
ANNEX



LET'S BUILD UP SAFER COMMUNITY through SCHOOL DISASTER EDUCATION

-Handbook for Teachers-



THE PROJECT FOR SAFE SCHOOLS, INITIATED BY JICA, IS CURRENTLY IN PROGRESS IN SEVERAL AREAS OF EARTHQUAKE
PRONE OFFICES OF PADANG IN WEST SUMATRA REGION OF THE REPUBLIC OF INDONESIA



OYO INTERNATIONAL
CORPORATION



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About This Handbook and JICA Project

This booklet is prepared as a part of Disaster Risk Management Activities, under “The Urgent Project for Disaster Construction of Schools Considering Quake Resistance and Disaster Risk Management in the Province of West Sumatra in the Republic of Indonesia”. In this project, 2 schools are reconstructed to be models for quake resistant schools. Besides, 9 schools are reconstructed with quake resistant design in the succeeding JICA grant aid Project, named “ Project for Safer School Reconstruction in Devastated Areas of Earthquake in Off Shore of Padang, in West Sumatra Region in the Republic of Indonesia”. In the Disaster Risk Management Activities, various workshops and training on disaster risk management were conducted for schools and neighborhood communities, aiming that the reconstructed schools are utilized as evacuation sites. This handbook is prepared as guidelines for school teachers to give their students classes of disaster risk reduction. Technical education on quake-resistant buildings were also conducted for school teachers and communities, as compiled in the separate textbook.

About JICA

JICA is established as an independent administrative institution under the law concerning the Independent Administrative Institution Japan International Cooperation Agency (Law No. 136, 2002), JICA aims to contribute to the promotion of international cooperation as well as the sound development of Japanese and global economy by supporting the socioeconomic development, recovery or economic stability of developing regions.



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SEEDS Asia is a non - profit organization with a vision to preserve the environment, and strengthen the communities in dealing with natural disasters. Our mission is to ensure sustainable development and human security for the people and society in Asia and Pacific region through our activities.

Let's Build Up Safer Community Through School Disaster Education

- Handbook for Teachers -

MESSAGE



With praise and gratitude to God Almighty, we welcome the publication of Handbook for Teachers **"Let's Build Up Safer Community through Disaster Education in Schools"** which has been well-structured, as a realization of cooperation between West Sumatra Provincial Education Youth and Sports Office (DISDIKPORA), District/City Education Offices (Padang Pariaman District, Pariaman City and Padang City) with JICA.

West Sumatra is a very vulnerable area to disasters like floods, storms (wind), volcanic and tectonic earthquakes, where the risk for disaster is very high. These natural disasters had caused thousands of casualties, material losses and leaving many people struggling to rebuild their homes and livelihoods.

Preparedness is essential thing and it should be built at every level of society or group both of community and educational level groups. Experiences show that destruction caused by disasters can be drastically reduced if all people are more prepared for disaster. School as an education institution does not only provide academic knowledge but also general knowledge for our survival, and disaster preparedness is a part of our survival skills.

Education Youth and Sports Office since 2007 has pioneered the awareness that disasters and disaster management issues is an indispensable materials to be administered at school. In 2007, with cooperation between Universities, BMG (meteorological and geophysical agency) experts team, and disaster experts, especially earthquakes experts, Draft of Curriculum Integration of Natural Disaster into Social Science and Natural Science subjects at school was prepared and seminar and socialization were conducted. In 2008, piloting school was assigned to run the curriculum integration where teachers participated in workshops organized by West Sumatra provincial Education Youth and Sports Office by utilizing the Provincial Budget.

On September 30, 2009, West Sumatra was hit by powerful earthquake which had ruined the existing buildings and took many victims. By this incident, many parties are very concerned with West Sumatra, among others, JICA is very concerned with the recovery and preparedness for the future disasters.

We are very grateful to JICA which has been very concerned with education in West Sumatra by publishing this Handbook for Elementary School Teachers. It really helps us, especially in the development and implementation of existing Disaster Education Curriculum.

It is expected that this book can be utilized as:

1. As a guideline for assisting teachers in giving education about disaster management to students in schools in order to build disaster preparedness and school safety
2. Provide systematic and comprehensive overview to integrate knowledge in disaster risk reduction into school subjects.
3. Encourage the initiative of teachers, schools and cluster groups in conducting disaster risk reduction efforts and building safety culture at school, home and neighborhood environment.

Hopefully, this handbook can be useful for teachers to enhance knowledge, skills and forming attitudes of children to become more responsive to the threat of disaster.

Padang, September 6, 2010
Head of Education Youth and Sports
West Sumatera Province



Drs. Burhasman.MM
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MESSAGE

Praise and thanks we pray to the Lord Almighty who has overflowed His blessings so that this handbook of Integrating Disaster Material in elementary and junior high schools can be well compiled.



Location of Indonesia as an archipelagic country located at the meeting point of 4 tectonic plates, making Indonesia the areas prone to disasters. Thus, it is essential that disaster education be taught in all lines of life, and be given as early as possible.

We express our thanks and high appreciation to SEEDS Asia and YAKKUM Emergency Unit (YEU), also other parties who have supported the implementation of disaster education in elementary and junior high school, both in Padang city and Padang Pariaman District.

We do understand how high commitment SEEDS Asia together with YEU have put into an attempt to increase students' and teachers' capacity, so they have the awareness and ability to cope with disasters.

We hope that the results of the Education and Training that have been conducted, could be the beginning of a **disaster curriculum** for the Practitioner and Education Management in other districts based on each geographical conditions and local knowledge, of course.

This handbook was developed with the involvement of elementary and junior high school teachers both in Padang city and Padang Pariaman district. This handbook contains the strategic steps in disaster learning so that students, teachers, communities and governments will be able to take quick and precise steps, in terms of disaster preparedness readiness.

Hopefully, this handbook of Integrating Disaster Material provides benefits and can assist teachers to enhance knowledge, skills and forming attitudes and habituation of students to be more responsive and alert to the threat of disaster.

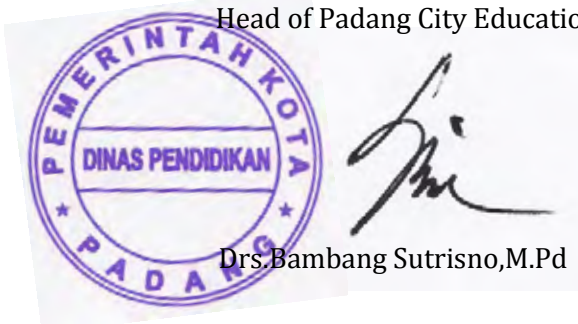
This handbook can also be one of references for teachers and education practitioners for the process of integrating disaster material into the education curriculum. It means that the process can be implemented intergratedly and continuously and will not disrupt teaching and learning activities. Thus, it becomes more easily understood, especially by children or students who are the next generation in the future.

In addition, we do hope that these learning outcomes in the future can contribute in changing thinking patterns and attitude of society towards disaster to be more positive.

Finally, congratulations and let's start a success disaster education now.

Padang, 10 August 2010

Head of Padang City Education Office



Drs. Bambang Sutrisno, M.Pd

MESSAGE

Praise and thanks we pray to the Lord Almighty for his blessing and guidance so that we have better life in the future.



30 September earthquake in West Sumatera, especially in Padang Pariaman has caused huge material and moral losses. Infrastructure, community residents, and schools experienced big damages as well.

