Disaster Prevention Education in Japan

Yamaguchi University
Fusanori Miura
Brief history of disaster prevention education in Japan

   - Books, Guidelines, [Quake Busters]

2. The 1995 Kobe earthq.
   - PC Software

3. The 2004 Off Sumatra earthq.
   - Internet Useful sites
   - Many disasters

   - Dynamic Hazard map

Revision of educational Guidelines (M. of Edu.)

Many disasters

Books
Guideline of school education for safety (M. of Edu.)
Hazard maps
Disaster imagination game (DIG)
Autonomy disaster prevention organizations

[A living god] 1937-1947

Story Drill
On 16/ Oct. 1854 tsunami attached this village (Ansei Nankai earthquake)
The story “A living god” is based on the fact that Goryo Hamaguchi, a rich merchant, fired his rice stems, and showed the way to a shrine to evacuate from the tsunami.
After the 1854 Ansei earthquake, Goryo constructed the embankment by employing villagers using his own money. The embankment saved the village at the time of the 1946 Showa Nankai earthquake.

http://www5.ocn.ne.jp/~yuhirofd/inamura.htm
Praising the great accomplishment of Goryo Hamaguchi, the novelist, Lafcadio Hearn, wrote “A living god” based on the event and the story was used in the text book in 1937-1947.

This is thought to be the Bible of the disaster prevention education in Japan.
Thanks giving ceremony Nov. 11 (Tsunami Matsuri (festival))
Brief history of disaster prevention education in Japan

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- **2004 Off Sumatra earthquake**
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- **2011 East Japan earthquake**
  - Revision of educational Guidelines (M. of Edu.)
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- **1937-1947 [A living god]**
Yamaguchi University

The 1983 off-Japan sea earthquake
Oga peninsula, Kamo-aosa beach; 14 elementary school students were killed by tsunami
Monument of the 14 students.
There are 3 “Miura”s

This became the trigger for me to start the disaster prevention education.
I developed earthquake disaster prevention education software “Quake busters” with my friends in United Nations, Center for Regional Development in Nagoya and my students. We copied 500 CDs and distributed many countries.

Using full color, animation, narration, mouse handling!!
The software is intended for use in schools for the following reasons

1. For education to be effective, it must start from as early an age as possible, i.e., elementary school.

2. Information transfer from school students to other family members can occur.

3. Schools are institutions in which a small number of teachers must take care of a large number of children when disaster occur.
1. Understanding earthquakes
   (1) Structure of the earth
   (2) Continental drift
   (3) Plate tectonics
   (4) Mechanism of an earthquake and tsunami
   (5) Characteristics of earthquake motions
   (6) Explanation of technical terms
2. Past earthquake disasters and survival
   (1) Fear of fire
   (2) Mechanism and danger of liquefaction
   (3) Characteristics of soft ground
   (4) Mental state during an earthquake
   (5) Planning for safe evacuation
   (6) Earthquake-proof structure

3. Preparation for earthquake hazards
   (1) Potential hazards and preventive countermeasures in school
   (2) Fire prevention
   (3) Situation of lifeline systems after an earthquake
   (4) Communication and information during and after disasters
Photo 5  Explanation of mechanism of an inter-plate earthquake by animation.

Photo 6  Explanation of the relationship between seismic intensity and magnitude.

Photo 7  Animation that explains the mechanism and danger of a tsunami.

Photo 8  Explanation of the dangers of embankments.
Brief history of disaster prevention education in Japan

The 1983 Off-Japan sea earthquake.

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[Drill Story]

1937-1947

Books, Guidelines, [Quake Busters]

PC Software

Many disasters

Internet Useful sites

Dynamic Hazard map

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Many disasters
Afer the 1995 Kobe earthquake;

◆ For schools
  • Guideline in school education
  • Useful internet sites
  • Text books
  • Drill

◆ High school and University
  • Department of disaster prevention

◆ For communities
  • Hazard maps
  • Autonomy disaster prevention organization (自主防災組織)
  • Master of disaster prevention (防災士)
Guideline of school education for safety:
[Ministry of Education, culture, sports, science and technology, Japan]

① Know correctly
・ the mechanism of the occurrence of an earthquake and tsunami,
・ the basic items for disaster prevention and reduction, etc.

② Treasure and cherish lives of themselves and others.

③ Act correctly;
・ recognize the hazards and prepare for them,
・ keep safe themselves at the disaster,
・ contribute to others during and after the disaster, etc.
Many useful sites


http://www.jma.go.jp/jma/kishou/books/jishintsunami0903/index.html

http://www.jma.go.jp/jma/kishou/books/jishin0903/index.html

...
Fire fighting
First aid
First aid
Mapping
Cooking
Distribute items
Cleaning monument
Making stretcher
Drill in a pool
Hazard maps:

All most all local government distributed many kinds of Hazard maps, such as seismic intensity, floods, volcano eruption, surge, etc.

