

Teacher's Handbook for Disaster Risk Reduction Education





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Foreword

On behalf of Japan International Cooperation Agency (JICA) Vietnam Office, I would like to commend and appreciate the project implemented by SEEDS Asia – “Capacity Building for School Centered Community Based Disaster Management in Central Vietnam” – in cooperation with Da Nang University of Technology (DUT), and Da Nang City Department of Education and Training (DOET), that has resulted in this publication, “Teacher’s Handbook for Disaster Risk Reduction Education”.

JICA has been promoting the concept of Disaster Risk Reduction (DRR) in various countries as a priority issue, and has been strongly supporting efforts to make communities resilient to natural disasters, in line with the strategy of Community-Based Disaster Risk Management (CBDRM) outlined in the “Hyogo Framework for Action 2005 – 2015: Building the Resilience of Nations and Communities to Disasters” adopted at the 2005 World Conference on Disaster Reduction in Kobe, Japan.

In the Asia and the Pacific, impacts and damage from disasters have had severe negative risks to long-term planning for sustainable development. Taking measures to disasters in Vietnam have become more and more urgent, especially in Central Vietnam, which has been seriously affected by natural disasters, particularly due to the influence of climate change at the global level.

In order to respond to the need to reduce risk associated with natural disasters in Central Vietnam, JICA has prioritized capacity development for DRR in this area. This project implemented by DUT and SEEDS Asia in cooperation with DOET is one of the efforts to empower people to cope better with natural disasters, through the promotion of DRR education in schools.

Hopefully, as a result of this project, more attention will be paid to school-based activities to raise awareness and to enhance skills of children and their surrounding community to reduce disaster risks. I expect that the outputs of the project will contribute to the promotion of DRR culture among the children.

I am delighted to present this handbook, which will give school teachers practical guidance to carry out DRR education in their schools.



Motonori TSUNO
Chief Representative, JICA Vietnam



Pictures from Disaster Risk Reduction Classes
Top : First Aid
Bottom : Drawing (Practicing first aid)

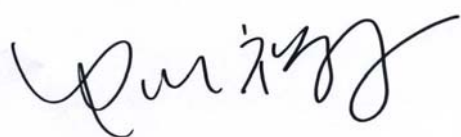
Preface

Central Vietnam is prone to natural disasters and has been affected repeatedly by meteorological disasters such as typhoons and floods. SEEDS Asia and Danang University of Technology, with the financial assistance from Japan International Cooperation Agency (JICA), implemented the project titled “Capacity Building for School-Centered Community-Based Disaster Risk Management (CBDRM) in Central Vietnam” in schools and local communities in the Hai Chau District of Da Nang City, to build capacities to cope with natural disasters.

School children are especially vulnerable during disasters and therefore awareness raising and capacity building on Disaster Risk Reduction (DRR) is very important. In the project, activities focused on raising the capacity of school teachers to conduct DRR education programs for their students. Also, a unique approach was taken to target schools to jointly organize CBDRM with local communities as well.

This publication, “Teacher’s Handbook for Disaster Risk Reduction Education” is an output of the DRR Education programs which was carried out in the four target schools. Inputs and knowledge from school teachers were integrated in the contents of this handbook. Furthermore, the handbook was developed fully taking Vietnamese customs into consideration, including practical techniques and local knowledge obtained from local skillful experts and partners of our project.

We are very pleased and honored to present this handbook as an outcome of the project. It is hoped that the readers, mainly school teachers, who need guidance to conduct DRR Education in elementary and secondary schools, will find it useful and practical. Hopefully, through the handbook, teachers will be able to conduct further and in-depth DRR Classes with confidence, including how to prepare a class and how to implement it, and help school students raise their awareness on DRR issues.



Yuko NAKAGAWA
Chief Operating Officer
SEEDS Asia



Tran Van QUANG
Dean, Faculty of the Environment
Da Nang University of Technolog



Pictures from Disaster Risk Reduction Classes

Left-Top : School Walking and Map Making / Right-Top : Town Watching and Map Making

Left-Bottom : Sand Bag Protection / Right Bottom: Emergency Bag Making

Message

We are very pleased to have this “Teacher’s Handbook for Disaster Risk Reduction Education”, produced by SEEDS Asia, in cooperation with Da Nang University of Technology (DUT), under the project “Capacity Building for School-Centered Community-Based Disaster Risk Management in Central Vietnam” supported by Japan International Cooperation Agency (JICA). On behalf of Da Nang Department of Education and Training (DOET), I would like to thank all of those concerned with this publication.

Da Nang city is located in the central region of Vietnam where there is a largest amount of rainfall in the country. Averagely every year, there are several typhoons and/or tropical storms which directly affect to Da Nang City. There was a biggest flood in 2007 while the city is completely soaked in water and many households had to be moved to other places. In 2006, typhoon Chanchu in 2006 caused loss of life with 74 people and Xangsane hit and caused loss of life with an estimated 168 people including injured and missing people.

DOET has been strongly supporting the project of SEEDS Asia and DUT, implemented in Hai Chau District of Da Nang City. We monitored the implementation of Disaster Risk Reduction (DRR) Classes in the four schools which are; Vo Thi Sau Elementary School, Phan Dang Luu Elementary School, Le Thanh Ton Secondary School, and Tay Son Secondary School. The result of our monitoring indicated that the teachers were satisfied with the DRR Classes supported by SEEDS Asia for teachers trainings and preparations of the classes. We hope the classes can be implemented in the future school activities.

With a view to providing a suitable guide of DRR Education for teachers in Da Nang City, as well as those all over the country, we are very pleased to introduce the present handbook. Knowledge and experiences on DRR Education in schools in Japan and Vietnam have been brought into this handbook.

We sincerely hope that teacher who uses this handbook will find it useful, practical and effective and will use it as the material for implementation of DRR Education in order to promote awareness on disasters and preparedness.



Nguyen Minh Hung
Da Nang City Department of Education and Training

(Original Text is in Vietnamese, and translated into English by SEEDS Asia)

Acknowledgments

SEEDS Asia Secretariat and its Da Nang Office members gratefully acknowledge the contributions made by all stakeholders to develop this publication – “Teacher’s Handbook for Disaster Risk Reduction Education” under the project “Capacity Building for School-Centered Community-Based Disaster Risk Management (CBDRM) in Central Vietnam”.

We would like to express our sincere thanks to the management and teachers in the project’s four target schools – Vo Thi Sau Elementary School, Phan Dang Luu Elementary School, Le Thanh Ton Secondary School, and Tay Son Secondary School. The experiences from the Teachers’ Training and Disaster Risk Reduction (DRR) Classes form a key basis for this publication. The teachers also kindly spared time in checking whether the contents were suitable for the educational situation in Vietnam.

We appreciate the cooperation and support provided by the Da Nang City Department of Education and Training. Mr. Nguyen Minh Hung, Deputy Director, always gave us critical and valuable advice for the project’s implementation. Our thanks also go to Mr. Nguyen Dung Sy, chairman of Thuan Phuoc Ward People’s Committee, and Mr. Phan Trong Tin, vice chairman of Hoa Cuong Bac Ward People’s Committee in Da Nang. They contributed to our activities of CBDRM in which local residents joined for awareness- raising. These experiences, and the advice they provided, form an important part of the handbook’s contents.

We would like to express our sincere appreciation to Dr. Tran Van Nam (currently President of Dadang University), Dr. Tran Van Quang, Dr. Hai Hoang and other colleagues at the Da Nang University of Technology (DUT). As the project’s counterpart, we discussed in-depth various management and operational issues, which helped us to effectively implement the project. We would like to thank Dr. Tran Van Giai Phong, College of Economic of Hue University, for his contribution as a technical expert for the project and in the handbook’s preparation.

Our special thanks go to Japan International Cooperation Agency (JICA) Vietnam Office. Their support and advice in planning, funding and implementing the project (including advice from Japanese experts in Vietnam) helped SEEDS Asia to maximize the outcomes from the project.

Finally, our sincere appreciation also go to the translators in the project activities, Volunteers in DUT, illustrators for the handbook, and departments and centers of Da Nang City who contributed pictures and useful information both to the project and to the handbook.

SEEDS Asia Secretariat



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Linkage between Disaster Risk Reduction Education Programs

These programs includes “Lecture”, “Presentation”, “Practice”, and “Life-saving activity”.

- Lecture : Teachers will facilitate the classes and provide information and knowledge that help to raise their awareness.
- Presentation : Students will present based on group discussion, their findings, gathered information as well as their works.
- Practice : Students will practice by themselves to improve their skills to cope with disasters.
- Life-saving activity : Students will receive trainings and/or practice to take actions when they face an emergency situation caused by disasters.

These categories are linked with each other, and through each program, students will gain knowledge on disasters risk reduction, and gain skills to cope with disasters. Synthetic DRR programs will help students to raise their awareness toward disasters and build capacities on how to prevent disaster risks.



This table shows each program categorized by “Lecture”, “Presentation”, “Practice”, and “Lifesaving activity”.

		Lecture	Presentation	Practice	Life-saving activity	
1	Lecture & Video Showing on Mechanism of Disasters & Natural Hazards	⊙	○			Lecture
2	Story from Affected People	⊙				
3	Essay Writing / Essay Contest		⊙			Presentation
4	Drawing		⊙			
5	Newspaper Making on Disasters		⊙			
6	School Walking and Map Making		⊙			
7	Town Watching and Map Making		⊙			
8	Preparedness and Non-Structural Mitigation	○	⊙			Practice
9	Emergency Bag Making		⊙			
10	Sand Bag Protection			⊙		
11	Cooking			⊙		Life-saving
12	Bucket Brigade			⊙		
13	First Aid			○	⊙	
14	Evacuation Drill			○	⊙	

⊙ Primary category

○ Secondary category (a program includes these contents of category)



Lecture



Presentation



Life-saving activity



Practice



Pictures from Disaster Risk Reduction Classes

Left-Top : Bucket Brigade / Right-Top : Lecture & Video Showing on Mechanism of Disasters and Natural Hazards
Left-Bottom : Essay Writing/Essay Contest / Right Bottom: School Walking and Map Making

How to use this handbook

This handbook is intended to provide clear guidance in order to conduct DRR education to students at elementary and secondary level.

This handbook consists of

- Introduction
- Programs on Disaster Risk Reduction Education
- Appendix

Introduction recalls the readers about the past disasters in Vietnam, then give detailed explanation about Disaster Risk Reduction (DRR), and explain why DRR education is needed in school education.

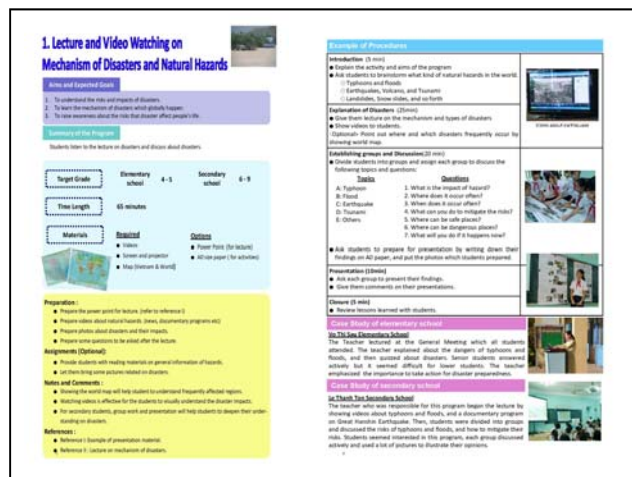
DRR Education Programs introduces 15 DRR programs which can be used at teachers' training for DRR Education and DRR classes in schools in Vietnam.

Appendix includes other DRR activities as well as indigenous knowledge.

This handbook is designed to introduce each program with double-page spread and you can see “**Aims and Expected Goals**” and “**Summary of the program**” on the left page, as well as information which teachers can consider easily prepare for the activity, such as;

- Target grade
- Time Length
- Example materials

In reference to “**Example of Procedures**” on the right page, teachers can either follow the “examples of procedure” or arrange in their own ways. In addition, “**case study**” is the reference to help teachers to arrange the program.



Example of pages
(from emergency bag making)



Drawings by elementary students

Left-Top : Forest fire / Right-Top : People waiting for rescue in flood situation

Left-Bottom : Cleaning activity in post-disaster situation / Right Bottom: Students drawing in the class

Introduction

Disasters in Vietnam

Disaster Risk Reduction

Disaster Management Cycle

Why DRR Education in Schools Is Needed



Damage in Da Nang City in Typhoon Xangsane of 2006
(source: Da Nang Center for Flood and Storm Control)

Disasters in Vietnam

Due to geographical location, Vietnam is one of the most typhoon affected areas in the world. Being influenced by climate change, the central region of Vietnam has been severely affected by typhoons. In October 2006, Typhoon Xangsane hit the central region and caused strong winds and floods, resulting that 71 people died, 320,000 houses were destroyed, more than 40,000 houses were soaked, and many schools were damaged. Later, from September to October in 2009, Typhoon Ketsuna hit the same region, causing more than 160 people died.

In addition to typhoon, other disasters such as floods, landfalls, and landslides are frequent natural hazards in Vietnam due to strong storm and heavy rains, and many people suffered from their damages. Especially, in October 2010, heavy rains caused floods and landfalls in the central provinces, and 173 dead and missing, and 168 injured were estimated. Furthermore, earthquakes sometimes happened in the northern area of Vietnam and people can be also affected by Tsunami caused by the earthquakes in the Pacific Ocean. Therefore, it can be seen that Vietnam is one of the disaster-prone countries.