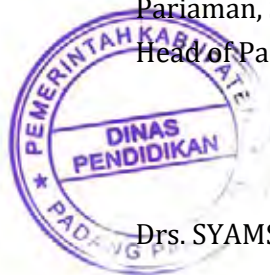
The collapse of school buildings in Padang Pariaman in particular, has encouraged other parties, both government and NGOs, also JICA to assist the Government. By the publishing of ***Disaster Education Handbook*** by JICA, we warmly welcome with very high appreciation, hopefully we all can learn from our last experience on how to cope with unexpectedly disaster in the future.

We hope this book will be distributed to all schools to be used as a guide for us in publicizing them to the students and to public in order to minimize the negative impact of disaster.

Finally, We, on behalf of Head of Padang Pariaman District Education Office express our thanks to JICA. Hopefully, the contribution of JICA will be rewarded by God Almighty. Amin.

Pariaman, September 20th, 2010

Head of Padang Pariaman Education Office



Drs. SYAMSULRIZAL, MM

Preface

On 30th of September 2009, an earthquake hit West Sumatra, especially Padang city and Padang Pariaman district at 17:16 and had a moment magnitude of 7.6, with its epicenter at about 45 kilometers west-northwest of Padang. More than 1,115 people were killed, 2,902 were injured. In addition, 250,000 families, around 1,250,000 people, were affected by the earthquake through the total or partial loss of their homes and livelihoods.

School children are very vulnerable towards disasters; at the same time, however, they are able not only to carry information to community but also to pass information to next generations. In addition, as roles of school, it can be the center of disseminating information through students and the key factor to build culture of disaster management in community, and also has responsibility to save children's lives.

Even though disaster education in school has been regarded as important after the earthquake occurred in West Sumatra, trainings on response rather than education on disaster preparedness have been mainly conducted. In order to build sustainable culture of disaster education in school, it is required to have teachers' participation and long-term education on disaster management.

Receiving support from Departments of Education of West Sumatra, Padang, and Padang Pariaman, SEEDS Asia has committed to implement training on school disaster education for school teachers in West Sumatra in order to promote the capacity of teachers to sustainably conduct disaster education programs by themselves. Through the process of the trainings, we have developed materials for local school teachers to understand more easily. We are pleased to develop this handbook that will help users to conceptualize disaster management, expand knowledge on how to integrate disaster management into school curriculum, and develop appropriate programs to conduct in their schools. This handbook is primarily based on the school disaster education project conducted in Yogyakarta by SEEDS Asia and YEU with the Japan Platform funding. Efforts were made to ensure that school teachers would receive clear ideas on procedures of each program through the handbook without having expertise on disaster management, based on our needs assessment with local teachers and feedback from teachers during project period.

We are honored to publish this handbook on school disaster education for school teachers. Knowledge and experiences on disaster education in schools, especially Japan and Indonesia were brought into this handbook, while local stakeholders such as Education Department in West Sumatra and YAKKUM Emergency Unit (YEU), local non-governmental organization have been involved in order to ensure relevance and acceptability. It is hoped that readers of this publication, mainly teachers in elementary schools, will find it useful and practical and will use it as teaching material for the implementation of school disaster education in order to promote culture of disaster preparedness in schools.

August 2010
SEEDS Asia Secretariat

REMARKS

A disaster, which have taken lives of 1,195 peoples, caused 1,798 people injured and 271,450 families suffered damaged houses whilst students from 4,625 schools have to study under tents, certainly caused unbelievable grieves, loss and trauma which need long time to be recovered. That is a common face of a disaster, face of loss, grief and trauma. However, we could actually opt another face of disaster. Disaster could serve an opportunity to change future life, not as vulnerable as before. Building back better through a culture of safety is the future vision which is then agreed upon by various stakeholders in disaster management to be put into action in various innovative disaster preparedness programs.

Children are our lives in the future. They should decide whether losses and damages caused by today disasters and ones in the past will become new energy and inspiration in the future life where better governance in managing disaster risks and being prepared towards possible hazards take place and sustain. Oppositely, they might view previous and today disasters as long life curses happened repeatedly and could get worse eventually. Schools are important institution where our children go for deciding and developing their future life. It is our most reason why SEEDS Asia and YEU use the strategy of teaching and learning disaster education for children at school. It is our strategy to achieve vision above, "building back better through a culture of safety".

Support from government, in this regards are the Education Division in different levels in West Sumatera provinces, Padang City, district of Padang Pariaman, in 7 sub district equipped with the participation and enthusiasm of the teachers and students in 12 sekolah in SMPN 25 Padang, SMPN 07 Padang, SDN 23 / 24 Padang, SDN 05 Batang Gasan, SDN 07 Sungai Geringging, SDN 08 2x11 Enam Lingkung, SDN 01 Enam Lingkung, SDN 08 Sintuk Toboh Gadang, SDN 03 V Koto Kampung Dalam, SDN 02 V Koto Timur, SMPN 01 Enam Lingkung in the disaster education program give hope and confidence that these education efforts for creating a new culture of safety towards disaster risk is going to be useful and sustained. With a hope that our learning in disaster preparedness program can be learnt and replicated in other context by relevant stakeholders, this handbook is therefore developed and printed. We are grateful to SEEDS Asia and other stakeholders for helping us choosing different face of disasters, a face full of gracious and hope, embodied in our future generation.

August 2010,



Arshinta

YAKKUM Emergency Unit

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Introduction

This handbook is for school teachers who are interested in school disaster education and in issues regarding disaster risk reduction such as...

What kind of School Disaster Education programs can teachers conduct in order to raise awareness of school children?

How to use this handbook

How to use this handbook

Open the page you need. Depending on needs that school teachers have, you can read only the important parts.

Can use just after reading

After reading about each program, school teachers can conduct School Disaster Education programs by following the procedures mentioned in the handbook.

Share experiences

After school teachers conduct programs in schools, teachers are able to share experiences with other teachers by following the program implementing procedure.

Meaning of pictograms utilized in this handbook

Target Hazard



Earthquake



Tsunami



Landslide



Volcanic eruption



Flood



Cyclone

Target class



Target students who can participate without any help



Students who can participate with peer education

Place of implementation



Inside the classroom



Outside the classroom

Learning method



Lecture



Practice

Disaster Management Cycle



Response



Rehabilitation



Mitigation



Preparedness



Easy



Little difficult



Difficult

Chapter 1

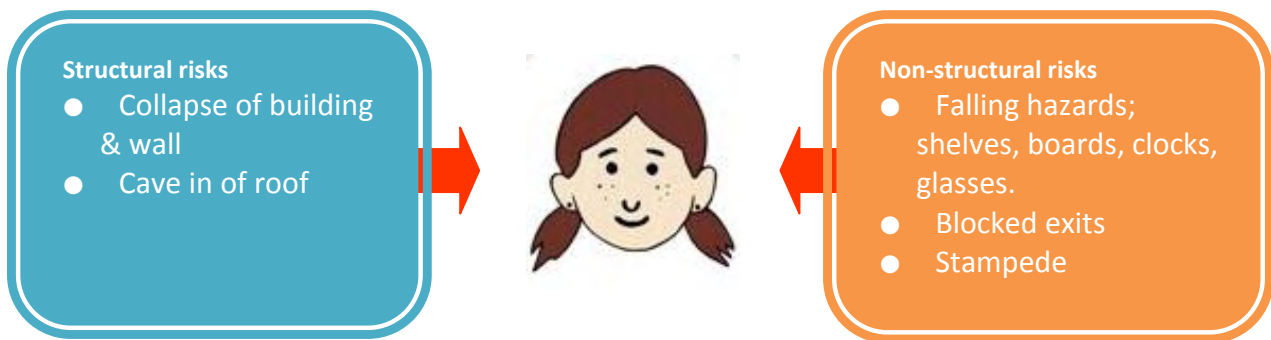
Basic Concept of School Disaster Education



