at ease and capable of calming down students as well as coordinate with other teachers.
7. The teacher coordinates with the local disaster management unit (*Satkorlak*) and should always keep abreast of information via radio or other available ways of communication.



Picture 1. Evacuation route in the classroom

Teachers ought to remain calm during the evacuation process, and not panic as this will induce students to panic as well. Talk calmly and give clear instructions to the students during the evacuation process.

Panic, anxiety, and shock, often result in physical symptoms like nausea, feeling dizzy, or stomachaches.

An evacuation exercise/simulation may also cause nausea, feeling dizzy, or stomachaches to some children. When any of this happens, teachers should be well prepared to deal with it, for instance:

- a. Explain to the students that this activity is only an exercise
- b. Ask children not to panic
- c. Not make students feel distressed

After the evacuation exercise/simulation is finished, explanations should be given to students regarding:

- a. The importance of the measures already taken.
- b. The mistakes that have occurred and how they can be corrected.
- c. Discussing alternative evacuation measures that are also effective for the school.

d. Demonstrating self-rescue activities.

Learning Activities

a. Tools/Material:

- Classroom evacuation map
- School surrounding evacuation map
- Poster of an earthquake's impact
- Poster regarding self preservation
- Schoolbag
- Whistle

b. Preparation:

Prepare classroom and school surrounding evacuation maps from previous activities already containing evacuation paths from classroom to safe places in the schoolyard or other safe places.

c. Learning Steps

1. Initial Activities

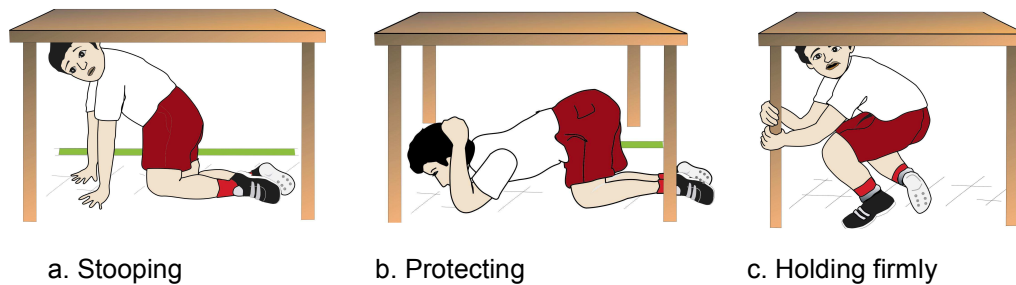
The teacher asks students what should be done if they are in school during a sudden earthquake. Let students answer according to their own opinions and teacher writes student answers on the white board.

The teacher shows the risks that may occur when students are in the building (classroom) during an earthquake. He/she then asks what should be done to mitigate risks.

2. Core Activities

Activity 1 During an earthquake

- a. Explain to students what measures should be taken during an earthquake, among others: do not run out of the room, but carry out self-rescue efforts immediately without waiting for the teacher's instruction.
- b. Teacher shows a poster regarding self preservation (stooping, taking shelter, holding out), while asking students to imitate what is drawn on the poster, while the students observe.
- c. Measures which should be taken by students by demonstrating the following movements:
 - Stooping (squatting) and taking shelter underneath tables (Pc. 2a)
 - Placing both hands above the head while stooping (Pc. 2b)
 - Holding table legs firmly with both hands (Pc. 2c)



Picture 2. Self preservation during an earthquake

- d. The teacher invites all students to simulate the movement given as example in step c, with the following stages:
- 1) Students are requested to repeat them while in their respective chairs.
 - 2) The teacher informs that a whistle sound will indicate that an earthquake is occurring. During the earthquake students are asked to exercise self preservation as already demonstrated, and may not leave the room until instructed to do so by the teacher.
 - 3) The teacher blows the whistle as the signal that an earthquake is occurring; students start to take shelter underneath the tables.
 - 4) After all students have taken shelter, teacher checks correctness of self preservation by the students and gives feedback.
 - 5) The teacher asks the students to leave the self preservation place.
 - 6) For consolidation, teacher and students repeat phases 1) up to 5) until all procedures have been executed in a harmonious, quick, and safe manner.
- e. After activity 1) up to 6) is finished, students are requested to return to their respective chairs.

Activity 2. Simulation of evacuation after an earthquake abates

- a. The teacher explains evacuation procedures, including when students should leave shelter, i.e. after there is an instruction, leaving via the path according to the evacuation map while protecting their heads with available objects for instance schoolbags, towards the agreed safe place.
- b. The teacher and the students carry out evacuation simulation with the following phases:
- 1) Students are again requested to take shelter as in Activity 1 Stage 3).
 - 2) The teacher gives an instruction to students to leave shelter during an evacuation process.
 - 3) Students are requested to leave the classroom, walk in a disciplinary fashion (do not run) through the path made during the previous activity, to the previously agreed on safe place.

- 4) Before the teacher leaves the classroom, he/she should make sure that there is no student left behind in the classroom. The teacher leaves the classroom last.
- 5) In the field/evacuation place the teacher recounts the total number of students.
- 6) The teacher provides a directive to students on what to do at the evacuation place; do not leave the evacuation place. In order not to panic the teacher invites students to participate in many activities such as praying and singing.
- 7) Evacuation is finished.
- 8) For the purpose of consolidation, the teacher and students repeat stage 1) up to 5) until the whole procedure is completed in a harmonious, fast and safe manner.
- 9) ***If there are students who are injured and cannot walk out of the room they should be assisted. The method of evacuating victims and providing first help is discussed in module 6 regarding procedures and equipments for first help.***

- c. Discussion regarding the just implemented self preservation exercise and evacuation activity can be carried out outside or inside the classroom.

Give opportunity for students to discuss the just implemented activities. Encourage students to raise questions and discuss self preservation methods.

- Together with the students, the teacher concludes today's meeting, amongst others:
 - During an earthquake, students should implement self preservation activities immediately without waiting for instructions from the teacher.
 - After the earthquake abates, measures to evacuate students from the classroom are implemented after an instruction is given by the teacher.
 - At the evacuation place, appropriate activities are conducted to lessen panic and stress.

3. Final Activity

Teacher summarizes the learning results by requesting students to answer the following questions:

1. What measures should be taken during an earthquake, while your are in the classroom?
2. Demonstrate self the preservation measures which should be taken during an earthquake (take shelter inside the classroom).
3. What measures should be taken after an earthquake occurs, while you are in the classroom?

The skill of conducting an evacuation process will be assessed through observation during the learning activities.

References:

Anonym. 1992. *Tinjauan Umum Manajemen Bencana*. Tanpa Kota: UNDP Program Pelatihan Manajemen Bencana-UNDRO.

Tim Program Kesiapan Sekolah terhadap Bahaya Gempa – KPPMB ITB. 2004a. *Program Kesiapan Sekolah Terhadap Bahaya Gempa, Buku 2: Bahan Ajar Guru*. Jakarta: Depdiknas.

Tim Program Kesiapan Sekolah terhadap Bahaya Gempa – KPPMB ITB. 2004b. *Program Kesiapan Sekolah Terhadap Bahaya Gempa, Buku 3: Lembar Kegiatan Siswa*. Jakarta: Depdiknas.

Module 6 Procedures and Tools for First Aid

Tools/Material:

- First Aid Kit,
- Alternative First Aid equipment,
- Rehearsal equipment

Trainer: DAPS Consultant

Training Objectives:

After having finished training, participants will be able to:

1. explain the principles of administering first aid
2. explain the components of first aid
3. explain the procedures of administering first aid
4. explain different types of injuries
5. explain methods of dealing with injuries depending on their type
6. identify the necessary tools to be prepared during first aid
7. identify objects in the school surrounding to be used as means to administer first aid
8. identify tools that should be prepared in anticipation of earthquake hazard
9. simulate first aid
10. present this module to training participants.

Training Steps

Training delivery shall be in line with training steps provided for students through the method of treating participants as students and the tutor as a teacher.

Competence

Participants will be able to understand the principles and procedures, as well as how to use the tools suitable for administering first aid.

Indicators

1. Explain the principles of administering first aid.
2. Explain the components of first aid.
3. Explain the procedures of administering first aid.
4. Explain different types of injuries.
5. Explain methods of dealing with injuries depending on their type.
6. Identify the necessary tools to be prepared during first aid.
7. Identify objects in the school surrounding to be used as means for administering first aid.
8. Identify tools that should be prepared in anticipation of earthquake hazard.
9. Simulate first aid.

Background Information

A. Introduction

During a disaster, there will definitely be victims, because an event is still not considered disaster if there are no victims, such as deaths, damage to property, social structure, infrastructure or environmental damage. Sometimes the number of victims is not the direct result of the disaster, but victims can still fall because of inappropriate first aid. Therefore, we should improve our understanding regarding the principles and procedures as well as skills in dealing with disaster victims.

A moment after the occurrence of a disaster, while panic and total confusion still rules, we are demanded to keep our calmness and thoughtfulness in coping, especially when we are in the midst of a disaster that happens suddenly. If we experience a disaster and are spared, we should be willing to help the victims, and communicate their condition to outsiders for the purpose of receiving help and coordination of other problems.

Due to a great possibility of victims needing help, it is necessary to present the principles and procedures of first aid in more detail. The steps we take to help victims will very much affect their future condition. First aid administered accurately and quickly will be very important for the victim's survival.

B. Principles of first aid

1. Objectives of first aid

The main objectives of first aid are as follows:

- **Prevent the worsening of the conditions of victims**

Many fatalities happen because victims received help too late or because of ignorance of people at the scene in administering first aid.

Example: If a victim suffers a wound that is bleeding a little, try as quickly as possible to stop the bleeding in order to prevent the victim of experiencing blood shortage, for instance by using a sterile bandage. The mistake of not using a sterile bandage can cause an infection which may further worsen the victim's condition.

- **Prevent additional victims**

During a disaster situation there can be a large number of victims. The purpose of aid is to prevent this number from growing and the victims' conditions from worsening. It is also important that when administering aid to prevent the helpers of becoming new victims, just because they lack ability and skill.

Example: When helping someone who is drowning in a river, the helper should be able to swim and understand the condition of the river current. This is to prevent the helper from also drowning, and raise more victims.

- **Facilitate further handling**

First aid is only a temporary measure and therefore will still need further aid from competent officials and agencies such as midwives, medical aides, doctors, *puskesmas*, and hospitals. Therefore administering first aid should refrain from methods that could complicate further aid treatments.

Example: A burn victim should not be given first aid by applying soy sauce or tooth paste, because when arriving at the hospital, before dealing with the wound a medical aide will first of all have to clean the soy sauce or tooth paste from the wound, and this would definitely takes valuable time.

- **Mitigate the victim's suffering**

By administering first aid, hopefully physical suffering such as pain and psychological burden e.g. panic can be minimized.

Example:

- Take encouraging measures such as informing that help will be coming soon, that the wound is not that serious.
- Wrap a burn with young banana leaves.

2. Components of first aid

First aid components include:

- **Victim**

The main aid component is victim as the person who needs help

- **Helper**

A helper is someone whose condition is better than the victim's, with willingness and ability to apply first aid.

- **Sickness/injury**

Sickness/injury is a condition which makes a victim suffer, it may include physical or psychological sickness. What should be known regarding sickness/injury is the injury/sickness type, treatment principles, and methods of administering first aid.

- **Aid medium**

Aid medium is a means that can be utilized as support for first aid efforts. Aid medium can take the shape of standard equipments or alternative tools existing in the environment that can be functioned to administer aid. The purpose of aid equipment is to cover, bind, hold, pull, and transport in the framework of administering aid.