Damages caused by natural disasters in Vietnam (2000-2009)

Year	Died	Injured	Missing
2009	435	1390	33
2008	474	404	64
2007	462	856	33
2006	339	2.098	273
2005	377	262	22
2004	175	135	34
2003	180	191	6
2002	355	275	34
2001	604	288	25
2000	762	413	13

(Source: Vietnam Central Committee for Flood and Storm Control (Left))

Damages caused by natural disasters in Da Nang (2000-2009)

Year	Died	Injured	Missing
2009	8	92	0
2008	0	0	0
2007	3	3	0
2006	105	61	2
2005	1	11	0
2004	3	2	1
2003	5	0	0
2002	0	0	0
2001	2	0	0
2000	2	0	0

(Source: Da Nang Department of Agriculture and Rural Development (Right))



(photos source:

Left: Da Nang Center for flood and storm control / Right: <http://pda.vietbao.vn>)

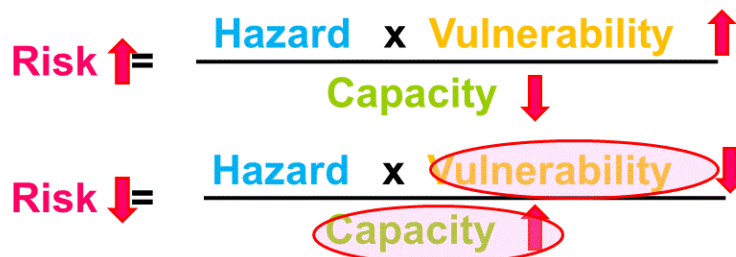
Disaster Risk Reduction

The risk of disasters results from a combination of hazards and vulnerability. Hazard is a phenomenon that can pose a potential threat such as typhoon, flood, forest fire, earthquake and tsunami. Vulnerability is the low quality resistance of people or property that makes them suffer; for example, people not having any awareness on safety measures in case of emergency situation, people living in crumbling old building, and people not having any means to receive information on hazards. When both condition met, damage is incurred and lives are lost. If people are living stronger houses, are having enough information on safety measures, there would be no disaster.

However, it is mentioned that hazards cannot be easily prevented. The key, therefore, lies in reducing vulnerability. Vulnerability can be reduced in many ways by making stronger houses and school building, by making community people and students aware of what they need to do before, during and after disaster, and by building strong network among community members to exchange information. The processes that reduce vulnerability are also called “capacity building” processes. Therefore, if we can increase capacity of people, we can reduce risk of disasters.

What leads to Risk?

$$\text{Risk} = \text{Hazard} \times \text{Vulnerability} / \text{Capacity}$$



Terminology

Risk :

The probability of harmful consequences, or expected losses (deaths, injuries, property, livelihoods, economic activity disrupted or environment damaged) resulting from interactions between natural or human induced hazards and vulnerable conditions. (UN-ISDR)

Capacity :

A combination of all the strengths and resources available within a community, society or organization that can reduce the level of risk, or the effects of a disaster. (UN-ISDR)

Vulnerability :

The conditions determined by physical, social, economic and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards. (UN-ISDR)

Hazard :

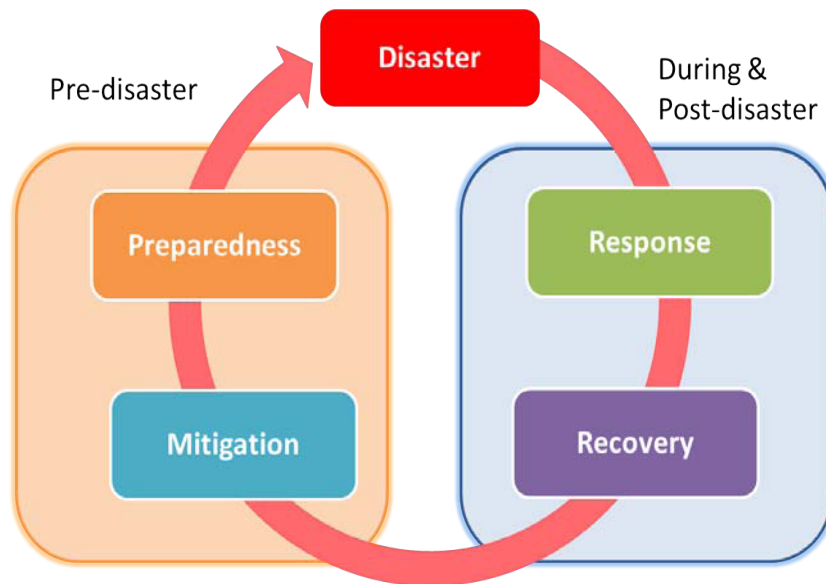
A potentially damaging physical event, phenomenon or human activity that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

Disaster Management Cycle

In order to protect oneself, family members, and neighbors, the followings are needed

- appropriate actions **during and after the disasters**
- preparation to reduce the disaster risks **before disasters come**

Disaster management is a cyclic process which will help people understand how to take actions to reduce the disaster risks. Once a disaster occurs, the disaster impacts are assessed and responded by people. Then, infrastructure, damaged houses and properties are reconstructed in order to recover the situation to the normal. During the normal situation (pre-disaster situation), people need to enhance their capacity through raising their awareness and improving skills to cope with disaster impacts. Such efforts enable people to mitigate the disaster risks by removing unnecessary dangers around themselves, and to prepare for the actions which people need to take during the disaster, such as evacuation, first aid etc.



Terminology

Preparedness :

Activities and measures taken in advance to ensure effective response to the impacts of hazards, including the issuance of timely and effective early warnings and the temporary evacuation of people and property from threatened locations. (UN-ISDR)

Mitigation :

Structural and non-structural measures undertaken to limit the adverse impact of natural hazards, environmental degradation and technical hazards. (UN-ISDR)

Response :

The provision of assistance or intervention during or immediately after a disaster to meet the life preservation and basic subsistence needs of those people affected. It can be of an immediate, short-term or protracted duration. (UN-ISDR)

Recovery :

Decisions and actions taken after a disaster with a view to restoring or improving the pre-disaster living conditions of the stricken community, while encouraging and facilitating necessary adjustments to reduce disaster risk. (UN-ISDR)

Why DRR Education in Schools is Needed?

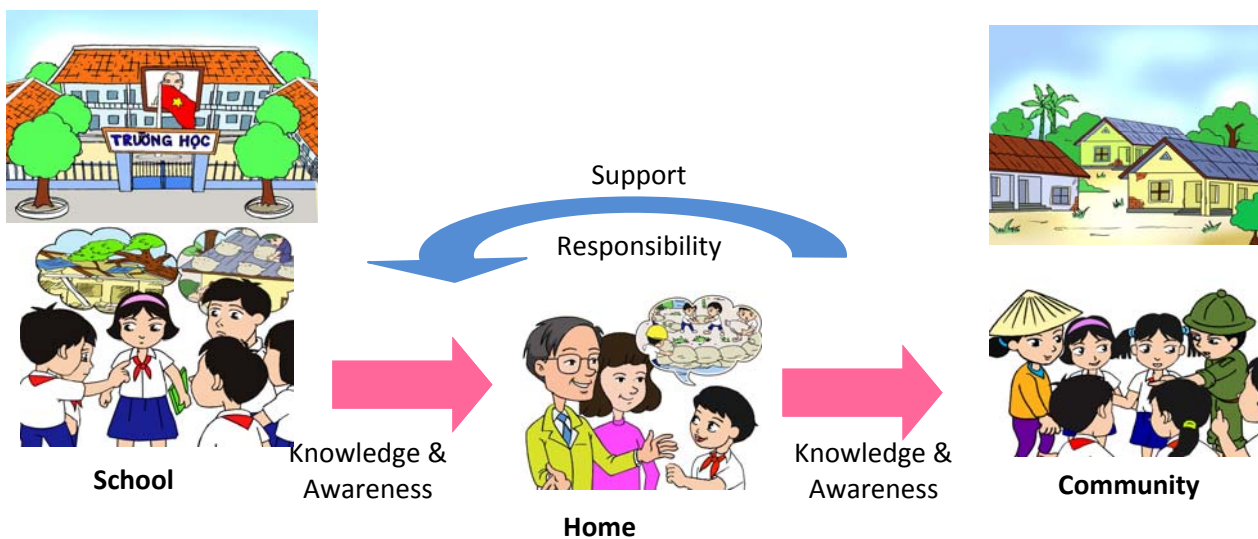
Children are vulnerable and many school children become victims of the natural disasters. For example, in 2008 Sichuan Earthquake in China caused 70,000 deaths and more than 10 % of the total deaths were students and teachers.

However, **raising awareness will reduce loss of lives.** If people know tsunami may be coming after an earthquake, they can evacuate toward higher places. If they know water is polluted after flood, they avoid to drink it. Thus, awareness is extremely important. DRR Education can help to raise awareness!

In addition, **children can be a potential channel to disseminate DRR in communities.** If children learn how to prevent disaster risks in school, they not only know how to protect themselves, but also inform their learning to their family and community people. Thus, children could be a bridge between schools and communities. Once community people understand the importance of DRR, they could support school activities since they have a responsibility to educate children.

This is why **DRR Education in schools** is needed.

Process of raising awareness of the community through school



Role of teachers

- To provide opportunities for students to consider disasters.
- To develop DRR education contents which meet students' interests and adapt local context.
- To raise awareness of community people through school children who receive DRR education.
- To create a linkage between schools and community.

Role of communities

- Community members related to school education (e.g parents committee) can promote DRR education programs with teachers
- Community needs to support school by providing resource persons.
- Community members need to be motivated to disseminate the information on disaster management provided by school children through their parents.

Disaster Risk Reduction (DRR) Education Program

1. Lecture and Video showing on natural hazards and disasters
2. Story of affected people
3. Essay Writing / Essay contest
4. Drawing
5. Newspaper making on disasters
6. School walking and map making
7. Town watching and map making
8. Preparedness and Non-Structural Mitigation
9. Emergency bag making
10. Sand bag protection
11. Cooking
12. Bucket Brigade
13. First Aid
14. Evacuation Drill



1. Lecture & Video Showing on Mechanism of Disasters & Natural Hazards



Aims and Expected Goals

1. To understand the risks and impacts of disasters.
2. To learn the mechanism of disasters which globally happen.
3. To raise awareness about the risks that disaster affect people's life.

Summary of the Program

Students listen to the lecture on disasters and discuss about disasters.

Target Grade



Elementary school

4 - 5



Secondary school

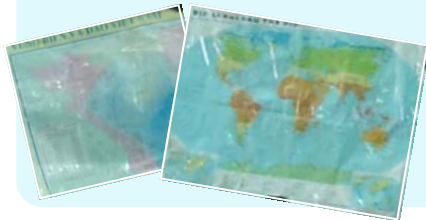
6 - 9

Time Length



65 minutes

Materials



Required

- Videos
- Screen and projector
- Map (Vietnam & World)

Options

- Power Point (for lecture)
- A0 size paper (for activities)

Preparations :

- The power point for lecture. (refer to reference I)
- Videos about natural hazards. (news, documentary programs etc)
- Photos about disasters and their impacts.
- Some questions to be asked after the lecture.

Assignments (Optional):

- Provide students with reading materials on general information of hazards.
- Let them bring some pictures related on disasters.

Notes and Comments :

- Showing the world map will help students to understand frequently affected regions.
- Watching related videos is effective for the students to visually understand the disaster impacts.
- For secondary students, group work and presentation will help students to deepen their understanding on disasters.

References :

- Reference I: Sample of presentation material.
- Reference II : Lecture on mechanism of disasters.

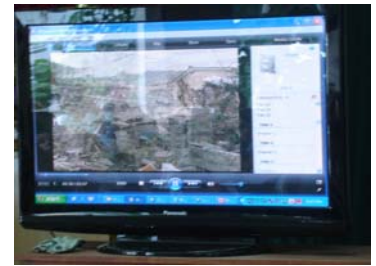
Sample of Lesson Plan

Introduction (5 min)

- Explain the activity and aims of the program
- Ask students to brainstorm different kinds of natural hazards in the world.
 - ◇ Typhoons and floods
 - ◇ Earthquakes, Volcanic eruption, and Tsunami
 - ◇ Landslides, Avalanches, and so forth

Lecture on Disasters (25min)

- Explain the mechanism and types of disasters
 - Show related videos to students.
- <Optional> Point out a disaster and where it frequently occurs by showing the world map.



Video about earthquake

Establishing groups and Discussion (20 min)

- Divide students into groups and assign each group to discuss the following topics and questions:

Topics

- A: Typhoon
- B: Flood
- C: Earthquake
- D: Tsunami
- E: Others

Questions

1. What is the impact of hazard?
2. Where does it often occur?
3. When does it often occur?
4. What can you do to mitigate the risks?
5. Where can be safe places?
6. Where can be dangerous places?
7. What will you do if it happens now?

- Ask students to prepare for presentation by writing down their findings on A0 paper, and attach photos which students prepared.



Presentation (10min)

- Ask each group to present their findings.
- Give them comments on their presentations.



Review (5 min)

- Go over lessons learned with students.

Case of Elementary school

Vo Thi Sau Elementary School

The Teacher lectured at the General Meeting which all students attended. The teacher explained about the dangers of typhoons and floods, and then quizzed about disasters. Senior students answered actively but it seemed difficult for lower students. The teacher emphasized the importance to take action for disaster preparedness.