1. What is the School Disaster Education?

Importance of School Disaster Education

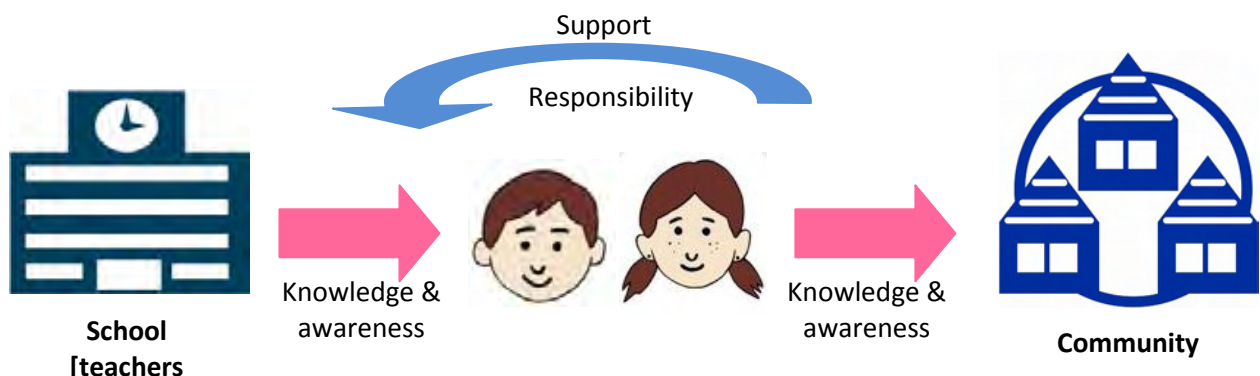
Since the movement of “Education for All” has been promoted, more and more children have had opportunity to go to school. At the same time, there have been both structural non-structural risks in schools. As structural risks, there are building or wall collapse and cave in of roof as result of earthquake and landslide. School children are also surrounded by non-structural risks such as falling hazards, blocked exits, stampede, and fire. School children are, therefore, one of the most vulnerable groups in the community. And, they need to be aware of those risks in schools.



However, school is not only the place which has high risks but also has capacity to be a cradle to promote disaster risk reduction in the community. The role of school in community cannot be ignored, and it would be benefiting to call schools as the cradle of the society. School children are a powerful force of change by disseminating information on disaster management and are supporters in creating awareness in the community. They can contribute in their own methodologies with energy and vision to find solutions for the problems in community. In addition, they are able to enlighten their elders and parents, urging them to take measures for disaster management such as preparedness measures.

- School can be the cradle to promote disaster management in the community.
- Schools are key factor to make culture of disaster risk reduction.
- School children can disseminate information in the community.

Process of raising awareness of the community through school

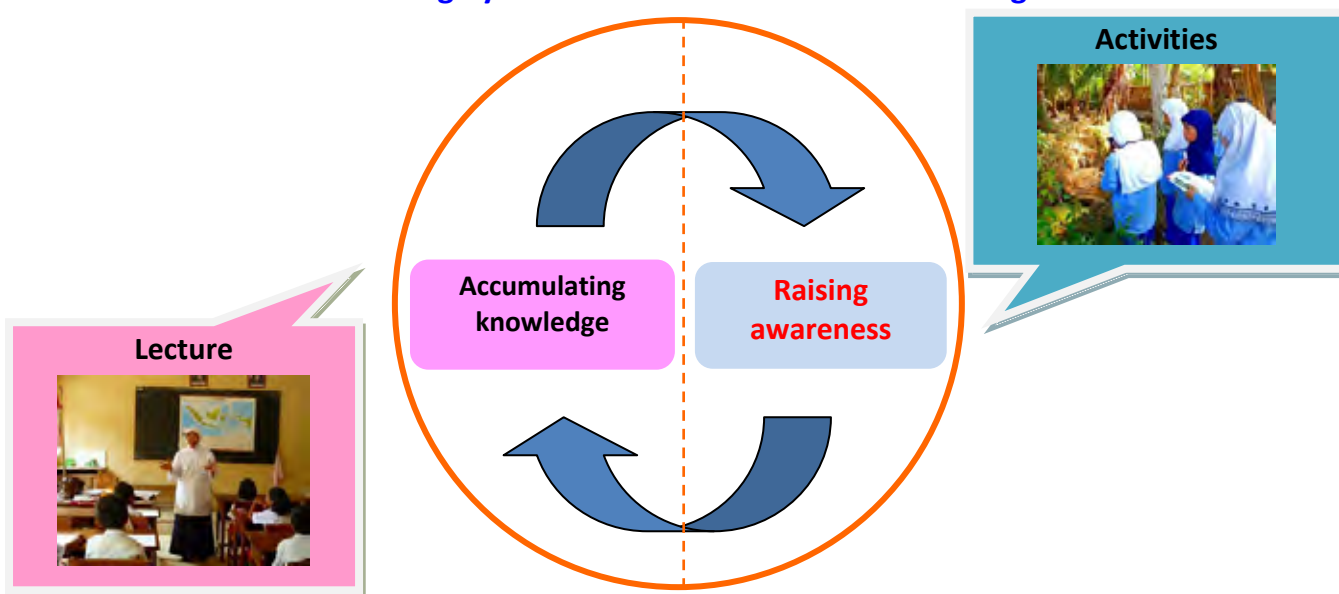


Role of Teachers in School Disaster Education

In order to conduct sustainable school disaster education programs, teachers' participation in all processes is crucial. That is because school disaster education is long-term process of learning and it focus not only on disaster response but also on other cycles of disaster management such as rehabilitation, mitigation, and preparedness.

The long-term process of leaning needs to be a combination of the process increasing knowledge of school children and the process raising awareness on disaster management. On the one hand, through lectures and stories by teachers, students are able to accumulate information and knowledge on disaster risk reduction. Through active learning, on the other hand, they can have virtual experiences by simulations and think about the concept of disaster management by themselves. Those activities raise awareness of students on disaster risk reduction. Both processes are indispensable for students so as to adopt measures for disaster management such as emergency response and preparedness.

Learning Cycle of School Disaster Education Program



Role of the Community in School Disaster

Disaster education of school children need to be conducted not only during school hours but during time after school hours. Community, therefore, also has responsibility to support disaster education outside of the school.

Especially parents of school children are able to promote raising awareness of children on disaster management by discussing on disaster preparedness with other family members. People who have experienced disasters also can support disaster education by telling of their own experiences regarding the time during emergency case or rehabilitation process. As stakeholders of school disaster education, in addition, people from local health center, police station, fire station, community-based organization (CBOs) such as youth group and women's union can visit schools in order to talk about their roles on disaster management.