3. Necessary requirements of a helper

A helper who intends to administer first aid should meet the following requirements:

- Willingness and skills to help
- Sincere and not discriminating
- Know the principles and procedures of first aid.
- Well aware of the surrounding conditions
- Know the methods and where to request help
- Capable to provide and use a medium

4. Priority of aid receivers

During an emergency situation resulting from an earthquake, the total number of victims is usually far more than the total number of helpers, so that helpers should establish the priority of the victims to help first. Several directives for establishing priority scales are as following:

- Select victims most possible to be helped, based on environmental, suitability and ability condition of the helpers.
- Give precedence to victims needing minor treatment, so that they can assist the helpers.
- Give more attention to patients with a high level of fear and panic in order to prevent a disruption of the aid process
- Whenever there are victims in a buried position/covered by something and must be located, the victim found first should be helped straightaway.
- Whenever a deceased victim is found, try not to deal straightaway, in order of having time for locating safe victims.
- Whenever there are victims who still can participate actively, get them involved, for instance in searching for help.
- Whenever a victim is found with multiple injuries/sickness, the priority order of applying aid should be as follows:
 1. Breathing disorder,
 2. Bleeding,
 3. Loss of consciousness,
 4. Bone fractures

C. Recognizing wounds and how to deal with them

1. Bleeding wounds

A bleeding wound may occur during an earthquake disaster for instance by being pierced by building material, struck down by building debris, scratched by a sharp object and several other causes. Keep in mind that a bleeding wound can be quite dangerous and should straightaway be treated because of several factors:

- Whenever there is a loss of blood exceeding 20% of the total blood in a human body, this may cause unconsciousness and when no immediate help is given could result in death.

The method of calculating the tolerance limit level of blood volume loss is as follows: Assume that in normal condition blood volume in a human body is 70-100 ml of body weight per kilogram. For example, Amir weighs 20 kg, thus his blood volume should at least be $70 \text{ ml} \times 20 = 1400 \text{ ml}$ or 1.4 liter. So Amir most likely will lose consciousness (in shock) if he loses blood totaling $20\% \times 1.4 \text{ liter}$ or 280 ml or 0.28 liters.

- Blood outflow from a wound. A wound represents a window for viruses or bacteria (sickness germs) to enter the body, therefore the wound should straightaway be covered to prevent an infection.

There are two types of bleeding wounds, i.e.:

a. Internal bleeding

Internal bleeding occurs when there is an internal body wound, although no blood has left the body. Body parts that often experience internal bleeding are the thoracic cavity, the stomach cavity and the head cavity.

Applying aid is through calming down the victim, and by taking him/her to the *Puskemas* or Hospital as quickly as possible, because the treatment is limited to those with special competence.

Internal bleeding symptoms:

- 1) Stomach cavity bleeding is indicated by stomach enlargement, hard, and stiff.
- 2) Thoracic cavity bleeding is indicated by short windedness.
- 3) Head cavity bleeding is indicated by decreasing consciousness and may result in paralysis.

b. External bleeding

External bleeding occurs when skin is scratched and blood seeps out of the body through the wound/scratch.

External bleeding symptoms:

- 1) Scratches and wounds on skin.
- 2) Bleeding of wound.
- 3) Painful.
- 4) Dizziness caused by too much blood loss

First aid principles

Although the body has the ability to stop bleeding, it is necessary to apply first aid against a bleeding wound. The main principle is to stop bleeding, which can be done through:

- a. exerting pressure on the wound
- b. placing a bandage on the wound
- c. exerting pressure and placing a bandage (tourniquet) on the wound
- d. exerting pressure on internal blood center points, for instance by the neck side, underneath the upper arm
- e. even though there is no more bleeding, the wound should still be covered to prevent bacteria/germs from entering through the open skin.

Treatment of wounds

Treatment of a wound is usually effected by bandaging. The following procedures should be addressed during bandaging:

a. Locate wound position

Wounds in different locations demand different treatment, therefore it is most important when a victim is still conscious not to move a lot and remain in a seating or standing position (position of head should be the highest).

b. Pay attention to the human body's anatomical shape

During the treatment of a wound, the body's anatomy has to be noticed, because it will affect the bandaging method. It comprises three basic shapes:

- 1) cylindrical, e.g. arm, thigh, calf, neck, body.
- 2) round, e.g. head.
- 3) joint, e.g. elbow, heel, and knee.

c. Identify size of the wound (extent and intensity of blood outflow)

The size of a wound determines the treatment method, even though it follows the same principle, i.e. covering wound and stopping the bleeding. However, there are various methods to stop bleeding, in line with the wound size. There are four methods to stop

bleeding: applying pressure, bandaging, bandaging and applying pressure (tourniquet) and total bandaging.

When trying to stop bleeding, do not bind too loose as blood will not stop, but also do not bind too tight, as this will stop blood from flowing to the wounded area. Therefore it is necessary to ask a victim, whether the bandage is too loose or too tight. When no response can be obtained from the victim, the bandage tightness is done in such a way, until the pulse in the lower course of the bandage can still be felt.

2. Burn

A burn may occur because of fire resulting from an electrical short-circuitry, a stove or machinery.

a. Intensity level of a burn

The intensity level is established through two methods, i.e. percentage of the burned body part and the degree of extent and depth of burned skin.

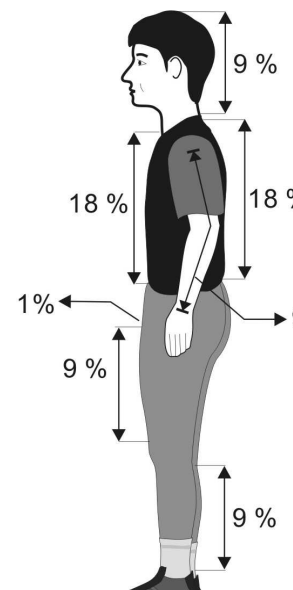
1) Percentage

Based on burned body parts, the percentages of burned body surface can be observed in picture 1 as follows:

- **Head until neck 9%,**
- **Left or right arm 9%,**
- **Front body part (stomach and chest) 18%,**
- **Back body part (back) 18%,**
- **Upper left leg 9%,**
- **Upper right leg 9%,**
- **Lower right leg 9%,**
- **Lower left leg 9%,**
- **Genitals 1%,**

Total: 100

2) Degree



Picture 1: Percentages of burned body surface

The degree refers to the depth level of burn suffered by a victim. Four degrees of burn depth exist, and the symptoms are as presented in Table 1.

Table 1: Degrees of a burn and the symptoms

Degree	Indications/Symptoms
1	Reddish skin but painful when touched. The burned part of skin is only down to the epidermis
2	Skin get blistered and peeled off, painful when touched.
3	Skin get peeled off until colored white mingled with blue, not painful even if pierced with a needle, because the burn has

Degree	Indications/Symptoms
	already damaged the nervous system network existing in the skin.
4	Skin and flesh are already burned, in fact seen until the bone. The victim does not feel anything around the burned area, but feels intense heat and thirst.

The danger or no danger of a burn suffered by a victim can be established based on extent (percentage) and depth (degree) of the burn wound. Someone suffering from only 10% burn, but reaching degree 2, is already regarded as in danger. Whereas someone else suffering 30% burn, but still within degree 1, is still not regarded as in danger.

b. Burn symptoms

The presence of a burn can be observed from the combination of symptoms as follows:

- Red colored skin
- Blistered skin
- Peeling off skin
- Painful when touched
- Feeling very hot
- Flesh get burned until the bones can be seen
- Stinging smell
- Feeling very thirsty
- Not bleeding

c. Principles of first aid against burns

- Stop deepening process of the burn, most effective by pouring or soaking the wound with cold and clean water.
- When a burn causes skin to get peeled off, immediately cover the wound with a clean cloth, avoid strewing anything, to prevent risk of infection that may complicate further treatment.
- After the wound is covered, try to get further treatment.

d. Treatment of burn

After having identified a burned body part, try to reduce the deepening process of the burn, straightaway cover the wound using a sterile cloth, for instance an already washed and ironed clean handkerchief or clean plastic.

After the wound is covered, a bandage may be applied. Bandaging a burn is different than bandaging a bleeding wound. During bandaging a burn, it is important to be sure that the wound is covered rather than the tightness of the bandage.

3. Broken bone

A broken bone wound refers to a wound which occurs on a bone, in the form of cracking, breaking or sticking out of the body. Broken bones are injuries most common during earthquakes. The cause of a broken bone is for instance being struck by building debris, trampled on, getting squeezed.

a. Types of broken bone wounds

- Fractured bone: a bone experiences trauma/impact it may cause the bone to crack, but not break apart.
- Closed broken bone: a bone breaks, but is still inside the body.
- Open broken bone: a bone breaks and sticks out through the skin.

b. Symptoms of broken bone wounds

Several symptoms easily recognizable are among others:

- Black and blue
- Swollen
- Very painful when touched or moved
- Change in form
- Broken neck bone can be noticed when there are wounds on both head and neck
- Broken backbone can be noticed when there is a difference in the length of the legs
- Broken rib-bone is followed by breathing difficulties

d. Principles of first aid against broken bone wounds

The first aid principle to address a broken bone wound is through the fixation to rest/minimize activity of the two joints that flank the broken bone. This is necessary to prevent friction of the broken bone. Friction of a broken bone can aggravate the wound.

e. Treatment of broken bone wounds

Treatment of a broken bone wound (fixation) is known as splint bandaging. Fixation is done by applying two splints comprising of wood lined with thin cloth/sponge. The splints, each two centimeter in length are meant to flank the fracture location, which are then bound with a rope, and tightened to support the broken body part and prevent it from suspending.

Treating a broken neck is by propping up the neck to prevent any movement, whether left and right, to and fro, as well as turning around.

A broken back does not need first aid, but needs special aid from competent persons. What should be exercised is to make victim remain in a lying down position, and to make use of a flat and hard palanquin when transferring the victim to a different location.

When treating a victim with a broken collarbone, no splints are needed, only a shoulder binder to retain its position and prevent the victim from stooping.

In the case of an open broken bone, first step is to cover the wound, and thereafter conduct a fixation against the broken bone.

Keep in mind, that in treating broken bone wounds, do not try to restore the bone to its original position, by pressing, pulling or reinserting the stuck out bone.

If no splints are available, part of the victim's body can be utilized as a splint. For instance in the case of a broken lower arm, fixation can be done by binding the broken arm to the victim's body (Picture 2).



Picture 2. Treatment of a victim with a broken arm

4. Evacuation techniques

a. Definition of evacuation

Evacuation is defined as transferring a victim from one place to another with the hope of receiving further aid, in order of his/her condition not aggravated or to prevent hazards from other threats for instance aftershocks, landslides or fires.

b. Objectives of evacuation

The objectives of an evacuation are to protect victims from the surrounding conditions against possible aftershocks, and to receive further aid when deemed necessary.

c. Evacuation requirements

An important requirement for evacuation is the stable condition of the victim, for instance breathing is normal again; bleeding has stopped; victim is conscious again.

The above mentioned requirements may be ignored if the area where the victim is currently located is still unsafe from hazards, for instance fire hazards.

d. Evacuation method

To evacuate in a simple manner is to transfer a victim by carrying, with or without support tools. The transferring of a victim may be well exercised by 2 to 6 persons. In a specific situation, evacuation may be carried out alone, for instance from inside a very narrow collapsed building. Keep in mind that the evacuator should rely on his ability to transfer a victim. If he/she is apparently unable, he/she should ask help from other persons (Picture 2).

e. Evacuation equipments

Evacuation equipments are tools that can be used for transferring a victim to a safer place. The use of evacuation equipments should be adapted to the total number of helpers and to the injury/sickness condition of the victim

For transport we know two tools usually used i.e. a long board and a *dragbar*, both functioning as palanquins. Other than these two standard tools, there are also simple tools by utilizing surrounding objects such as a door, ladder, sofa, chair, blanket, stocking or a rice/fertilizer bag.

f. Recognizing support tools to provide aid

Support tools for administering aid are used if the patient's condition needs administering aid with support tools, because there are many cases where a patient does not need a support tool, e.g. getting knocked or bruised, ignited by fire, getting slightly scratched and bleeding has already stopped by itself, etc. However, there a lot of cases where the use of support tools is required to help disaster victims exist.

In this module standard support tools are introduced, i.e. support tools in line with medical standards for helping disaster victims. These tools can be purchased, or self-made, but most important is that these tools are capable of providing ease to patients and helpers in coping with disaster cases.