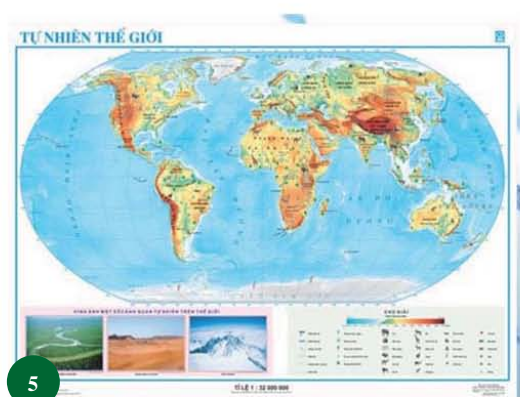
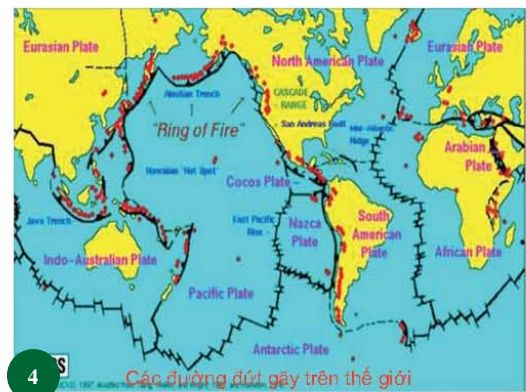
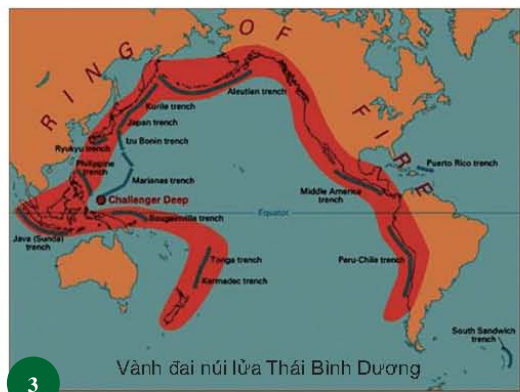
Case of Secondary school

Le Thanh Ton Secondary School

The teacher who was responsible for this program began the lecture by showing videos about typhoons and floods, and a documentary program on Great Hanshin Earthquake. Then, students were divided into groups and discussed the risks of typhoons and floods, and how to mitigate their risks. Students seemed interested in this program, each group discussed actively and used a lot of pictures to illustrate their opinions.



Reference I: Sample of Presentation Material



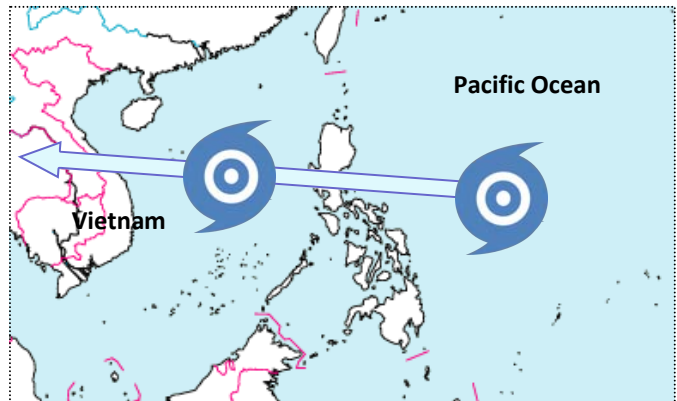
How Hazards occur?

-The mechanism of hazards and precautions for secondary disasters.

Typhoon/Storm

What are the factors for typhoon and storm?

In Typhoon, which is developed from the stage of tropical depression and tropical storm, winds of more than 33 meter per second circulate. Waters of high temperature (more than 26 degrees Celsius) in the southern part of north Pacific ocean cause atmosphere convection and at high sky this atmosphere get rapidly cool, and these action of heat of atmosphere gradually produce tropical storm, then Typhoon. Typhoons usually accompany; 1. strong winds, 2. heavy rains and floods/landfalls, 3. flood-tides and high waves.



Many typhoons hit Vietnam (Xangsane in 2006, Ketsana in 2009), and storms caused many damaged in Central Vietnam.



Strong winds

Strong winds may blow the roofs, break trees, cut electric wires, and destroy many things.



Heavy rains and floods/landslides

Intensive pouring rains may cause floods and landslides, and houses and many things may be floated.



Storm surges and high waves

Low air pressure and strong winds lead storm surges and high waves. In the coastal area, they may cause flood.

(photos source: Da Nang Center for flood and storm control)

What should I do to minimize the risk of typhoon?

1. Keep things inside the house.
2. Place sand bags on the roof of the house.
3. Strengthen and protect glass windows.
4. Prepare things and foods before a storm come.
5. Listen to radio or watch TV for weather forecasts.
6. Stay at home during a storm.
7. Be careful of any destroyed electricity wires.

How Hazards occur?

-The mechanism of hazards and precautions for secondary disasters.

Flood

What are the factors for flooding?

Flood is the condition of partial and complete inundation of normally dry area from and overflow of inland water or unusual run-off of surface water of any source.

It can be caused by

1. Heavy rainfall,
2. Storm surges
3. Failure to drainage system
4. De-forestation



(source: Da Nang Center for flood and storm control)



What kinds of flooding are there?

River Flood

River floods are the most common type of flooding. When the actual amount of river flow is larger than the amount that the channel can hold, the river tends to overflow its banks and flood the area alongside. River floods build up slowly and are often seasonal.

Flash Flood

A flash flood is rapidly rising and flowing surge of water that results from excessive rainfall or the failure of a dam. Flash floods usually occur with little or no warning and can reach their full peak in only a few minutes.

Coastal Flood

Coastal floods are a result of tropical cyclones. Sea water moves into the mainland propelled by high tides, heavy rainfall, storm surges or tsunamis. Human settlements in flood plains often reduce the effective width of drainage channels thus intensifying flood situation.

(photos source: website of Vietnamese Environment Journalist Forum http://www.vfej.vn/vn/chuyen_muc/148/bao_/90/)

What should I do for minimize the risk of flood?

1. Clean the drainage and sewage channel.
2. Plant the tree around the coastal area.
3. Place sand bags surrounding your house.
4. Strengthen glass windows.
5. Listen to radio or Watch TV for knowing situations.
6. Evacuate to higher and safer place if flood occurs.
7. Don't drink or eat in contact with flood water.
8. Don't enter flood water.

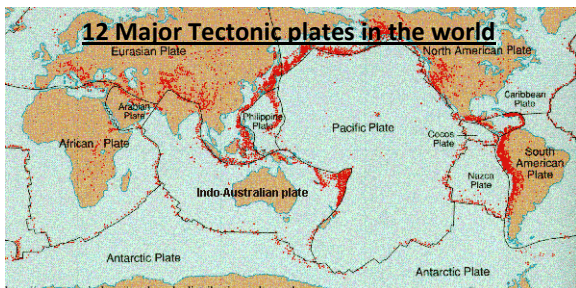
How Hazards Occur?

-The mechanism of hazards and precautions for secondary disasters.

Earthquake

What are the factors for earthquake?

1. The earth is covered with layers like an egg. The surface, called Tectonic plates are moving towards each other accordance with the movements of core of the earth.
2. Releasing energy from the movement of each plates and get crust. The fracture is called Fault.

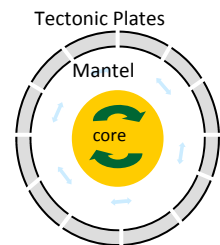


Fault:

The fracture along with the displacement of plates has occurred during an earthquake

Magnitude:

Scale for earthquake, called Richer scale, too. If One digit increase, that means ten times of energy released.

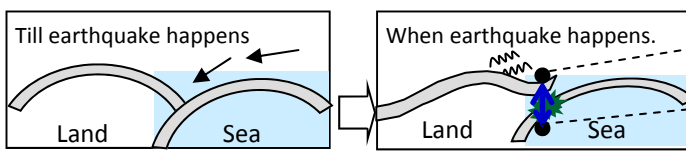


Focus:

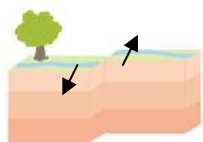
where earthquakes originates

Epicenter:

the point on earth's surface that is directly above the focus.



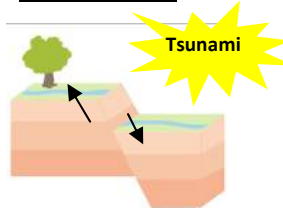
Normal Fault



Strike-Slip Fault



Reverse Fault



What should I do to minimize the risk of Earthquake?

1. Things must be secured by means of fasteners
2. Heavy objects must not be near the exit.
3. Stay away from glass windows and evacuate while covering the head.
4. Keep away from tall and fragile building.
5. Be careful to fire as secondary disaster.
6. Be careful to Tsunami if you are in coastal area.

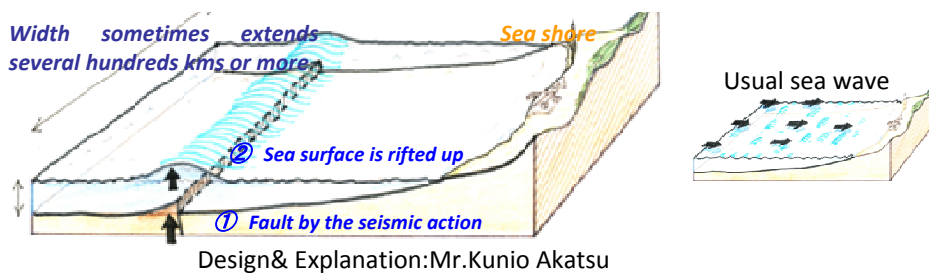
How Hazards occur?

-The mechanism of hazards and precautions for secondary disasters-

Tsunami

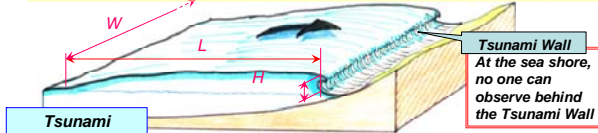
What are the factors for Tsunami?

1. Tsunami is a series of waves from the energy by the seismic action such as Earthquake, land slide, volcanic eruptions. It moves as fast as airplane near sea shore.



Movement at Near the sea shore

- > Length and Width of Tsunami wave are quite longer
- > As the Tsunami come near sea shore, front of Tsunami grow up higher.
- > Finally, Tsunami loose the shape and it looks like the Wall (=Tsunami Wall)



- > Length of usual sea wave is quite short compare with Tsunami
- > As the wave come near sea shore, wave grow up higher.



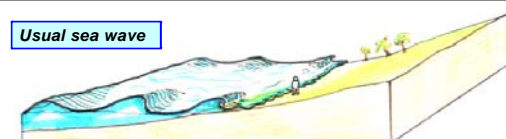
Design & Explanation: Mr. Kunio Akatsu

Movement on the Sea shore

- > The front of Tsunami rushes to the inland easily because huge amount of sea water behind push the front water. → This is like a Flush Flood comes from the sea.
- > Therefore people have to escape to the higher land immediately.



- > The front of usual sea wave usually stops around sea shore.
- > Therefore people can keep standing near the sea shore.



Design & Explanation: Mr. Kunio Akatsu

What should I do to minimize the risk of Tsunami?

1. Doubt tsunami first after earthquake occurs.
2. Listen to radio, don't be near to sea or river.
3. Alert to the sign of Tsunami such as sound of explosion or sea recedes, frightened birds.
4. Run to the higher place, hill, tall building.
5. Find evacuation route and shelter any time when you go to coastal area.
6. If already off-shore, go farther to deeper area.



(photos source: Da Nang Center for flood and storm control)

2. Story from Affected People



Aims and Expected Goals

1. To understand lessons learnt from those who were affected.
2. To know what happened during disasters and affected people's life.
3. To raise awareness about the risks of disaster.

Summary of the Program

Students listen to the stories from the affected people and officials.

Target Grade



Elementary school
1 - 5



Secondary school
6 - 9

Time Length



45 - 65 minutes

Materials

Required

- Affected people / stakeholders
- Stories of disasters

Options

- Video
- Photos

Preparation :

- Invite affected people of the past disasters and/or officials from public service or civil society organizations / associations.

Optional :

- Prepare the related videos and photos to explain about the related disasters.

Notes and Comments :

- This activity can be combined with other disaster risk reduction classes, including newspaper making, essay writing, drawing and story-picture show, etc.

Case Story: "The Heavy Rain"

Just getting out of the office one day, we were shocked to see a huge of broken motorbike everywhere. Rain was so heavy with strong wind. All streets were flooded. A friend of mine suggested to turn back to the office because "it was too difficult to go home", he said. Suddenly, we heard a sound of something falling behind. We looked back and saw a little boy at about 10 years old falling down into the water. My friend immediately left his bike and grab the boy from flowing stream directing to a drain without cover. The boy couldn't stand up. His leg was seriously injured. We brought him to the hospital nearby. My friend was right that we couldn't get home. We stayed in the hospital with the boy until his parents come.



(Source: <http://pda.vietbao.vn>)

Sample of Lesson Plan

Introduction (10 min)

- Explain the importance to know the experiences of others about the past disasters.
- Introduce the invited people.
<Optional>
- Show related videos and photos about the disasters.

OPTION I Experiences of the affected people / stakeholders (20 min)

- Invite affected people who experienced disasters to share his/ her story.
For instance, the story can cover:
 - ◇ Dangers caused by disaster.
 - ◇ Difference of life between pre-disaster and post-disaster.
 - ◇ Experiences and lessons learned: ex) the importance of preparedness and cooperation among community members.

