

From Recovery to Risk-Informed Sustainable Development: Multi-Stakeholder Perspectives

19 March 2021

10 years after the Great East Japan Earthquake and Tsunami

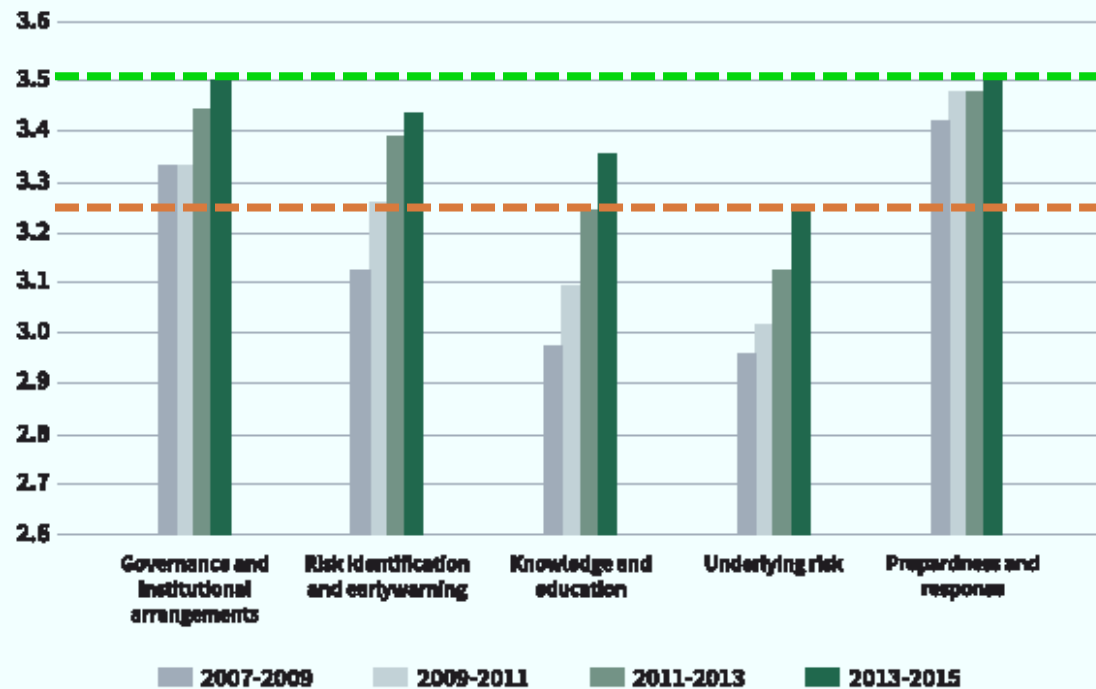
 [@animesh00](https://twitter.com/@animesh00)

 [@UNDRR_AsiaPac](https://twitter.com/@UNDRR_AsiaPac)

 [#ResilienceForAll](https://twitter.com/#ResilienceForAll)

The State of Play: Impact of disaster risk management

Progress during Hyogo Framework 2005-2015



Source: UNDRR

- High progress in governance and preparedness mechanisms
- Low progress in addressing underlying risks

© UNDRR – United Nations Office for Disaster Risk Reduction

Between 2005-2015 and 2009-2019



Source: Report of the Secretary-General on the Implementation of the Sendai Framework, July 2020

Framing the Challenge: Asia-Pacific Development Landscape

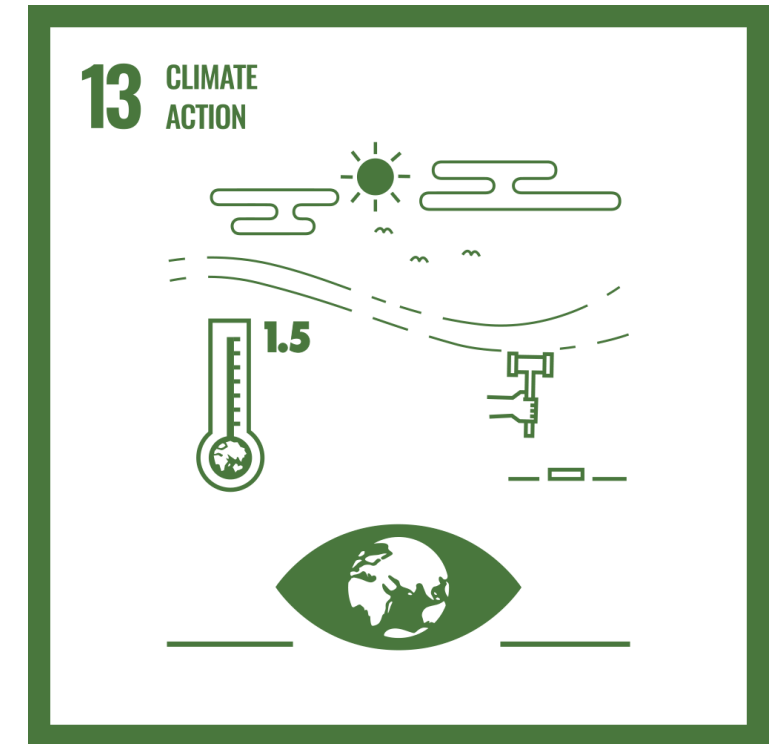
- **Decelerating or reversing trend in disaster-related SDG indicators (+ other DRR-indicators)**



Low resilience to disasters

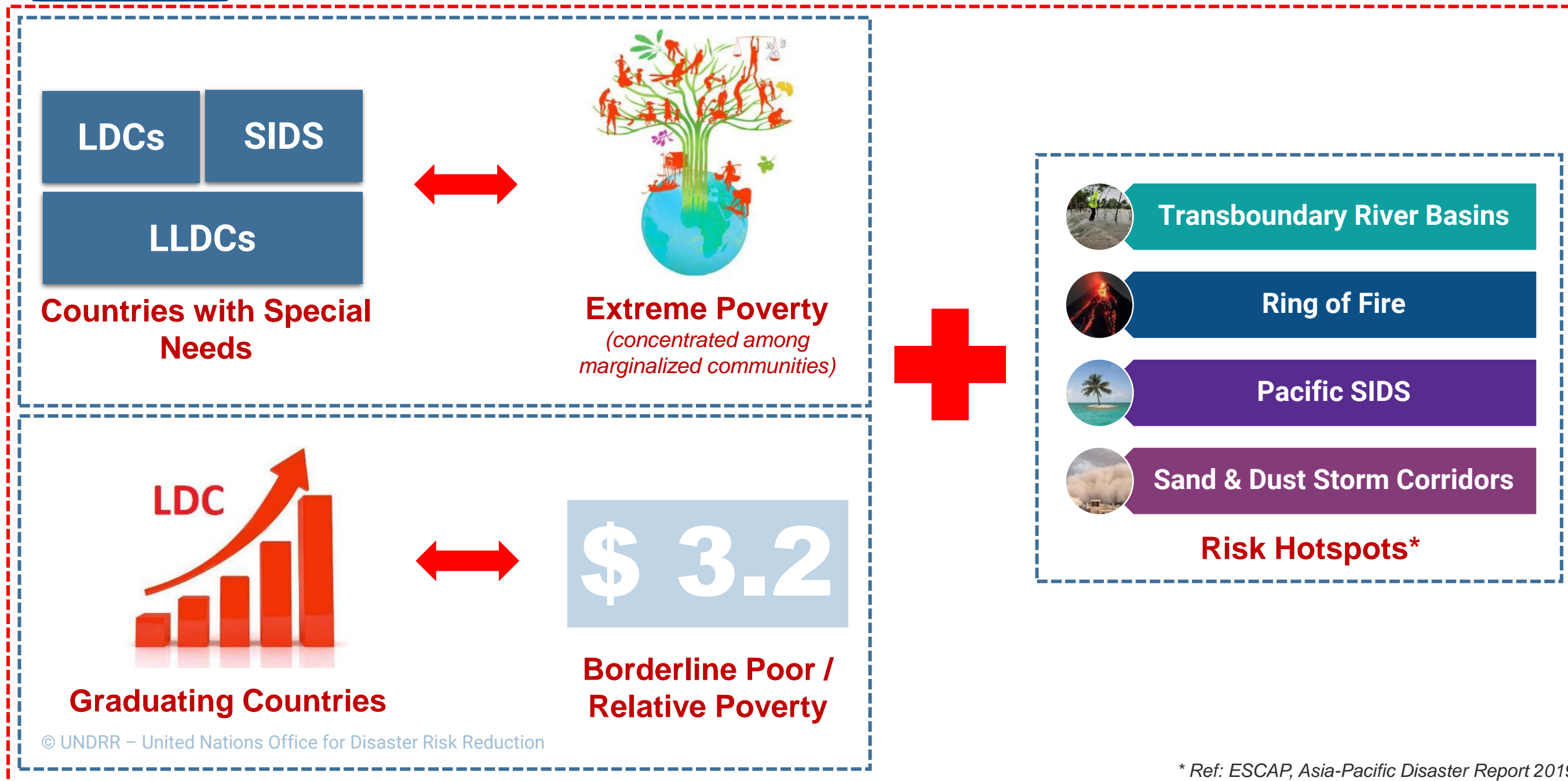


Disaster-induced economic loss and affected infrastructure



Low resilience and adaptive capacity and increasing disasters

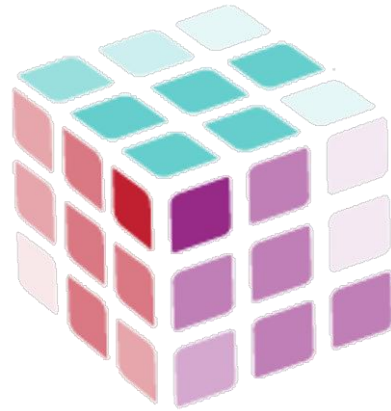
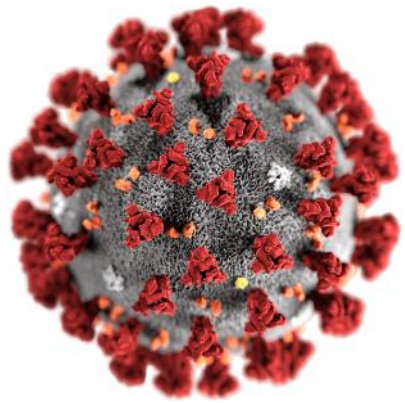
Framing the Challenge: Asia-Pacific Nations and Communities