Several samples of support tools are as follows:

- 1) Mitela or triangle cloth**, with a length of ± 1 meter on each side. Mitela is used for binding, covering, holding, and pulling in line with the needs of applying aid to a victim.
- 2) Palanquin** or long board is a tool used for evacuating in the shape of a wooden long board with a size of 0, 5 m x 2 m, with holes at both sides for holding and lifting.

Whereas a *dragbar* is made from an iron or wooden frame in rectangular shape, with a size of 0, 5 m x 2 meter, and equipped with four handles for lifting. The *dragbar* layer for a patient to lie down is made of thick cloth (canvas) or plaited rope.

- 3) **Mask**, in the shape of cloth with strings for tying up behind the head, this cloth comprises 2 to 3 sterile cloths with a size of 20 cm x 10 cm. The function of a mask is to protect the mouth and nose from smoke, dust and germs that could hamper breathing.
- 4) **Splints** or a pair of wood to restrain bone injury, made of straight and light wood with a thickness of 1 cm, width of 5 cm and a length according to the need. To aid a broken arm, splints of ± 35 cm long are needed, whereas for a broken leg splints of ± 1 m length will be needed.

Splints should be layered with thin cloth or sponge for comfortable use during a broken bone fixation. A pair of splints and tying strings are usually enough to treat a broken bone.

In certain cases, special splints will be needed, e.g. a broken collarbone needs sponge wrapped with cloth in the shape of a rope to pull the shoulder straight. Whereas a broken neck needs special splints called neck *Schaller* to prevent the neck from moving.

- 5) **Dressing cloth or fine cloth** comprises sterile cloth for covering a bleeding wound and at the same time to bind the wound cover. In the case of a certain wound, for instance a new wound, this fine cloth should first be dipped into sterile liquid, for instance alcohol, iodine or revalol.
- 6) **Plaster or adhesive tape**, comprises brown colored cloth containing adhesive. The function of a plaster is to keep a bandage in place. Plasters on sale in the free market are already applied with sterile medication, and can straightaway be used to cover new wounds.
- 7) **Tensocrape** is cloth 5 cm wide and about 2 meter long (sizes are variable), with the function of supporting a body part during a bone injury, e.g. sprained, fractured bone, bruised (but not broken). A tensocrape is used by wrapping it around the wounded area, so that the injured area is protected and the movement around the area is minimized.
- 8) **Medicines** refer to medicine supplies needed for first aid, i.e. medicines that are needed during the appliance of first aid to victims.

Medicines that should be available are among others:

- a. **Sterilization/desinfection medicines**

Usually in liquid form to mitigate the infection danger of a bleeding wound. Medicine types are among others: mercurochrome, revalol, iodine tincture, alcohol, iodine.

b. Eye medicines

Eye medicines may take the form of eye drops or eye salve, used to reduce irritation to the eyes due to dust, for instance boracic solutions or eye drops.

c. Antibiotic medicines

Referring to pills or capsules for preventing infection for instance tetanus. Antibiotics are usually suggested for victims with bleeding wounds resulting from cuts by iron or other metal.

d. Burn preservative medicines

In the shape of a salve or a liquid with the function of cooling wounds and preventing an infection of burns, for instance bioplasenton.

e. Liniment for sprains

Referring to salve with the function of reducing pain, preventing serious swellings and incite warmth to a bone injury, for instance an ointment or salve.

f. Pain killing medicines

Refer to medicines to eliminate pain, but these types of medicine should not be available in the FIRST AID medicine supply.

G. Recognizing surrounding objects that can be used for administering aid

During a disaster situation, although the preparation is already thought adequate, quite often the tools already prepared prove to be insufficient or inappropriate. This condition demands the ability to use surrounding objects as replacements for standard tools for treating victims.

Although very different when compared to standard equipment, these replacement tools can be utilized to administer aid. Samples of replacement tools include:

Table 2 Alternative support tool samples to administer aid

No	Standard tool/material	Replacement objects
1	Palanquin	Ladder, blanket, chair, bag, stocking
2	Splints	Banana branch, wood, bamboo, cardboard box
3	Dressing cloth	Handkerchief, clean cloth
4	Burn wound cover	Young banana leaf, sterile cloth, sterile plastic
5	Mask	Stocking, towel, sarong
6	Triangle cloth	Midrib of banana leaf, raffia rope, a torn piece of cloth, belt, shoelace
7	Medicines	Several types of medicine plants around us, for instance banana tree sap, vanilla leaf sap, papaya leaves, lamtoro leaves, balsam.

H. Recognizing tools/material for preparation in anticipation of earthquake disasters

The tools and materials made available in anticipation of earthquake disasters are aimed at mitigating risks, and for treatment besides representing means for communication and coordination.

Standard equipments such as palanquins, mitelas, masks, splints, fine cloths, plasters and first aid medical packages should be made available. Other than that, objects existing around us should be introduced to students so that they can be utilized as replacement tools during an emergency condition.

Besides aid tools, tools are also needed to prevent risks during an earthquake. Some of the tools meant are for instance wooden or rattan shields, schoolbags, or other means of self-protection.

Other than that, it is also necessary to make tools available for the anticipation of earthquake hazards that are not directly linked to problems of personal or group safety, which in simple terms can be grouped as follows:

1) Lighting tools

Lighting tools are essential especially during earthquakes that occur at night. A pitch dark situation may raise more panic; therefore it is necessary to make lighting equipments available, for instance flashlights, emergency lamps.

Igniting matches, candles, or oil lamps should be exercised with great care, avoid places with possible oil spills or gas leaks. Prevent fire hazards as this could aggravate the disaster.

2) Shelter tools

Shelter places need to be made ready straight away during the occurrence of an earthquake if houses collapse. If there are any undamaged buildings felt in the vicinity, victims can take temporary shelter there, but otherwise tents should be erected. Canvas, cloth, plastic, sago palm, coconut leaves, weed or straw can also be used as a temporary shelter.

When erecting a tent as a shelter place, make sure that the location is quite a distance from structures/buildings that might tend to collapse, far away from water flooding, and most preferably on a flat area.

3) Sleeping equipment

When an earthquake occurs at night, and after there are no more aftershocks, attention should be paid to the sleeping arrangements of the victims. These are among others bed sheets, plastic, boards and bamboo mats; blankets and sleeping

dividers. Mosquito nets should also be provided if the shelter area is known for malaria.

If this condition lasts for more than 3 days, coping should be more specific, for instance segregating families, partitioning, sanitation and water supply.

4) Food utensils

Food utensils comprise cooking tools such as stoves, pans, and frying-pans. If there is a stove, make sure there is also oil. Other than that tools also are needed to get and keep water in an appropriate sized water tank. It should also be made certain that the water tank is equipped with a cover, to avoid pollution.

5) Communication equipment

Communication equipment is needed as means for coordination and information. Communication tools are used for knowing certain conditions, sending news, requesting help if unable to cope with the conditions alone. An agreement should also be made to use traditional means of communication, for instance drums, whistles or other signals, because in a lot of cases these traditional means of communication can be far more effective.

Learning activities

a. Tools and material

- Student work sheets 01, 02, and 03 and their equipments
- Standard equipment for first aid
- Alternative tools to administer aid

b. Preparation

All support tools (standard equipment), student work sheet and modules should already be available, and such is also the case with alternative equipments. These activities can be conducted inside or outside of the classroom.

c. Learning steps

Initial activities

- The teacher precedes learning by telling a story about the friendship of 3 animals: a fish, a buffalo and a monkey. When rain falls, the river water surface overflows and the fish jumps up and down in happiness. This condition makes the buffalo and the monkey worried, because they think that their friend is in danger. Spontaneously the buffalo jumps into the water, and tries to help his friend. By doing this, the buffalo is in danger of drowning. Upon seeing the incident the monkey tries to help both his friends by using a net. However the monkey fails to help the buffalo because he is too heavy. Finally he succeeds in catching the fish. Unexpectedly to the monkey the fish dies when on land, and the buffalo drowns in the river. This leaves the monkey alone regretting the incident that has befallen his two friends.

Based on the story the teacher invites participants to discuss the story and raises the question „Why did the buffalo fail to help? “ The discussion is aimed at the understanding that in providing help, besides willingness and sincerity, ability and skill is also needed. Thereafter the teacher raises another question: „Why did the monkey fail to help his two friends? “ The discussion is aimed at the understanding that to provide help, one needs knowledge and strength.

- The trainer makes a statement that during this training delivery, participants will learn to regard aid principles and procedures, to recognize tools needed and demonstrate as well as put into practice various methods of administering aid and carrying out an evacuation. The trainer also explains the importance of knowledge, ability, and skill, to prevent new victims while administering aid.

Core activities

- The teacher provides information regarding first aid principles including the objectives, components, requirements, and priorities.

- The teacher outlines the types of wounds including wound symptoms, first aid principles, and treatment methods. Then recognition of tools and the method of using them in administering aid.

Activity 1: Treatment of bleeding wounds

- The teacher explains bleeding wounds in detail, including the types of wounds, wound symptoms, first aid principles, and treatment methods.
- The teacher introduces tools used for administering aid against bleeding wounds, both standard tools and alternative tools followed by an explanation on utilizing methods by involving participants.
- The teacher asks participants to put whatever has been explained under the guidance of student work sheet 01 into practice.
- The teacher gives guidance and checks the understanding of all participants and provides feedback on mistakes.

Activity 2: Treatment of burns

- The teacher explains burns in detail, including wound intensity levels, wound symptoms, first aid principles, and treatment methods.
- The teacher introduces tools used for applying aid against burns followed with explanation of utilizing methods by involving participants.
- The teacher asks participants to put whatever has been explained under guidance of student work sheet 02 into practice.
- The teacher gives guidance and checks the understanding of all participants and provides feedback on mistakes.

Activity 3: Treatment of broken bone wounds

- The teacher explains broken bone wounds in detail, including all types of wounds, wound symptoms, first aid principles, and treatment methods.
- The teacher introduces tools used to apply aid to bleeding wounds, both standard tools and alternative tools, followed by an explanation of utilizing methods by involving participants.
- The teacher asks participants to put whatever has been explained under guidance of student work sheet 03 into practice.
- The teacher gives guidance and checks the understanding of all participants and provides feedback on mistakes.

Activity 4: Evacuation Procedures

- The teacher explains evacuation procedures in detail, including a definition of evacuation, evacuation objectives, evacuation requirements, evacuation methods, and how to know evacuation tools.
- The teacher provides examples of several evacuation techniques including a method to make a palanquin, carrying techniques and the evacuation process by involving participants.

- The teacher asks the participants to put whatever has been explained under the guidance of student work sheet 04 into practice.
- The teacher gives guidance and checks the understanding of all participants and provides feedback on mistakes.

Activity 5: Identification of alternative support tools

- The teacher explains the function of tools in administering aid in detail.
- The teacher explains that surrounding objects can be utilized to support in administering first aid.
- The teacher asks participants to form groups of 5 members each to practice the identification of alternative support tools under the guidance of student work sheet 05.
- The teacher gives guidance and checks the identification results from the participants and provides feedback on mistakes.

Activity 6: Identification of tools prepared to anticipate earthquake disasters

- The teacher explains in detail the tools that should be prepared to be used during the occurrence of earthquake disasters, including lighting equipment, shelter equipment, sleeping equipment, food and drinking equipment, and communication equipment.
- The teacher asks participants to form groups of 5 members each to identify tools that should be prepared under the guidance of student work sheet 06.
- The teacher gives guidance and checks the identification results of participants and provides feedback on mistakes.

Assessment

The assessment will be a performance, observed by the students and carried out in team work.

Sample of performance assessment

Aspects assessed

1. Understanding of the characteristics of wounds and treatment of wounds.
2. Understanding of the evacuation techniques.
3. Ability to identify alternative support tools to administering first aid.
4. Ability to identify tools that should be prepared to anticipate earthquake disasters.