OPTION II Story from stakeholders (20 min)

- Invite official (s) from public service or civil society organizations / associations to share their experience about the disaster risk reduction.

Evaluation (10 min)

- Students will enumerate the things to do when there is a disaster.
- Ask any comment or feedbacks.

Review (5 min)

- Go over lessons learned with students.

Cases in Other Countries

Learn from the Past (Indonesia)

The same activities were also carried on in Tegal Sari Elementary School, Sanden. A teacher told about his experience which he got when Yogyakarta Earthquake on May 27th, 2006 happened. The teacher shared the story on how he survived from the earthquake. From this activity, the students can get important lesson about the situation if the disaster will happen and what are things that should be carried out in that kind of situation.



(Sources: SEEDS Asia)

Stories from affected people (Japan)

Maiko High School has invited many affected people as guests in order to tell students the real stories on disasters, especially on the Great Hanshin-Awaji Earthquake. Furthermore, many stakeholders from different organizations and institutions such as fire station, police station, health center were invited to help students understand the important roles of stakeholders in case of emergency situation.



(Sources: Maiko high school)

3. Essay Writing / Essay Contest



Aims and Expected Goals

1. To raise awareness about disasters by writing essay.
2. To disseminate experience of disasters.

Summary of the Program

Students write essays about the disasters and teachers select good ones to be presented in front of audience.

Target Grade



Elementary school 5



Secondary school 6 - 9

Time Length



30 - 90 minutes

Materials

Required

- Pencils
- Paper

Options

- Video
- Photos

Assignment :

- Assign students to prepare essay topics relating to disasters.

Optional :

- Prepare the videos and photos to show various events of disasters to show.
- The teachers can organize a contest and award the best students.
- The best essays can be shown or presented in front of all students, and/or can be broadcasted.

Notes and comments

- This program can be implemented after program "Lecture and video about disaster".

Example: Essay of a student from Le Thanh Ton school

Few years ago, there's a big flood in Quang Tri province. When the flood was happening, a woman tried to cross a part of the submerged street to go back home. However, the water flow was so strong that it pushed her and her bicycle. Fortunately, she was caught by a small tree, and she was so scared she screamed for help. No one was in the street at that time. Living in a house nearby, a young boy heard her voice and he asked help to other 3 people and they went out to save her. First, they threw a rope and pulled her to safe place. Then, one boy searched for her bicycle and brought it back. The woman felt very lucky to be saved. Later, she took her 4 children came to each house to thank those young boys' help.



Sample of Lesson Plan

Introduction (10min)

- Teacher can show various events of disaster on videos, pictures or articles.
- Let students do brainstorming on natural disasters and its impacts.

Option 1:

Writing (60min)

- Let students write an essay on a topic related to disasters, including
 - ◇ Disasters itself
 - ◇ Impact of disasters
 - ◇ Importance of Disaster Preparedness / Mitigation
 - ◇ Cooperation among people
 - ◇ Any others...

Option 2:

Assignment

- teacher can ask students to make an en essay.

Presentation and Evaluation (15min)

- Select some good essays, and let the students present it.
- Decide the best presentation by the following criteria:
 - ◇ Writing skills
 - ◇ Presentation skills
 - ◇ Information about the natural hazards and disasters
 - ◇ Any others...

Review (5 min)

- Go over lessons learned with students.

Case of Secondary School

Le Thanh Ton Secondary School (Vietnam)

Le Thanh Ton Secondary School held the essay writing competition about disasters. Literature teachers selected some students who were good at writing and assigned them to write essays on disasters. While some students wrote about their own experiences, others wrote from the TV news and so on. The students presented their stories in front of all of the students in the General Meeting. Afterwards, literature teachers and all students voted for best presentations in terms of good expression and impressive contents. Finally, the principal awarded the four best students.



4. Drawing



Aims and Expected Goals

1. To raise awareness about disasters by drawing.
2. To share experience of disasters.

Summary of the Program

Students draw on a theme related to disasters and teacher select good ones to be displayed.

Target Grade



Elementary school

4 - 5



Secondary school

6 - 9

Time Length



95 minutes

Materials

Required

- Color Pencils / Crayons
- Drawing paper

Assignment :

- Assign students to prepare topics of drawing relating to disasters.

Optional:

- The teachers can hold a competition and award the best students.



Forest fire caused by smoking, garbage burning, destroying forest



Conducting First Aid to help the person injured during the storm



Houses submerged under the water and people on the roof calling for help. Helicopters delivering aids to people

Sample of Lesson Plan

Introduction (10min)

- Discuss with students about natural disasters.
- Foster their imagination by putting appropriate questions

Drawing (60 min)

- Let students draw on a theme related to disasters, including:
 - ◇ Disasters itself
 - ◇ Impact of disasters
 - ◇ Importance of Disaster Preparedness / Mitigation
 - ◇ Cooperation among people
 - ◇ Any others

Presentation and Evaluation (20min)

- Collect the drawings and post them on the wall.
- Ask students to explain about their drawings.

<Optional>

- The best drawings can be selected by the following criteria:
 - ◇ Good drawing
 - ◇ Good presentation and explanation
 - ◇ Good information about the natural hazards and disasters
 - ◇ Any others
- The best drawings can be displayed.

Review (5 min)

- Go over lessons learned with students.



Case of Elementary School

Vo Thi Sau Elementary School (Vietnam)

For the elementary school students, teachers had assigned them to consider and consult their parents about natural disasters. At that day, on conducting the program, students made teachers surprised with many interesting drawings about different aspects relating to disasters. Some of them imagined about forest fire, which sometimes happen in mountains of Central Vietnam. Others drew about houses submerged in flood water with people sitting on the roofs and calling for help or the scene of people cleaning streets after storm. One student even drew people who attempt to conduct “first aid” , a program which she had just learned a few days before. Teachers collected all drawings, select some good ones and posted them so that all students can see their friends’ drawings. Finally, the whole class voted to choose several best pictures and gave awards.



5. Newspaper Making on Disasters



Aims and Expected Goals

1. To give an opportunity for students to study disasters on their own.
2. To raise awareness of students about disaster risks and impacts.

Summary of the Program

Students will make a newspaper by collecting information and writing articles about disasters.

Target Grade



Elementary school

4 - 5



Secondary school

6 - 9

Time Length



~1 week

Materials

Required

- Color Pen
- Crayons
- Paper for newspaper

Options

- Photos

Preparation :

- Prepare newspapers as examples for students.

Optional :

- If there is radio system facility in the school, students can broadcast their articles.

Notes and comments

- If making newspaper is difficult for elementary school students, they can collect pictures and make a collage instead of articles.



Photos on newspapers by Vo Thi Sau students, Da Nang city (source: SEEDS Asia)

Sample of Lesson Plan

Newspaper making (give them a few days)

- Launch the activity of making newspaper and set deadline for students to write articles.
- Collect students' writings and edit.
- Forming the group to design and organize the newspaper.

Presentation and Evaluation (20 min)

- Organize an exhibition in school or post newspaper so that all students can read it.
- Give comments to each newspaper base on following criteria:
 - ◇ Contents relating to DRR
 - ◇ Design
 - ◇ Structure of the newspaper
 - ◇ Any others...

Optional:

- Award the best newspapers

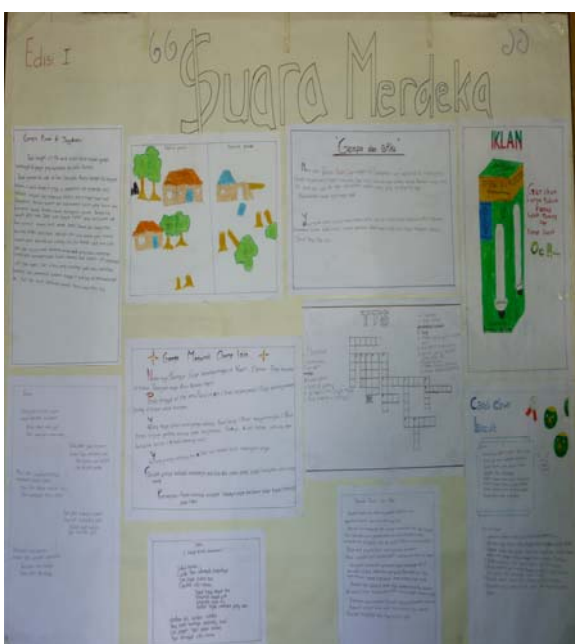
Review (5 min)

- Go over lessons learned with students.

Case of Elementary School

Making Newspaper (Indonesia)

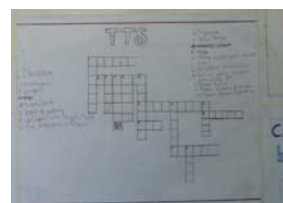
Rojoniten, Tegalsari, and Gading Harjo 2 Elementary School in Sanden Bantul, together with SEEDS Asia and YAKKUM Emergency Unit (YEU) held a disaster newspaper writing activity to the students. Disaster newspaper is a place for students' appreciation to spill out all the creativities in the form of writings, pictures, or photograph of disaster. The students also have roles like other people such as journalists, editor, and real photographers.



Newspaper "Suara Merdeka"
Gading Harjo 2 Elementary school



drawings



word puzzle game



poem

The newspaper includes variety contains such as interviews, reports, drawings,, games, poem, etc.

6. School Walking and Map Making



Aims and Expected Goals

1. To find out dangerous and safe place in the school.
2. To identify evacuation route.
3. To understand the school environment

Summary of the Program

Students will walk around school campus to familiarize dangerous and safe places when disaster occurs, create school maps, consider possible evacuation routes, and present their findings.

Target Grade



Elementary school 4 - 5



Secondary school 6 - 9

Time Length



80 - 100 minutes

Materials

Required

- Color Pens / Crayons
- Pencils
- A0 papers

Options

- Camera and printer
- Post it
- Round color stickers (for using on the maps)

Optional :

- The target disaster could be assumed, since the dangerous and safe places depend on the types of natural hazards.

Notes and Comments :

- After making maps, teacher can ask students to consider the evacuation route.
- If cameras cannot be arranged, students can draw simple drawings about their findings on the maps.



Sample of Lesson Plan

Introduction [Preparation for school walking] (15min)

- Explain the process of school walking and map making, and emphasize to identify not only dangerous places but also safe places in disaster cases.
 - Ask students to brainstorm any safe and dangerous places in the school, and raise a few examples for students to get some ideas.
- <Optional>
- Explain what type of disaster will be assumed for the activity; Typhoon, Flood, Landslide, Fire. Teacher can assign these topic to each groups separately.



Establishing groups and Allocation of roles (5 min)

- Divide students in groups of 6-10 students.
- Provide cameras, pens, papers, etc, for each groups.
- Instruct each groups to assign roles for every member. Each member receive different role to ensure that all students participate in the process. (refer "Example of roles")

Example of roles :

- Group leader
- Photographer
- Map Drawer
- Note taker
- Observers of safe and unsafe spots

School walking / observation (20—30min)

- Students walk around the school and identify dangerous and safe places.
- Students take notes about their findings and take photos.



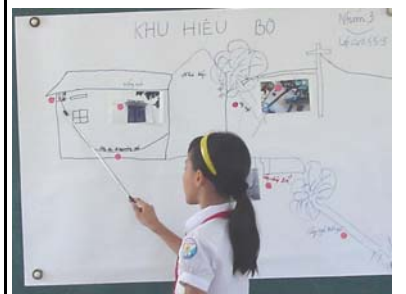
Drawing map (20—30min)

- Students draw a school map on a A0 paper.
- Students post photos or draw for several places, and put color seals on the map; for example:
 - Safe place: ● (blue)
 - Dangerous place : ● (red)
 - Other important place : ● (yellow)
- Students add comments on the marked spot.



Presentation and discussion (15 min)

- Ask each group to present their findings by using the map.
- Facilitate Q & A session for each presentation.
- Ask students to consider evacuation route and shelters based on their school maps, by assuming the disasters as fire, flood, and typhoon



Evaluation and teacher's comment (5 min)

- Evaluate each school map and give comments on their maps and presentations.



Review (5 min)

- Go over lessons learned with students.

7. Town Watching and Map Making



Aims and Expected Goals

1. To find out dangerous, safe and useful places in community.
2. To identify evacuation route and shelters.
3. To understand the surrounding environments.

Summary of the Program

Students walk around the town outside of school to familiarize dangerous and safe places when disaster occurs, create maps, consider possible evacuation routes, and present their findings.

Target Grade



Elementary school 4 - 5



Secondary school 6 - 9

Time Length



90 - 100 minutes

Materials

Required

- Color Pens / Crayons
- Pencils
- A0 papers

Options

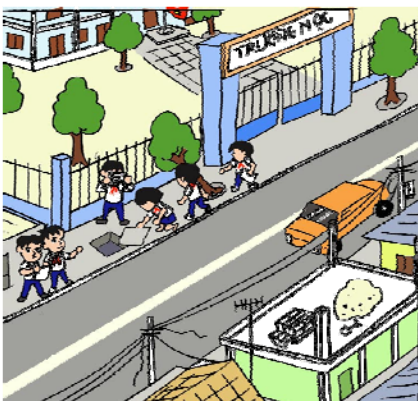
- Camera and printer
- Post it
- Round color seal
(for using on the maps)

Optional :

1. The target disaster could be assumed, since the dangerous and safe places depend on the types of natural hazards.
2. The teacher will gather the evacuation maps or plans from the authority.

