

MITIGATING PEOPLE AND DISASTERS: APPROACHES OF SOCIAL SCIENCES

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Lecture outline

- 1. Disaster as a process
- 2. Exposure to risk
- 3. Social vulnerability
- 4. Cultural resilience

1. DISASTER AS A PROCESS

Are these all disasters?

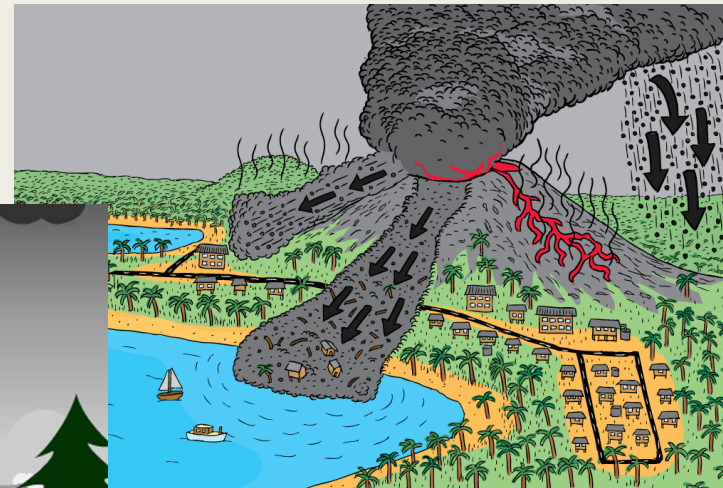
NATURAL HAZARD ARE PHYSICAL AGENTS NOT DISASTERS



VS



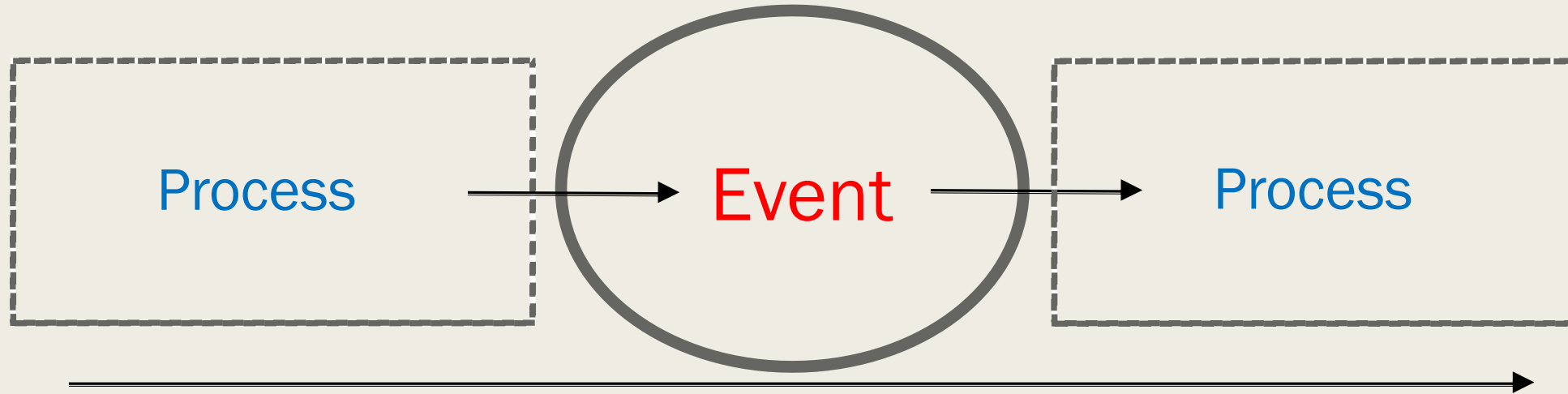
A disaster is
a human centered concept (anthropocentric)