2. Basic Concept of Disaster Management

Terminologies Used

Capacity building

The process by which individuals, institutions and societies develop abilities, human skills and infrastructure to perform functions, solve problems, set and achieve goals which are needed to reduce the level of risk (UNHCR)

Climate change

The climate of a place or region is changed if over an extended period there is a statistically significant change in measurements of either the mean state or variability of the climate for that place or region. (UN/ISDR)

Community

In the context of disaster risk management, a community can be defined as people living in one geographical area, who are exposed to common hazards due to their location. They many have common experiences in responding to hazards and disasters. However, they many have different perceptions of and exposure to risk. Groups within the locality will have a stake in risk reduction measures, either in favor or against. (ADPC)

Community-based disaster risk reduction

A process in which communities at risk are actively engaged in the identification, analysis, treatment, monitoring and evaluation of disaster risks in order to reduce their vulnerabilities and to enhance their capacities. Community people are at the heart of decision-making and implementation of disaster risk management activities. The main role of CBDRM is to support the building, rebuilding and strengthening of communities' capacities to respond to and protect from risks and to make decisions over access to and use of resources. (ADPC)

Disaster

The serious disruption of the functioning of society, causing widespread human, material or environmental losses, which exceed the ability of the affected communities to cope using their own resources. Disasters occur when the negative effects of the hazards are not well managed. (ADPC)

Disaster mitigation

Structural and non-structural measures undertaken to limit the adverse impact of natural and technological hazards as well as environmental degradation. (UN/ISDR)

Disaster risk management

The process of using administrative decisions, organization, operational skills and capacities to implement policies, strategies and coping capacity of the communities to lessen the impact of natural hazards and related environmental disasters. This comprises all forms of activities to avoid (prevention) or to limit (mitigation and preparedness) negative effects of hazards. (UN/ISDR)

Disaster risk reduction (DRR)

Actions taken to reduce the risk of disasters and the impacts of natural hazards, through analysis and management of the causes of disasters. It includes avoidance of hazards, reduced social and economic vulnerability to hazards and improved preparedness for adverse events. (UN/ISDR)

Disaster preparedness

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

Early warning system

The set of capacities needed to provide timely and meaningful information to enable individuals and communities threatened by hazards to act in time and in an appropriate way to reduce the possibility of personal injury, loss of life and livelihoods, damage to property and the environment, and to prepare for effective response. (UN/ISDR)

Environmental Degradation

The reduction of the capacity of the environment to meet social and ecological objectives and needs. The impacts may contribute to an increase in vulnerability and the frequency and intensity of natural hazards.

Examples: land degradation, deforestation, desertification, wildland fires, loss of biodiversity, land, water and air pollution, climate change, sea level rise and ozone depletion. (UN/ISDR)

Environment Degradation

The reduced capacity of the environment is not in accordance with ecology needs and goals. It resulted in the increasing levels of vulnerability and its frequency and intensity of natural threats. For example: land degradation, deforestation, desertification, forest fires, loss of flora and fauna diversity, soil, air and water pollution, climate change, rising of sea levels, and depletion of ozone layer. (UN / ISDR)

Hazard

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

Hazard mapping

The process of mapping hazard information within a study area of varying scale, coverage, and detail. One example of the hazard mapping is a flood plain map. Hazard maps can be combined in a single map to give a composite picture of natural hazards, providing the possibility of common mitigation technique recommendations; land-use decisions can be based on all hazard considerations simultaneously. The limitations of the technique are that the volume of information needed for natural hazards management, particularly in the context of integrated development planning, often exceeds the capacity of manual methods and thus drives the use of computer assisted techniques. (UN/HABITAT)

Participatory approach

The development and/or government process in which the proposed beneficiaries of a policy or intervention are closely involved in identifying problems and priorities and have some control over the analysis and the planning, implementation and monitoring of solutions. (UNHCR)

Public awareness

The process of informing the general population, increasing levels of consciousness about risks and how people can act in order to reduce their exposures towards natural hazards. It fosters changes in behavior leading towards a culture of risk reduction. This involves the development and dissemination of public and educational information through radio, television and print media, as well as the establishment of information centers, networks, and community or participation actions. (UN/ISDR)

Resilience

The capacity of a system, community or society potentially exposed to hazards to resist, adapt and recover from after a shock or crisis, and to restore an acceptable level of functioning and structure. This is determined by the degree to which the social system is capable of organizing itself to increase its capacity for learning from past disasters for better future protection and to improve risk reduction measures. (UN/ISDR)

Risk

The probability of harmful consequences or losses (deaths, injuries, property, livelihoods, economic activity disrupted or environment damaged) resulting from natural or human-induced hazards and vulnerable conditions. It is a function of hazard exposure and degree of vulnerability to a specific hazard. (UN/ISDR)

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

Stakeholder

All those, from agencies to individuals, who have a direct or indirect interest in the humanitarian interventions, or who affected by the implementation and outcome of it. (ALNAP)

Vulnerability

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

2. Basic Concept of Disaster Management

Why is Disaster Risk Reduction So Important ?

Indonesia is the country which has experienced various natural disasters such as earthquake, tsunami, volcanic eruption, landslide, storm, and flood. Indonesia is also well known as active tectonic region because it consists of three different active tectonic plates; therefore, it often causes earthquake and tsunami.

On 26th of December 2004, Indian Ocean earthquake and tsunami struck Asian and African countries. Among those affected countries, Indonesia, especially Ache in Sumatra island, was hit by disastrous tsunami. In some places tsunami wave exceeds more than five meters. It is reported that more than 128,000 people lost their lives in Indonesia because of the earthquake and tsunami.

In addition, on 27th of May 2006, an earthquake hit Yogyakarta province and Central Java province at 5:53 with its epicenter at about 20 kilometers south of Bantul district in Yogyakarta province. Over 700 aftershocks were reported. More than 5,700 people were killed, 38,568 were injured and as many as 600,000 people were displaced in the Bantul - Yogyakarta area. Especially in Bantul province where the damage of the earthquake was serious, 3130 students were struck by the earthquake, and among them 265 students were killed.

Besides, 7.6 SR earthquake occurred in West Sumatera on September 30, 2009 caused big damages in Padang city, Pariaman city, Bukittinggi city, Padang Pariaman district, Pesisir Selatan district, West Pasaman district, Solok city, dan Padang Panjang city. In Padang Pariaman, there were 85,000 houses got major or medium damage (about 96% of all). Source: OCHA site report #16, October 20, 2009.

We cannot prevent disaster itself; however, we can reduce the risk of the disaster. But, how ?

The risk of disasters results from a combination of hazards and vulnerability. Hazard is a phenomenon that can pose a potential threat such as 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 prevent. 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.

Disaster Management Cycle

Disasters are cyclic events. Emergency response and rehabilitation follow a disaster. Then the normal development phase sets in. Ideally mitigation activities should be carried out and sustainable development followed. Preparedness should be put in place before the next disaster strikes in order to reduce its risk.

After disasters, more emphasis is given on community preparedness measures by government and NGOs.

Teachers can:

- Provide students information on precautionary measures; evacuation, tools to be prepared, preparedness plan in school and house.
- Advocate for disaster risk reduction
- Provide appropriate, timely information on disasters.

Immediately after disasters, as an immediate response, government and NGOs extend relief to the affected people. This includes search and rescue, water, medicines, food and temporary shelter in relief camps and tents.

Teachers can:

- Take care of students' condition; first aid.
- Communicate with parents and community people
- Provide timely and factual information; extent of disaster, current situation, secondary risk, missing students.
- Advice about actions to be taken; evacuation, safe shelter.
- Encourage students.



If effective measures are implemented, natural hazards can be avoided or reduced by limiting the adverse impact of inevitable natural phenomenon. This phase follows the rehabilitation incorporated measures to reduce the impact of future disasters.

Teachers can:

- Provide information on precautionary measures and techniques; non-structural mitigation in school, structural mitigation, safety tips.

Soon after the initial relief phase, rehabilitation initiatives are taken up by government and NGOs. Roads, permanent houses, water, power, and communication networks are restored. This phase also includes economic rehabilitation through livelihood support.

Teachers can:

- Address appropriate needs to government; building construction, furniture, infrastructure, medical and mental care.