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Attachment to Module 6 STUDENT ACTIVITY SHEET-01

TOPIC: Treatment of bleeding wounds

Objective:

Participants will be able to simulate the treatment and bandaging techniques of bleeding wounds.

Tools and Materials:

1. Mitela or triangle cloth to apply pressure and bind.
2. Pictures of various aid stages

Activities

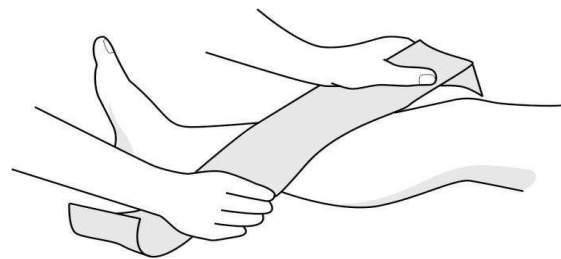
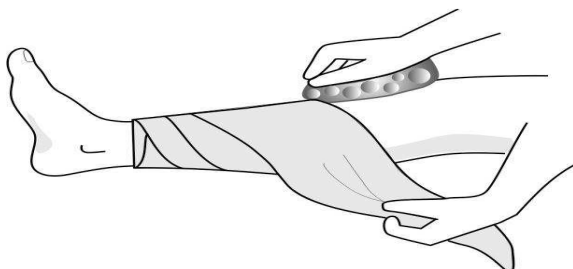
The principle of treating bleeding wounds is to as quickly as possible stop blood outflow, because it can be fatal if blood outflow exceeds 20% of the total blood in the body.

The next principle is to as quickly as possible cover the wound, because open skin presents an entrance for bacteria and other germs to the body. A sterile cloth should be used when applying a bandage to prevent the wound from catching an infection, or one should apply disinfectant to the wound if available.

Another important point is that the bandage applied to a wound should not be too tight, because this might obstruct other body parts, or too loose, because otherwise the bleeding will not stop. If the victim is conscious please ask him/her about the bandage tightness, but if the victim is unconscious one should check for pulse signs around the wound area.

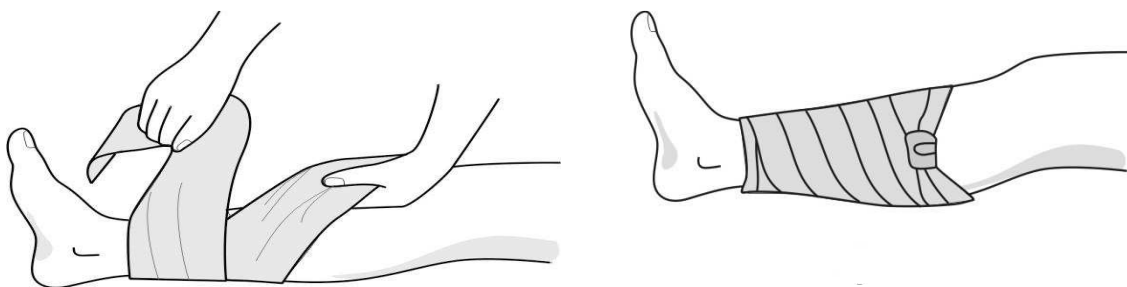
Activity 1: Bleeding wound treatment on cylindrical body parts

1. Clean the wound with disinfectant medicine of the same sort.
2. Prepare a triangle cloth (mitela).
3. Cover the wound with the mitela, tie it a slipknot.



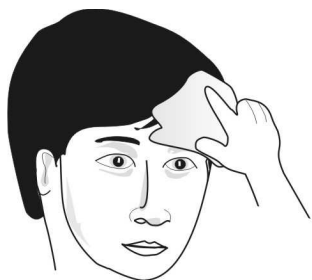
4. If the wound is large, apply a sterile pressing tool on wound, or use a pressing tool in the shape of a cardboard box or a piece of wood if the wound is large and bleeding rapidly.

5. After applying a pressing tool, bind the wound straightaway using the next method.

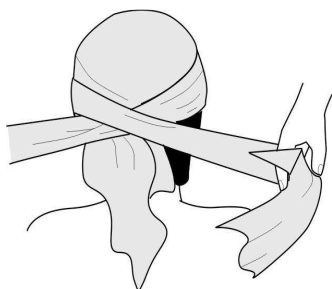


Activity 2: Bleeding wound treatment on round body parts

1. Determine if the wound needs a pressing tool or not, if considered necessary apply a pressing tool.



2. Prepare an already folded mitela.
3. Start binding starting from the wound area.



4. Bind around the head in circles, upon arriving opposite of the wounded area, cross the bandage.

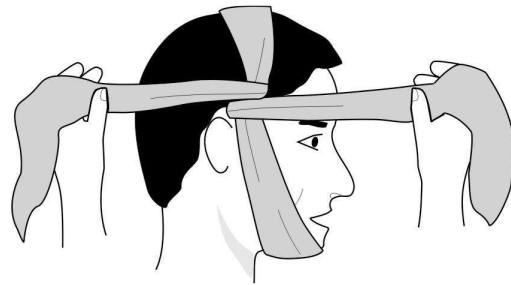
5. After crossing, tie bandage in shape of a parc (not in the direction of first binding) until arrivir at the position of the wound. When reaching tr same position as the wound, tie with a slipknot.



6. If a wound exists on the chin or upper forehead, a triangular cloth is needed to prevent the bandage from coming loose.



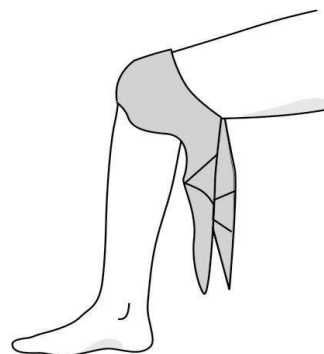
7. After the wound is pressed, tie a pair of strings from bottom to behind the head, going over the ears. Then tie with a slipknot.



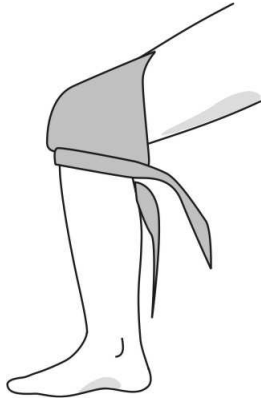
8. Tie another pair of strings to the direction of behind the head via below the ears. Make sure binding is not too loose and not too tight.

Activity 3: Bleeding wound treatment on the joint area

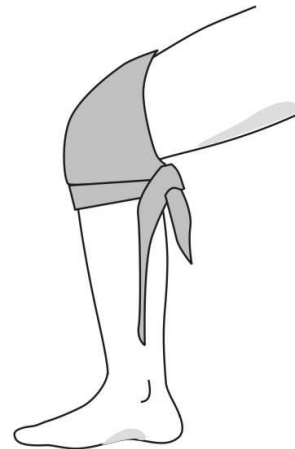
1. For instance a wound exists on the knee.
2. Prepare pressing tool and a tying mitela which is already tied-up.



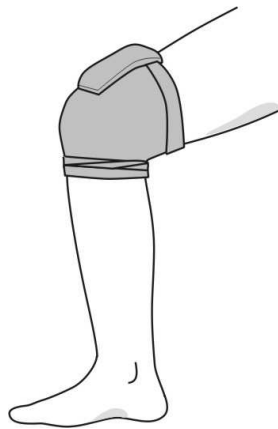
3. Bandage the wound starting from the wound area; pull both ends of the mitela to behind the knee, cross them.



4. After crossing, pull both tying strings up front to below the knee, cross them again.



5. After having crossed, pull the tying strings to behind the knee, and after crossing pull tying strings again up front of the knee in the direction of above the knee. Check the tightness of the tying strings.



Attachment to Module 6 STUDENT ACTIVITY SHEET-02

TOPIC: Treatment of Burns

OBJECTIVE:

Participants will be able to simulate burn treatment techniques.

TOOLS AND MATERIAL

- Mitela/triangular cloth
- Still coiling, young banana leaf
- Pictures of various aid stages

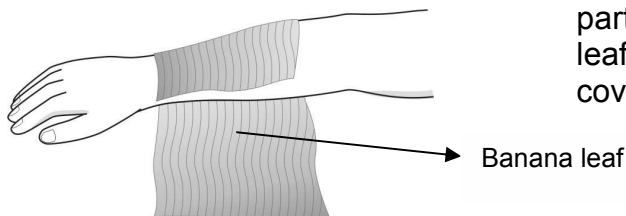
ACTIVITY STEPS

The first process of administering aid to a burn victim is to prevent the burn from deepening, by pouring cold fluid onto the wound, i.e. clean water or antibiotic medicine. This is necessary because in general, a burn tends to undergo a deepening process if no appropriate measures are taken.

Avoid adding any substances to the wound because it may complicate further treatment. After having carried out the measure as good as possible, cover the wound straight away. This is necessary to prevent germs or dirt from entering through the open skin. It is suggested that before covering with cloth, one should first cover the wound with a sterile substance, cold and not sticking against the wound, because if the wound is immediately covered with cloth, when replaced the cloth will stick to the wound. The internal part of a coiling young banana leaf is suitable to function as a layer.

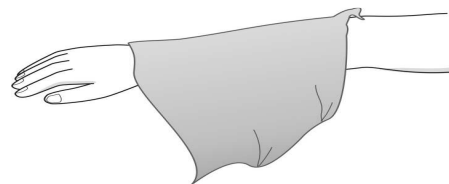
Activity 1: Treatment of burns on cylindrical body parts

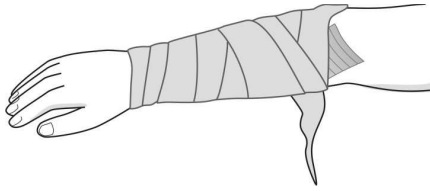
1. After having tried best to prevent the wound from deepening, cover the wound with a sterile substance, cold and not sticking against the wound, e.g. the internal part of a still coiling, young banana leaf. After having layered the wound, cover it with a folded mitela like a ribbon with sufficient width, starting from the



wound area.

2. Pull both mitela ends to behind the wound, until the mitela is fully used, and finish with tying up both mitela ends with a slipknot.

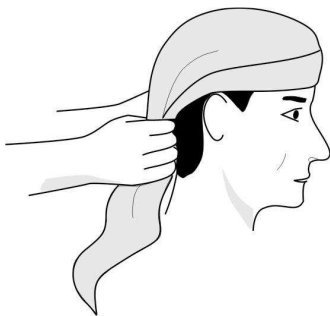
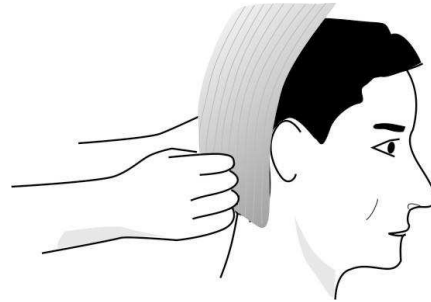




3. The covering does not have to be tight, but should cover the whole wound area.

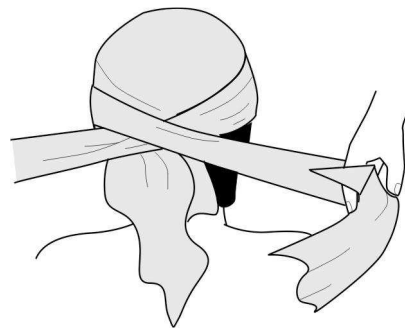
Activity 2: Treatment of burns on round body parts

9. Repeat activity 1 on Activity-1, but let mitela still take the shape of a triangle, position the tip of the triangle to behind the wound.



10. Then pull both mitela ends to behind the wound, make sure that the mitela tip is covered.

11. Pull again both mitela ends to the direction of the wound, tie up with a slipknot.

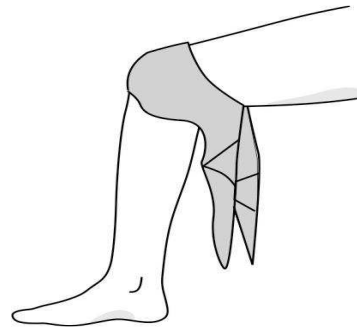


12. Make sure that the wound and surrounding area is fully covered, although the binding should not have to be too tight.