Vulnerability is Dynamic



And Risk is Systemic



Lessons from COVID-19 for disaster risk management

- Need to understand the cascading and interconnected nature of risk
- Compounded hazards and impact of disasters

HAZARD

Earthquake
Volcano
Tsunami
Flooding
Drought
Fire
Biological
Chemical
Industrial
NATECH
Nuclear
Radiological



EXPOSURE

Structural
Agriculture
Basic Services
Housing
Critical Systems
Subsystems
Natural Capital



VULNERABILITY

Economic
Social
Environmental
Governance
Legal
Security



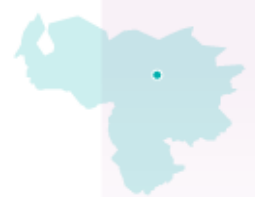
SCALE

Global
Regional
National
Sub-national
Metropolitan
Local



SYSTEMS

Human
Ecological
Economic
Political
Cultural
Financial





managing systemic
risk



Risk-informed Approaches: Resilient Infrastructure

Resilience Challenge

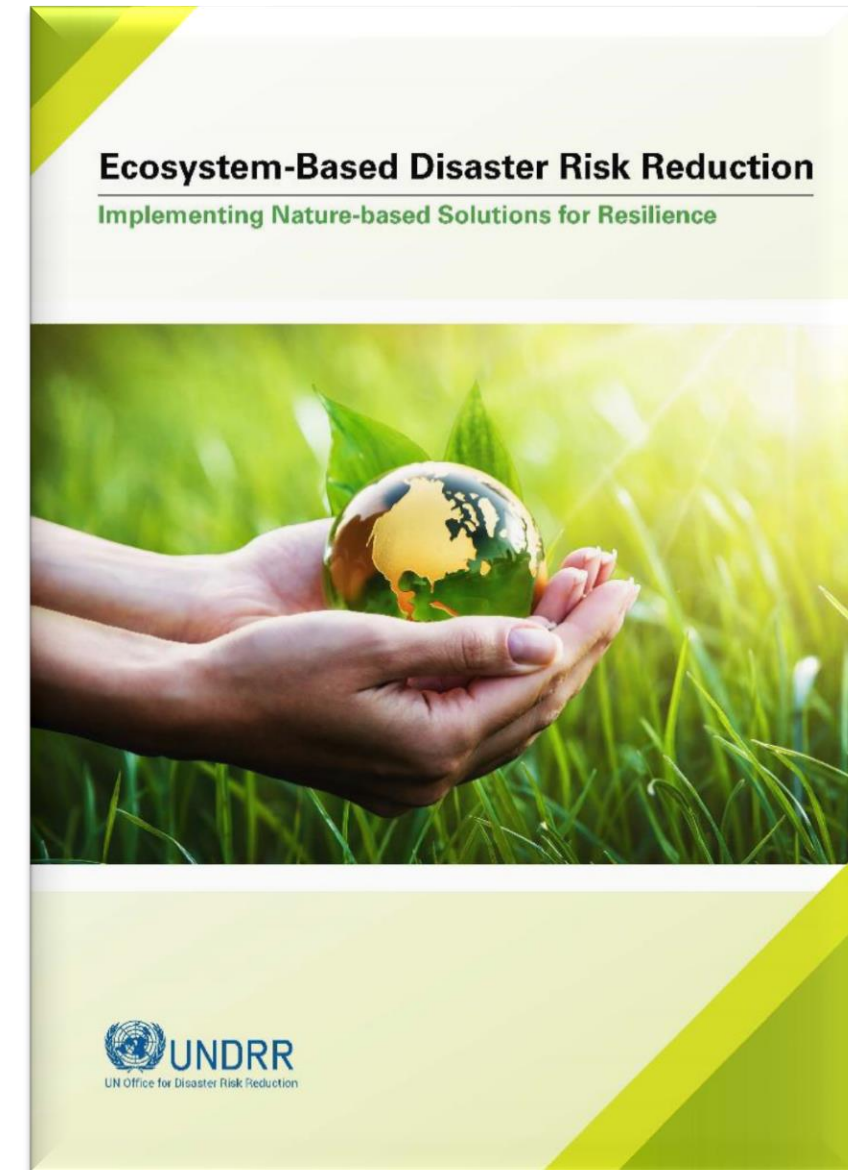


Resilience Dividend

- Rapid pace of urbanization
 - Climate change and changing risk profiles – High and cascading cost of infrastructure loss and disruption
 - Infrastructure deficit (US\$ 90 trillion is required to be invested over the next 15 years)
 - Need for replacing ageing infrastructure
 - Lack of integrated approaches to infrastructure governance
 - Need for regulation of professionals and capacity building at all levels
- Additional cost of resilient infrastructure (3%) vs benefit of US\$ 4 for each US\$ 1 invested
 - Sustained infrastructure services e.g. telecom, power, energy, transport (the interconnected systems)
 - Basic social services (health and education)
 - Opportunities for green growth and reduced carbon footprint (70% of the urban infrastructure that we will see in 2050 is yet to be built)
 - National and local DRR and development strategies and adaptation plans

Risk-informed Approaches: Nature-based Solutions

- Address systemic risk (arising from an increasingly complex and evolving risk landscape)
- Ecosystem services catalyse disaster recovery and enhance community resilience
- Opportunities for design innovations
- Climate mitigation + disaster control infrastructure
- Reduce disaster impact, while achieving the national climate commitments.

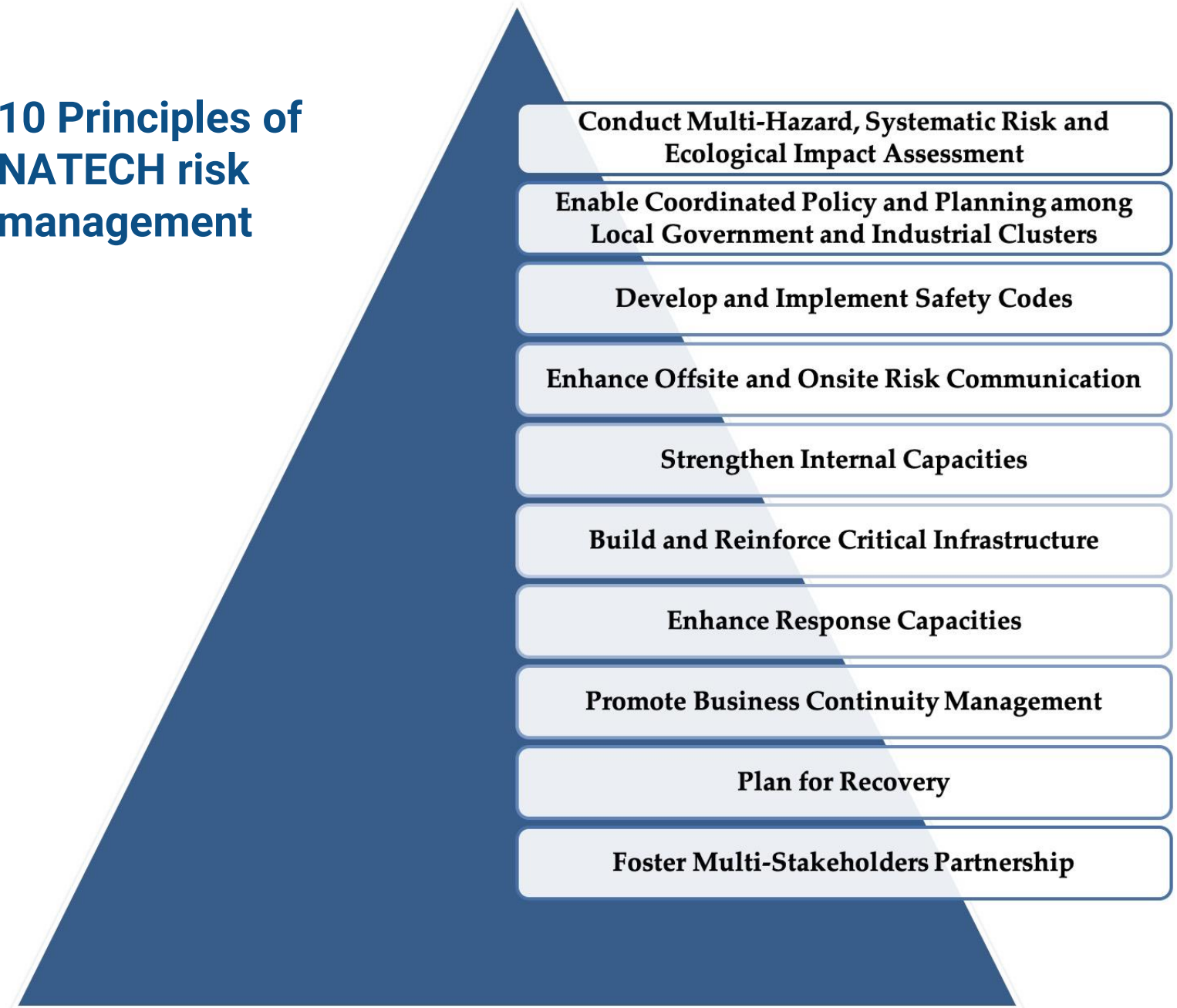


Risk-informed Approaches: NATECH Risk



<https://bit.ly/3aBj9nu>

10 Principles of NATECH risk management



Diversifying stakeholders

Responsibility of disaster risk reduction is not limited to the NDMOs



Entities

Planning & Finance
Ministries

Central Banks

Trade and
Investment Cos.