Chapter 2

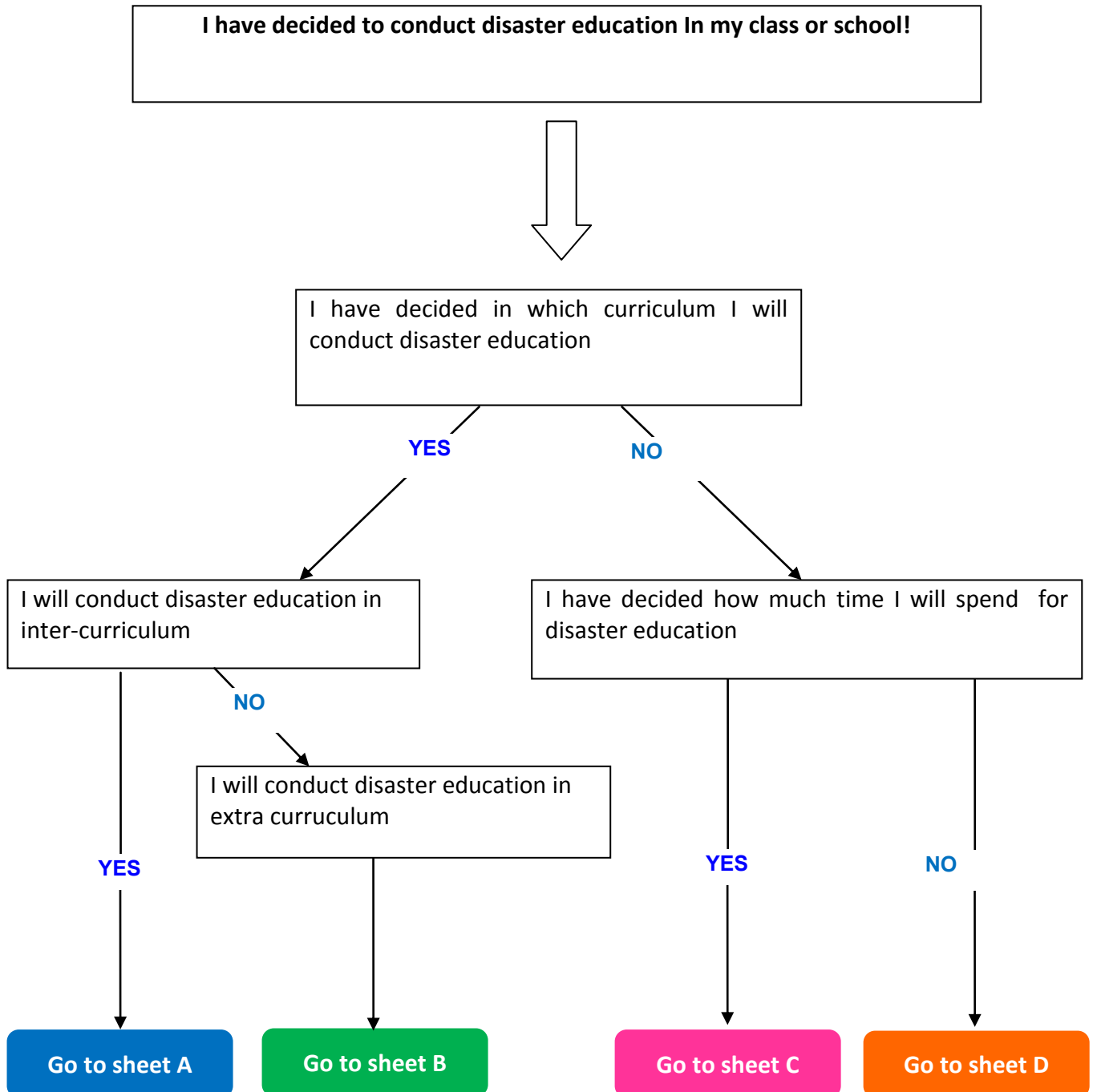
Procedure to Decide School Disaster Education Program



Procedure to Decide Disaster Education Programs

You can choose your own school disaster education program by following procedures:

1. Choose a sheet by utilizing the following chart.
2. Choose programs depending on your own needs



Procedure to Decide Disaster Education Programs

Look at Sheet B

Time period	Pre disaster		During disaster		Post disaster	
	Mitigation	Preparedness	Response	Rehabilitation	Disaster	
Disaster management cycle	Scouting		Essay (35)			
		Disaster education newspaper (70)				Disaster education newspaper
	Reading newspaper (35-70)					
		Town watching (70)	Cooking			
		Hazard hunting in school (40-70)	Hazard map (social sciences)			
Cultural Arts and Skills (SBK)	Non physical mitigation (40-70)					
	Story from people/stakeholders (35-70)					
		Reporter (70)				
		Story telling (70)				
		Emergency bag (40)				
Sport		Sing a song (35)			Sing a song	
		Drawing (70)			Drawing	Paper craft making
		Disaster management game (35-100)				
			Evacuation drills (70)			
School Health Unit		Firsrt aid and Preparedness team (100)				

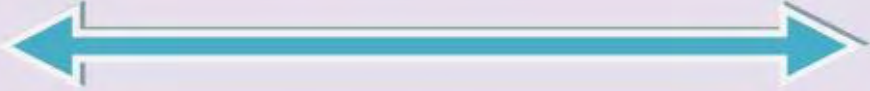
Procedure to Decide Disaster Education Programs

Look at Sheet C

Time period	Pre disaster		During disaster		Post disaster	
	Mitigation	Preparedness	Response	Rehabilitation	Disaster	
Disaster management cycle	Essay (35)		Reading newspaper (35-70)		Disaster education newspaper	
	Disaster education newspaper (70)					
	Town watching (70)		Cooking			
	Hazard hunting in school (40-70)		Hazard map (social sciences)			
Scouting	Non physical mitigation (40-70)		Story from people/stakeholders (35-70)			
			Reporter (70)			
			Story telling (70)			
					Paper craft making	
Cultural Arts and skills (SBK)	Emergency bag (40)				Sing a song	
	Sing a song (35)				Drawing	
	Drawing (70)		Disaster management game (35-100)			
Sport						
			Evacuation drills (70)			
School Health Unit			First aid and Preparedness team (100)			

Procedure to Decide Disaster Education Programs

Look at Sheet D

Time period	Pre disaster		During disaster		Post disaster	
	Mitigation	Preparedness	Response	Rehabilitation	Disaster	
Intra-curricular 	Disaster management cycle		Disaster		Disaster	
	Disaster education newspaper (Indonesian)		Essay (Indonesian)		Disaster education newspaper	
	Reading newspaper (Indonesian, English)		Story telling (Indonesian)			
	Story from people/stakeholder (Indonesian)		Sing a song (35)		Sing a song	
	Reporter (Indonesian, Social sciences)		Reporter (Indonesian, Social sciences)		Paper crafts making (natural sciences, arts, cultural art and skills)	
	Town watching (social sciences)		Cooking			
	Hazard hunting in school (social sciences)		Hazard map (social sciences)			
	Emergency bag preparation (social sciences)					
	Drawing (arts, cultural art and skills)				Drawing	
	Non physical mitigation (natural and social sciences)					
Extra-curricular	Disaster management games (sport, art and cultural art and skills)		Disaster management games (sport, art and cultural art and skills)			
	First aid and preparedness (sport, school health unit)		First aid and preparedness (sport, school health unit)			

Procedure to Decide Disaster Education Programs

Format of Action Plan

	Program name	Time	Subjects	class	Frequency	Needs
Mitigation						
Preparedness						
Response						
Rehabilitation						
During disaster						