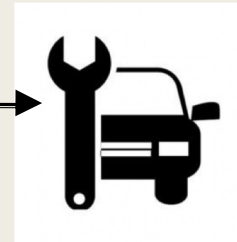
Origins

D I S A S T E R

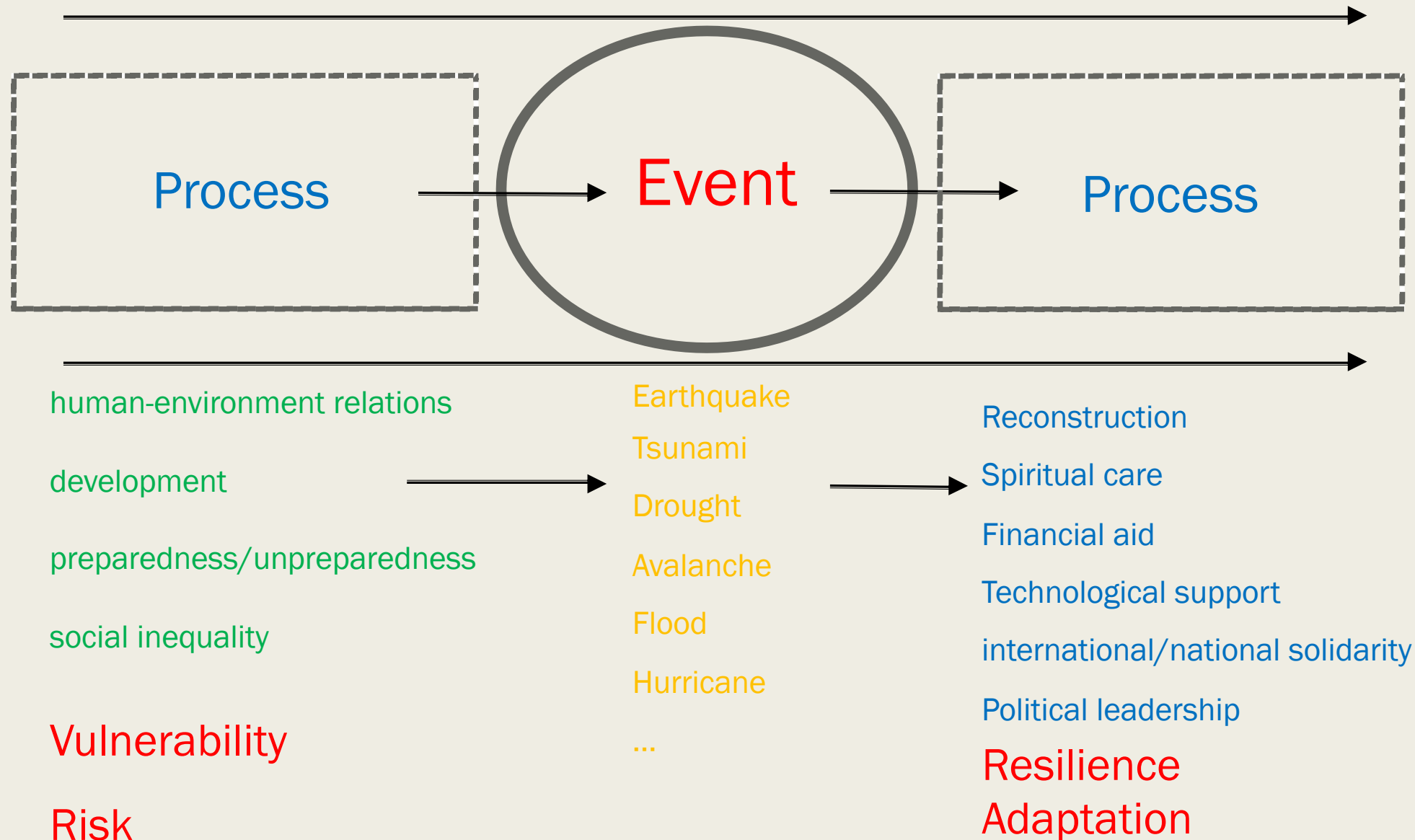
Impacts



Drives fast everyday



MITIGATING DISASTERS



2. EXPOSURE TO RISK

Understanding RISK

- ✱ Natural phenomena bring a set of **opportunities** and **risks**.
- ✱ “The risk inherent in nature consists of a wide range of **hazards that put constraints on production** (e.g. frosts affecting agriculture) and on other aspects of **livelihoods and safety** (earthquakes, floods, droughts, etc.).” Cannon 1994: 14.