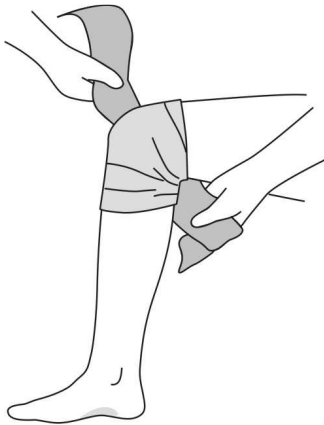
Activity 3: Treatment of burns on the joints

6. The principle used is by repeating activity 1 of Activity-1, and treatment of bleeding wounds on the joints.
7. Form a triangle like a ribbon (similar to activity 2 of Activity-1).

8. Bandaging starts from the wound area, pull the cover ends to behind the wound, then pull again up front to the direction of above the wound.

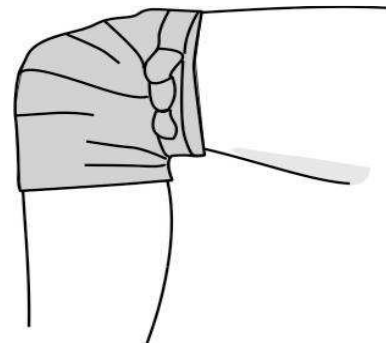


9. Pull the strings to behind the wound, and return up front to the direction of below the wound.



10. When there is no more string left, tie it up with a slipknot, if there are still string ends, tie them up until behind the wound

11. The bandage if seen from behind the wound is like the number eight. Make sure that the wound and surrounding area is fully covered.



Attachment to Module 6

STUDENT ACTIVITY SHEET - 03

TOPIC: Treatment of broken bone wounds

Objective:

Participants will be able to simulate treatment techniques against broken bone wounds.

Tools and Materials:

- A pair of splints in various sizes
- Banana branch with a diameter of 10 cm and length of 1 meter
- A pair of open-toe slippers
- Mitela/triangular cloth
- Wooden board
- Pictures of various aid stages

Activities:

The main principle in dealing with a broken bone is to minimize the movement of the broken bone, with the aim of preventing friction between the two broken bone tips, because it may worsen the fracture, and squeeze the muscle/tissue sticking to the bone.

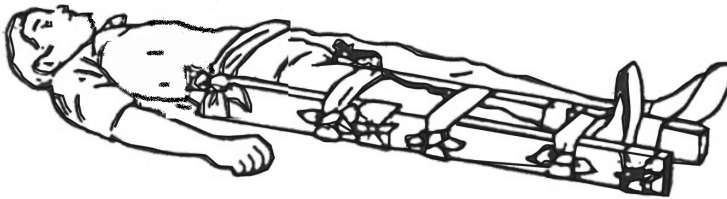
In several cases of broken bones, i.e. a broken neck or a broken backbone, it is suggested to administer first aid as little as possible, because aid should only be given by those specialized, what can be done is to let victim rest and minimize victim's movement especially around the area of the broken bone.

In all broken bone cases, particularly in the case of an open broken bone, it is not allowed to restore or try restore the bone position, either through massaging, pulling or pressing, what is important is just to rest the broken bone.

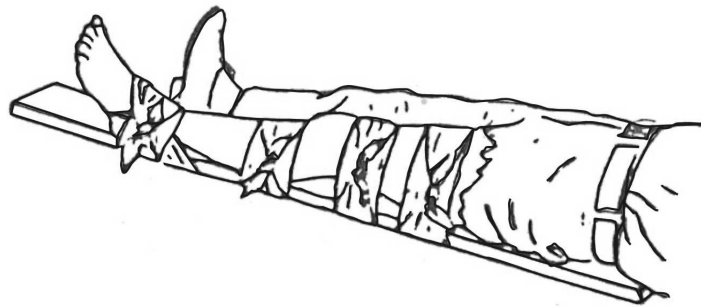
Should there be wounds around the broken bone area, which are bleeding or a burn wound, these should be attended to first before attending to the broken bone wound.

Activity 1: Treatment of broken bone wounds on cylindrical body parts (legs and arms)

1. When a victim suffers from a broken thigh, lay down the victim with straight legs
2. Prepare five mitelas already folded in the shape of ribbons
3. Fasten one splint against the outer side of victim's leg, tie mitela from the splint's upper end around the victim's waist, fasten another splint along the inner side of the victim's leg



4. Insert 4 mitelas under victim's leg, and fasten on the hip, above the knee, below the knee and above the heel. Tie up mitelas starting from top to bottom



5. When there is only 1 splint, the healthy leg can replace another splint, whereas the procedure and the method of binding is similar to activities 3, 4 and 5.

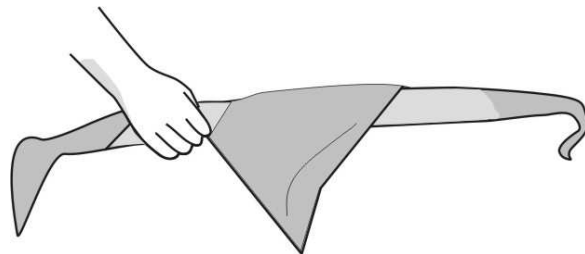
Activity 2: Treatment of a broken neck bone

1. Arrange the victim to stand up or sit down, with his/her head in an upright position
2. Drape a splint around the victim's neck

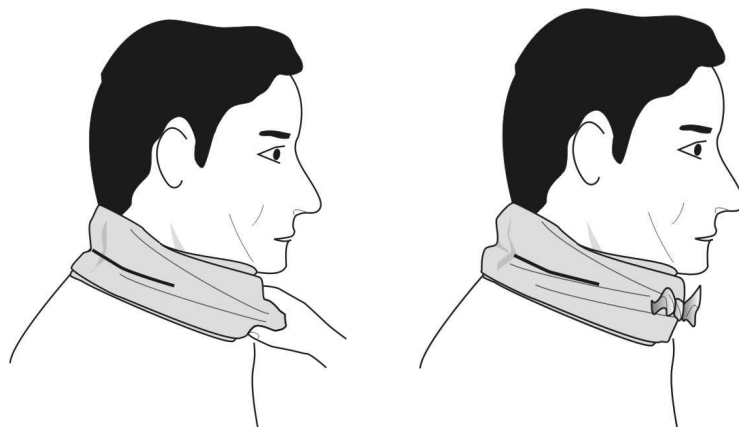


3. When there is no splint available, use a pair of open-toe slippers or banana stem or cardboard with a length matching the victim's neck, whereas the width is arranged to match the victim's neck's length.

Thereafter cover the slippers/banana stem/ cardboard with mitela, place 1 slipper on the front part of the neck then tie up to behind the neck, and 1 other slipper to behind the neck, then tie up both slippers

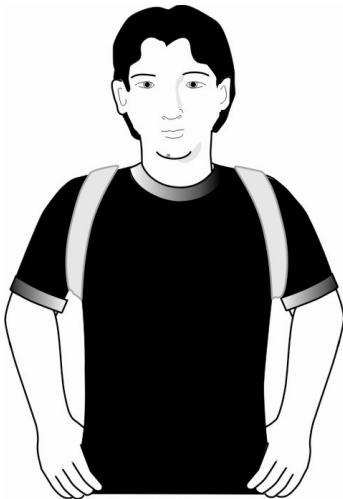
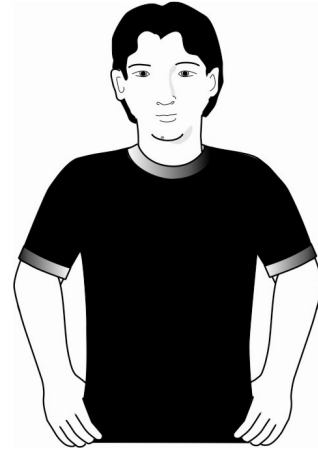


4. Make sure that the victim's neck is immobilized or prevented from moving
5. When using banana stem/cardboard encircle this object already covered with a mitela around the victim's neck and tie up both ends.



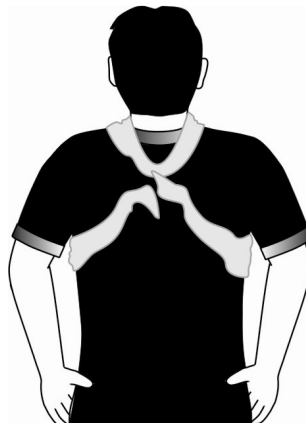
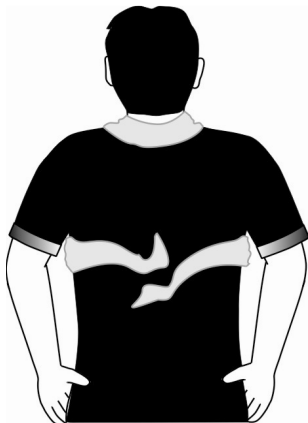
Activity 3: Treatment of broken collarbone wounds

1. Ask the victim to stand up, with his/her chest expanding and with his/her hands on his/her hips

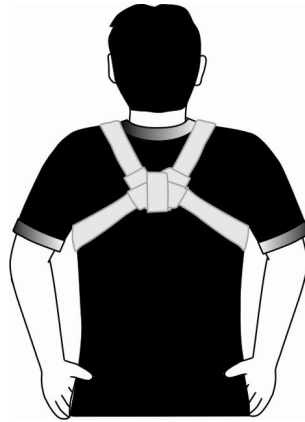
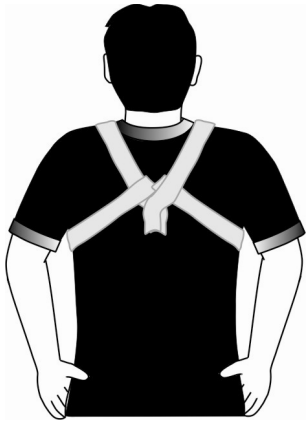


2. Install special collarbone splints according to order
3. Lower victim's hands, victim can now be taken to the hospital
4. If there is no special collarbone splint available, utilize a mitela to pull the collarbone
5. Place victim's position like in activity 1

6. he neck, pull mitela ends to the back via both the victim's armpits, then tie up both mitela ends with a firm knot

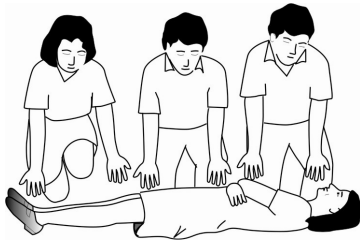


7. Pull one remaining mitela up/to the mitela behind victim's neck, then pull firmly and tie up to the other mitelas end.

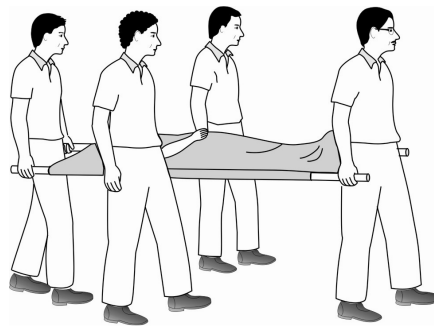


Activity 4: Treatment of broken backbone wounds

1. Lay the victim on his/her back, and ask the victim to keep still



2. Prepare a stretcher specifically allocated for broken backbone victims, i.e. made of board or wood



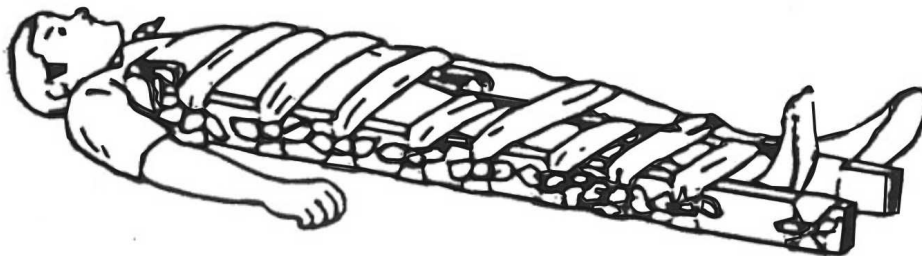
3. Tilt the victim to one side held by at least 1 helper, adjusted to the strength of the helper and the victim

4. Insert a stretcher underneath the victim, and then the victim is again put to lie on his/her back on the stretcher. Arrange so that the victim's position is in the middle of the stretcher, if the stretcher is narrow; tie the victim up to prevent him/her from falling while being evacuated.