Example of Action Plan

Fase	Nama Program	Wkt	Mata Pelajaran	Kls	Frek	Kebutuhan	PIC
Sblm Bencana	Koran Pendidikan Kebencanaan	70 menit	IPS B.Ind IPA B.Jawa	VI	2 x 1 Bln	Kertas Gambar Pensil Warna, Crayon, Spidol	Rini Lestari Rubiyah Suaemo Meisri D.R
	Pemetaan Lingkungan	70 menit	IPA IPS	V	2 x 1 Bln	Kamera, Peta Sekolah, Kertas, Spidol	Rini Astuti Sek. Desa
Saat Bencana	<u>P3K</u>	70 menit	Kesehatan	VI	2 x 1 Bln	Kotak P3K & Isinya (perlengkapan)	Tentrem, Tatik M Pushemas
	<u>Memasak</u>	70 menit	SBK	IV	2 x 1 Bln	Alat Dan Bahan	Suharyanti Thoyibah Aspariyah
Setelah Bencana	Tas gawat darurat	70 menit	Mat. B.Ind	V	2 x 1 Bln	Tas & Perlengkapan	Sukarsilah Sudjiyo
	Membaca berita	70 mnt	B.Ind IPS IPA	V	2 x 1 Bln	Koran, Peta Atlas, Stiker	Sudarmi Sadiyahun
	Menggambar	70 mnt	SBK	IV	2 x 1 Bln	Kertas Gambar, Crayon	Tri Yuliani Sri Hartini
	Menyanyi Cerita	70 mnt 70 mnt	SBK B.Ind, Jw	III III	2 x 1 Bln 2 x 1 Bln	Melodion Video, VCD,	Sukarman Sudiyem

Example of Integrating Disaster Education into Curriculum

NO	MATERIAL	COMPETENCE STANDARD	BASIC COMPETENCE	INDICATOR	SUBJECT
1	Let's protect and rescue yourself	Understanding events in family chronologically	Maintaining documents and collections of other valuables	Mentioning valuables thing to save in case of disaster	Social sciences for 2 nd grade of 1 st semester
			Sharing important incident in family chronologically	Sharing experience during disaster	
		Understanding our surrounding and cooperating around house and school	Preparing school, house and environment maps	Making evacuation route from house to school	Social sciences for 3 rd grade of 1 st semester
			Cooperating around house, school, community/village	Cooperating in making evacuation route	
		Understanding natural phenomenon occurred in Indonesia and neighboring countries	Knowing how to cope with disaster	Mentioning signs of natural phenomenon in case of disaster	Social sciences for 4 th grade of 2 nd semester
		Understanding natural change and its relationship with natural resource exploitation	Identifying natural phenomenon in Indonesia and its impacts to living creatures and environment	Mentioning ways to rescue in case of disasters	Natural sciences for 5 th grade of 2 nd semester
		Practicing sports around the school and understanding its value	Practicing physical activity around the school; and the value of cleanliness, health and safety	Students can mention safe places to rescue	Sport for 2 nd grade of 2 nd semester

Procedure to Decide Disaster Education Programs

2	I Can Help	Practicing camping around the school and its value	Practicing various camping skills and value of cooperation, responsibility, discipline, and obedient.	students can perform practice of natural disaster victims	Sport for 4 th grade of 2 nd semester
3	I Know My Village	Describing house surrounding Understanding human effort in identifying the development of environment	Retelling own important events in family surrounding	Students can describe about health and clean environment Deciding evacuation route in school	Citizenship education for 1 st grade of 2 nd semester Geography for 7 th grade
			Describing house location Describing behavior of healthy house environment and clean life style Preparing sketch and geographical area map		
4	Let's Search Our School	Understanding the history of natural appearance and diversity of tribes within district / city / province environments	Reading local environment map (district, province) using a simple scale	Students can read existing evacuation route made by school	Social sciences for 4 th grade of 1 st semester
		Understanding human effort in identifying the development of environment	Preparing sketches and maps that describe the geographical objects	Creating a map of dangerous locations for students to save themselves from an earthquake	Geography for 7 th grade
5	Now My School is Safer	Practicing Activity	Preparing sketches and maps that describe the geographical objects	Creating safer room design	Sport for 2 nd grade of 2 nd semester
		Understanding human effort in identifying the development of environment			Geography for 7 th grade

Procedure to Decide Disaster Education Programs

6	Let's Write Your Message and Impression	Revealing your mind, feeling, experience by short story Understanding the history of natural appearance and diversity of tribes within district / city / province environments	Writing short story about last experience Reading local environment map (district, province) using a simple scale	Able to identify theme, character, setting, background of story related to disaster Able to write a story related to disaster based on experience Able to use quotes and quotation marks	Indonesian for 9th grade
7	Let's Read My Newspaper	Understanding human's life environment Revealing information in news text, slogan, poster	Describing the diversity of forms of earth, formation processes, and its impact on life Able to write brief, solid and clear news in texts related to disaster	Describing news about disaster taken from newspaper Able to write brief, solid and clear news in texts related to disaster Able to determine the themes made Writing appropriate sentence in the news based on related subject, predicate, object	Indonesian for 7th grade Geography for 7th grade
15	I Read You Listen	Understanding the social problems associated with population growth	Describing the environmental problems in sustainable development and mitigation	Determine the earthquake, volcanic eruption and flooding-prone regions,	Geography for 8th grade
19	Listen to My Prayer	Learning to accept good destiny and bad destiny	Understanding the pillars of the 6th faith	Students can say a prayer related to disaster Students can mention verses / prayer related to disaster	Islamic Religion for 1st – 9th grade

Chapter 3

What is Disaster Education ?



1. Let's Protect and Evacuate Yourself

Evacuation Drills



Objectives

- To raise awareness towards disaster's occurrence
- To raise preparedness for a disaster through practical training
- Learn how to act in case of emergency situation



Expected Results

- Students can learn about "what to do" in case of emergency situation.
-



Possible Subjects to Integrate

- Sport
- Extra - curriculum
- Social Sciences
- Self Development / Habituation
-



Required Skills

- Listen to what people mention
- Understand important points
- Summarize own opinions
- Communication with family and community members
-
-



Needed Materials

- | | |
|--------------------|-------------------------|
| ● <u>Megaphone</u> | ● <u>Evacuation Map</u> |
| ● _____ | ● _____ |
| ● _____ | ● _____ |



Examples of possible themes

- Evacuation Drills in the classroom
- Evacuation drills outside of the classroom

Ancaman



Target Kelas



Tempat Pelaksanaan



Metode Pengajaran



Siklus pengelolaan bencana





Procedure



Pre-Activity

- Identify possible threat/risks from several kinds of disaster, such as: Earthquake: wall, glass window, kaca, high cabinets, chandeliers
- Identify safe place and route to reach
- Identify how to rescue in case of disasters (through pictures, films or texts), eg: 1) in case of earthquake, hide under a table, stay away from glass windows, 2) in case of tsunami, stay away from coastal areas, find high place

Whilst-Activity

- Determining signs of simulation and gathering place during evacuation
- Practicing evacuation procedures inside/outside the school
- Evacuation from a classroom / dangerous places
- Evacuate to a safe place through evacuation route

Post-Activity

Activity evaluation, for example: time taken to evacuate, rescuing techniques, etc.



Case Study

Post Bengawan Solo (Solo River) flood December 27, 2007 YAKKUM Emergency Unit (YEU) implemented preparedness program activity to build capacity of elementary schools along the river banks to anticipate similar flood in the future. One of the activities was evacuation simulation involving active participation of students, teachers and community. Simulation was conducted by focusing on building capacity to properly act in case of flood, fire and earthquake, and to assist others in need. In the simulation in Sukoharjo district, YEU worked with Sukoharjo Search and Rescue team, local disaster management agency, local government, community and community health cadres, local community health center and volunteers.



(photo by YEU)



Program Development

- Evacuation simulation activity can be carried on in the community by involving more related institutions such as police department, rescue team, fire station, BPBD, and NGOs.
- Combined with other disaster education programs such as first aid training.
- This activity can be included to adjustment period that usually performed on Saturday, or once in a month or two months when starting weekly flag ceremony and counting the duration of it. This activity can also be used as a contest among classes; the fastest class which can reach the decided place is the winner.