Construction and
Real Estate

Processes

Financing for
Development

Climate and
environment

SDG Platforms

Investment
decisions

Communities

Stakeholder Engagement: Organised Groups in Asia-Pacific

Science & Technology



Civil Society



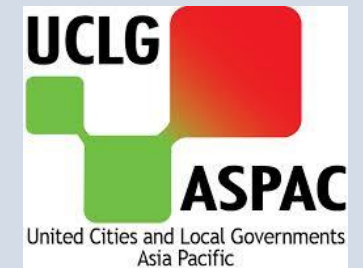
Gender & Women

Gender Stakeholder Group

Children & Youth



Local Authorities



Private Sector



Red Cross & Red Crescent



Media



Persons with Disabilities

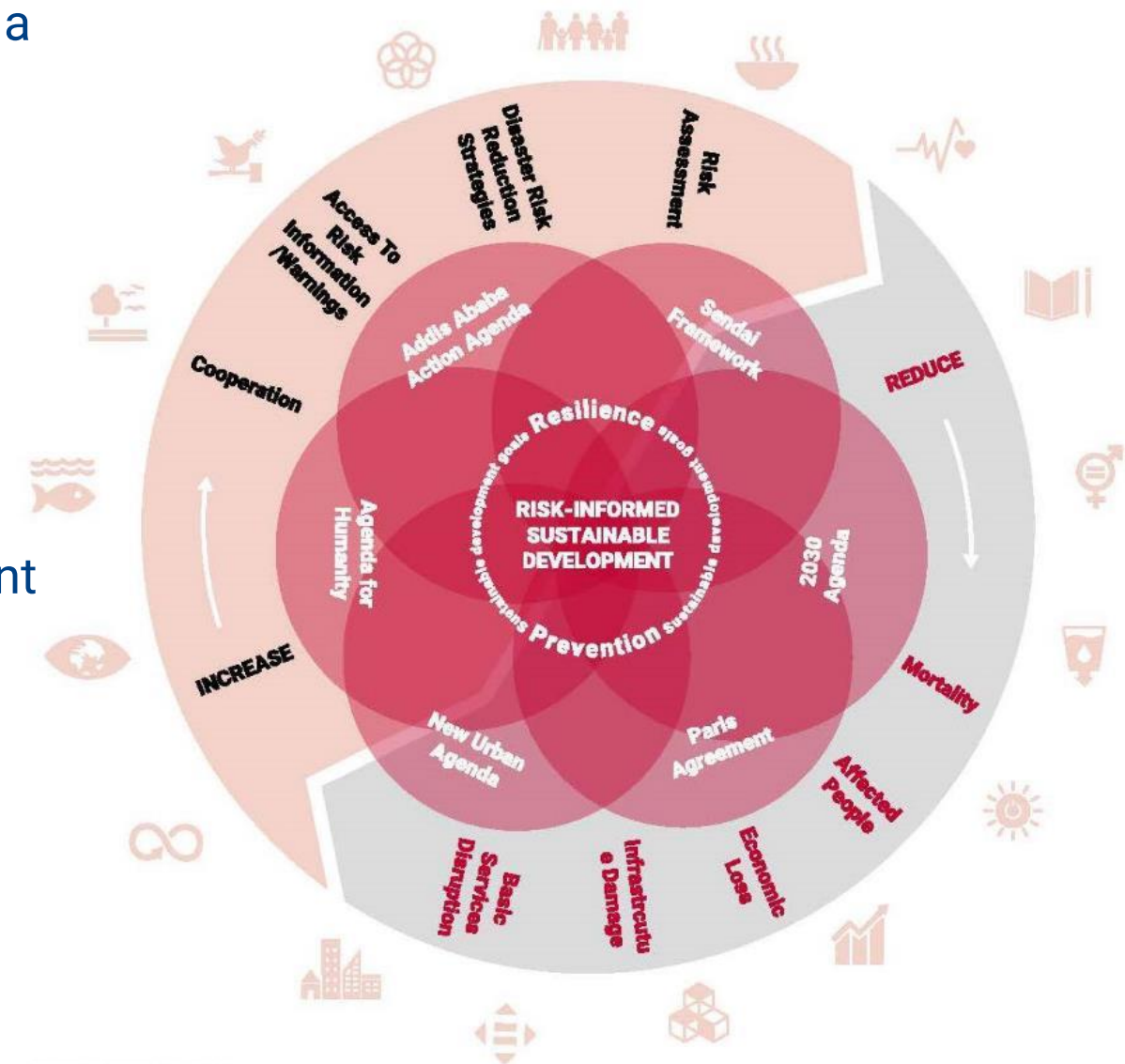


Others

- Older Persons
- Community Practitioners
- Indigenous Peoples
- Parliamentarians
- Farmers

Key Messages

- Appreciate the risk complexity and renew efforts to adopt a systems approach its understanding
- Apply the most appropriate or mix of risk management strategies in specific contexts
- Risk disclosure → Risk pricing
- Revisit public financing mechanism to invent means for financing prevention
- From 'Government' to 'Governance': A whole-of-government and whole-of-society approach
 - Inclusiveness
 - Localization
- Risk is everyone's business!



Thank you

Animesh Kumar
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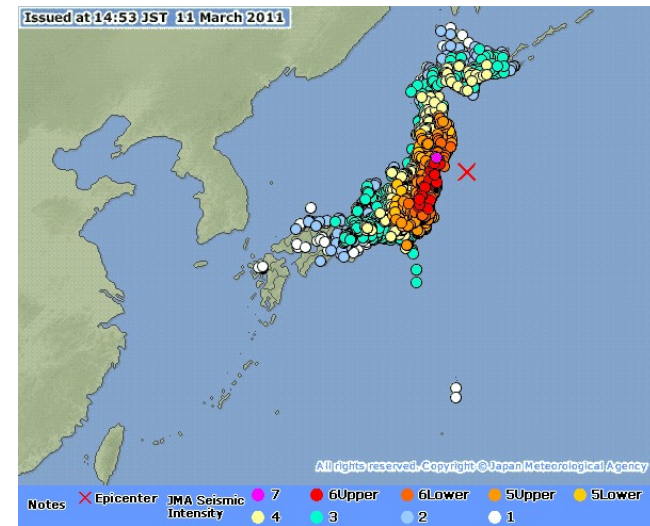
Science Communication During Crisis - *personal experiences from 3/11*

Dr. Anders Karlsson
Vice President, Global Strategic Networks, Elsevier
a.karlsson@elsevier.com

Science Counsellor, Embassy of Sweden, Tokyo, Oct. 2007-Nov. 2012



March 11, 2011 14:46 M9 Earthquake

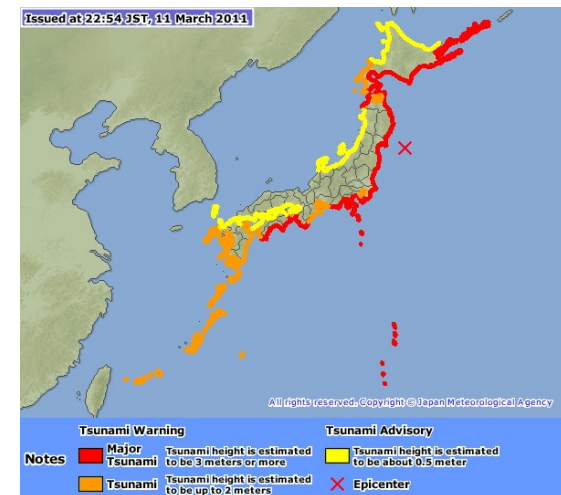


Outline of presentation

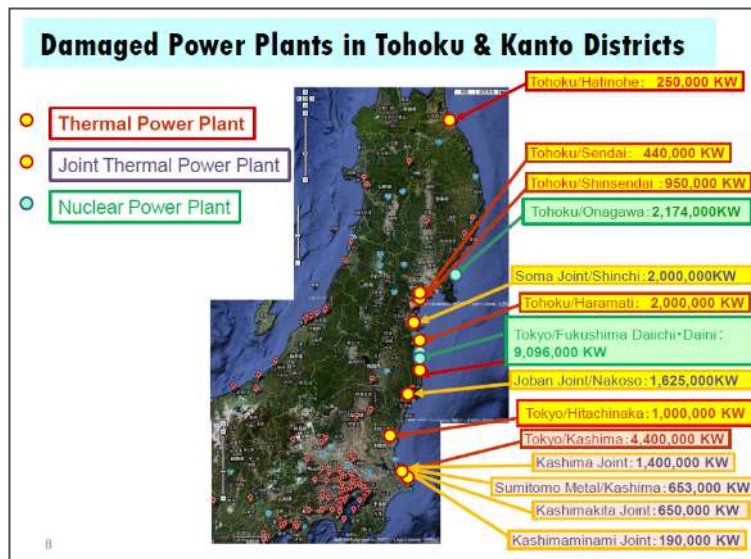
- I. Experience during the first months after 3/11
- *the challenge of lack of information*
- II. Swedish Disaster Medicine Fact Finding Mission 2012
- *from government, prefecture, village to citizens*
- III. Science Communication During Crisis
- *are there lessons from the pandemic?*