Notes and Comments :

- After making maps, teacher can ask students to consider the evacuation route and shelter.
- If cameras are not available, students can draw about their findings on the maps.



Sample of Lesson Plan

Introduction (15min)

- Explain the process of town watching and map making, and emphasize to identify not only dangerous places but also safe places in disaster cases.
- Ask students to brainstorm any safe and dangerous places in the community, and raise a few examples for students to get some ideas. <Optional>
- Explain what type of disaster will be assumed for the activity; Typhoon, Flood, Landslide, Fire. Teacher can assign these topic to each groups separately.



Establishing groups and allocating roles (5 min)

- Divide students in groups of 6 – 10 students.
- Provide cameras, pens, papers, etc., for each group
- Instruct each group to assign roles for every member. Each member receive different role to ensure that all students participate in the process. (refer “Example of roles”)

Example of roles :

- Group leader
- Photographer
- Map Drawer
- Note taker
- Observers of safe and unsafe spots

Town watching / Observation (30min)

- Students walk around the community and identify safe and dangerous places.
- Students take notes about their findings and take photos.
- Students ask for comments/ information from the residents in the community.



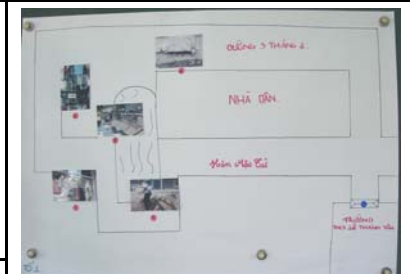
Drawing Map (20 - 30min)

- Students draw a town map on a A0 paper.
- Students post photos or draw for several places, and put color seals on the map; for example:
 - Safe place: ● (blue)
 - Dangerous place : ● (red)
 - Other important place : ● (yellow)
- Students add comments on the marked spot.



Presentation and Discussion (15 min)

- Ask each group to present their findings by using the map.
- Facilitate Q & A session for each presentation.
- Ask students to consider evacuation route and shelters based on their maps, by assuming the disasters as fire, flood, and typhoon.



Evaluation and teacher's comment (5 min)

- Evaluate each map and give comments on their maps and presentations.



Review (5 min)

- Go over lessons learned with students.

8. Preparedness and Non-Structural Mitigation






Aims and Expected Goals

1. To learn necessary actions to cope with disasters.
2. To understand the concept and non-structural mitigation.
3. To know how preparedness reduce risks of disasters.

Summary of the Program

Students will discuss what to do before, during and after disasters, and learn examples of non-structural mitigation.

Target Grade	 Elementary school	4 - 5	 Secondary school	6 - 9
Time Length	 60 minutes			
Materials	<u>Required</u> <ul style="list-style-type: none"> ● Color Pen / Pencil ● A0 size paper 		<u>Options</u> <ul style="list-style-type: none"> ● Photos (illustration of non-structural mitigation) 	

Assignment :

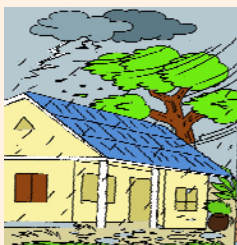
- Ask students to consider how to prepare to cope with natural disasters.

Notes and Comments :

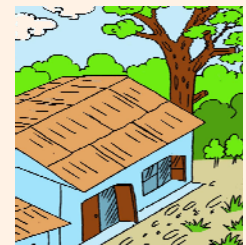
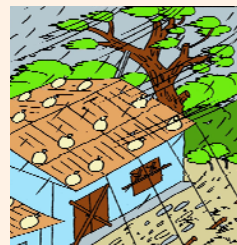
- Although Vietnam is not the earthquake prone area, students need to know the impacts and dangers of the earthquake.

Figure: Consequence of Non-Structural Mitigation

Without Non-structural mitigation



Non-Structural mitigation



Reference :

- Reference I: Concepts of “Non-Structural Mitigation”
- Reference II: Checklist for “Preparedness”
- Reference III: Checklist for “Before, During and After Disasters”
- Reference IV: Checklist of “Safety Tips”
- Reference V: The Great Hanshin-Awaji Earthquake
- Reference VI: “Non- structural mitigation” for Earthquake

Reference I: Concepts of “Non-Structural Mitigation”

Non Structural Mitigation

- ◇ **“Non-Structural”**
 - Not involving physical construction and physical structures. e.g.) the columns, floors, beams, and load bearing walls etc.
 - “Non-structural elements” are building contents and components, e.g.) suspended ceiling, light fixtures, windows, doors, furniture, cabinets, computers, appliances, TVs, stereos, display cases, bookshelves, interior or exterior ornamentation, heating and air-conditioning equipment, and electrical system etc.
- ◇ **“Mitigation”**
 - “the lessening or limitation of the adverse impacts of hazards and related disasters”
- ◇ **“Non-Structural Mitigation ”**
 - “Non-structural mitigation” are activities to mitigate the risks and prevent damages through awareness raising, knowledge development, public commitment, policies and the provision of information.

Reference II: Checklist for “Preparedness”

Let’s Practice at your home with your family

The following are guidelines on what to do at home, which help them to prepare future disasters!

Prepare at our Home and Family	
	Prepare for medical emergencies: Hold regular family meetings and assign duties to each member. Teach young children how to dial to emergency number to call for help
	Utilities: Make sure every adult family member knows how to turn off the gas, electricity and water in your home. In addition, everyone should be able to use a fire extinguisher.
	Fix home hazards: Search for hazards around your home and fix potential dangers such as defective wiring, leaks and ceiling cracks.
	Safe spots: Identify safe locations in your home.
	Contact numbers: Post a list of emergency contact numbers in every room of your house. Make sure your local hospital, fire department, family numbers, doctors and neighbors are all listed.
	Meeting places: Choose two locations to meet up with your family: one close to home and a second in a different area.
	Take care of people with special needs: Elderly and people with disabilities have physical challenge that makes disaster planning more difficult. It's important to establish a plan addressing individual needs.

Refer to “<http://www.mahalo.com/how-to-prepare-for-a-natural-disaster>” (Mahalo.com Inc.)

Appendix III: Checklist for “Before, During and After Disasters”

Let’s Prepare!

The following is a checklist on what they should do to cope with disasters!

CHECKLIST for BEFORE, DURING, and AFTER disaster

BEFORE	
	Make family emergency plan or evacuation plan.
	Inspect your home for potential hazards (movable items, fall, break, or catch fire) and correct them.
	Listen to announcements and guidelines given by the TV, radio, newspaper, community supervisor/rescue teams for disaster prevention during hurricane season.
	Be aware of disaster risks such as high winds, floods, storm surges or landslides.
	Recognize public shelters or safe places nearby as well as access routes.
	Prepare “Emergency Kits” including non-perishable food, water, first aid kit, radios, flashlights, batteries, blankets, pillows, and toiletries.

Refer to:

“Preparedness for Wind-Related Hazards in Haiti” (International Group for Wind-Related Disaster Risk Reduction)

DURING	
	Listen to the TV or radio for information and follow instructions from local authorities.
	Don’t go outside, it can be dangerous or even fatal, due to windborne debris in strong winds.
	Don’t open doors and windows.
	Keep away from glass windows.
	Hide in the safest places in your house.
	Turn off gas, electricity, water supplies and household utilities if they are not really needed or if announced.
	In very severe situations, it is better to stay inside a small room surrounded by many columns/walls such as a bathroom and lie on the floor, under table, or other sturdy object.
	If staying in a public shelter, follow announcements and guidelines from shelter volunteers.
	Stay inside the shelter until a safe announcement is declared.
	If flood water enters your house, move to an upper level.
	Don’t use the phone, except for emergency

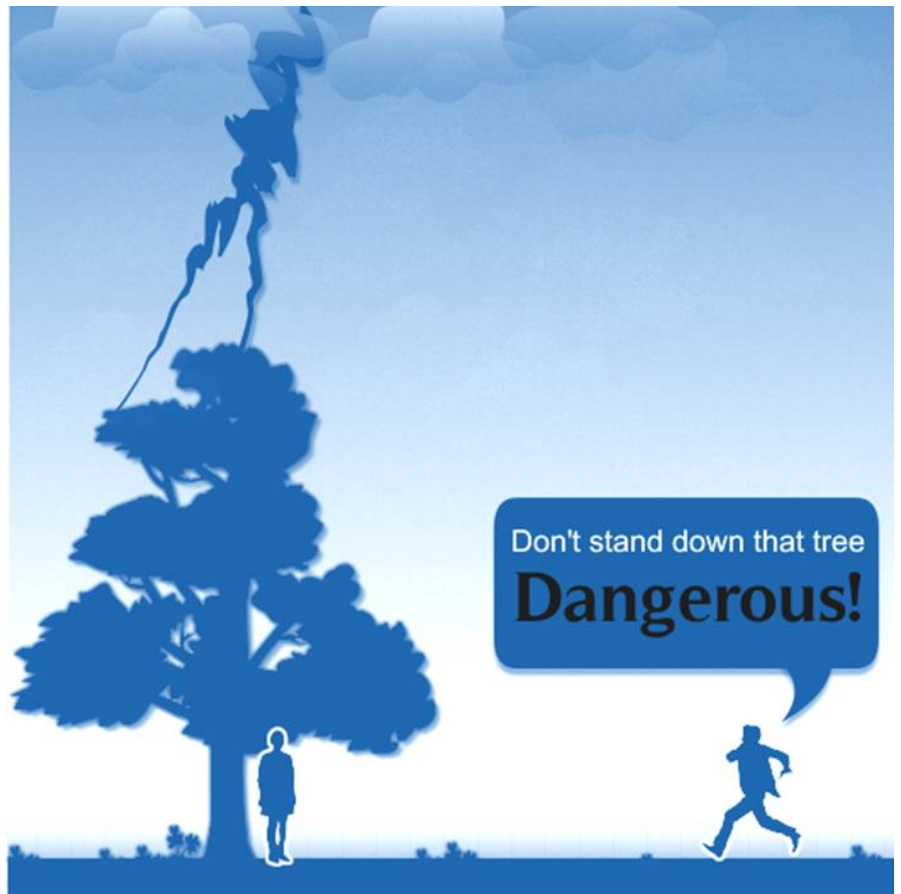
Refer to :

“Preparedness for Wind-Related Hazards in Haiti” (International Group for Wind-Related Disaster Risk Reduction)

AFTER	
	Listen to announcements from local authorities.
	Assist and help each other in the disaster rescue and recovery.
	Keep away from fallen electrical wires, damaged houses, and weakened structures on streets.
	Inspect damaged house carefully to ensure that it is safe to go inside.
	If you have any doubt about safety, your house must be inspected by a qualified engineer before going inside.
	Check carefully broken electrical, gas, water and sewer lines before going inside.
	Check that all electrical appliances are free from water before use.
	Repair the house by accepting help from rescue teams and local authority.
	Don't use the phone, except in emergencies for human rescue and life threatening circumstances.
	Accept treatment from medical centers.
	Be careful about waterborne diseases such as diarrhea, typhoid, skin disease, etc.

Refer to :

“Preparedness for Wind-Related Hazards in Haiti” (International Group for Wind-Related Disaster Risk Reduction)



Illustrated by **Bui Ba Han**

Student

Department of Biological Technology and Environment

Duc Tri College

Reference IV: Checklist of “Safety Tips”

Safety tips!

The following checklists are to avoid any hazards

SAFETY TIPS

to response with Storm /Flood, Fire

STORM/ FLOOD	
	Collect all valuable things and important document and put them in safe places
	Bring your furniture to higher place than predicted water level
	Protect electric appliances
	Make sure that you can access the emergency bag any time
	Turn off electricity, gas,...and lock your door if you have to evacuate
	Remove the plugs from electricity outlets
	Check the plugs are completely dry before using
	Put sand bags on the roofs in advance before storms come
	Put sand bags in front of your house to prevent water from coming inside your house
	Follow the guidance from authority
	Do not walk through moving water
	Do not allow children to play around high water, storm drains or any flooded areas

FIRE	
	If your smoke alarm goes off or you see a fire, remain calm and get out
	If you see smoke under the door, find another way out
	Feel the door with the back of your hand before you open it. If it is hot, find another way out
	Drop to the floor to avoid smoke and fumes. Crawl to safety
	If your clothes catch on fire, stop where you are, drop to the ground, and roll over and over to smother the flame.
	If you are trapped in a burning building, stay near a window and close to the floor. If possible, signal for help
	Do not go back inside the building unless instructed that it is safe to do so

Refer to:

“Preparedness for Wind-Related Hazards in Haiti” (International Group for Wind-Related Disaster Risk Reduction),
and “1-2-3 of Disaster Education”(International Environment and Disaster Management Laboratory,
Graduate School of Global Environmental Studies, Kyoto University)

Reference V : The Great Hanshin-Awaji Earthquake

On January 17th, 1995, the immense earthquake has occurred in the southern part of Hyogo Prefecture, especially Kobe city and the surrounding cities (so-called Hanshin area) were most seriously affected. The Great Hanshin-Awaji Earthquake has caused 17,000 people lost their lives and seriously injured. 640,000 houses were collapsed and partly destroyed, and 6,000 houses were burnt. Many infrastructures were destroyed and people had struggled to recover their lives.