2. I Can Help!

First Aid Training

100 min



Objectives

- To improve skill in giving first aid to casualty in order to reduce, promote, and prevent illness before paramedics arrive.



Expected Results

- Students can learn about “what to do” in case of disaster and find casualties.
- Students can learn about how to collaborate with other students.



Possible Subjects to Integrate

- Sport
- Extra-curriculum (Scout, Youth Red Cross, School Activity Unit / little doctor)
- Mathematics
- Bahasa Indonesia
- Minangkabau Traditional Culture
- Citizenship Education



Required Skills

- Listen to what people mention
- Understand important points
- Summarize own opinions
- Communication with family and community members



Needed Materials

- | | |
|-----------------|------------------|
| ● Bandage _____ | ● Scissors _____ |
| ● Cotton _____ | ● Mitela _____ |
| ● Plaster _____ | ● _____ |

Hazards



Targeting Class



Place of Implementation



Teaching Method



Disaster Management Cycle





Procedures



Pre-Activity

- Observation and introduction to First Aid by paramedics (Ex. Public Health Center Officer or Indonesian Red Cross or trained teachers) based on the condition of each casualty.



Whilst-Activity

- Along with teachers (and paramedics if possible), students practice first aid procedures
- Students practice first aid procedures on their own based on information given by paramedics or teacher.



Post-Activity

- Teacher gives a scenario of a number of injuries to test students' skills
- Teacher (or a paramedic) evaluates students' activity



Examples of possible themes

- First aid in various situations

First Aid Training



Case Study

(Indonesia)

Together with Padang Pasir Public Health Center, SDN 23 Padang taught about how to give first aid to the students in sport subject. Not only theory, students were also introduced to various tools of first aid , and how to safely handle bleeding wound and broken bone and how to do safe mobilization.



(photo by SEEDS Asia)

(Indonesia)

Since mid 2008 to 2010, YAKKUM Emergency Unit (YEU) conducted program of school disaster task force training in Meulaboh, Aceh Barat. Kuala Bubon Elementary School was one of the schools involved in promoting disaster education. Kuala Bubon Elementary School, assisted by YEU and in cooperation with Samatiga Public Helath Center and SAHABAT clinic implemented training on introduction to simple diseases , PHSB (Clean and Healthy Lifestyle Behaviour) and steps to help victims of such diseases or injuries. The aim of the training was firstly, to disseminate information about first aid to teachers and students; secondly, teachers and students understood how to care for themselves if needed; thirdly, students and teachers understood how to assist others by providing first aid.



(photo by YEU)



Indigenous Knowledge

- In the village community, we still meet lots of traditional medication. Beside introducing modern medicines, those traditional ones are also need to be introduced.



Program Development

- Introduction of first aid will give more benefits if it is performed in the community level. By having cooperation with village representative, village midwife, Community Health Center, and rescue team, this activity can become a regular and continuous program which will not need big budget because it will rely on local resources.
- This skill can be made as a contest on particular day; for example, as an annual contest before or after August 17 (Indonesia's Independence Day Celebration). A contest is aimed as a method to motivate the students to continually improve their skills.
- Combined with other disaster education program such as simulation and evacuation, making preparedness bag, and so on.
- *Class Meeting* / inter-class competition both for elementary and junior high schools.

3. I Know My Village / City

Town Watching & Hazard Map

70 min-
140 min (+ map)



Objectives

- To raise awareness of risky places around us.
- To identify safe shelter and evacuation route by making hazard map



Expected Results

- Students can understand their community by making their own maps.
-



Possible Subjects to Integrate

- Social Sciences
- Social Science - geography
- Extra-curricular



Required Skills

- Listen to what people mention
- Understand important points
- Summarize own opinions
- Recent opinions
- Identify problems
- Discussion with others
- Summarize stories
- Communication with family and community members
-

Hazards



Targeting Class



IV-IX

I-III

Place of Implementation



Teaching Method



D Management Cycle



Needed Materials

- | | |
|---------------------|-----------------------------------|
| ● Pencil _____ | ● Paper for drawing picture _____ |
| ● Paper paste _____ | ● Camera (if possible) _____ |
| ● Post-it _____ | ● _____ |



Example of possible themes




- Identifying hazard in every school classroom.

Town Watching & Hazard Map



Procedures



<p>Opening (5 minutes) Explain procedures to implement the activities around the community, focus more on the concept of disaster management and disaster risk reduction.</p> <p>Invite students to mention dangerous and safe places, shelters, and useful places in case of emergency on their own version. Make sure that these places are listed in students' mapping.</p>	
<p>Grouping (5 minutes) Make groups of 6-10 students. Then, each group prepares their own place for preparing the map right after observation finished.</p>	
<p>Allocation of Roles (5 minutes) Each group assign role for every member. Each member receive different assignment to ensure that all students participate in the activity process and complete the existing checklist.</p>	<p>Roles :</p> <ol style="list-style-type: none"> 1. Group leader 2. Interviewer 3. Photographer 4. Map developer 5. Observer of safe and unsafe spots in case of emergency and risky places to avoid.
<p>Town Watching (55 minutes)</p> <ol style="list-style-type: none"> 1. Students identify safe ad unsafe spots by using a checklist 2. Give comment or give some marks on map <p>Return to school and prepare the map.</p>	
<p>Second opening for drawing Map (5 minutes) Teacher explains how to prepare a map, firstly focus on disaster management concept and disaster risk reduction.</p>	
<p>Drawing Map (5 minutes) Students draw school area map on flip chart paper</p> <p>Posting Photos (5 minutes) Students post photos or drawing they have produced during observation according to its position on the map</p>	

Writing information (40 minutes)

1. Give color marks to every different places, for example:
 - Useful place : ● (blue)
 - Safe place : ● (green)
 - Dangerous place : ● (red)
 - Favorite place : ● (yellow)
2. Add some more information from community who are interviewed during town watching
3. Give comment on every pictures posted.



Presentation (10 minutes)

Group representative explains about their own map.

Evaluation and Teachers' comment (5 minutes)

Teacher evaluates every map and give comment based on the concept of disaster management and disaster education.

Scoring instruments:

- Content and information of the map related to disaster education
- Arrangement of map
- Quality of photo and / drawing
- Presented comments / information



Case Study

Town Watching (SDN 03 V Koto Kampung Dalam, Indonesia)

SDN 03 V Koto Kampung Dalam, realizes that the schools is surrounded by dangerous and disaster vulnerable area. Considering the geographical location which is close to the beach and had been struck by earthquake in 2009, teacher and students walked around the school's to make community mapping tin order to know the hazardous places, safe places, evacuation places, and also useful places in case of emergency situation.



(photo by YEU)

Town Watching (Japan)

Students of Maiko High school and elementary school students in Kobe have conducted town watching in order to understand the environment where students live and to make disaster risk reduction map. Students found vulnerable and dangerous places and useful places in case of emergency situation. In addition to those places, students also introduced their favorite places and places they frequently visit.



(photo by Maiko High School)



Program Development

Observation activity can be developed in the level of community, district, and province, so that the community knows the safe evacuation tracks when disaster happens.

Hazard mapping can also be performed in every level so that community and government know about the kind of hazard which surrounds them and also the characteristics of it to choose the appropriate anticipation.

Town Watching & Hazard Map



Program Development

- Despite schools, companies also need to perform environment observation and hazard mapping, in order to be able to perform appropriate prevention, mitigation, and preparedness to reduce disaster risk.