Activity 5: Treatment of open broken bone wounds

1. For example, a victim suffers from broken left thigh and bone fragments are sticking out
2. Place the victim in the most comfortable position and comfort him/her to help ease the pain
3. Do not change the position of the legs, do not try to insert back the stuck out bone.
4. Cover stuck out bone straightaway with a sterile cloth if bleeding occurs on the wound area, the bleeding wound should be treated first through covering and bandaging it.
5. Place a pair of splints of 1 meter length underneath the broken leg and above the broken leg
6. Bind the splint and the leg above the area of the broken thigh
7. Bind splint and leg below the area of the broken thigh
8. Bind splint and leg where the two legs meet
9. Bind both splints at the end of each splint.



Attachment to Module 6

STUDENT ACTIVITY SHEET-04

TOPIC: Evacuation Procedures

Objectives:

- Participants will be able to simulate techniques of carrying a victim lying on his/her back
- Participants will be able to make and demonstrate evacuation procedures using a stretcher made of cloth/sack/undershirt
- Participants will be able to demonstrate the activity of carrying and evacuating a victim alone.

Tools and Materials:

- Sarong, rice sack or undershirt
- Two canes or straight bamboo
- A 2 meters long cloth, at least wider and longer than the victim
- Pictures of various aid stages.

Activities

The objective of an evacuation is to protect a victim from the possibility of further disaster or to provide further aid to the victim.

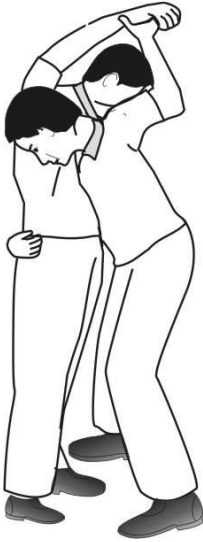
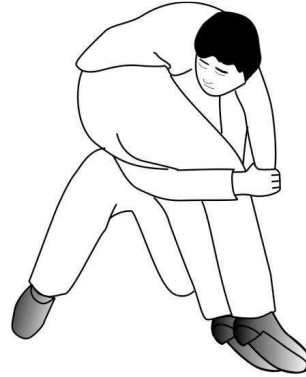
In the case of a helper, consideration should be given to the physical strength of carrying a victim, the victim's weight, the number of helpers, and the surrounding environment, where the victim should be carried to as well as knowledge of the types of wounds and their dealing methods. Whereas in the case of the victim, consideration should be given to when to evacuate after his/her condition becomes stable, i.e. not suffering from breathing problems and the wound is already treated. However which is to be done first, to treat or to evacuate? The answer is, if the surrounding condition is safe, wound treatment should take precedence, but if the surrounding condition warrants evacuation, it should be effected immediately, for instance in a situation where there are hazard like fire, flood or earthquake aftershocks, then most important will be how to save the victim first without dealing with the wounds suffered.

Activity 1: Carrying technique

1. The helper's position is in line with the victim's, exactly by the neck, waist and knee of the victim



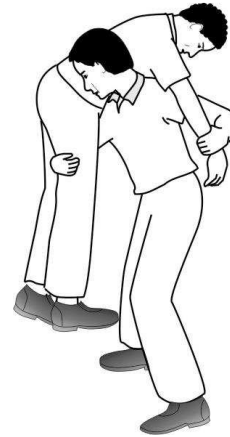
2. The helper is in a squatting position next to the victim with his right knee standing, whereas his left leg is resting on the floor.



3. One hand under the victim and one hand above the victim depending on strength. The strong hand is to be placed under the victim's body.

4. Count one, two, three, as a command to start carrying the victim, when the victim's position is above the knee of the helper, the position of the hands should be switched from above to below.

5.

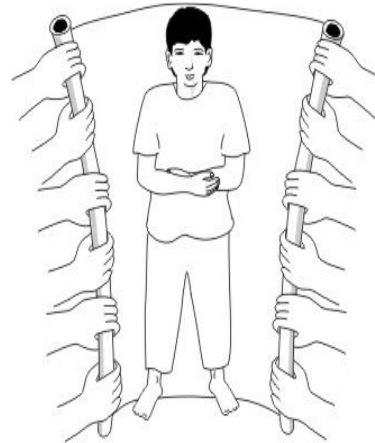


6. Count one, two, three, as a command to stand up.
7. Count one, two, three, as a command to embrace the victim's body against the helper's body, there after the victim is moved by walking.

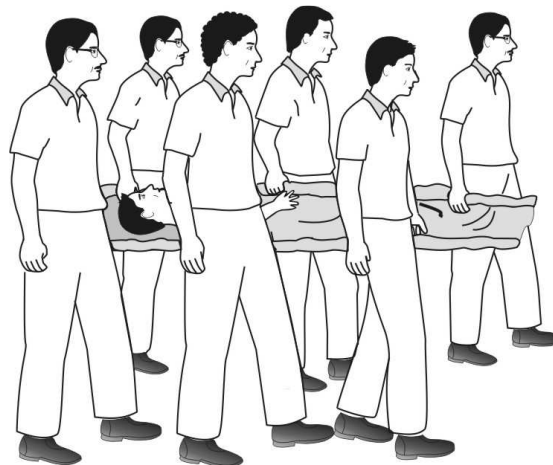
8. The lowering method is done in the same manner, but done the other way around.

Activity 2: Helping a victim using a stretcher out of cloth

1. Spread the cloth longer and wider than the victim's body.
2. Place victim on the cloth.
3. Total helpers are six, two in front (next to the victim's head), two in the middle (next to the victim's waist), and two behind (next to the victim's calf), the tallest helper's should be positioned by the head.
4. Remaining cloth at victim's side is rolled towards the victim's body.



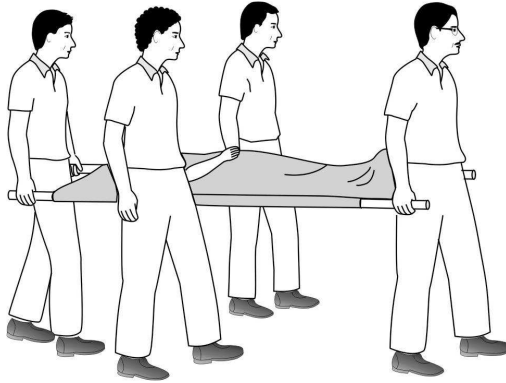
5. The helpers are squatting, facing in the direction of the victim's head (in the same line as victim's position) with inner knees upright (near the victim) and outer knees resting on the floor
6. The hands near the victim take hold of the rolled cloth.
7. Count one, two, three, as command to lift the victim, so that the victim's position is above the helpers' knees.
8. Count one, two, three as a command to stand up.
9. Count one, two, three as a command to lower the victim down to the helper's waists.



10. Lowering the victim is done in the same manner, but done the other way around.

Activity 3: Making a stretcher out of a sarong/sack/undershirt

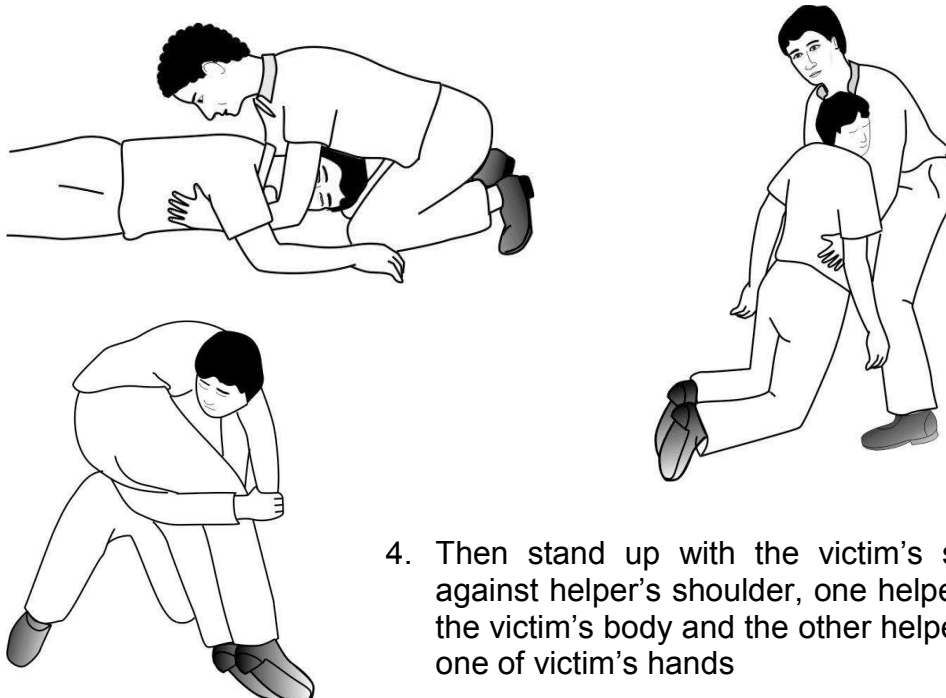
12. Take two straight canes/bamboo of 2 m length
13. Place them parallel to each other, then insert the sarong/sack or undershirt underneath them.
14. Place the victim in between the two canes above the sarong/sack/undershirt
15. Helpers hold the cane tips so that 4 persons are needed



16. Position of the helpers and evacuation method is similar to evacuation with a stretcher from cloth.

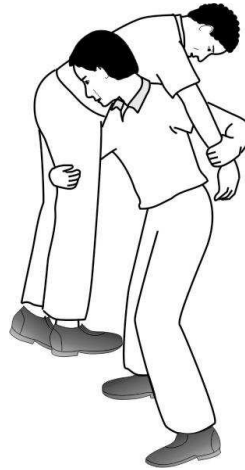
Activity 4: Evacuation of a victim by one person in an open space

1. Evacuation is done by carrying the victim
2. The Victim is lying in a facing downwards position
3. Helper squats by the head, placing both hands on the victim's back through the armpits, then gradually raises the victim to the chest and then to the shoulders



4. Then stand up with the victim's stomach leaning against helper's shoulder, one helper's hand holding the victim's body and the other helper's hand holding one of victim's hands

5. If the victim can stand up, the helper stands opposite the victim
6. Helper stops and places the victim's stomach on shoulder, while the other hand is holding the victim's hand



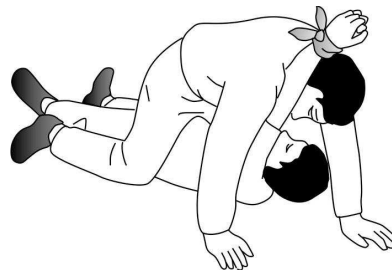
7. The helper carries the victim on his shoulder, and holds one of the victim's hands above his shoulder

8. The lowering method is similar to the picking up, but done the other way around and then the victim is put to rest on his/her back
9. This method is not allowed to be exercised with a victim that has a broken backbone or a broken neck bone.

Activity 5: Evacuation of a victim by one helper out of a debris covered room

Put the victim to rest on his/her back, bind both hands in front of the body

1. The helper crawls above the victim's body, the victim's bound hands are draped around the helper's neck
2. The victim is evacuated by being dragged underneath the helper



3. This method is not allowed with a victim who has a backbone injury or a broken neck
4. When the situation is no longer dangerous, the victim's injuries should receive treatment first, especially breathing and bleeding problems.

Attachment to Module 6 STUDENT ACTIVITY SHEET-05

TOPIC: Identification of objects that can be used as alternative support tools.