Left: Scene after the earthquake from the helicopter
 Right: collapsed houses at the earthquake
 (source: Captured in Shiawase Hakobo (Yomiuri Telecasting Corporation))



Kobe City is located at western part of Japan. Kobe is famous for beautiful scenery of mountains and sea. After the earthquake, the population has been decreased by 7%, but now the number of population has been increasing.

More than 5,000 people were crushed to death under the house, and 600 people which is 10% of the total death, died under fallen furniture.

Since it was broadly believed that there would not be an earthquake in Hanshin area before the earthquake, many people had not taken any actions to prevent the furniture from falling down due to earthquake.



Damages of the earthquake
 (source: 'Awaji Go Round !', Awaji-Shima Kuni Umi Kyokai)



Scenery from the mountain
 (source: Kobe City)



(source: Ena city (Japan)
<http://www.city.ena.gifu.jp/pr/h21/8-1/index.html>)

Example of "non-structural mitigation"
 : Fixing furniture

**Without non-structural measures,
 it could cause human damages!!**

Reference VI: “Non-Structural Mitigation” for Earthquake

STEP 1

Identify the Hazards: The first step in reducing your vulnerability to earthquakes is to do a hazard assessment. To do this, you must first determine which non-structural hazards are present in your home and assess the threat those risks pose.

Example of checklist of non-structural hazards at home

	Are there any heavy and/or tall items in your home that may move or fall over during an earthquake?
	If these items moved or fell, would they block exit routes out of a room or out of your house?
	Can these items be secured to structural support (i.e., wall studs)?
	Are hanging plants and light fixtures secured to prevent them from swinging free, breaking against walls or furniture, or breaking windows?
	Are gas appliances securely fastened in place (e.g., water heater and clothes dryer) so they won't pull the gas line connections apart? Are the gas lines and connections flexible?
	Are wall-mounted objects (clocks, pictures, mirrors, etc.) fastened to the structure (as opposed to wallboard)?
	Are items on shelves and in display cabinets secured to prevent them from falling out?
	Is your house securely fastened to its foundation?

Refer to :

“<http://www.mahalo.com/how-to-prepare-for-a-natural-disaster>” (Mahalo.com Inc.),
and, ‘Killer on the Loose’ (Tualatin Valley Fire and Rescue “<http://www.tvfr.com/safetytips/docs/PE-21Non-Structural%20Mitigation.pdf>”)

STEP 2

Take action once you've identified the hazards...

- Identify which mitigation activities will most reduce your risk of injury and damage.
- Determine which activities can be accomplished at little or no cost (e.g., securing bookcases to walls, closed hooks for pictures and mirrors)
- Determine the best method for correcting larger problems (retrofit, remodel, or incremental upgrades)
- Routinely check any protective measures you have already taken to confirm that they are still effective.

9. Emergency Bag Making



Aims and Expected Goals

1. To identify necessary items for emergency case.
2. To raise awareness on disaster preparedness for emergency situation.
3. To improve skills to prepare the necessary items within the limited budget.

Summary of the Program

Students will discuss the necessary items to bring in evacuation case and present their findings.

Target Grade



Elementary school 4 - 5



Secondary school 6 - 9

Time Length



45 - 60 minutes

Materials



Illustration sheet & card

Required

- Illustration sheet with price
- Illustration Card with price
- Calculators

Options

- Plastic board and pen
- Real items



Preparations :

- Check the price of items, and correct proper prices.
- Make item cards
- Decide the amount of budget (if apply this program for secondary school students)

Assignment:

- Assign students to consider needed items for emergency cases before the class.

Notes and Comments :

- Students can change the indicated price if they think prices are too high or low.
- Students can consider several patterns of emergency cases that they should stay inside or evacuate outside during times of typhoon or flood.
- More items could be added or replaced with consideration of local context and surrounding natural environment.
- For elementary school student, it's possible to skip the calculation of price

Reference:

- Reference I: sample of illustrated sheet.

Sample of Lesson Plan

Introduction (10 min)

- Explain the importance of preparing the necessary items for the emergency situations.
- Explain the activity that students should select prioritized items with designated amount of budget to make “emergency bag”.
- Indicate amount of budget (VND)



Making emergency bag (20 min)

- Divide students into several groups.
- Distribute a set of item cards or illustration sheet to each group.
- Instruct students to discuss what should be included in an emergency bag, considering the following points.
 - a. Priority in emergency
 - b. Budget line
- Ask students to prioritize and select items, and calculate total prices of all the items.



Presentation and Discussion (15 min)

- Ask students to make a presentation to explain the reason why they selected the items.
- Facilitate Q & A session.
- Discuss their presentations and raise the most important items.



Review (5 min)

- Go over lessons learned with students.
- *Advise students to tell their parents to prepare for emergency bags.

Case of Secondary School

Le Thanh Ton secondary school (Vietnam)

The students tended to select the cheaper items, thus the teacher indicated that the cheaper one cannot be always better, because they would be sometimes easy to break and not effective for the emergency cases. Teacher let students consider the proper items with proper price. After the presentations from students, the teacher raised the most important items, below,

- Water (for safer drinking)
- Food (ready-to-eat ex) canned goods)
- Radio (for collecting information)
- Portable light (for emergency light)
- Survival Knife (for cutting things/foods)
- Rain coat (to avoid getting wet)
- Plastic bags (to prevent important things from water)



Case of Elementary School





Vo Thi Sau elementary school (Vietnam)

For elementary school students, it was hard to imagine necessary items in emergency case. The teacher assigned students to consider necessary items in emergency at home so that their parents can help them.







Reference I: Example of Illustrated Sheet

			
Dao 6000VND	Pin 8000VND	Đài /Radio 120000VND	Chăn 60000VND
			
Nến và diêm 10000VND	Bật lửa 2000VND	Bếp ga mini 120000VND	Loa phát thanh 150000VND
			
Dây thừng 15000VND	Còi 5000VND	Dao đa năng 20000VND	Dụng cụ sơ cứu 80000VND
			
Nước 15000VND	Thức ăn 150000VND	Chảo 60000VND	Áo mưa 25000VND

			
Thuốc	Khẩu trang	Kéo	Đồ lót
100000VND	5000VND	9000VND	25000VND

			
Găng tay	Đồ dùng cho trẻ sơ sinh	Mũ bảo hiểm	Giấy và bút
10000VND	50000VND	50000VND	7000VND

			
Khui chai/lon	Xẻng	Khăn giấy	Đèn pin
3000VND	50000VND	10000VND	60000VND

			
Kính	Áo khoác	Túi	Tiền
50000VND	120000VND	15000VND	VND


Túi nhựa
2000VND

10. Sand Bag Protection



Aims and Expected Goals

1. To learn how to make a sand bag and how to put it in a proper way.
2. To know various usages of sand bags to mitigate risks before disaster occurs.

Summary of the Program

Students will make sand bags and practice how to use them.

Target Grade



Elementary
school

4 - 5



Secondary
school

6 - 9

Time Length



60 minutes

Materials

Required

- Sand
- Bags
- Rope
- Shovels

Options

- Photos / papers for explanation

Optional :

- If school teachers can find those who have had experience making sand bags, invite them to provide technical advice;
 - ◇ How to make a sand bag (how to insert the sand, tie the bag, and pile the bags).
 - ◇ When, where and how to place sand bags effectively.

Notes and Comments :

- Since elementary school students are not strong enough to make many sand bags and carry them, teachers should point out that students should put less sand into the bags.



Putting sand in bags



Placing sand bags on the roof



Preventing water with sand bags

Sample of Lesson Plan

Introduction (10min)

- Introduce “sand bag protection” as one of the ways to prepare for the risks of floods and typhoons, and explain the usage of sand bags, including;
 - To put sand bags on the roofs of houses to avoid loss of the roof by strong winds (typhoon).
 - To pile sand bags in front of gates or doors to prevent water from coming in (flood)
 - To pile sand bags on the edge of the river to prevent water from overflowing into the city (flood)
 - Other ways
- Ask students to imagine which place in the school is the most vulnerable to flood and typhoon where sand bags can be utilized.

Main activity (40min)

- Show how to make a sand bag
 - How much sand should be put in a bag: More than half (photo 1)
 - How to tie a bag or sew the top; (photo 2 - 4)
 - How to put a sand bag; (photo 5)
 - Where to place a bag in an appropriate position and direction of the top of the bag. (photo 6 & 7)



Photo 1

The bag should be tied tightly and a double knot is most effective.



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7

Put sand bags with the tied top on the bottom.

Pile sand bags to prevent water from coming in.

Put sand bags 1) at the front 2) at the rear, and 3) in the center to protect the roof.

- Ask students to practice: 1) filling with sand, 2) tying rope, 3) setting sandbags.
- After practice, explain the duration of a sand bag is usually 6 months, but it depends on the quality of the bags.

Review (10min)

- Go over the lessons learned with students.

11. Cooking



Aims and Expected Goals

1. To learn how to prepare foods in post-disaster situation.
2. To improve skills preparing food source and cooking in the disaster situation.

Summary of the Program

Students will cook foods which are appropriate in disaster situations.

Target Grade



Secondary
school

6 - 9

Time Length



90—120 minutes

Materials

Required

- Food source
- Materials for cooking
- Fuel (firewood, coconut)

Options

Preparations :

- Consider what kind of food source can be found and how to cook them.
- Prepare available cookware and/or food materials.

Notes and comments:

- This program can be integrated into other school activities such as camping, school traditional day festival, etc.



Cooking while camping as a school activity

Sample of Lesson Plan

Introduction (Before cooking)

- Explain to students that there will be shortage of food and cooking facilities and people may have difficulty in cooking during the disasters.
- Ask students to identify locally available food sources and ways of cooking them.
- Ask students to make a cooking plan.

Cooking practice (60-120min)

- Let students practice cooking by using local food sources and available tools.

Evaluation (10min)

- After eating, evaluate proper types of foods to cook in an emergency situation.

Review (5 min)

- Go over lessons learned with students.

Tips for cooking in a disaster situation

1/ Suggested cooking facilities: gas/mini gas, oil cooker or making use of local supplies such as fuel wood, coconut, etc.



2/ Food : Instant noodle, canned foods, fish sauce, soya sauce, dried peanut (right photo) and sesame.



Case in Other Country

Let's cook.... (Indonesia)

Food is one basic need of disaster affected people. In the efforts to learn to prepare food in case of emergency, Tegalsari Elementary school in Indonesia conducted cooking program for students. The program's purpose was for the students to identify locally available food sources and ways of cooking (and preserving) them. After a process of identification, students assisted by their teacher decided to cook the foods which can last long and are simple and quickly served.



(Photos by SEEDS Asia)

12. Bucket Brigade



Aims and Expected Goals

1. To learn how to respond to emergency situations in case of fire accidents.
2. To improve skills to extinguish fire through playing game.
3. To understand the importance of cooperating with each other.

Summary of the Program

Students will play 'bucket brigade' to practice extinguishing fires.

Target Grade



Elementary
school

4 - 5



Secondary
school

6 - 9

Time Length



30 minutes

Materials

Required

- Several buckets
- Big Containers
- Water

Options

- Blankets
- Other obstacles to simulate real disaster situations

Preparation :

- To decide the ways of conducting bucket brigade, and prepare the materials.

Notes and Comments :

- Teachers encourage students to cooperate with each others.
- Teacher can make any arrangement of this game (e.g. putting obstacles)
- This program can be conducted during Physical Education class or School Events.



Sample of Lesson Plan

Introduction (5min)

- Let students pretend a fire is happening and guide them to extinguish the fire.
- Explain that fire extinction requires early and speedy response, and that cooperation among people is important

STANDARD (15 - 20min)

1. Arrange students into 2 (or more) lines to make a small bucket brigade competition.
2. Within one line, the first student will take the bucket, fill it with water and then pass it to the second person, then the second will pass it to the next and repeat that till the bucket gets to the last person who then pours the water into the big container.
3. Team whose container is filled first/most wins the game.



OPTION I

1. Arrange students into 2 lines and give a small bucket to the student at the front of the lines.
2. That student has to run and bring it to the student who is standing at opposite line. The student will receive the empty bucket and fill the bucket with water and run to the opposite line and pour it into a bigger container.
3. The following students will repeat the same actions.
4. The team whose container is filled with more water wins the game. (big container is symbolic of the fire which need to be extinguished)



OPTION II

1. Order students to make a line and give a blanket to the student at the front of the line.
2. That student has to make the blanket wet (it is assumed to use the wet blanket to extinguish fire) and run to the front student who is standing at opposite line (assume this student is injured by fire).
3. Student put the wet blanket over the big container and carry the Student and run back to previous position.
4. The following students will repeat the same actions.
5. The team who can conduct the game quicker win.



Review (5 min)

- Go over lessons learned with students.

13. First Aid



Aims and Expected Goals

1. To learn how to take action when they find injured people.
2. To improve first aid skills.

Summary of the Program

Students will learn how to conduct first aid activities through lectures and practical trainings.

Target Grade



Elementary school 4 - 5



Secondary school 6 - 9

Time Length



90 - 120 minutes

Materials

Required

- Bandages / Clothes / Cotton
- Tape and Scissors
- Splints

Options

- Videos / Photos
- Explanation materials

Preparation :

- Invite first aid expert(s) to provide the first aid training for the teachers/students, unless the school has trained medical staff.
- Prepare handouts and other materials (video, pictures, and textbook etc), if available.

Notes and Comments :

- The teachers should receive first aid training before they implement the program to the students. Without trained teachers, the practice will not be safe and easy.
- For young students (at grade 1-3), the first aid explanation and practices are difficult, but the experiences of the first step will be helpful when they learn this program in the secondary or higher school.