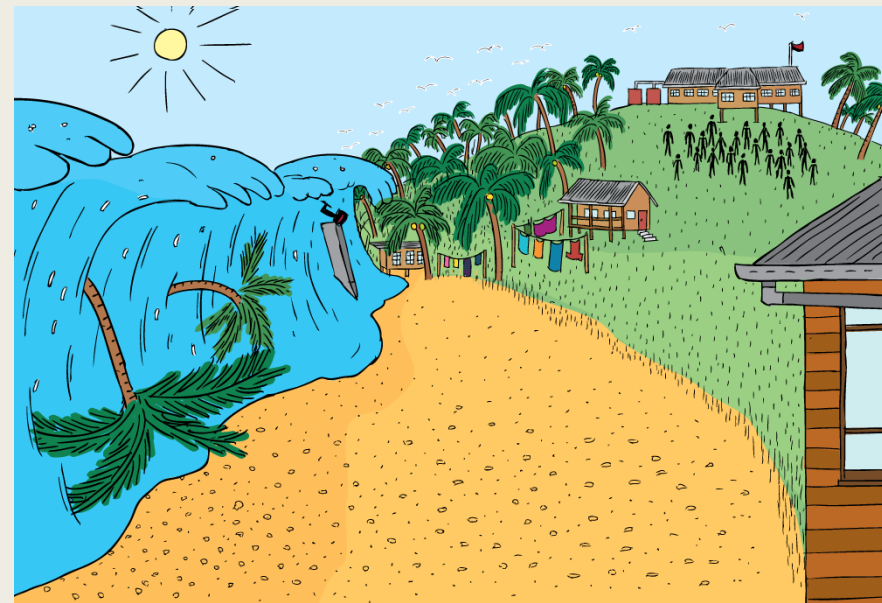
Volcanic mountain – **fertile soil** (opportunity) vs. **eruption** (risk)



The sources of **risks** are not limited to natural hazards but also **depend on human behaviors**.



Coastline – Fishing (opportunity) vs.
Flood (risk)



Human behavior: **Evacuation** (good or bad)

We Create Environmental RISKS



Nuclear plant, France

The environment in which humans live is a **social construction**.



Pollution, London 1953 (=COVID-19?)



Global warming, Tokyo

- Risk is **not an objective fact**.
- **Risk perception** will dictate **people's adaptation and disaster mitigation**
- Risk perception and adaptation depend on “**political, economic, and social forces**, obliging people to adapt to an **institutional environment** as well as a natural one.” (Vayda and McKay 1975)
- “We can frequently be **the cause of our own hazardous** situation.” (Oliver-Smith: 26)

3 SOCIAL VULNERABILITY



Which car would you prefer to be in?

Which car would you prefer to drive?



In a car **accident**, some people are more **vulnerable** than others.



If it is true in car accident, why not during a natural hazard?

Vulnerability within a group

- The idea that we are all equal in disasters is a **myth**.
- Vulnerability is the **degree** to which people are exposed to risks.
- Research shows that **ethnicity, class, gender, disability, age, poverty, education, and so on** makes people more vulnerable than others.
- **Types** of vulnerability: livelihood vulnerability, self-protection and social protection.

How to identify VULNERABILITY?