Objective:

Participants will be able to identify objects in the surrounding environment that can be utilized as support tools.

Activities

1. Please work in groups of 4 - 5 students.
2. Discuss with your friends what the functions of support tools are in applying first aid.
3. Fill your findings into column 2 of the provided observation table.
4. Look for objects in your surrounding environment that can be utilized as alternative support tools in line with their functions.
5. Fill names of these objects into column 3 of the same table.
6. If it is still unclear to you, you may study the example given in line 1 of the same table.
7. You are allowed to extend the table lines to suit the support tool functions you have identified.

No	Tool function	Objects that can be utilized
1	<i>binder</i>	<i>Shoelaces, raffia fibre, banana stem, tampar, rubber bands</i>
2		
3		
4		
5		
6		
7		

Attachment to Module 6 STUDENT ACTIVITY SHEET-06

TOPIC: Identification of tools that should be prepared to anticipate earthquake disasters

Objective:

Participants will be able to identify the tools that should be prepared to anticipate earthquake disasters.

Activities

1. Please work in groups of 4 - 5 students.
2. Imagine that tomorrow an earthquake will occur, which will cause a lot of damage, including the collapse of your houses, so that your families need several tools for a temporary stay/emergency situation.
3. The functions of tools for an emergency situation are as mentioned in column 2 of the provided observation table.
4. Discuss within your groups tools that should be prepared in dealing with earthquake disasters in line with the functions in column 2.
5. Fill your discussion results into column 3 of the same table.
6. You are allowed to extend the table lines to fill in other functions of your group's discussion results.

No	Tool function	Tools to be prepared
1	Lighting	
2	Shelter	
3	Sleeping	
4	Food sufficiency	
5	Communication	

Attachment to Module 6 STUDENT ACTIVITY SHEET-07

TOPIC: Treatment of unconscious victims

Objective:

Participants will be able to simulate the technique of dealing with unconscious victims

Tools and Material:

Pictures of aid process

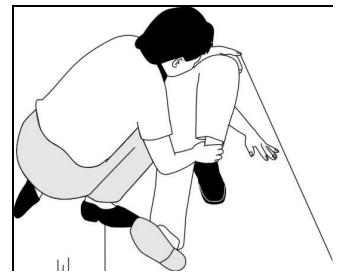
Activities

- Put victim to rest on his/her back, straighten the legs and hands alongside the body, it is suggested to loosen victim's clothes.
- Make sure that victim is still breathing by bringing your cheek closer to victim's nose to feel any breathing, listen to victim's sighs and use your eyes to detect any movement of victim's chest.

- Place one of victim's hands under his/her buttock (e.g. right arm under right buttock).



- Bend one leg opposite the hand underneath the buttock (e.g. the hand underneath the buttock is the right hand, thus leg bended should be left leg, and so is the opposite).



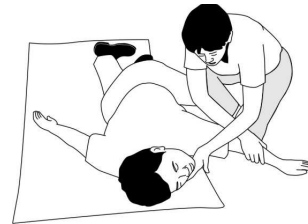
- Arrange victim to slant to the hand underneath the buttock (e.g. right hand underneath the buttock, thus victim should slant to the right).



6. Arrange left leg position until the knee and place foot sole firmly on the floor.



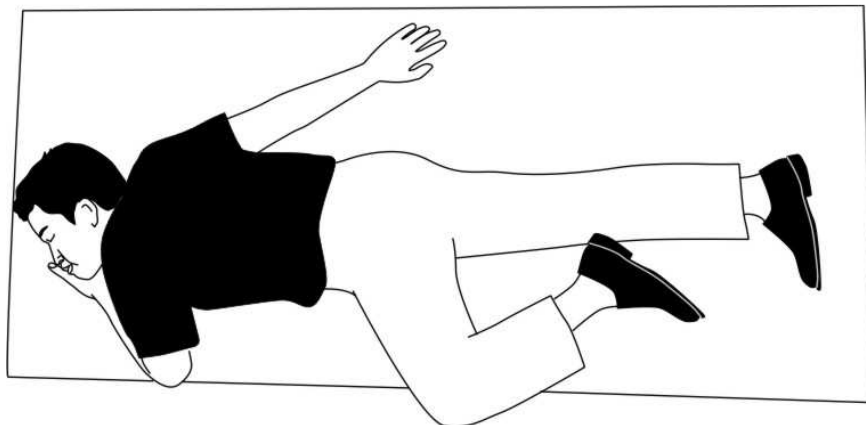
7. Move right hand (from underneath the buttock) to the back of the body so that it is not pinned under the body.



8. Place left hand back under the right cheek. Tilt victim's head upward so that breathing is smooth.



9. The victim is in final stable position.



Module 7 Role of the School Community in Dealing with Earthquake Disasters

Tools and Material:

- OHP, Transparencies
- ZOPP card, push pin, soft board, spidol

Trainer: DAPS Consultant

Objectives

Participants will be able to:

1. identify their roles and tasks in anticipation of dealing with earthquake disasters.
2. taking a proactive role in anticipation of dealing with earthquake disasters.

Training Steps

1. Information and discussion regarding the tasks and roles of the school community (School Committee, elementary school headmaster, teachers, staff, and representation of senior class students) in the school.
2. Participants in groups identify the tasks and roles of the educational community by analyzing the appropriateness of tasks and roles in the school with their tasks and roles in dealing with earthquake disasters.
3. Participants present their discussion results in front of the other participants.
4. Participants prepare the implementation plans of their tasks and roles in dealing with earthquake disasters.

Competence:

The school community will be able to understand its role in anticipation of dealing with earthquake disasters.

Indicators:

1. The school headmaster will be able to implement his/her role in dealing with earthquake disasters.
2. The school headmaster will be able to identify the role of other school community members in dealing with earthquake disasters.
3. Teachers will be able to implement their role in dealing with earthquake disasters.
4. Teachers will be able to identify the role of other school community members in dealing with earthquake disasters.
5. The School Committee will be able to implement its role in dealing with earthquake disasters.
6. The School Committee will be able to identify the role of other school community members in dealing with earthquake disasters.

Background Information**I. Introduction**

In order to have a common understanding, the school community defined in this module comprises the school headmaster, teachers, the School Committee, and those who have already proven to be successful in dealing with students in the school. Each policy defined by the school represents the result of mutual agreement among community members. Thus in anticipation of dealing with earthquake disasters, the school community is the appropriate media to distribute tasks and responsibilities in line with its role and capacity in dealing with earthquake disaster problems.

II. Roles of the School Headmaster, Teachers, School Committee, and Staff in Dealing with Earthquake Disasters**A. Role of the School Headmaster**

At the operational level, the school headmaster is the person responsible for the coordinating of all activities in dealing with earthquake disasters which are among others:

- 1) The preparation of earthquake disaster handling strategies together with the School Committee, teachers and the school staff.

- 2) The providance of facilities and an infrastructure for dealing with earthquake disasters, for instance: P3K boxes, flashlights, radio, food supplements and water.
- 3) The preparation of budgeting for dealing with earthquake disasters together with the School Committee.
- 4) The preparation of administrative procedures related to programs for dealing with earthquake disasters.
- 5) The preparation of regular training programs to mitigate earthquake disasters.

B. Role of Teachers in dealing with earthquake disasters

The tasks and role of teachers in dealing with earthquake disasters are among others:

- 1) The implementation of training results to students.
- 2) Providing training of rescue instruments and equipments.
- 3) To rehearse with other teachers to improve the capacity in the evacuating process, when earthquakes occur.
- 4) To coordinate regular meetings with all teachers and staff to discuss constraints/problems related to earthquake disaster management.
- 5) To consult the school committee and school headmaster on progress of programs dealing with earthquake disasters.
- 6) To lessen the apprehension of the students (EQ) because of earthquake threats.

C. Role of the School Committee in dealing with earthquake disasters

The school committee represents the executor of educational management at the school level having the role of (1) providing considerations, (2) supporting educational service activities, (3) controlling educational service activities and (4) facilitating or linking the communication between the community and the government. Therefore the school committee has a very important role in dealing with earthquake disasters. The school committee is a representation of parents of all students and community dignitaries with at least 9 (nine) members or any higher odd total.

The role of the school committee in dealing with earthquake disasters is among others:

- 1) To create a familiar relationship between the school committee and the school community.
- 2) To cooperate with the school headmaster and the teachers in the framework of dealing with earthquake disasters.
- 3) To identify problems faced by the school headmaster and the teachers in coping with earthquake disaster threats for use as meeting material and the compiling of the school committee's work program.

- 4) To support teachers, staff, the school headmaster, and other school committee members to actively participate in preparedness through compilation of efficient and effective activity steps.
- 5) To control the activities of teachers, staff and the school headmaster through the monitoring of earthquake handling activities, for instance mitigation.
- 6) To provide an analysis result input regarding aspirations, ideas, demands and various requirements raised by the community, both verbal and in writing in the framework of dealing with earthquake disasters.
- 7) To assist teachers, staff and the school headmaster to reduce students' distressed feeling after the occurrence of earthquakes, for instance through playing games.
- 8) To socialize earthquake mitigation efforts to parents of the students aiming at a constructive collaboration between students and their parents when at home.

References

Depdiknas (2002). *Panduan Umum Dewan Pendidikan dan Komite Sekolah*. Jakarta: Direktorat Jenderal Pendidikan Dasar dan Menengah.

Condition	Roles/Tasks		
	Father	Mother	Child or other Family Member
Before Earthquake			
During Earthquake			
After Earthquake			

A. Background Information

It cannot be forecasted when Earthquakes will occur, and the occurrence cannot be avoided or prevented. Earthquakes can unexpectedly occur at any time. Therefore, we should take quick and accurate measures before, during, and after there are earthquake vibrations. Mistakes in the measures can result in losses, such as injuries, disablement, or even deaths.

In order to avoid or mitigate earthquake disasters in house surroundings, the parents of the students should understand the preferable measures that are to be taken in order to protect themselves, their families, and the community against threat hazards resulting from earthquakes that may occur at any time.

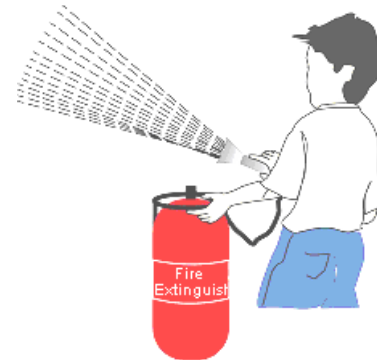
In this module measures are presented that are to be taken before, during, and after the occurrence of an earthquake. These are meant to assist parents so that they understand how to prepare themselves in dealing with earthquakes, to provide quick as well as accurate response during earthquakes, and to take measures after the earthquake has stopped.

B. Measures that should be taken before an earthquake might occur

1. Make sure that the structure and location of houses are free from risk hazards caused by earthquakes, for instance a landslide or an avalanche.
2. If your house is located in a disaster prone region, please be alert and cautious.

3. Evaluate and renovate building structures for the prevention of earthquake disaster hazards.

4. Observe the location of doors, emergency stairs, and other objects at home for the purpose of knowing the safest places to take shelter during an earthquake.

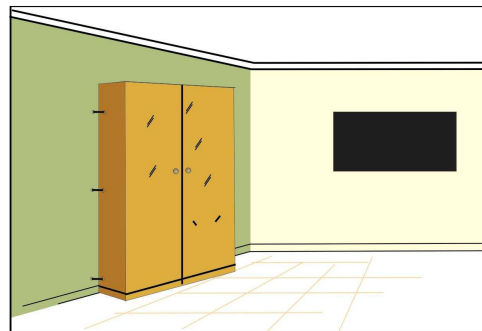


5. Learn how to handle fire extinguishing equipment.

6.

7. Prepare important telephone numbers to contact di

8. Arrange cabinets to be fastened to walls (nailed/bound) to prevent them from tipping over, collapsing, or shifting during earthquakes.