DISCLAIMER:

This presentation represents personal observations, and does not necessarily represent the opinion of Elsevier



Three battles faced by the Japan



- The 15897 casualties to date
- The nuclear meltdown at Fukushima Daichi
- The loss of infrastructure

*With Permission from Prof. Shozo Kaneko,
University of Tokyo*

Swedish Embassy Tokyo Work at the Early Stage



Swedish Embassy "situation room"



Field Measurements in Tokyo river
with Swedish Defence Research Institute



Joint measurements with Iitate Village
and Swedish Defence Research Institute

- Earthquake/Tsunami
 - Assist evacuation of citizens from affected region
 - International organizations provide relief aid
- After Fukushima
 - Daily briefings to Min. Foreign Affairs
 - Risk assessment (dialogue Radiation Safety Authority)
 - Dialogue with public & staff/evacuation
 - Handing out Iodine pills
 - Need to protect embassy?
- Reinforcements
 - Additional staff foreign ministry
 - External expert delegations

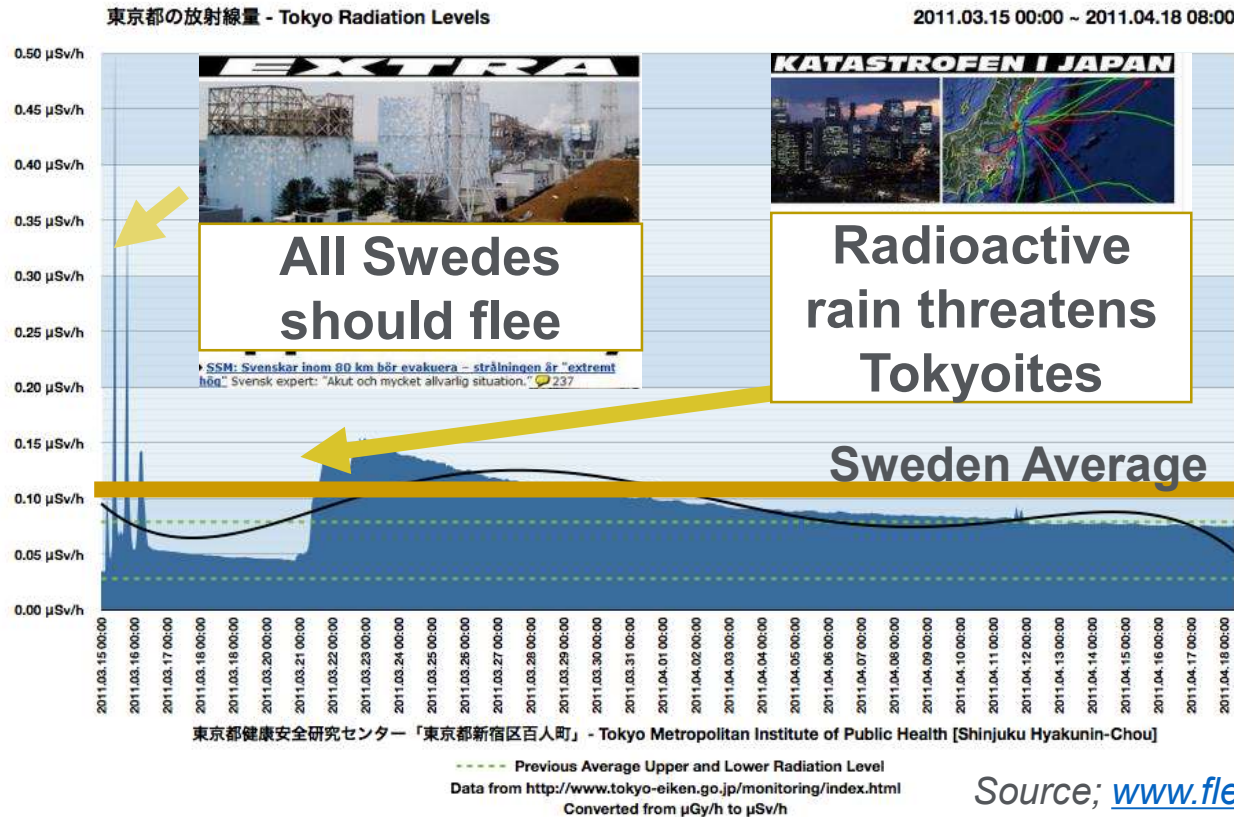
Paths for information around developments



Ministry of Foreign Affairs (MOFA)
Daily briefings, Pic. by Author

- Japanese MOFA briefings
- Dialogue directly with EU Radiation Safety experts traveling in + EU coordination
- Nordic collaboration
 - *meetings finnish, danish, norwegian experts*
 - *nordiskt joint documents on info-sources (circulated to 75 embassies)*
- Meetings with TEPCO, US NRC, UK, Japanese experts
- Foreign Press Club..
- Social media
- Regular Japanese media

The Disaster According to the Swedish Tabloids



Source; www.fleep.com/earthquake

Challenges of Communication



- Media faster than official channels – often speculative
 - Weak explanations of what radiation units mean & no reference levels given to "normal levels"
- ⇒ Governments need to invest extra resources and skills around communication

What did the public really want to know?

Perspectives from the UK Embassy



- They wanted to know whether and why it was safe
- They wanted to know what personal precautions they could take.
- They needed to receive information from someone they trusted.



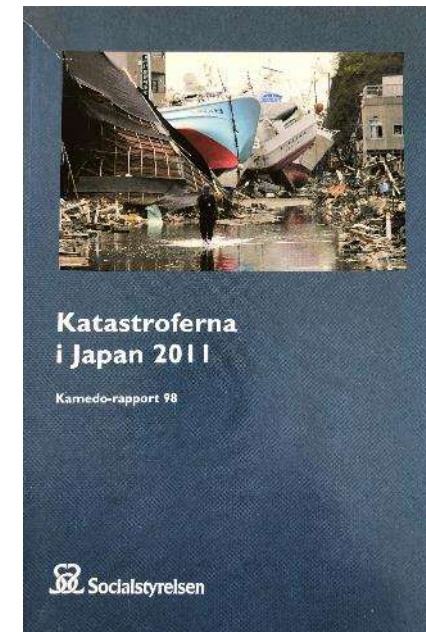
[The Aftermath of the Fukushima Daiichi Accident: a Perspective from the British Embassy in Tokyo - ScienceDirect](#)

Part II:

Swedish Disaster Medicine study organization Kamedo Report #98

The report aims to strengthen Swedish emergency preparedness by compiling and presenting in an easily accessible way the incidents and the experiences made by the Japanese society in the handling of the triple disaster.

- All relevant national authorities (disaster response, health, experts) involved
- Desktop research and workshops held to precise goal of
- Fact-finding mission to Japan in 2012 meeting officials and experts



<https://www.socialstyrelsen.se/globalassets/sharepoint-dokument/artikelkatalog/ovrigt/2016-4-41.pdf>

Importance to meet stakeholders broadly

- *perspectives will differ*

- Cabinet Office, Disaster Response Operations
- The Ministry of Health, Labor and Welfare
- The National Institute of Radiological Sciences
- Tokyo Fire Department Hyper Rescue Forces
- Fire and Disaster Management Agency
- The Fukushima Prefectural Government
- Tohoku Medical Mega Bank
- Tokyo Medical and Dental University DMATs
- Fukushima Medical University
- Fukushima Red Cross Hospital
- Ishinomaki Red Cross Hospital
- US Embassy in Tokyo
- NGO “It's Not Just Mud” and residents in temporary housing
- Individual key policy makers and frontline workers



Selected conclusions moving forward.