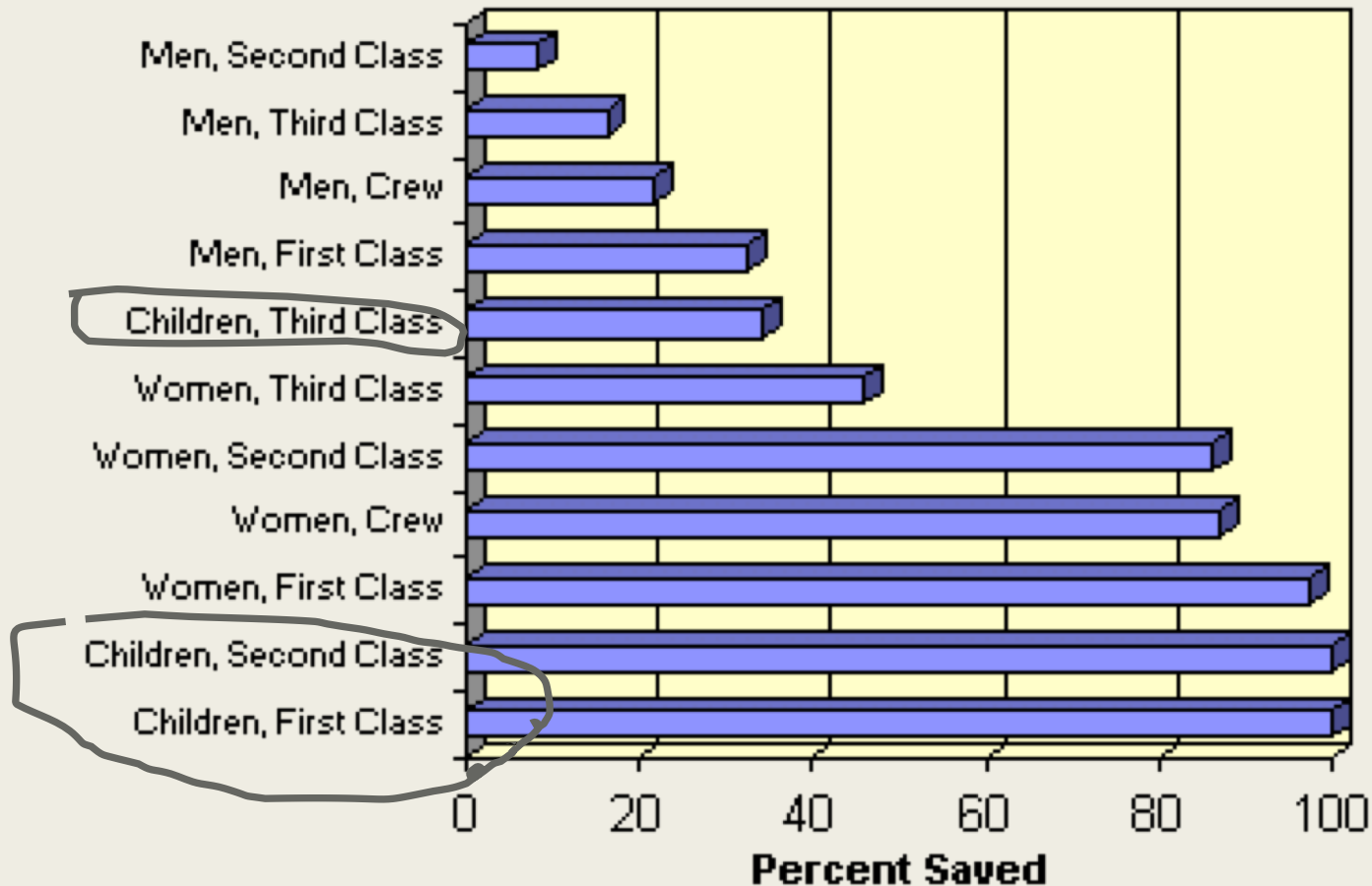
Forensic research

Who are the survivors/victims of the Titanic?