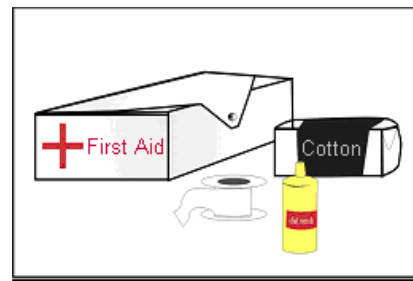


9. Store easily flammable material in safe/sturdy places to prevent them from breaking into pieces during earthquakes, and thus prevent fire hazards.

10. Switch off the electricity and gas when not in use.

11. Rearrange storing heavy objects to lower places to reduce the risk of them crashing down on people.

12. Arrange the stability of hanging objects such as decoration lamps and framed pictures so that they can not easily fall down during earthquakes.



13. Prepare P3K boxes, radio, food supplies and water.

14. Learn how to administer first aid of the case of accidents (P3K).

15. Prepare flashlights to facilitate searching for self-rescue paths during earthquakes at night.

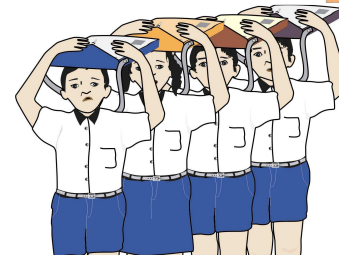
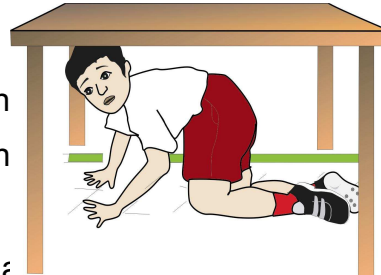


16. Prepare slippers near the exit door for use during self-rescue to be protect your feet from sharp objects.

C. Measures that should be taken during the occurrence of an earthquake

1. If inside buildings

- a. Protect your head and body from fallin building debris, for instance by hidin underneath strong tables or chairs.
- b. Take shelter in the safest place so tha you are safe from falling debris.
- c. Protect your head and walk out through a safe path if this is still passable.



2. If outside buildings or in an open space

- a. Avoid buildings with electrical circuitry in your vicinity.



- a. Observe the ground you are standing on, to avoid ground fissures.



3. If you live or stay in a coastal area, keep away from the coast to avoid a tsunami.
4. If you live or stay at a mountain range, keep away from landslide prone areas.
5. If you happen to be above a bridge, run away immediately, to avoid the possibility of the bridge collapsing close to you.

D. Measures that should be taken after the occurrence of an earthquake

1. If you are inside a building

- a. Get out of the building in an orderly and quiet manner, avoid squeezing and do not get trampled on.
- b. Avoid using escalators and elevators, use the common stairway.
- c. Check if someone is injured, conduct P3K.
- d. Ask for help/call by phone if you are badly injured or someone near you is badly injured.



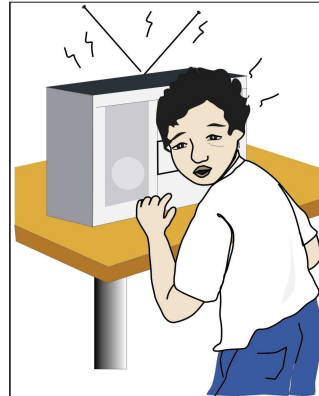
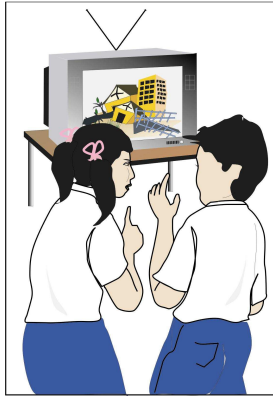
2. Check your environment

- a. Check for fire hazard.
- b. Check for gas leaks.
- c. Check for electrical short-circuitry.
- d. Check for leaking water pipes.
- e. Check everything that might be hazardous (switch electricity off, refrain from igniting fire, etc.)

3. Avoid entering risk hazard buildings, and anticipate the possibility of falling debris.



4. Avoid walking close to high buildings, electrical circuitry, and bridges to anticipate the possibility of aftershocks.
5. Listen to information regarding the development on the radio or television (regarding the possibility of aftershocks).



References

BMG on line (www.bmg.go.id). **Apa yang harus anda kerjakan sebelum, saat dan sesudah terjadi gempabumi.**

UNDP (1992). Tinjauan Umum Managemen Bencana. Jakarta: UNDP

Annex 4: Terms of Reference

DISASTER AWARENESS IN PRIMARY SCHOOLS PROJECT (DAPS)

**Terms of Reference for Short Term Assignment on
“Literature Research on How Indonesian People Cope with Disaster”
Dr. Bambang Shergi Laksmono, M.Sc.**

Period: 1 October 2005 – 26 October 2005

Taking the tsunami disaster on 26 December 2004 as a starting point, a project on disaster management in primary school with funding from the German Ministry of Development and Economic Cooperation is implemented. The objective of program is to raise awareness of primary school children of the risks of natural disasters and to minimize the risks through appropriate behavior. Related to this, the Dr. Bambang shall conduct a literature study on the topic as mentioned above:

Tasks:

1. To collect literature/reference books which regard to:
 - Social-cultural background of Indonesian society living in the disaster prone area, and
 - How they cope with the disaster
2. To write a report based on the study as mentioned above (in Bahasa Indonesia and in English)

Annex 5: Schedule for Socialization Workshop

JADWAL LOKAKARYA
SOSIALISASI PROGRAM PELATIHAN
DISASTER AWARENESS IN PRIMARY SCHOOLS (DAPS)
Yogyakarta Plaza Hotel: 20 - 21 Oktober 2005

Kelompok 1 (18 peserta)

1. Dinas Pendidikan Kab. Lampung Barat, Prov. Lampung (3 peserta)
2. Dinas Pendidikan Kab. Kulonprogo, Prov. DIY (3 peserta)
3. Dinas Pendidikan Kab. Gunung Kidul, Prov. DIY (3 peserta)
4. Dinas Pendidikan Kota Bengkulu, Prov. Bengkulu (3 peserta)
5. Dinas Pendidikan Kab. Seluma, Prov. Bengkulu (3 peserta)
6. Dinas Pendidikan Kab. Muko-Muko, Prov. Bengkulu (3 peserta)

Jam	Kamis 20 Oktober 05	Jumat 21 Oktober 2005
08.00 – 09.30		Presentasi dan Diskusi Program Pelatihan DAPS
09.30 – 10.30		Kerja Kelompok Sasaran Pelatihan DAPS
10.30 – 11.30		Presentasi dan Diskusi Hasil Kerja Kelompok
11.30 – 13.00		Istirahat – Sholat Jumat
13.00 – 13.30		Resume Penutupan
14.00 – 17.00	Check – in Peserta	
17.00 – 18.00	Cek Daftar Hadir dan Pengisian Biodata	
18.00 – 19.30	Buka Puasa / Makan Malam	
19.30 – 21.00	<ul style="list-style-type: none">• Pembukaan (Direktur Pembinaan TK dan SD)• Perkenalan Peserta• Informasi Umum DAPS (Mr. Dieter Goepfert)	

Annex 6 a: Participants for the Training of Trainers

DAFTAR PESERTA
TRAINING for TRAINERS (ToT)
DISASTER AWARENESS IN PRIMARY SCHOOLS (DAPS)
Yogyakarta, 21 – 25 November 2005

› Tim Pelatih

No	Nama	Note
1	Mr. Dieter Göpfert	Team LeaderGTZ SEQIP / DAPS
2	Drs. Joko Sudomo, MA	Staff GTZ DAPS
3.	Dra. Sulistiorini, MA	Staff GTZ SEQIP
4.	Prof. Dr. Muslimin Ibrahim	Konsultan SEQIP
5.	Prof. Dr. Soeparman Kardi	Konsultan SEQIP
6.	Drs. Zainul Asrori, M.Si	Konsultan SEQIP
7.	Dr. Ir. Wahyudi	Konsultan DAPS
8.	Sigit Widdiyanto	Konsultan DAPS

› Peserta ToT

No	Nama	Note
1.	Odo Hadinata	Staff GTZ SEQIP
2.	Dra. Jenny RE Kaligis, M.Sc	Konsultant SEQIP
3.	Dr. Aceng Ruhyani	Staf FKIP Universitas Bengkulu
4.	Dr. Diah Aryulina, MA., Ph.D	Staf FKIP Universitas Bengkulu
5.	Drs. Irwan Koto, MA	Staf FKIP Universitas Bengkulu
6.	Drs. M.Kanedi, M.Si	Staf FMIPA Univ. Lampung
7.	Dra. Kartini Herlina, M.Si	Staf FKIP Univ. Lampung
8.	Drs. Abdurrahman, M.Si	Staf FKIP Univ. Lampung
9.	Drs. I Wayan Distrik, M.Si	Staf FKIP Univ. Lampung
10.	Dra. Rahayu Dwisiwi SR., M.Pd	Staf FMIPA UNY, Yogyakarta
11.	Drs. Surachman, MS	Staf FMIPA UNY, Yogyakarta
12.	Dra. Insih Wilujeng, M.Pd	Staf FMIPA UNY, Yogyakarta
13.	Drs. Sarwanto, M.Si	Staf FKIP UNS, Surakarta
14.	Drs. Jamzuri, M.Pd	Staf FKIP UNS, Surakarta
15.	Drs. Moh. Imron Rosyidi, M.Sc	Staf FMIPA Universitas Jember
16.	Drs. Supriyono, M.Sc	Staf FMIPA UNESA, Surabaya
17.	Mukh. Mintadi, M.Sc	Konsultan SEQIP
18.	Drs. Siprianus Radho Toly, M.Sc	Staf FMIPA Univ. Nusa Cendana
19.	Drs. Alfons Bunga Naen, M.Pd	Staf FMIPA Univ. Katolik Widya Mandira
20.	Drs. Zulfikar	Staf FKIP Univ. Mataram
21.	Didik S. Mulyana, SE	Staf Komunitas Peduli Bencana

Annex 6 b: Schedule for the Training of Trainers

JADWAL PELATIHAN CALON KONSULTAN DISASTER AWARENESS IN PRIMARY SCHOOLS (DAPS) Yogyakarta, 21- 25 November 2005

Jam	Senin 21 Nov 05	Selasa 22 Nov 05	Rabu 23 Nov 05	Kamis 24 Nov 05	Jumat 25 Nov 05
08.00 – 10.00		Presentasi Modul 2 <i>Gempabumi dan Dampaknya</i>	Diskusi Presentasi Modul 4	Presentasi Modul 6 <i>Prosedur dan Alat Pertolongan Pertama</i>	Peer-teaching Modul 3 dan 4
10.00 – 10.30	Istirahat				
10.30 – 12.30		Diskusi Presentasi Modul 2	Presentasi Modul 5 <i>Tindakan saat dan setelah Gempabumi</i>	Presentasi Modul 6 <i>Prosedur dan Alat Pertolongan Pertama</i>	<ul style="list-style-type: none"> • Peer-teaching Modul 5 • Pembagian Tugas
12.30 – 14.00	Istirahat + Makan Siang				
14.00 – 15.30	Check-in	Presentasi Modul 3 <i>Tanda awal Gempabumi dan Tindakan yang perlu dilakukan</i>	Diskusi Presentasi Modul 5	Kerja Praktik Modul 6 <i>Prosedur dan Alat Pertolongan Pertama</i>	Penutupan
15.30 – 16.00	Istirahat				
16.00 – 17.00	Pembukaan Info umum DAPS Dieter Goepfert	Diskusi Presentasi Modul 3	Presentasi dan Diskusi Modul 7 Peranan Komunitas Sekolah dalam penanganan bencana GB	Presentasi dan Diskusi Modul 8 Pengelolaan Penanganan Bencana GB di Rumah	
17.00 – 19.00	Istirahat + Makan Malam				
19.00 – 21.00	Presentasi dan Diskusi Modul 1 Bencana Alam dan Penyebabnya	Presentasi Modul 4 Peta Penyelamatan diri	Peer-teaching Modul 1 dan 2	Peer-teaching Modul 6	