

# Introduction to International Disaster Management and SDGs

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## Date and time

24 December 2021 16:00-17:30 pm

## Outline of the lecture

- Introduction
- Disasters and SDGs
- Definition of disaster
- Discussions of Hazard, Vulnerability and Capacity
- Group Discussion
- covid-19/ Wrap-up

## Main issues

- According to UNDRR 2017, *Disaster is a serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts.* Participant could understand about disaster clearly with [Disaster or not?] questions.
- A case study of Mr. Coi who lives Huong Phong village in Central Vietnam. He was heavily affected by 1999 historical flood in Hue.
- Group Discussion: explain COVID-19 as a disaster using the formula and concepts.

Group work 1: Disasters and SDGs

Introduction to International Disaster Management and SDGs

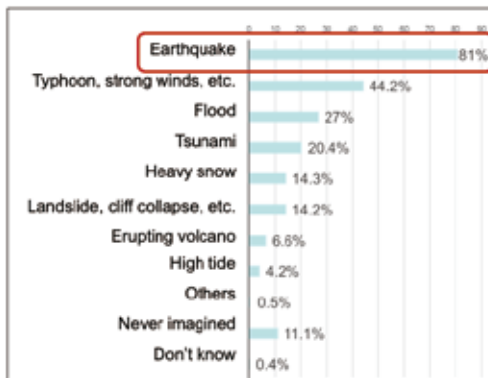
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Select a number of the SDGs which is related to disasters and explain the reasons.



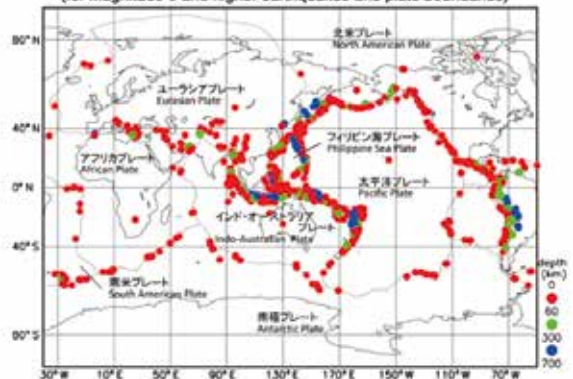
What is your image of disasters? (multiple answers allowed)



Source: Cabinet office of Japan (2018) Public opinion survey in November, 2017

Worldwide hypocenter distribution

(for Magnitude 6 and higher earthquakes and plate boundaries)



注) 2010年~2019年  
出典: アメリカ地質調査所の震源データより気象庁作成  
Source: Cabinet Office of Japan (2019) White Paper on Disaster Management 2019

Fatalities and missing persons by hazards

year	storm/flood	earthquake / tsunami	volcano eruption	heavy snow	others	合計
1995	19	6,437	4	21	7	6,482
1996	21	0	0	28	35	84
1997	10	0	0	28	1	109
1998	109	0	0	29	3	141
1999	17	0	0	98	6	148
2000	29	0	0	29	0	58
2001	30	0	0	29	2	61
2002	48	0	0	12	0	60
2003	240	0	0	16	2	258
2004	45	0	0	98	6	149
2005	82	0	0	88	2	172
2006	14	0	0	5	4	23
2007	22	24	0	48	7	101
2008	26	0	0	35	3	64
2009	31	0	0	27	1	59
2010	136	2,288	0	25	2	2,551
2011	12	0	0	18	0	30
2012	12	0	0	91	0	103
2013	11	0	0	91	0	102
2014	115	0	0	100	0	215
2015	22	0	0	49	0	71
2016	25	0	0	32	0	57
2017	20	0	0	68	1	89
2018	202	49	1	103	6	461
2019	114	0	0	9	9	132

注) 本表は、対象年の1月1日から12月31日の死者・行方不明者数をベース、令和4年の死者・行方不明者は内閣府とりまとめによる速報値  
平成23年に起きた災害のうち「地震・津波」欄のうち、東日本大震災は、「平成23年(2011年) 東北地方太平洋沖地震(東日本大震災)」について「令和2年3月1日」により、死者による死者(震災関連死者を含む)・行方不明者22,288人と定めています。  
出典: 国土院「地方防災行政の現状」をもとに内閣府作成  
Source: Cabinet Office of Japan (2019) White Paper on Disaster Management 2019