References :

- Appendix I: Examples of First Aid Materials

Sample of Lesson Plan

Introduction and Lecture (30min)

(To be lectured by Teacher and first aid experts)

- Introduce first aid procedures. The activities may include:
 - ◇ Heart massage and artificial respiration;
 - ◇ Treatment of the injured with a broken bone;
 - ◇ How to tie bandages (in the arm, head, etc.).



Lecture and Practice (60 - 90min)

(To be lectured by Teacher and first aid experts)

- Demonstrate first aid activities to students.
- Ask students to practice with supervision of the experts.



Evaluation (5min)

- Teacher and first aid experts evaluate students' activities and give comments on the students' performance.



Review (5 min)

- Go over lessons learned with students.

Case of Elementary School

Phan Dang Luu Elementary School

The teachers, based on the contents of first aid training materials which was provided at the teachers' training, lectured how to conduct heart massage and artificial respiration, and how to treat the injured. With the help and supervision of the expert of Health Center, students practiced the activities.



Case of Secondary School

Le Thanh Ton Secondary School

The teachers conducted twice the class of first aid training. At first, the teacher needed assistance from Health Center expert, but they were able to teach how to conduct first aid by themselves at the second time. They used some videos for supplementing for their lectures.



Reference I: Examples of First Aid

General regulation

- Conduct first aid as soon as possible (should be within 3 minutes after finding victims)
- Conduct first aid at the place in which victim is found
- Conduct first aid continuously

◇ Heart massage and artificial respiration

◇ 1 person conducting

- 1) Check whether conscious or not
- 2) Check in the mouth, and if any obstacle, remove it (Photo (a))
- 3) Loosen the clothes
- 4) Conduct heart massage 15 times (while straightening one's arms) (Photo (b))
- 5) Conduct artificial respiration 2 times (Photo (c))
- 6) Continue 4) and 5), until medical aid reaches

◇ 2 persons conducting

- (1 for heart massage, and 1 for artificial respiration)
- 1) Check whether conscious or not
 - 2) Check in the mouth, and if any obstacle, remove it
 - 3) Loosen the clothes
 - 4) Conduct artificial respiration 1 time
 - 5) Conduct heart massage 5 times
 - 6) Continue 4) and 5), until medical aid reaches (Photo (d) shows the case conducted with 2 people)



Photo (a)



Photo (b)



Photo (c)



Photo (d)

◇ Treatment of the injured with a broken bone

◇ When the person's leg is fractured

- 1) Check which bone is broken
- 2) Do not move and do not try to make the broken bone straight
- 3) Fasten the leg with splints along with the leg (Photo (e))
- 4) Fix the leg with bandages, band at above and under the broken part and at several other points (Photo (f))
- 5) Carry the person with 3 or more people to the safer place (Photo (g))



Photo (e)



Photo (f)



Photo (g)

◇ How to bandage one's arm by using triangle

For arm breaks, you must make a sling. Fold a square piece of fabric into a triangle (in half) and tie it around the other shoulder, then tie a knot at the elbow.



Reference I: Examples of First Aid

◇ How to bandage one's head

1. Wash and place a gauze bandage over the crack or cut.
2. Place a wrap bandage at the center, roll it in both directions around the head, and come back around.
3. Tie a knot where the wound is to keep pressure on it



◇ How to stop bleeding

1. If possible, elevate a wounded limb. It can help to control bleeding if a wounded limb can be elevated above the heart. If you suspect a broken bone, however, do not attempt to move the limb (right picture)
2. Remove dirt, any visible foreign debris. If the foreign object is large however (large piece of glass, knife, or similar) do not remove it. It is most likely stopping a lot of the bleeding itself. Just put pressure and bandage around the object taking care not to push it in further
3. Apply firm pressure directly to the wound until the bleeding stops. Use a pad of clean gauze, dressing, or clothing. Place your hand over the pad and apply firm pressure.
4. Add more gauze or additional bandages if the original soaks through.
5. Continue applying pressure until the bleeding stops or help arrives.



◇ First aid for electricity shock

1. Beware! Do not put yourself in danger. Do not touch the person until power is shut off.
2. If you can't shut off the source, use a board, wooden stick, rope, etc. to get the person away from the source.
3. If it is safe for you to touch the person, check for a response
4. Unless it is absolutely necessary, don't move the person. He or she could have injury in the head or neck.
5. Check for burns. Cover burned areas with dry, sterile dressings.



◇ First aid for burnings and scalds

1. Lay the casualty down, protecting the burned area from contact with the ground
2. Cool the injured part with ample amounts of cold water for about 10 minutes, but do not use ice-water
3. Gently remove any jewelry, watches, or constricting clothing from the injured area before it starts to swell.
4. DO NOT apply lotions, ointments, creams, or fats to the injured area.
5. DO NOT break blisters, or interfere with the injured area.
6. Cover the injury with a sterile dressing, or any clean, non-fluffy material to protect from infection

14. Evacuation Drill



Aims and Expected Goals

1. To define school evacuation route to evacuate for emergency case.
2. To improve skills to evacuate through practical training.

Summary of the Program

Students will conduct mock evacuation drills by assuming that a hazard has occurred.

Target Grade



Elementary school
1 - 5



Secondary school
6 - 9

Time Length



20— 30 minutes

Materials

Required

- Megaphone
- Whistle
- Stopwatch

Options

- Evacuation map

Preparation :

- Prepare an evacuation route and procedures, including
 - ◇ Type of an assumed hazard.
E.g) Fire, Earthquake, Flood, etc.
 - ◇ Sign for starting evacuation drill.
E.g.) sound of drum, whistle etc.
 - ◇ Separation of corridors and stairs so that students evacuate smoothly to avoid the crowding which can cause a secondary accident.
 - ◇ Where students assemble.
E.g.) open space in the school yard
 - ◇ How to confirm the number of students and their condition.
 - ◇ Time limitation for evacuation, for example: within 2 minutes.



Evacuation route

Notes and Comments :

- Evacuation drill can be conducted during the break time between regular classes or after school time.
- It would be recommended that schools conduct this program in the regular basis so that students could evacuate properly at the time of real emergency.
- This program can be related with “School walking and map making” to identify evacuation routes and to develop a map for the drill.

Sample of Lesson Plan

Introduction (5min)

- Explain the importance of understanding how to evacuate in an emergency case.
- Tell some practical events or facts that people have lost their lives since they did not know how to evacuate.

OPITION I : The school already has an evacuation procedure

- Show students the gathering places, evacuation routes, and procedures.

OPITION II : The school does not have the procedure of evacuation

- Ask students to walk around the school, discuss possible evacuation routes.
- Let students discuss evacuation procedures.
- Students and teachers to practice.

Practice (10min)

- Teachers and students conduct evacuation mock drill.
 - 1) Alarm by making a sound by drum or whistle.
 - 2) Guide students to move through certain routes.
 - 3) Gather students at the decided place.
 - 4) Confirm the number of students.
 - 5) Calculate time (within XX minutes)

Evaluation (10min)

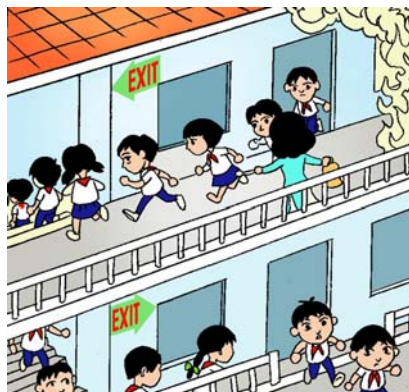
- Teacher and students evaluate the activity; for instance, time taken to evacuate, techniques of protecting bodies etc.

Review (5 min)

- Go over lessons learned with students.



Starting Evacuation



Evacuating in order



Gathering at open space

Case of Secondary School

Tay Son Secondary School (Vietnam)

In the program “School walking and map making”, teachers of Tay Son school requested students to create maps for evacuation in fire cases. Students walked around the school, and considered how students should evacuate to school yard or outside the campus. Finally, they made and presented their maps.



Appendix

- I. Card Game / Board Game
- II. Sports Festival
- III. Newspaper Reading / Disaster Risk Reduction Reporter
- IV. Picture - Story Show
- V. Indigenous Knowledge



I. Card Game / Board Game

Summary of the Program

Students will play board games or card games which helps students learn what happens in disasters, and their impacts.

Example of Card Game

Safer World Communications and SEEDS developed card game for learning about safety tips in disaster situations, including flood, earthquake, and fire. One of the play games is “Memory Bank”.

1. Game can be played by a maximum of 4 players.
2. All 24 cards are shuffled and spread out on a table with messages facing downwards.
3. One player picks up 2 cards at random, reads the message from both the cards and shows them to others.
4. If both the cards do not carry the same message then they are placed back in their original positions.
5. If both the cards carry the same message, the player gets 10 points and these 2 cards are kept away.
6. The games is continued with each player taking his/her turn in the above manner.
7. The player with maximum points wins.



Example of Flood Game

Example of Board Game



Board game “Play safe”



Resource cards and Disaster cards



Points and Dice

Safer World Communications and SEEDS, developed the board game, titled “Play Safe”.

1. Maximum of 4 players can play.
2. Each player begins with an amount of 8000 points.
3. Player throw a dice, and move forward in the number indicated by the dice.
4. Read the sentence of the step and follow the instruction. When step indicates the disaster, draw the disaster card and follow the instruction, and your points decrease.
5. The next player take his turn.
6. On the way to goal, players can get Resource cards, which reduce the disaster risk. But players can use one Resource card only once.
7. The player with maximum points wins.



Big image on the steps

II. Sports Festival

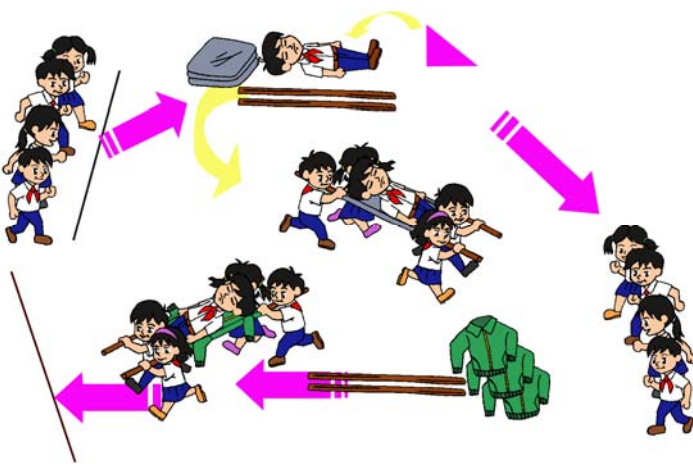
Summary of the Program

Students will play activities which demonstrate disaster response activities.

Examples

The Festival will include several activities which students play. The 2 following activities are examples of Sports festival on Disaster Risk Reduction which have been conducted in schools in cooperation with the surrounding communities.

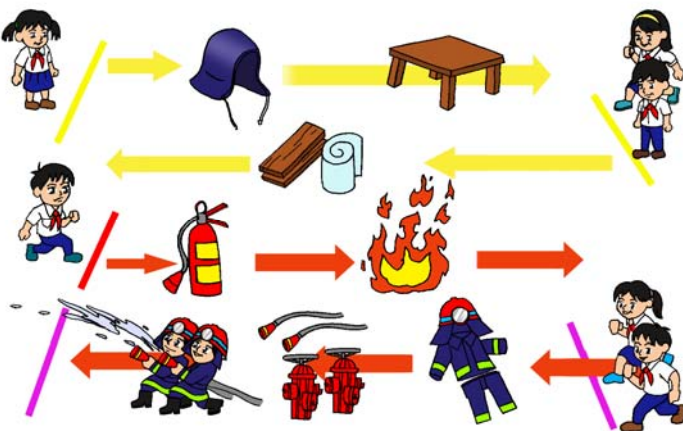
Instant Stretcher



By using blankets and bamboo poles, instant stretchers are prepared. After treating first-aid to the dolls, participants load the dolls on the stretchers and carry. Then second 4 members will make another emergency stretcher using poles and clothes, and carry the dolls. A team consists of 4 boys and 4 girls, and 2 teams will conduct the game. Participants compete time and the order.

(Refer to: Himeji city 'Mamorin PIC: 'http://www.city.himeji.lg.jp/syoubou/plaza/undoukai/events/index.html

Instant Stretcher



Participants respond to the actions such as putting on protectors on the head, passing inside the tables, treating first aid, extinguishing fire, changing to firemen's uniforms and carrying hoses on the way. Participants compete with time and order.

(Refer to: Himeji city 'Mamorin PIC: 'http://www.city.himeji.lg.jp/syoubou/plaza/undoukai/events/index.html

III. Newspaper Reading / Disaster Risk Reduction Reporter

Summary of the Program

Students will read newspaper articles relating to disasters.

Example of Newspaper Reading

Newspaper Reading (Indonesia)

Listening to radio and watching television are activities which are fun for most children. If the news readers or the announcers are children themselves and the news broadcasted are about disaster, we can imagine how easy the attempts to integrate disaster education will be. And it can be carried out by various methodologies which will be fun and interesting. Teachers of Rojoniten Elementary School in Sanden, through Social class, asked the students to learn many Indonesian regions which are disaster vulnerable.



(Photos by SEEDS Asia)

Sample of Lesson Plan

Introduction (5min)

- Explain the activity and aims of the program.

Newspaper Reading (40min)

Option 1: Students read newspapers and report them like a journalist.