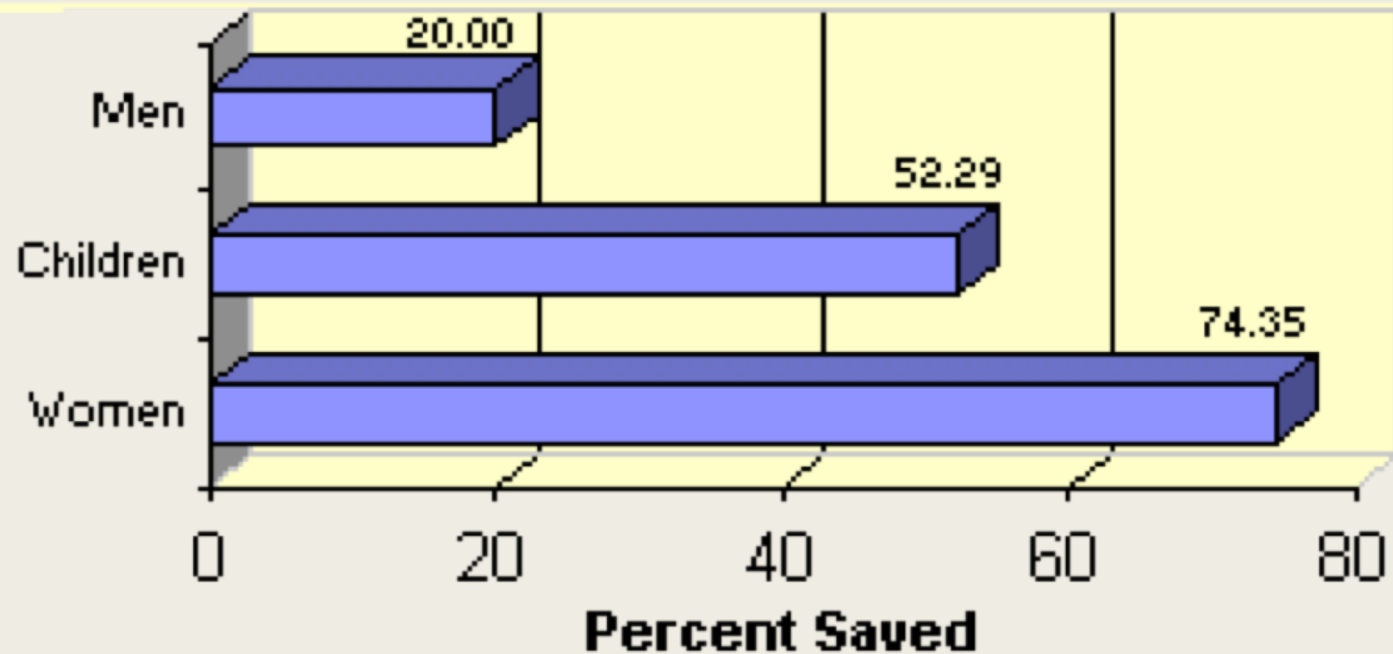
The social class issue

Titanic Disaster -- percent of passengers saved, by category



The gender issue

Titanic Disaster -- percent of passengers saved, showing effect of "sex discrimination"



How do people create vulnerability?

- **Development**: when men build an environment, they make choice that will make (some) people more vulnerable to the risks of hazards.
- **Inequalities**: the more a society is based on principal of inequalities the more it creates vulnerable people. Class structures, ethnic groups, gender, marginalization (disability, travelers, homeless, etc.).

Attention this idea is relative – if all people are equal in being highly vulnerable, this system still contributes.

- **Reducing vulnerability is not just about survival: It includes also reducing the psychological, social and cultural impacts of disasters.**

4 DISASTER RESILIENCE

What is
resilience?

Civil Engineering

- **Civil protection**, 1867:
“a resilient steel beam survives the application of a force by resisting it with strength (rigidity) and absorbing it with deformation (ductility).”
(Alexander, 2013, 2710).

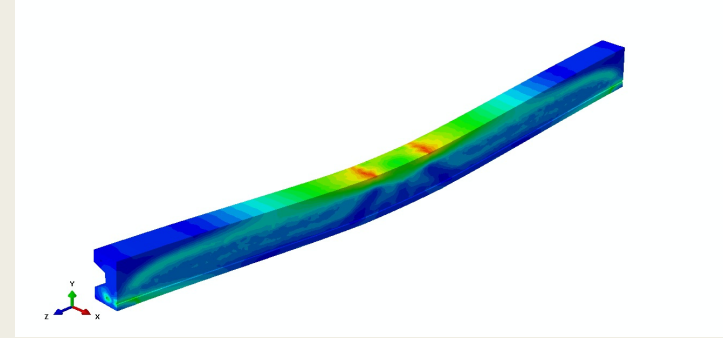


Image of a resilient beam



Earthquake resilient [building](#), Tokyo

Social analogy

“the strength of a human society under stress is its ability to devise means of resisting disaster and maintaining its integrity (coherence), while ductility lies in its ability to adapt to circumstances produced by the calamity in order to lessen their impact.”
(Alexander 21013 : 2710).



Image of a resilient society

- Preparation
- **Adaptation**
- Sustainability
- Governance

RESILIENCE IN SOCIETY

is adaptation

Adaptation in Japan

TSUNAMI HISTORY IN SANRIKU, TOHOKU



2011 Great East Japan Earthquake, Ishinomaki



869 Sanriku Earthquake



1896 Sanriku Earthquake and Tsunami

Knowledge/Behaviour



Tsunami Stones



Saying/Tradition “Going up the hill by yourself”