- Governments needs to prepare for remote events
- Risk—cost analysis & preparation for extended crisis
- Medical preparation need also trauma expertise
- Trusted communication with the general public a key factor
- Lack of knowledge about radiation and its risks pose challenge
- Good dialogue government and citizens to avoid breaking promises

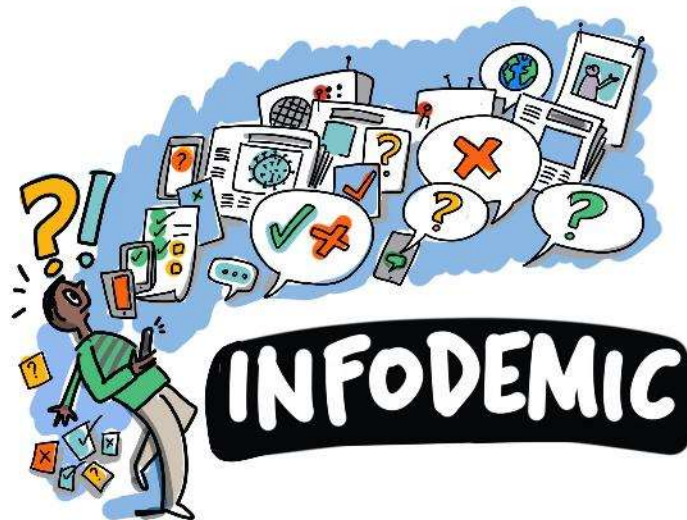
<https://www.socialstyrelsen.se/globalassets/sharepoint-dokument/artikelkatalog/ovrigt/2016-4-41.pdf>



19.03.2021

Part III: Science Communication During Crisis

- are there lessons from the COVID-19 pandemic?



<https://www.who.int/teams/risk-communication/infodemic-management>

Changes in Science Brought by the Pandemic



- Accelerating ongoing digital transformation
- Sharing of data & research before peer-review
- Strong public trust in science, but also pockets of distrust



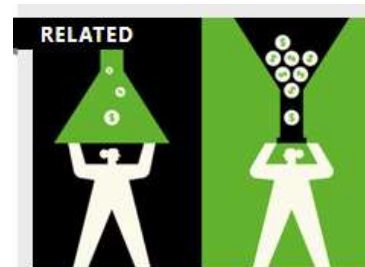
NEWS FEATURE • 03 JUNE 2020

The pandemic is challenging China's breakneck race to the top of science

The country is rapidly gaining on the United States in research, but problems could slow its rise: part 5 in a series on science after the pandemic.

Coronavirus Tests Science's Need for Speed Limits

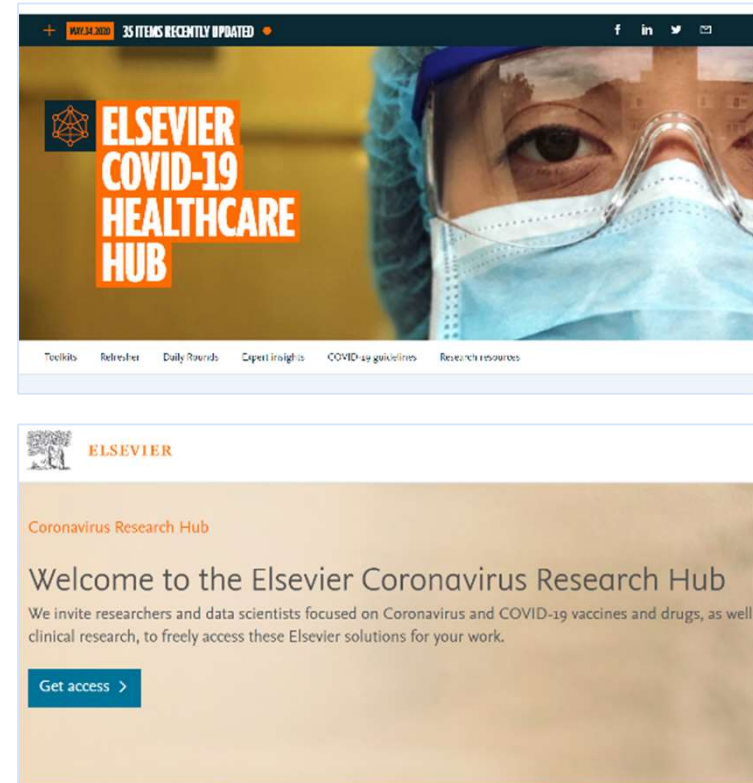
Preprint servers and peer-reviewed journals are seeing surging audiences, with many new readers not well versed in the limitations of the latest research findings.



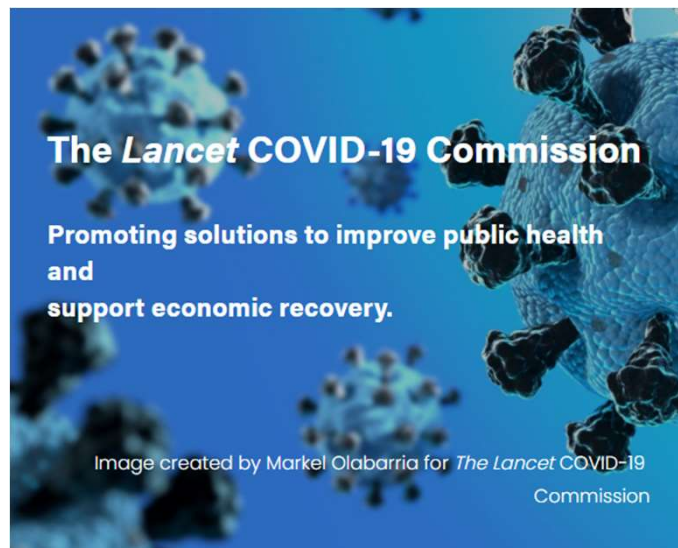
**Sputnik moment or budget
breaker: How will the pandemic
alter research funding?**

Technology & Ideas
**A Pandemic Moves Peer Review to
Twitter**
The coronavirus has transformed how scientific research findings are
communicated. Is that good? Will the changes stick?
By [Justin Fox](#)
May 5, 2020, 11:46 AM EDT

How Elsevier responded to the pandemic



The Lancet COVID-19 Commission – Feb. 2021 update



Three of 11 key recommendations

- Strengthening the multilateral response to the pandemic
- Deploying non-pharmaceutical Interventions
- Responding to the widening inequalities



<https://covid19commission.org/>

Science Communication could save lives

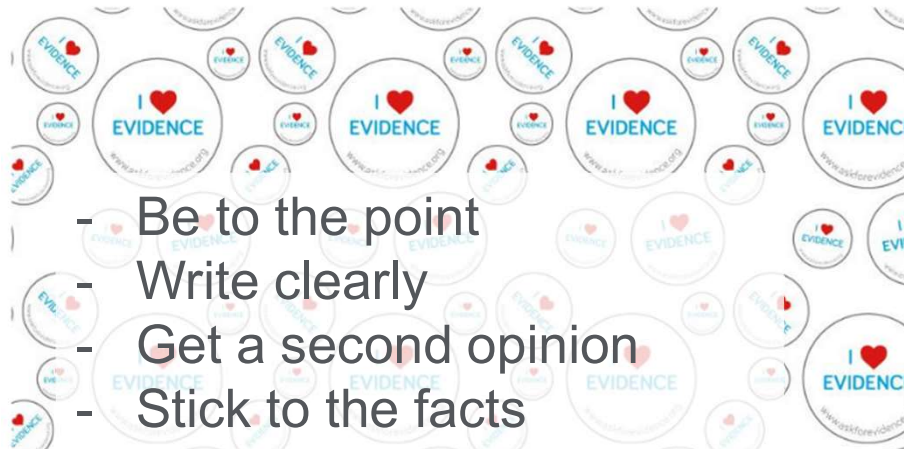
Home > Elsevier Connect > Authors' Update > Why improving science communication could save lives

Why improving science communication could save lives

Moved by what she witnessed during the Ebola outbreak last year, Olivia Varsaneux explains why it is so important science misconceptions are addressed

By Olivia Varsaneux October 13, 2016

Authors' Update



<https://www.elsevier.com/authors-update/story/early-career-researchers/why-improving-science-communication-could-save-lives>

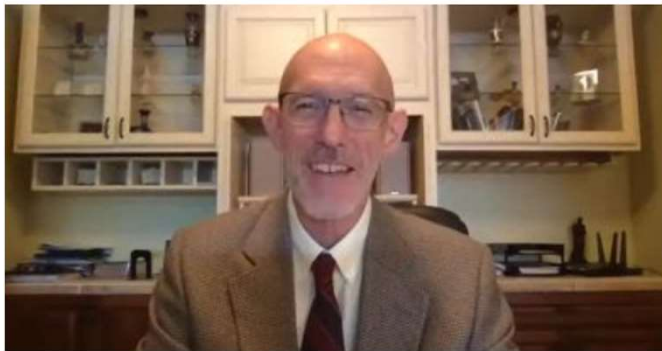
- Poor communication, especially if compounded by the media, can lead to confusion and fear among the public.
- It may also lead to decisions being made based on incorrect information, and these decisions may affect lives

Communicating Science During a Crisis

How good science communication can cut through the COVID “madness”

Vaccine Editor-in-Chief talks about why people are complacent about COVID – and how we can help them take it seriously

By Ian Evans - February 16, 2021



“But what sticks in your mind is usually to do with the passion, the feeling of the person conveying the information. We can draw on that to mold information, make it memorable, and shape people’s future behavior in a meaningful way.”

“This is a race between the virus and vaccines, between lives and deaths, between virus and opportunity.”