- One student reads a news flash/article as a reporter.
- Cast different news, and quiz students about type of disasters, location and time, victims, damages etc, from the news contents.
- Divide the students into groups and distribute one sample of news for each group to practice casting the news.
- Ask one student to cast the news, and ask other students to listen to news and pay attention to its detailed information, similar to the above activities.

Option 2: Students express their feeling about disaster news/article

- Ask student to read a news or an article about disasters
- Other students listen and then express their feelings/impressions about the news/article

Evaluation (5min)

- Give comments about their performances and activities and conclude the lesson.

Review (5 min)

- Go over lessons learned with students.

IV. Picture-Story Show

Summary of the Program

Students make picture-story show to convey the message relating disasters to the audience.

What is picture-story show, and what is relevant with DRR?

Picture-story show is an educational tool integrating entertainment that a story-teller uses a set of pictures which describe one scene after another. The story teller turned the picture while he/she tells the story on one theme.

Although usually people don't get familiar with the story about disasters, picture-story shows may enable students to understand the messages. Some Japanese school teaches have developed picture-story shows from the past disasters and shared them, resulting in awareness raising of students about Disaster Risk Reduction.



Examples in Japan
(Source: DRR study net)

Examples of Picture-story show

Story about saving lives of villagers (Inamura no hi)

This story describes Goryo Hamaguchi, who saved the villagers from the Tsunami that happened in the mid 19th Century in Japan. He made fires of rice straws in paddy fields on the hill after the big earthquake occurred so that villagers were able to pay attention there and gather at higher place. His action saved thousands of lives of villagers from the Tsunami which destroyed their houses. After that, Goryo invested to make banks along with the beaches and plant trees, aiming to mitigate the risks of future tsunamis. This is one well-known good practice of disaster mitigation in Japan.

The following shows the pictures and stories (scenarios).

(Source: Source: Nobuo Sakurai and Shiro Fujimoto, "A tsunami is coming! Don't put out the inamura fire", Edited and published by the Urban Disaster Research Institute, supervised by Cabinet office Disaster Management, the government of Japan, 2005)



1 "Tsunami is coming! Don't put out the fire (Inamurano-hi)!"

This is a story in seaside village in Japan.

It was more than 100 years before, one evening in the beginning of November.

The villagers finished harvesting and a lot of Inamura (piles of straw) lined up in the paddy field.

"We could harvest a lot and good straw remained. Great, great." villagers were happy.

After harvesting, the remaining straws were used, thus those were combined and piled up higher. This calls "Inamura".

Villagers are gradually preparing for winter.

2

The earth barked. Ground and houses were heavily shaken.

- By shaking up/down, left/right the slide -

Villager1: "Ooh, it's earthquake! Big earthquake!!"

Villagers came out of houses.

Child1: "Kyaaaaa" (screaming)

Child2: "I'm scared!!" Children clung to their parents.

The walls were collapsed and dust flied like smoke from inclined houses.



3

The person called as Hamaguchi who was adored from villagers as governor also came out from his house with his family.

Hamaguchi: "My house survived, but what about villagers.... are they all safe?"

There were dark and white cloud spread mixing together suspiciously. Splitting the cloud, sharp lightning run.

In addition, heard the sound like bombs at the offshore..

"It will be woeful situation...." <Pull one third of the slide>

Hamaguchi advised to his family, "Escape to hill top immediately!" <Pull the remaining slide all>
He himself went into the house.



4

His wife asked him. "What will you do?" He replied putting fire on the firebrand.

Hamaguchi: "It's Tsunami, Tsunami will be surging soon.

There's no time to announce this hazard to entire village one by one.

Thus I will put on fire on Inamura and make signal to them."



5

Hamaguchi ran to the field. He put the fire on one of Inamura.

Well dried Inamura burned up quickly.

Next by next, next field... He was keep running.

He wish that everyone to come here.

He aim was to collect villagers and then let them escape to the hill.



6

Villager1: "There is fire in governor's place!!"

Villager2: "It is problem if something happened for governor!!"

Villager3: "Let's rush to put out the fire!!"

The villagers rushed together.

Because in such case, every villager supposed to participate for fire fighting.

Youngsters : "Sir!!"



7

The immediate comers were youngsters.

They tried to extinguish the fire. Hamaguchi stopped them.

Hamaguchi: "Don't extinguish the Inamura fire!! "

Youngsters: "Why? Why is that so, sir?"

Hamaguchi: "It's Tsunami, Tsunami is coming.

Make sure that all the villagers come together.

Let them escape to the hill top!"

Youngsters: "Yes, sir!"

In this way the villagers escaped to higher place.

Hamaguchi: "Look at that!!"



8

Hamaguchi pointed over the sea.

Villagers: "What is that!?"

Villagers saw awful thing was coming.

At the offshore of the sea which were going to be dark, the long black wide things was spreading and about to reach to the village.

Villager1: "Tsunami!!"

Villager2: "Tsunami is coming!!"



9

People were frightened.

The seaside village was attacked by Tsunami with spray.

Everything in the village were swallowed by combed wave and disappeared in front of them.
(Short while)

Villagers realized they were there just few minutes before without noticing Tsunami is approaching.

"What's awful situation..." Tsunami attacked again and again.



10

Villagers are lined up in front of Hamaguchi and head down towards him.

Villager1: "Thanks to your notice, we could save our lives."

Villager2: "Sir, thank you very much."

Hamaguchi was nodding to them and said. "There was tradition in Hamaguchi family that after very big earthquake (in seashore), we must care for Tsunami. I just remembered that. This is thanks to our ancestor."



11

Hamaguchi took youngsters to next village and borrowed stored rice.

Women cooked rice.

Hamaguchi: "Eat this and cheer up."

Hamaguchi distributed to every villagers.



12

Though aftershock was continuing, gradually, temporarily huts were built in the devastated village.

Villagers start taking the first step to their recovery.

However, some of the villagers who lost everything by Tsunami, told to Hamaguchi.

Villager1: "I cannot live in this village any longer. I am planning to shift for earning."

Another appealed with tears that

Villager2: "I am too scared of Tsunami, it may come again. I want to shift to safer place."



13

Hamaguchi was gazing at waves at the seashore, the beautiful seashore.

Hamaguchi: "We should built bank to protect village from Tsunami. If villagers join the project, it will be earning for them. The country home will be recovered."

Hamaguchi nod by himself.

Hamaguchi family have been making soy sauce and achieving to big business in the capital.

"Though It will cost a lot if I pay salary for all labours and everything for the construction, I should not give up." He promised in his mind.



14

Shortly, the construction has started.

When Hamaguchi investigated into old records, this village have been affected by Tsunami in almost every 100 years for last 500years.

Referring the situation of old Tsunami and current one, Hamaguchi did designing of the breakwater. He guided villagers for the construction. Villagers worked well.

Villager1: "Let's contribute to protect our village."

Villager2: "Man and woman, if we join the work, we can receive reward. It is great."

Villager3: "In case the field is busy, construction will be sustained"

Villager4: "Nothing else can be meaningful than work like this."



15

After 4 years with contribution of manpower from villagers, and a lot of cost spent, wonderful breakwater completed its construction. In addition, a lot of pine trees got replanted from mountain to costal side.

After 92 years from Inamura no Hi (the fire of Inamura), as expected, there was again Tsunami hit the village. However, the breakwater constructed was strong enough to protect people from Tsunami.



16

At this breakwater, villagers commemorate Tsunami in every November.

Children one by one carry sand on the breakwater and pray for the safety.

Child1: "We never forget Inamura no Hi."

Child2: "We are grateful for ancestor to construct bank for protecting us."

Child3: "We all together protect our village."

They reinforce the remembrance of disaster risk reduction.

- The end -

V. Indigenous Knowledge

Indigenous and local knowledge have been communicated through many generations. The natural hazards such as drought, storm, and flood are relating to “Rains.” Therefore, knowledge about weather forecast of rain could help people to take action for disaster risk reduction. The following examples show how people in Ninh Thuan Province, Vietnam see the nature, and utilize such information for their agriculture production.

**“Corona around the moon, there will be a drought year;
Halo around the moon, rain soon.”**

They are the proverbs in An Hoi Commune, Ninh Phuoc District, Ninh Thuan Province. People in the Commune have been cultivating their farms, and weather forecasting was important for their lives. By observing the nature and insect, they judged how the weather situation was and how they acted.



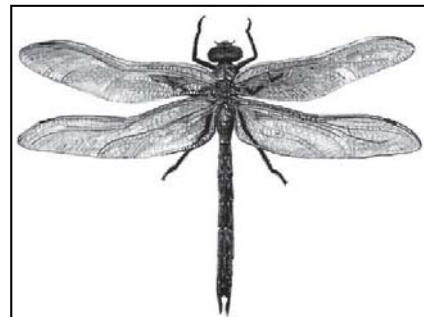
The left is Corona Moon and the right is Halo Moon (source: http://www8.ttvnol.com/forum/f_533/862476.ttvn)

Corona means a crown, and halo means a ring. Halos of the moon are an indicator of cloudy or rainy weather since cirrus and cirrostratus clouds tend to drift ahead of frontal system, which can lead to rain, and it causes halos.

People there from many generations to the present, have been watching the nature, and got to know its relationship with the weather. And they have been utilizing such information for preparing for a possible **drought**.

**“Dragonfly flies high, sunny sky
Flies low, rain
flies neither high nor low, cloudy sky”**

The farmers explained that when dragonflies fly a distance lower than 80 cm from the ground, it will rain soon. Based on that, the farmers prepare soil and seeds for the crops. Using the method of dragonfly observation, the farmers can decide the time to sow and plant, and make their crop schedule appropriately.



Dragon fly

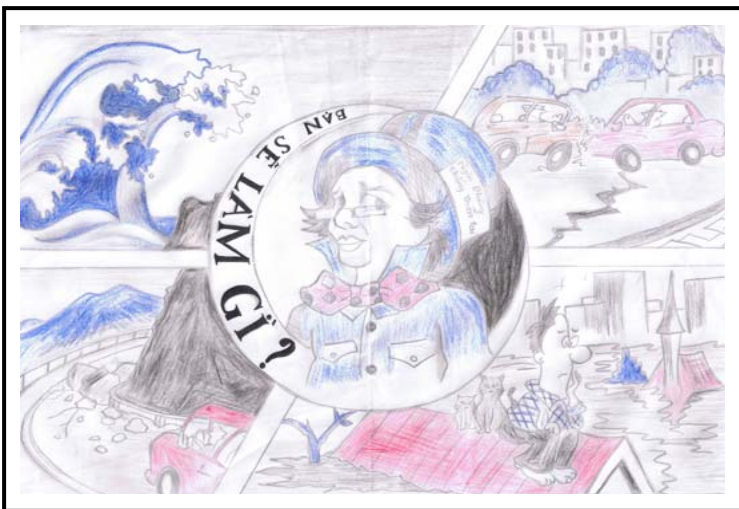
Source: <http://www.scientificillustrator.com/illustration/insect>

The source of the above information is: Nguyen Ngoc Huy, and Rajib Shaw, “Weather Forecasting through Indigenous Knowledge for Crop Cultivation in the Drought Prone Area of Vietnam”, in “Indigenous Knowledge for Disaster Risk Reduction” 2008.

In addition, local people in Vietnam have some knowledge of weather forecasting based on their experiences by watching change of sky, wind or actions of some animals. (Source: SEEDS Asia)

- ◇ Sky is so clear, it is muggy without wind for some days then huge clouds which is black at the foot appear at the horizon. There will be a storm soon at that direction.
- ◇ There are clouds which look like pangolin moving from the east to the west on early morning. There will be a storm in next days.
- ◇ Ant brings her eggs running hurriedly. There will be a storm soon in next days.

Memo



Illustrated by Bui Ba Han

About SEEDS Asia

SEEDS Asia is a non-profit organization working to make vulnerable communities resilient to disasters. SEEDS Asia adopts a locally based approach seeking to empower communities through awareness generation, training and action, equipping the most vulnerable with appropriate tools and technologies, sharing knowledge and skills, and promoting linkages among stakeholders to prevent loss of life and suffering.



SEEDS ASIA

Towards safer communities, SEEDS Asia takes an integrated and interlinked approach to disaster management and environmental conservation within the overall umbrella of human security, to ensure safer communities in the Asia Pacific region. Members of SEEDS registered as a non-profit organizations both in India and Japan, come from a broad range of backgrounds that are collectively pooled to promote community-based disaster management.

SEEDS Asia (Kobe, Japan) was formally established in September 2006, and has been extensively working in the Asia-Pacific region to expand the concept of combination of Environmental Management and Disaster Risk Reduction as well as the expertise of what SEEDS India, our sister organization has developed in order for us to reach out the vulnerable communities in the region.

For more information
www.seedsasia.org

About Da Nang University of Technology (DUT)

University of Technology-Da Nang university was founded in 1975 and officially named Da Nang University of Technology (DUT) from 1976. DUT is one of the three universities of technology in Viet Nam as well as the only technological university in Central and Western Highland of Vietnam. It has 3 main responsibilities including: Training bachelors, doctors, masters, engineers for various technological majors; Carrying out scientific research; technological transfer.



After more than 35 years, DUT has been awarded many medals (the highest one is First Class Labor Medal in 2005) from Vietnamese state and many other medals and certificates of reward from Vietnam government, Ministry, and Da Nang authority.

Da Nang University of Technology envisions to be one of the Vietnamese leading universities, which meet the international standards in education and scientific research.

For more information
www.dut.edu.vn/

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