Environment/Reconstruction Planning



Rikuzentakata City, Iwate Prefecture, Japan

Elevating the land



Rikuzentakata City,
Iwate Prefecture,
Japan

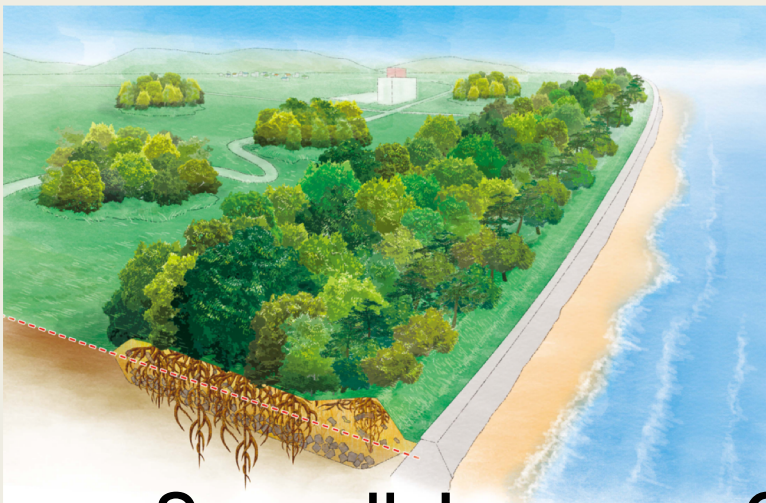
Adapting Sea Defense



Great Seawall, Miyako City Before the tsunami



After the tsunami

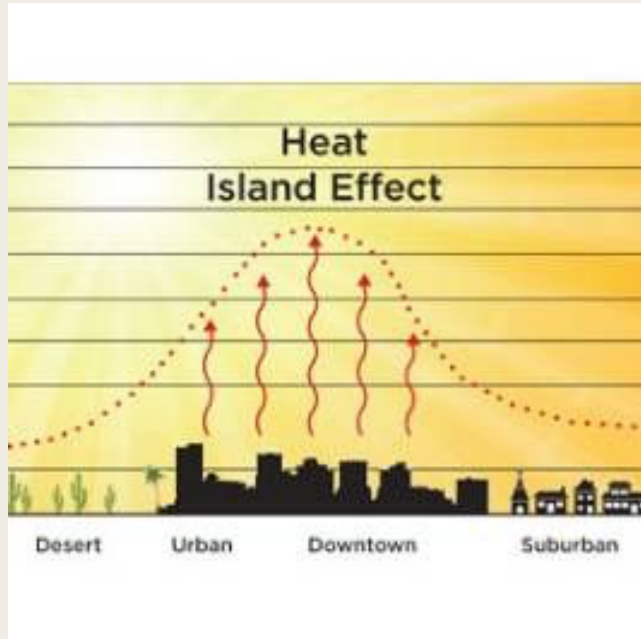


Green Seawall, Iwanuma City



Seawall Windows, Kesenuma City

Resilience of some can create the vulnerability of others!

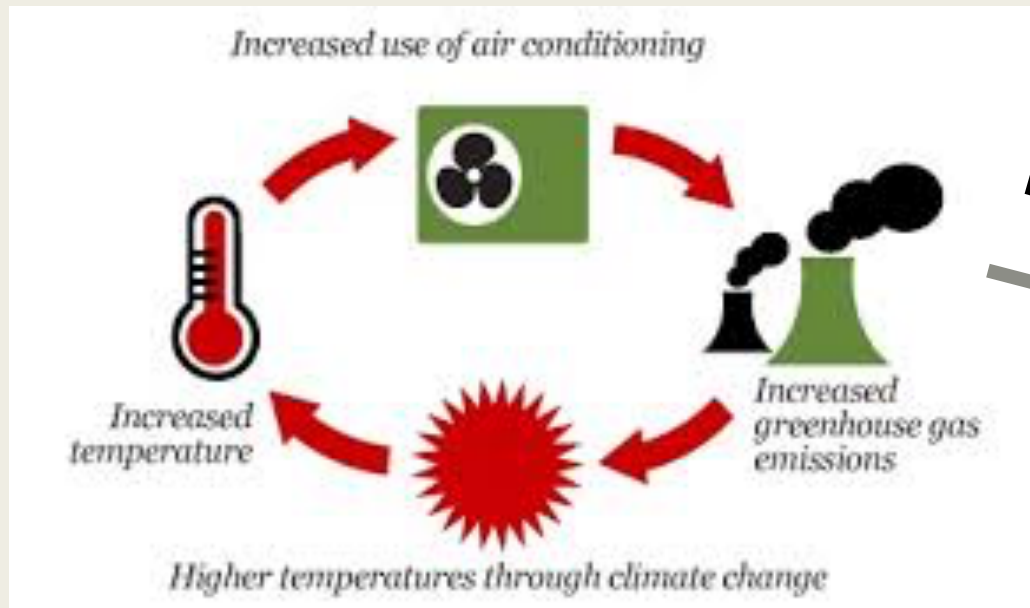


Solution



Increase Resilience of Some

BUT



Problem



Increase Vulnerability of Others

Conclusive balance

The cause of
VULNERABILITY

The solution for
RESILIENCE



DISASTER MITIGATION