Definition of "disaster"

1.A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts.(1)

2.A sudden, calamitous event that seriously disrupts the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community's or society's ability to cope using its own resources. Though often caused by nature, disasters can have human origins.(2)

3.「暴風、竜巻、豪雨、豪雪、洪水、崖崩れ、土石流、高潮、地震、津波、噴火、地滑りその他の異常な自然現象又は大規模な火事若しくは爆発その他の及ぼす被害の程度においてこれらに類する政令で定める原因により生ずる被害」(3)

(1) UNDRR 2017 (2) IFRC (3) 災害対策基本法 2015年第2条第1項

## Questions: Disaster or not?

Q1. Bushfire killed thousands of animals in Australia in January 2020.

Disaster or not

→ The fire caused a huge loss of animals including kangaroos and koala and the damage on vegetation, ecosystems, tourism industries, etc.

Q2. Flood occurred a village and the villagers can cope with the flood on their own.

Disaster or not

→ The impact of flood did not exceed the capacity of a village to cope using its own resources.

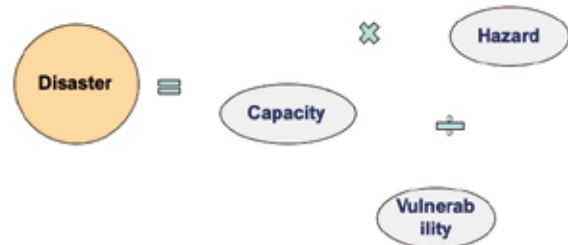
Q3. Lightning struck at an inhabited island.

Disaster or not

→ That didn't lead to human loss, but might lead to economic and environmental impacts.

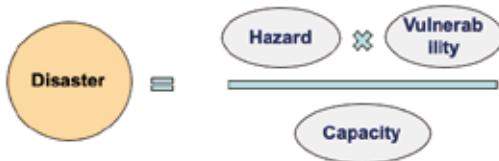
## What is the formula of disaster?

Disaster occurs as the consequence of the interaction of hazardous events and vulnerability and capacity.

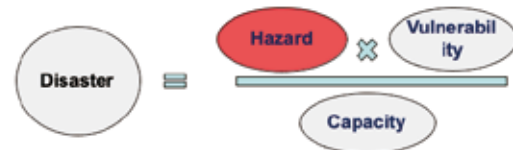


## Formula of disaster

Disaster occurs when a hazard impacts on vulnerable people. (2) With the greater capacity of the individual or community to face the disasters, the impact of a hazard reduces.



## Discussions of Hazard



**Hazard** is a process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation<sup>(1)</sup>.

## Types of hazards

### Natural hazards (disasters)

#### Meteorological hazards

Rain: flood, sediment disasters (cliff collapse, debris flow, landslides, etc.), etc.

Wind: typhoon (cyclone, hurricane), strong wind, tornado, high tide, storm surge

Snow: avalanche, snowstorm

Earthquake: Tsunami, liquefaction, cliff collapse, fire

Others: volcanic eruption, lightning, drought, heat stroke

### Human-induced hazards (disasters)

major fire, airplane accident, nuclear plant accident, terrorism, war, COVID-19, climate change, etc.





### Questions on Hazard

Q1: Over 100 people were killed by a train-derailment accident occurred on the JR Fukuchiyama Line in 2005. Is that natural, human-induced hazard or both?

Human-induced

Q2: Regarding the accident of Nuclear power plant in Fukushima in 2011, is that natural, human-induced hazard or both?

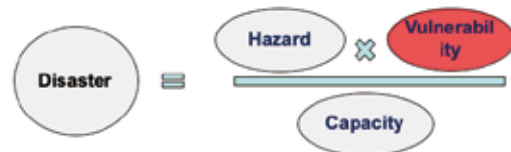
Both

Q3: Regarding debris flow occurred on Mount Izu in Atami in July, 2021, is that natural, human-induced hazard or both?