- Dr Gregory Poland, Founder and Director of Mayo Clinic’s Vaccine Research Group and Editor-in-Chief of the Elsevier-published journal Vaccine



<https://www.elsevier.com/connect/how-good-science-communication-can-cut-through-the-covid-madness>

Collected links used

Kamedo report (English version)

<https://www.socialstyrelsen.se/globalassets/sharepoint-dokument/artikelkatalog/ovrigt/2016-4-41.pdf>

WHO on infodemic

<https://www.who.int/teams/risk-communication/infodemic-management>

Elsevier Covid-19 resource hub

<https://www.elsevier.com/novel-coronavirus-covid-19>

The Lancet COVID-19 Commission

<https://covid19commission.org/>

Elsevier connect articles

<https://www.elsevier.com/authors-update/story/early-career-researchers/why-improving-science-communication-could-save-lives>

<https://www.elsevier.com/connect/how-good-science-communication-can-cut-through-the-covid-madness>



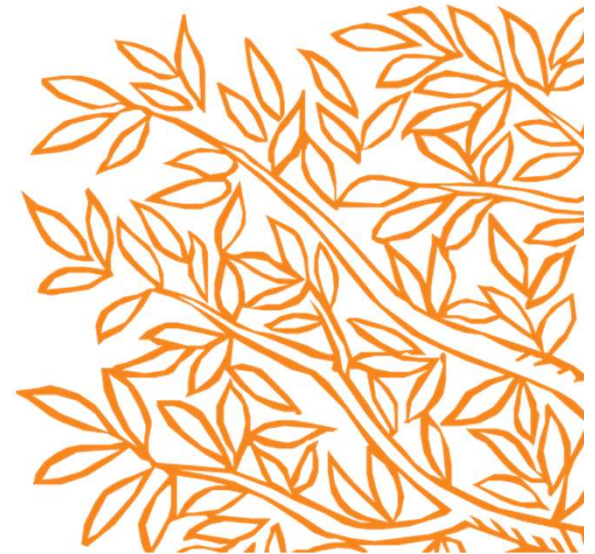
19.03.2021

No Conclusion, Just Reflections

- World impressed by the resilience of Japan & it's people
- Disasters sheds light on role of trusted information
- Geophysical, biological disasters, climate crisis
.. *Communicate sense of urgency in an engaging way*

Thank you!

a.karlsson@elsevier.com



Media reporting on disasters

Disasters are important news for the media

Disasters have increased fourfold in the last twenty years

Disasters are related to Climate Change and SDGs

Increase of Urban disasters causing water logging, air pollution linked to health problems, and economic threats

Role of journalists

- Media is key to raise public awareness and strengthen disaster risk reduction
- Media disseminates Early Warning messages and is a key source of information in disaster recovery
- Media shapes public opinion during disasters
- Media reports are guides for aid during recovery

What are journalists doing

- Journalists reports are important documentation of the disaster as they are independent observers
- Journalists are watchdogs in the recovery process
- Journalists play a social role by listening to traumatized survivors, identifying lost people,
- Journalists reports stop panic and rumours

Disaster stories content

- First two weeks— focus on emergency stories that rely on statistics—dead and injured, rescue efforts, lifeline access, government decisions
- One month later— recovery, aid, volunteer work, infrastructure and economic losses
- Six months later—recovery/rehabilitation, resilience, recovery progress

Lessons from March 11.2011 tripple disaster

- Twitter was the most read source of information immediately after the disaster
- Social Media are the First Informers—information sent from residents. Citizen witnessing information
- Traditional media follows –television, radio and print reports are important sources of information for the public
- Local media continued to play an important role for local survivors one month after the disaster after the mainstream media left the area

Lessons from Tohoku

- Breakdown of telecommunications, roads, and other infrastructure made it difficult for media from Tokyo to reach disaster site.
- Therefore media relied on social media—SNS-- integral to disaster communication
- Battery Radio became main source of information for the public until infrastructure was restored

Foreign media reports

- Focus was on Fukushima nuclear plant disaster given its global importance—research indicates that the BBC spent more hours on Fukushima broadcasting than NHK. BBC relied on foreign experts
- Japanese government response to Fukushima crisis analysis
- Medical and nuclear technology stories
- Strength of Japanese technology strong— losses were higher from tsunami
- Survivor stories focusing on Japanese social resilience and preperation

Images



NHK coverage



Bias policy in news media-source media studies, research:Doshisha University

- NHK favoured Japanese government and TEPCO in selection of information sources
- BBC had a greater focus on the news also quoted more foreign experts
- Japanese print media provided less emotional coverage compared to TV—71 percent compared to 51 percent. Source:

Media coverage-source: Uchida, Creative Commons. 2015

- Japanese journalists were more neutral in coverage of nuclear plant disaster compared to earthquake and tsunami
- They lacked of information and personal knowledge –thus, resulted in public mistrust of the media
- General reporting of the disaster was emotional to create sympathy in the reader

Other lessons

- Technology cannot save people
- The concept of Self-Help and Mutual Help—Sendai Framework on DRR adopted in 2015
- There was evidence to show that communities that helped each other survived in comparison to that did not have that system.
- Building a resilient community—Kizuna concept

Other lessons

- Disaster response plans were not prepared for the worst
- The importance of mitigation based on cultural and social traits
- Mental health issues
- Development of Evacuation centers that cater to human needs

The power of the Anniversary Story— learning from each other

- Remembrance reports provide positive learning
- Example: the 10th anniversary stories focused on learning from survivors. How they acted to save themselves, did not take early warning seriously, mental health, Fukushima cleanup.

Before/After media focus



南三陸. Christian Science Monitor.march 2021



絆

Apps ★ Bookmarks おすすめサイト IEブックマーク 図書館 My Recorder 9791161930169 - G... NOS.nl - Nieuws, S... キングオブタイム 産業연구원 Other bookmarks



写真を見せながら、震災当時の様子を生徒たちに説明する「なならぼ」のメンバー（右）＝宮城県七ヶ浜町で5月19日

日本三景「松島」の一町で、津波による被害が地元住民らと、山形県のめている。5月には、生ア活動に汗を流し、被災た。絆の証しにと、地元「ハマギク」を手渡されのためにできることを探を新たにした。【本橋敦

2005 Kobe City disaster anniversary



Biden, Harris. Corona deaths anniversary.
February 2021. Getty Images.



March 11. Anniversary story—Japan Times



Science and disaster

- March 11, 2011 disaster has increased media reports focusing on science— climate change, seismic science
- The Fukushima nuclear plant disaster has also increased media reporting on radiation issues and nuclear energy themes.

10 years after the Great East Japan Earthquake and Tsunami:

insights and perspectives from NGO sector

March 19th 2021

Takeshi Komino

General Secretary, CWS Japan

SG/Executive Committee,

Asian Disaster Reduction and Response Network

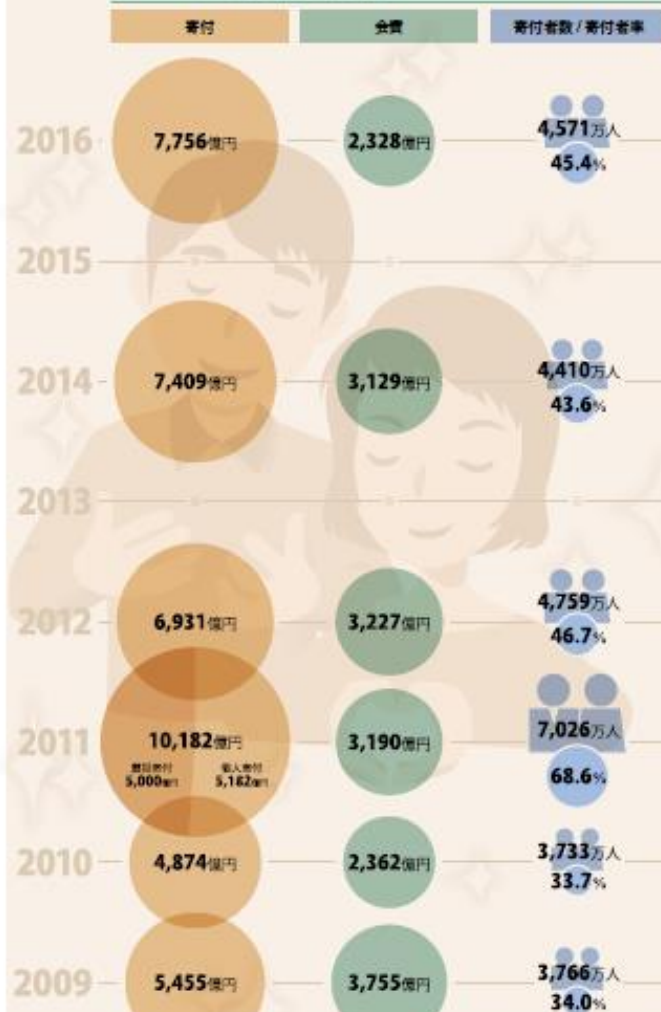


1. Growth in NGO/NPO sector

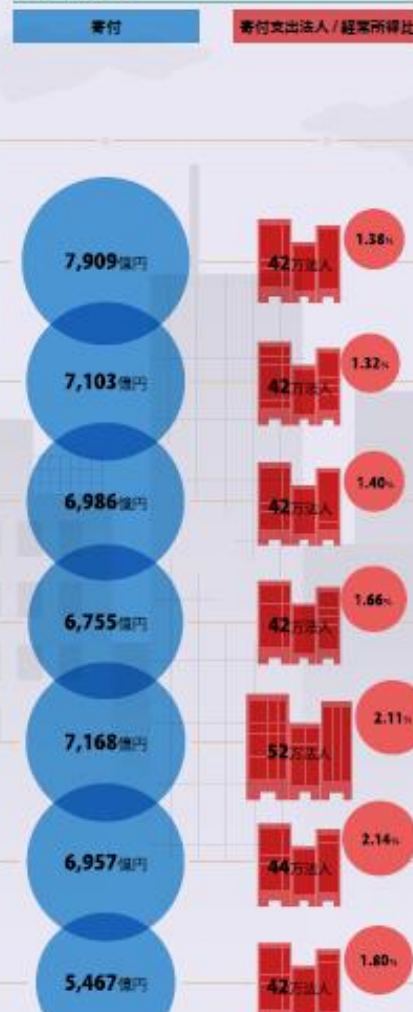
Increase in public donation

日本の寄付市場の推移

個人寄付総額・会費総額・寄付者数・寄付者率の推移
(2009～2016年1～12月、20歳以上79歳以下の男女)



