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LINKS

Strengthening links between technologies and society for European disaster resilience

Save the Children

Disaster Preparedness Education – Practices and Perspectives from Japan

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28 years have passed since the Great Hanshin-Awaji Earthquake occurred in Kobe, Hyogo Prefecture

Tuesday, January 17, 1995, at 5.46 AM
Magnitude 7.2 earthquake
Epicenter: Kobe region of south-central Japan

Overview of CResD (Kobe University)

KOBE UNIVERSITY

CResD
Center for Resilient Design
Kobe University 神戸大学
減災デザインセンター

CResD Center for Resilient Design Kobe University 神戸大学 減災デザインセンター

Expertise:

- Earthquake Reconstruction Assistance
- Livable City Study

Goals:

- To Design Resilient Societies
- To Take International Leadership in Implementing Research Result to Societies

Collaborative Research Structure

Community Development by Local Members ⟷ **On-campus Collaborators**
- Graduate School of Engineering
- Urban Safety Research Center

Urban Design International Workshop ⟷ **Off-campus Collaborators**
- Domestic Partner Institutions

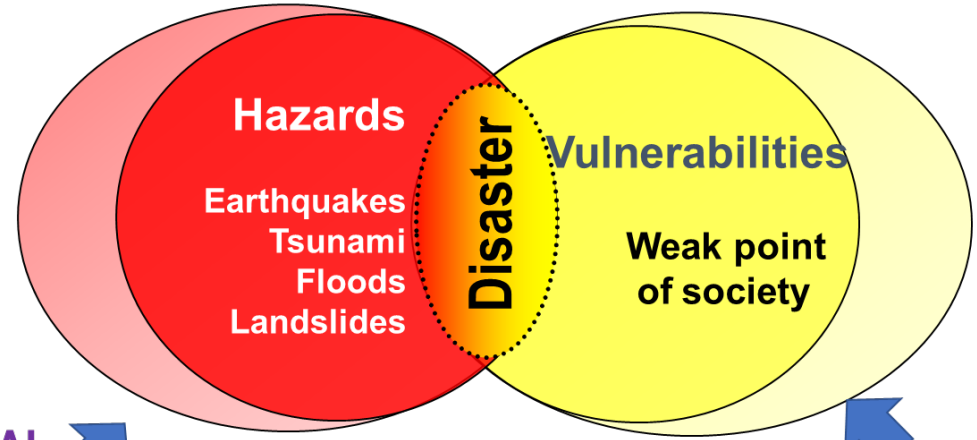
Development of Future-oriented Design Methods ⟷ **International Research Partnership**
- Overseas Partner Institutions

Producing a Resilient Urban Society

Overview of DRI (Kobe Earthquake Memorial)

- Museum Exhibits
- Practical Research on Disaster Reduction and Development of DR Professionals
- Collection and Preservation of Source Documents and Materials
- Headquarters Survey / Assistance in Disaster Response
- Training of Disaster Management Practitioners
- Exchange and Networking

Disaster Risk Management in Japan



BOUSAI
防災 Disaster prevention

- Making buildings resistant
- Reinforce tall embankment in sea
- Constructing dikes in rivers

GENSAI
Disaster mitigation **減災**

- Know about disasters
- Emergency evacuation drills
- Be prepared for disasters

INFORM: Disaster Management Risk Index

INFORM RISK COUNTRY (G20)	INFORM RISK	RISK CLASS	World Rank	HAZARD & EXPOSURE (NATURAL)	HAZARD & EXPOSURE (HUMAN)	VULNERABILITY	LACK OF COPING CAPACITY
South Korea	1.9	Very Low	160	5.9	0.1	1.2	1.6
United Kingdom	1.9	Very Low	160	2.4	1.1	2.4	1.6
EU (average)	2.0	Very Low	121 - 188	2.7	0.1	2.6	2.1
Germany	2.1	Low	152	2.6	0.4	3.8	1.6
Japan	2.2	Low	149	8.1	0.1	1.3	1.5
France	2.3	Low	144	3.4	0.5	3.0	1.9
Australia	2.4	Low	140	4.8	0.4	2.2	2.1
Canada	2.4	Low	140	4.3	0.1	2.3	2.4
Italy	2.6	Low	131	5.1	0.1	2.6	2.2
Argentina	2.9	Low	120	4.1	0.2	2.8	3.6
United States	3.2	Low	108	6.6	1.7	3.1	2.2
Saudi Arabia	3.5	Medium	93	3.1	10.0	1.6	3.4
China	3.7	Medium	86	7.5	0.8	3.0	3.3
Russia	4.1	Medium	70	5.7	2.7	3.6	4.3
Brazil	4.5	Medium	54	4.0	7.0	3.8	4.3
Indonesia	4.6	Medium	47	7.7	5.3	3.3	4.4
Turkey	4.7	Medium	44	6.1	7.0	4.8	3.2
Mexico	5.1	High	34	6.8	7.0	4.3	4.4
South Africa	5.3	High	31	5.1	8.0	5.4	4.0
India	5.3	High	31	7.7	7.0	4.8	4.2