Both

Not easy to distinguish natural or human induced-hazards

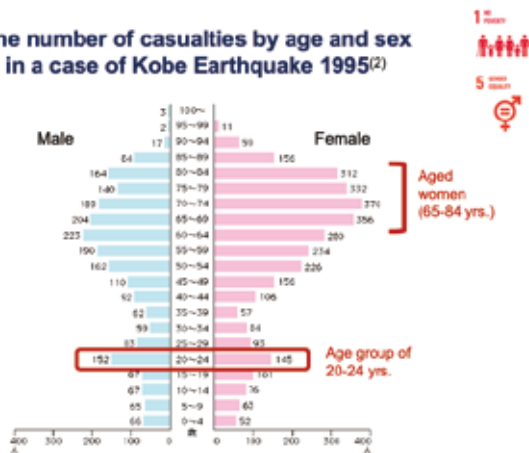
### Discussions of Vulnerability



**Vulnerability** is the conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards<sup>(1)</sup>.

(1) UNDRR 2017

The number of casualties by age and sex in a case of Kobe Earthquake 1995<sup>(2)</sup>



(2) 日本医師会 1996 阪神淡路大震災による人身被害の実態



Shizugawa Hospital, Minamisanrikucho, Miyagi (2011/3/12 Sankei Newspapers)

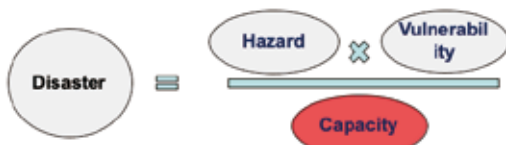


Shizugawa Hospital, Miyagi (2011/3/19 Yamamura)

## Who are the vulnerable?

- the elderly
- physically or mentally handicapped people
- pregnant women
- babies and children
- patients
- sick people
- foreigners
- travelers
- people living in dangerous locations or/and houses
- people engaging in dangerous jobs
- the poor
- (people with) pets, etc.

## Discussions of Capacity



**Capacity** is the combination of all the strengths, attributes and resources available within an organization, community or society to manage and reduce disaster risks and strengthen resilience<sup>(1)</sup>.



Takano Kaikan, Minamisanrikucho, Miyagi (2011/3/12 Sankei Newspapers)

## Listening to Mr. Ito...

⇒ Takano Kaikan in Minamisanrikucho is private disaster relic. Within 40 minutes after the earthquake, the people in Takano Kaikan moved to the rooftop. As a result, 327 people and 2 dogs survived on the rooftop from 15 meter's tsunami. The people at the rooftop saw the patients in Shizugawa Hospital were swept away by tsunami. (2018/7/29 Interview with Mr. Ito)



→ Everyone is not affected by a disaster in a same way. Someone has a capacity to cope with the hazard.

Q1 Strong wind and heavy rain will occur a village in Vietnam. Which house will be more vulnerable?



⇒ Right one is more vulnerable because the water will come to the house and the roof will be easily blown off. The left house is less vulnerable because of the elevated foundation and concrete materials.

## Listening to Mr. Coi...

⇒ Mr. Coi lives Huong Phong village in Central Vietnam. He was heavily affected by 1999 historical flood in Hue. The water came into the house. Based on the experience, he elevated the foundation of his house by 1 meter. Since then, the water has never come to his house. (2019/2/17 Interview with Mr. Coi)



⇒ Anyone can be vulnerable to hazards. Mr. Coi is less vulnerable to hazards than others because he has an experience and financial capacity to cope with the hazards.



## How can we enhance a capacity?

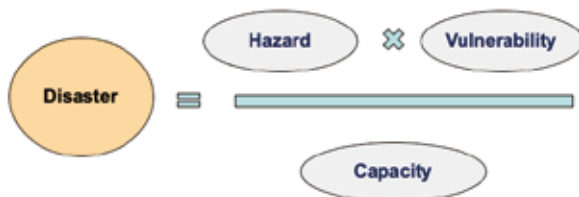
- improve the building and infrastructures
- make sure the furniture or electronics kept safe
- collect information
- take a training
- join emergency drill
- check evacuation centers and evacuation routes
- talk with your families about emergency
- build a good relationship with neighbors
- prepare emergency supplies, etc.



⇒ Capacity may include infrastructure, institutions, human knowledge and skills, and collective attributes such as social relationships, leadership and management<sup>(1)</sup>.

## Group work 2: Disaster formula

Explain COVID-19 as a disaster using the formula and concepts



## Case: Covid-19