法人寄付の推移
(4月～3月、決算ベース)

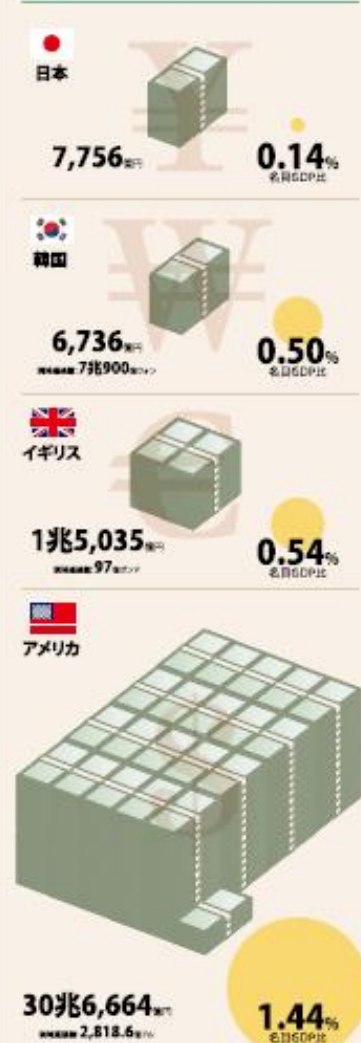


助成財団の助成額の推移



日米英韓4カ国の個人寄付総額比較

個人寄付総額と名目GDPに占める割合
(2016年)

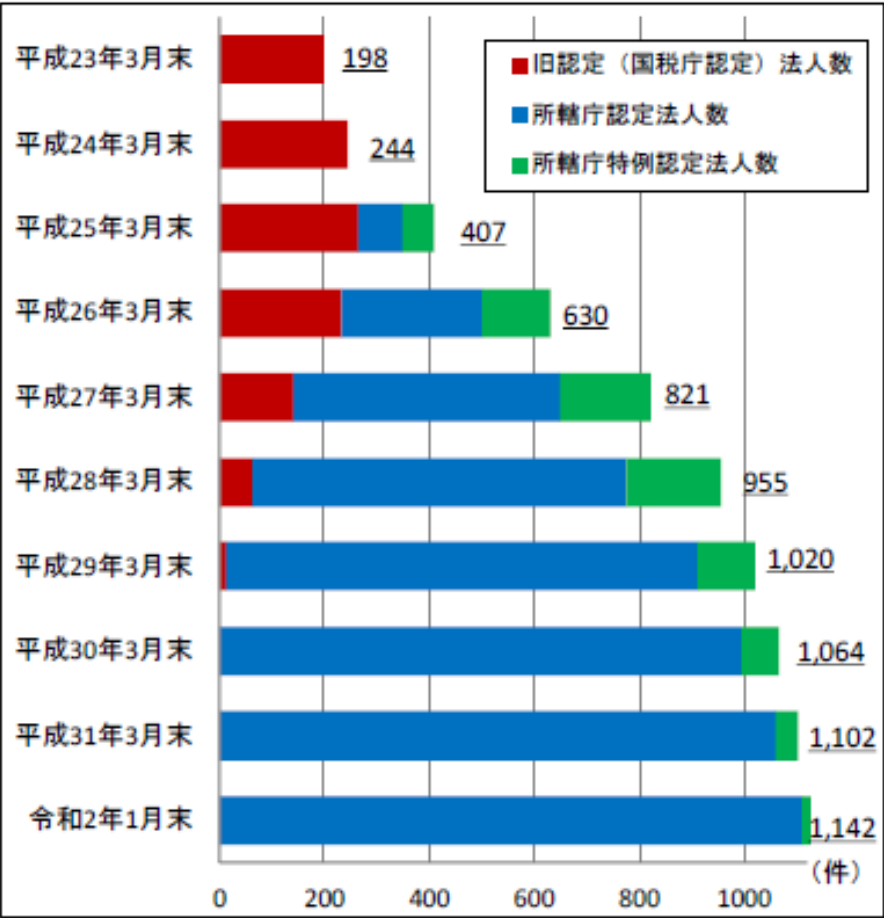


- 1,018.2 billion JPY in 2011 (209% from previous year)
- Steadily rise in public donation since

Increase in Certified NPOs

NPO法人数の推移

●認定数は平成23年法改正の施行（平成24年4月1日）後急速に増加。今後も着実な増加が期待される。
所轄庁認定1,142件（認定1,110件、特例認定32件（令和2年1月末現在））。



年 度	認証法人数	うち認定法人数
平成10年度	23	-
平成11年度	1,724	-
平成12年度	3,800	-
平成13年度	6,596	3
平成14年度	10,664	12
平成15年度	16,160	22
平成16年度	21,280	30
平成17年度	26,394	40
平成18年度	31,115	58
平成19年度	34,369	80
平成20年度	37,192	93
平成21年度	39,732	127
平成22年度	42,385	198
平成23年度	45,138	244
平成24年度	47,540	407

年 度	認証法人数	うち認定法人数
平成25年度	48,980	630
平成26年度	50,087	821
平成27年度	50,866	955
平成28年度	51,515	1,020
平成29年度	51,868	1,064
平成30年度	51,604	1,102
令和2年 1月末現在	51,403	1,142