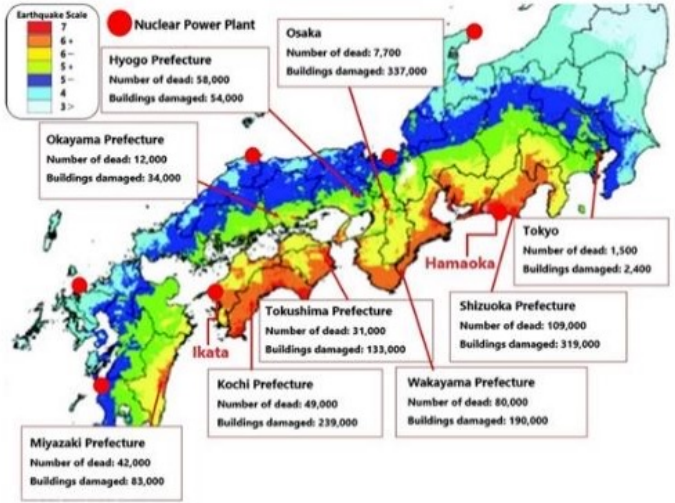
INFORM RISK COUNTRY (EU Pop 3M+)	INFORM RISK	RISK CLASS	World Rank	HAZARD & EXPOSURE (NATURAL)	HAZARD & EXPOSURE (HUMAN)	VULNERABILITY	LACK OF COPING CAPACITY
Finland	0.9	Very Low	188	0.5	0.1	2.1	1.3
Denmark	1.2	Very Low	185	1.2	0.1	2.1	1.3
Sweden	1.4	Very Low	180	1.1	0.1	2.9	1.5
Netherlands	1.5	Very Low	179	2.0	0.1	2.5	1.3
Ireland	1.6	Very Low	176	2.3	0.1	2.0	1.7
Belgium	1.7	Very Low	173	1.8	0.3	2.5	1.9
Czech Republic	1.8	Very Low	167	1.7	0.1	3.4	2.0
Austria	1.9	Very Low	160	2.5	0.4	3.0	1.5
Hungary	2.0	Low	155	3.5	0.1	2.0	2.1
Portugal	2.0	Low	155	3.4	0.1	2.1	2.0
Germany	2.1	Low	152	2.6	0.4	3.8	1.6
Slovakia	2.2	Low	149	2.8	0.1	2.6	2.6
France	2.3	Low	144	3.4	0.5	3.0	1.9
Spain	2.3	Low	144	4.0	0.4	2.7	1.8
Poland	2.5	Low	138	2.3	0.1	3.9	3.0
Croatia	2.6	Low	131	4.8	0.1	2.0	3.1
Italy	2.6	Low	131	5.1	0.1	2.6	2.2
Bulgaria	2.7	Low	126	3.6	0.1	3.2	3.2
Romania	2.7	Low	126	4.1	0.1	2.5	3.4
Greece	2.8	Low	123	5.9	0.1	2.8	2.3

*Data from the EU states was aggregated to simplify.

https://drmkc.jrc.ec.europa.eu/inform-index

Predicted Earthquake in West Japan

In the near future, disasters like Nankai earthquake may cause tsunamis that will put thousands of people at risk of tsunami in South West Japan.



	2011 Tohoku Earthquake (North East Japan)	Predicted Nankai Earthquake (South West Japan)
Mw	9.0 – 9.1	8 - 9+ (estimated)
Duration of quake (severe intensity)	At least 2 minutes	At least 3-5 minutes (estimated)
Post-quake Tsunami Arrival Time	Shortest: 25 minutes	Shortest: 3 minutes Average: 22 minutes (estimated)
Death	19,759 people	230,000 people
Economical loss	$360 billion	$12.8 trillion (2x GPD) (estimated)

Lesson from 2011 Tsunami in Kamaishi city

In Kamaishi City, Iwate Prefecture, the tsunami devastated the area and killed approximately 1,300 people. However, approximately 570 students at two schools in the Unosumai district were able to evacuate safely to higher ground, thanks to the Disaster Preparedness Education.

Q. How effective was the Education for DRR?

- Children received 5 to 10 hours of DRR lesson per year to make their own evacuation plan.
- Once a year, a joint drill was held between two schools to "run to higher ground".
- Children thoroughly learned the following "Principles of Tsunami Evacuation":
  1. Do not be limited by expectations!
  2. Do your best under the circumstances!
  3. Be the first evacuee!

Picture taken during the evacuation

What are the focuses of education for DRR?

1. **Know local risks:**
   Verify dangerous and safe areas are on a hazard map.
2. **Make necessary preparations:**
   Reduce dangerous objects that can fall over.
   Secure ways evacuate and to contact families.
   Secure necessities of daily life (water, foods and water-less toilets)
3. **Have the confidence to act:**
   Avoid delays in evacuating due to "normalization bias“ (underestimate the risk due to a tendency to perceive situation as normal)

Activities in DRI - Kobe Earthquake Memorial

Disaster Prevention Workshop using STEM Programming Robot

- Participants: parent-child pairs (5th and 6th grade elementary school)
- Experience the problem-solving process through programming-thinking: when a disaster strikes, what actions should be taken, and in what order, for everyone to survive?

Challenge: program robot to detect earthquake/tsunami alerts and trigger evacuation! Evacuate avoiding the hazards and supporting persons who need assistance!

Thank you

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