Ube city HP
山陽町塩生地区高潮避難地図
（高潮ハザードマップ）

この地区は、海岸部に位置し、高潮の影響を受ける可能性があるため、避難ルートを設定しています。

【避難ルート】
1. 路線A
2. 路線B
3. 路線C

【避難所】
1. 地域避難所
2. 汎用避難所

【注意事項】
1. 高潮時に避難所へ向かう際は、必ず安全なルートを確認してください。
2. 高潮時は、必ず緊急連絡先に連絡してください。

【情報源】
山陽町防災課
086-78-0901

 Surge
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Dynamic Hazard Map
Cooperative research with

**PARI** (Port and Airport Research Institute),

**JAMSTEC** (Japan Agency for Marine-earth science and Technology),

**NILIM** (National Institute for Land and Infrastructure Management)
Walk through model

3D model

Buttons
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[A living god] 1937-1947

Story

Drill
In 2011
The Living God returned to school !!
Bases of Disaster Prevention and Disaster Reduction

Infrastructure (Road, Railway, Dam, Lifeline systems, etc.)

Hardware

Information

- Planning
- Hazard map
- DIG

Software

Education

Schools and communities
Revision of Educational Guidelines
[Ministry of Education, culture, sports, science and technology, Japan]

Education System in Japan

- Kindergarten: 2~3 years
- Elementary School: 6 years
- Junior High School: 3 years
- Senior High School: 3 years
- University: 4 years
- Graduate School: 2+3 years

Courses Offered:
- Mathematics
- Japanese
- Physical education
- Art
- Music
- Social studies
- Living
- Foreign language
- Technical arts & home economics
- Science

Additional Courses:
- Junior High School: Technical arts & home economics
- University: 1, 2 grade
Kindergarten

- Understand dangerous places, and behave during disasters etc..

- Learn to act appropriately during a disaster or other emergency.
1. Living

[Grade 1 and Grade 2]

- Understand the state of facilities of the school, and the state of the school-commuting streets and the people who keep these streets safe, and to safely commute to and from school.
Elementary School

2. Social Studies

[Grade 3 and Grade 4]

- Learn the prevention of disasters and accidents in regional society by using concerned documents, etc...
- Consider the operations of concerned organizations which keep people safe.
2. Social Studies (continued)

[Grade 5]

• Understand the actions of forest resources in the conservation of the national land, and mitigation of natural disasters.

• Understand the links between the state of the information society and the lives of the people, and disaster mitigation etc..

[Grade 6]

• Investigate that the operations of regional public bodies and the government of Japan are reflected in the lives of the people, including disaster restoration efforts.
3. Science

[Grade 5]

- Learn the concepts of the relationship between the action of flowing water and change of the land.
- Learn that the quantity or movement of clouds is related to changes of the weather.
- Understand the change of the weather by the course of typhoons, and relationship of typhoons with rain.

[Grade 6]

- Learn the concept of the formation and change of land.
- Land is changed by eruptions of volcanoes and by earthquakes.
Elementary School

4. Special Activities

[Class activities]
• Forming a mentally and physically healthy and safe attitude to life

[School events]
• To master safe behavior and orderly group activities
1. Social studies

[Geographical area]

- Taking up the topics of characteristics of domestic topography and climate and natural disasters and efforts to mitigate disasters.
- Considering that the natural environment is deeply related to the lives and industries of the local people and that disaster mitigation measures adapted to natural disasters in the region are important.
- Deepening student’s understanding and interest in the land on which they live and discover local problems.
2. Science

[Geoscience and Biology]

- Based on experience and records of earthquakes, grasp the relationship of causes of earthquake and actions inside the globe to understand the way earthquakes change the land.

- From weather satellite images and survey records, grasp the weather of Japan in relation to the impacts of the movement of air masses and of the ocean near Japan.

- Investigate benefits and disasters etc. brought by nature, and observe how nature and people are related.
3. Health and physical education

- Injuries caused by traffic accidents or by natural disasters occur through interplay of human factors and environmental factors.
- Injuries caused by natural disasters not only occur during a disaster, but are also caused by secondary disasters.
- Many injuries caused by natural disasters can be prevented by preparing for disasters or by evacuating safely.
4. Technology and home economics

- Understanding of how to grasp interior home environments considering family safety.

5. Special Activities

[Class activities]
- Forming an attitude to life and habits which are both mentally and physically healthy and safe.

[School events]
- Master safe behavior and orderly group activities.
Senior High School

1. World history
   - Have students select and consider appropriate historical cases from occupations, daily life, methods of travel, disasters etc.

2. Geography
   - Enable students to understand the characteristics of the natural environment of Japan and its relationship with natural disasters.
   - And at the same time, have them select cases of natural disasters seen inside Japan and consider that response based on regional characteristics is important.
3. Science

- Understanding the changes of nearby natural scenery and natural disasters in relationship to the actions of energy radiated by the sun and changes caused by energy inside the globe.

- Understanding the formation of topography by the actions of weathering, erosion, transport, and deposition.

- Understanding the phenomena caused by general atmospheric circulation and by convection currents and the characteristics of weather in Japan and the world.
3. Science (continued)

- Understanding the circulation of sea water and the interaction of the oceans and the atmosphere

- Seasonal weather phenomena, earthquakes, volcanic activity and other characteristic phenomena seen in Japan are handled. Predicting and mitigating natural disasters is touched on.
4. Health and physical education

- Linked with these traffic accidents, the prevention of traffic disturbance caused by natural disasters etc. is also handled as necessary.

5. Special Activities

[Home room activities]

- Establishing respect for life, attitude to living safely, and orderly habits

[School events]

- Mastering safe behavior and orderly group activities
Subject: “Disaster prevention”
Thank you very much for your kind attention!