Check sheet for town watching

Category	No	Example	✓	Description
Safe place	1	Large open space		
	2	Park		
	3	Higher place		
	4			
	5			
	6	Fire extinguisher		
Useful places in case of emergency	7	Fire station		
	8	Police station		
	9	Streetlamp		
	10	Well, large water tank		
	11	Health center		
	12	Medical store		
	13	Food store		
	14	Public telephone		
	15	Public toilet		
	16	Notice board		
	17			
	18			
	19			
	20			
Dangerous place	21			
	22	Narrow road		
	23	Dead-end street/road		
	24	High wall		
	25			
Others	26			
	27			
	28			
	29			

4. Let's Search Our School

School Walking

70 min-
140 min (+ map)



Objectives

- To raise awareness of risky places in a school.
- To identify safe evacuation route by making a safety map.



Expected results

- Students can recognize their own surrounding by making their own maps.



Possible subjects to integrate

- Social sciences
- Cultural arts and Skills (SBK)
- Extra - curricular activities



Required skills

- Listen to what people mention
- Understand important points
- Summarize own opinions
- Recent opinions
- Identify problems
- Discussion with others
- Summarize stories
- Communication with family and community members
-



Needed Materials

- | | |
|---------------|-----------------------------|
| ● Pencil | ● Paper for drawing picture |
| ● Paper paste | ● Camera (if possible) |
| ● Post-it | ● |

Hazards



Targeting class



Place of implementation



Teaching method



Disaster management cycle



Example of possible theme

- Identify various rooms in school



School Walking



Procedures

Opening (5 minutes)

Explain the procedures for school walking, focus more on the concept of disaster management and disaster risk reduction. Invite students to name dangerous place, safe place, place of refuge and useful place during emergency situations on their own version. Make sure that these places are listed in students' mapping.



Grouping (5 minutes)

Make groups of 6-10 students. Then, each group prepares their own place for preparing the map right after observation finished.

Grouping (5 minutes)

Make groups of 6-10 students. Then, each group prepares their own place for preparing the map right after observation finished.

Roles :

1. Group leader
2. Interviewer
3. Photographer
4. Map developer
5. Observer of safe and unsafe spots in case of emergency and risky places to avoid.

School Walking (55 minutes)

1. Students identify safe and unsafe spots by using a checklist
2. Give comment or give some marks on map

Return to school and prepare the map.



Second opening for drawing Map (5 minutes)

Teacher explains how to prepare a map, firstly focus on disaster management concept and disaster risk reduction.

Drawing Map (5 minutes)

Students draw school area map on flip chart paper



Posting Photos (5 minutes)

Students post photos or drawing they have produced during observation according to its position on the map

Writing information (40 minutes)

1. Give color marks to every different places, for example:
 - Useful place : ● (blue)
 - Safe place : ● (green)
 - Dangerous place : ● (red)
 - Favorite place : ● (yellow)
2. Add some more information from community who are interviewed during town watching
3. Give comment on every pictures posted.



<p>Presentation (10 minutes) Group representative explains about their own map.</p>	
<p>Evaluation and Teachers' comment (5 minutes) Teacher evaluates every map and give comment based on the concept of disaster management and disaster education.</p>	<ul style="list-style-type: none"> ● Scoring instruments: ● Content and information of the map related to disaster education ● Arrangement of map ● Quality of photo and/ drawing ● Presented comments/ information



Case Study

Town Watching (Indonesia)

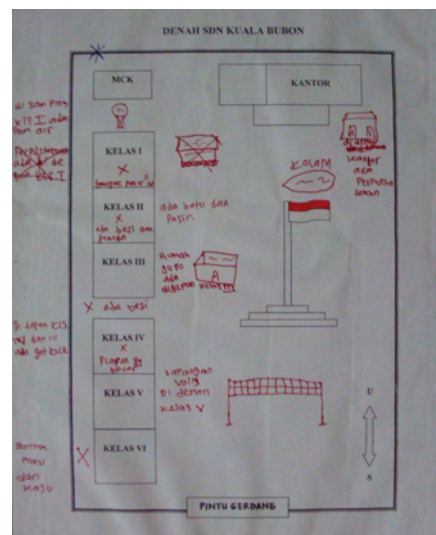
SDN 03 V Koto Kampung Dalam realizes that the schools is surrounded by dangerous and disaster vulnerable area. Considering the geographical location which is close to the beach and had been struck by earthquake in 2006, teacher and students walked around the school's to make community mapping tin order to know the hazardous places, safe places, evacuation places, and also useful places in case of emergency.



(foto oleh YEU)

School Hazards Hunt (Indonesia)

The earthquake caused severe casualties. In case of Pakistan earthquake in October 2005, about 17,000 students died. Many of them died because of falling rubble and trapped in school buildings. Based on this experience, then it would be very useful if all schools have evacuation route maps that can be utilized for saving lives of the students, teachers and school guards. Beginning in 2006 until today, YEU has assisted several elementary schools in Yogyakarta, Nias, Central Java and Bengkulu in designing school evacuation route maps. Hopefully, this evacuation point on schools map can reduce the risk of death for students and teachers. It is proven in time tested simulations that students and teachers can react better because of the evacuation route.



Program Development

- Alike school, evacuation map for community is also important to reduce disaster risk.
- Evacuation route can also be prepared in the level of family, district, and even province to reduce disaster risk.
- This activity can be combined with other activities, such as evacuation training.

5. Now Our School is Safer

Non-structural Mitigation

70 min-



Objectives

- To identify vulnerable places in a school.
- To learn how to strengthen vulnerable places in a school.



Expected Results

- Students can recognize their own surrounding by making their own maps.



Possible Subjects to Integrate

- Natural sciences
- Social Sciences
- Extra - curricular
- Cultural art and skills (SBK)



Required Skills

- Listen to what people mention
- Understand important points
- Summarize own opinions
- Recent opinions
- Identify problems
- Discussion with family and others



Needed Materials

- | | |
|---|--|
| ● <u>School map by marking the dangerous places</u> | ● <u>Equipments to repair furniture.</u> |
| ● _____ | ● _____ |
| ● _____ | ● _____ |



Examples of possible theme

- Make various rooms in school safer.



Indigenous Knowledge

- For fire contexts, ancient people used to provide sand bag tied on the roof of the house which is equipped with a towing rope. In case of fires, sack was withdrawn and its contents (sand) out and can help douse the flames.

Hazards



Targeting Class



Place of Implementation



Teaching Method



Disaster Management Cycle





Procedures



Pre teaching

- Teacher asks students to see what happens to their class in case of earthquake.
- Teacher asks students to identify items in class which can be dangerous in the case of earthquake



Whilst Activity

- Teachers ask students to make groups of (4 - 5 students per group)
- Each group will discuss some ways to reduce disaster risks from identified items.
For example: make the amplifier cabinet to the wall, giving additional hooks on the lights

Each group presents their discussion result, other groups give questions and comment.



Post Activity

- Students determine the best ways to reduce hazards
- Teacher and students practicing the way how to reduce determined risks (can be done in the next meeting to give enough time to collect materials needed).



(photo by YEU)



Case Study

Non-physical Mitigation using houses and furniture miniatures (Indonesia)
Joining the handicraft activity, the teacher of Elementary School 24 Padang asked the students to learn non-physical mitigation using paper mockup house and furniture miniatures. The students arranged the miniatures in a certain position, so that when it is vibrated, the furniture will be safe for the house occupants and will not block the evacuation track.



(photo by SEEDS Asia)



Program Development

- Non-structural mitigation can be developed in school, company, house, village office, and so on.
- Non-structural mitigation can be combined with other disaster education programs.
- Non-structural mitigation can be suggested to related parties or institutions as the guidance in constructing a building.