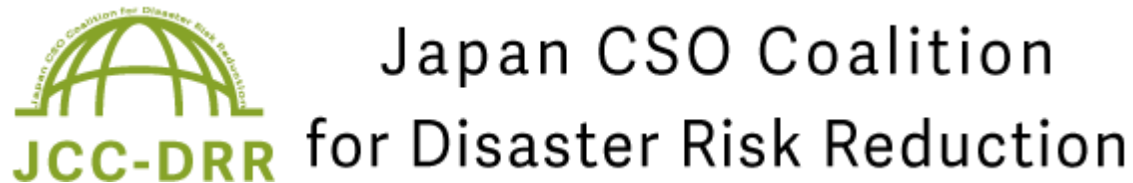
2011-2020

- General # of NPOs 114%
- # of Certified NPOs: 468%

Increase in NGO networks



NGO2030 ふくしまから世界へ

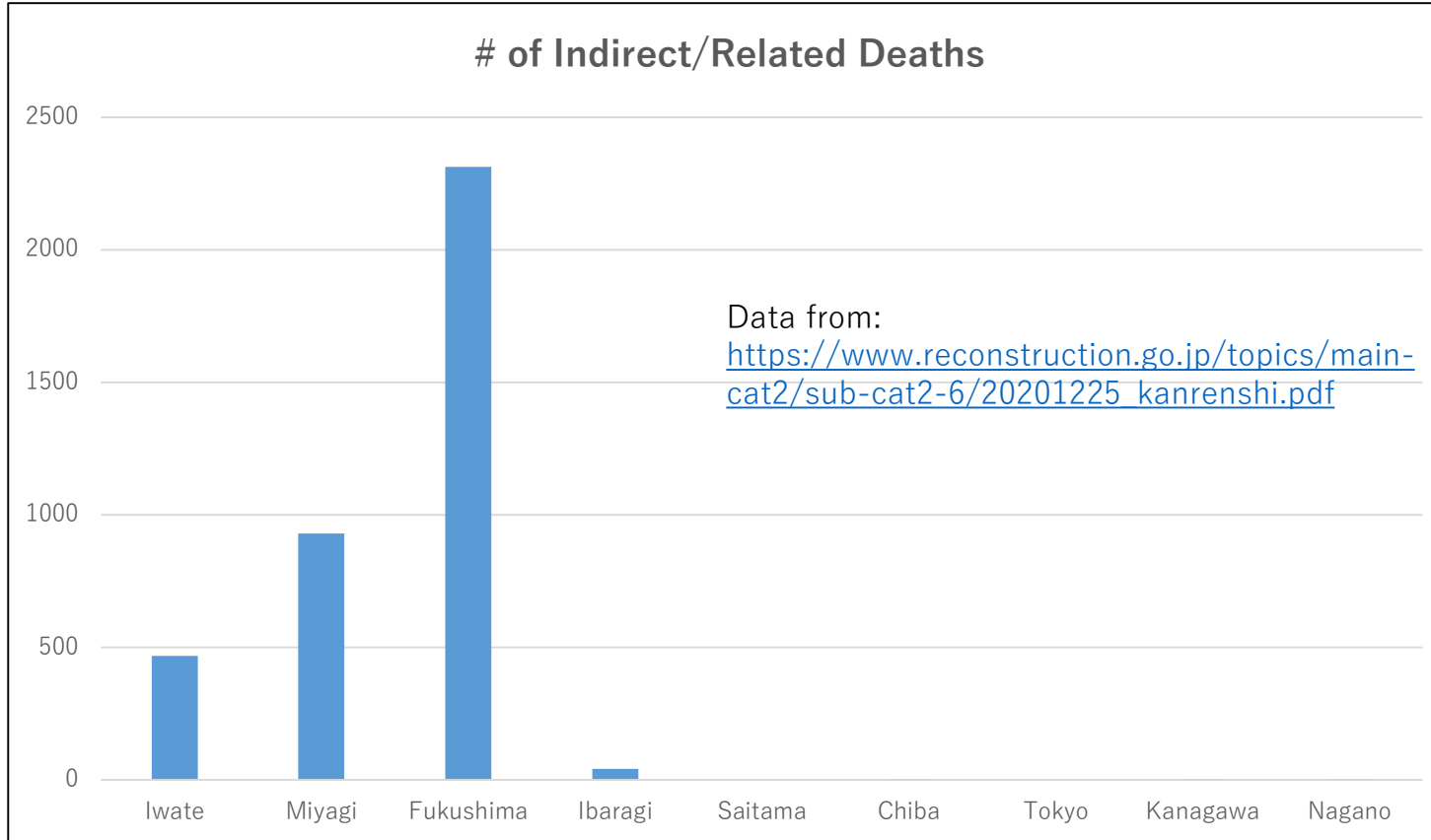


NPO/NGOs are increasingly seen as partners in various fields, including disaster management. For example, Cabinet Office's Evacuation Shelter Guideline stipulates cooperation with NPOs along with making reference to Sphere.

2. Outstanding issues / dilemmas

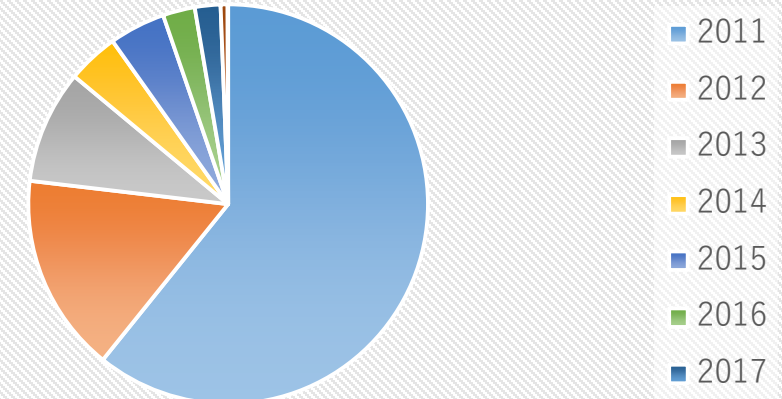
Dilemma 1: Significant indirect / related deaths in Fukushima

SFDRR Global Target A : Substantially reduce global disaster mortality by 2030, aiming to lower the average per 100,000 global mortality rate in the decade 2020– 2030 compared to the period 2005–2015.



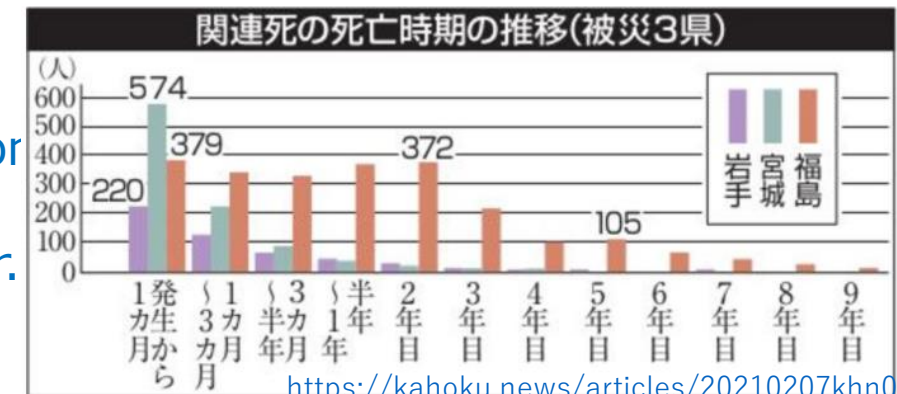
- Fukushima consists 61.4% of all indirect/related deaths from the Great eastern Earthquake and Tsunami.
- Out of 2,313 in Fukushima, 90% are 66 years old or higher.
- Long term evacuation results in long-term occurrences of indirect / related deaths.

By year: Indirect/Related Deaths
in Fukushima



震災関連死の申請今も 20年度、被災3県で32件

2021年02月08日 06:00



Dilemma 2: Setting definition of long term evacuees/IDPs

SFDRR Global Target B: Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 in the decade 2020–2030 compared to the period 2005–2015.

避難者数の推移

Trend of # of Evacuees



出典：福島県災害対策本部

〔平成 23 年東北地方太平洋沖地震による被害状況速報〕各月報

出典：「ふくしま復興のあゆみ」第 26 版 p.3

<https://www.pref.fukushima.lg.jp/uploaded/attachment/362626.pdf>

- Different government agencies/units using different definition for 'evacuees'.
- For example, current nationwide system requires each evacuees to declare his/her information to the municipality, whereas affected municipalities consider based on residents' cards and people's will.
- Some argue this is making current evacuees 'invisible'.

Dilemma 3: When to lift 'emergency provision' of acceptable radiation dose level

SFDRR Global Target G: Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 in the decade 2020–2030 compared to the period 2005–2015.



Differences in evacuation segmentation between Fukushima and Chernobyl

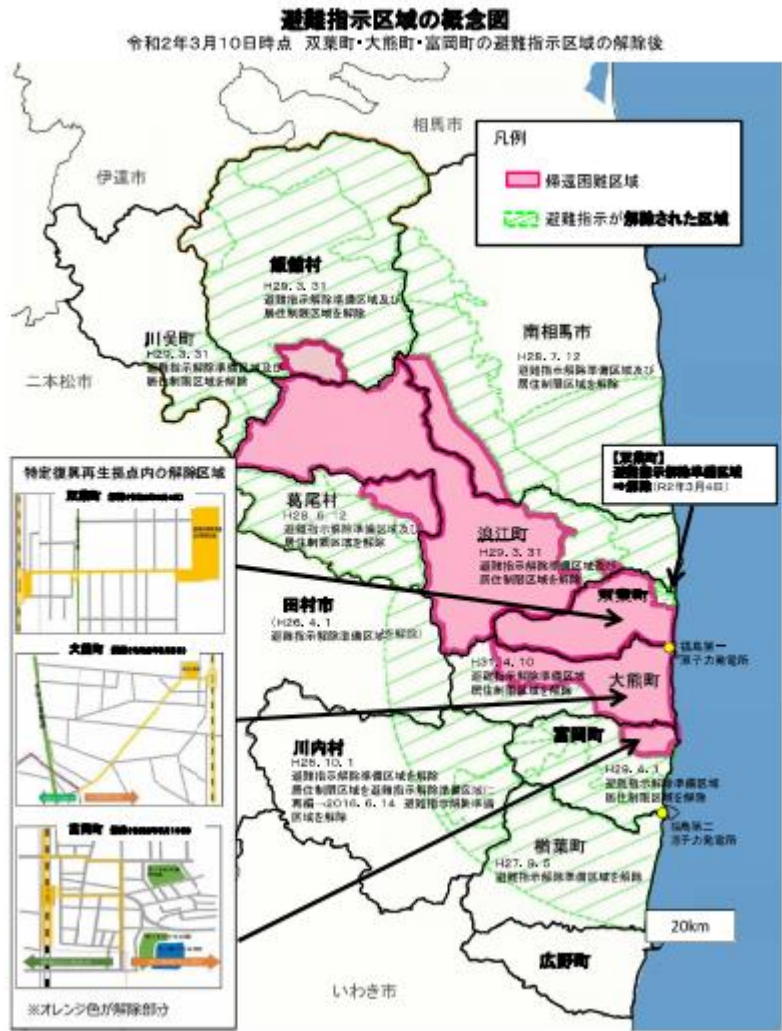
Air radiation dose(annual)	Fukushima zoning	Chernobyl zoning
50mSv and above	"Difficult to return" zone	Forced evacuation zone
20 - less than 50mSv	Habitation restricted zone (temporary return possible)	Forced evacuation zone
Less than 20mSv	Zone being prepared for lifting of evacuation order	Forced evacuation zone
5mSv and above	No instructions	Compulsory resettlement zone
1 - less than 5mSv	No instructions	Right to resettlement zone
0.5 - less than 1mSv	No instructions	Radiation control zone

N.B. 1: Segments in red are in principle off-limits
N.B. 2: Zone designation in Chernobyl was carried out mainly according to soil contamination dose, and the method used for calculating annual exposure is also different in the case of Fukushima. References here are simplified for the purpose of general comparison.

Difference in evacuation segmentation between Fukushima and Chernobyl (Fukushima Booklet Committee, http://fukushimalessons.jp/assets/content/doc/Fukushima10Lessons_ENG.pdf)

Dilemma 3: When to lift 'emergency provision' of acceptable radiation dose level

SFDRR Global Target B: Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 in the decade 2020–2030 compared to the period 2005–2015.



Differences in evacuation segmentation between Fukushima and Chernobyl

Air radiation dose(annual)	Fukushima zoning	Chernobyl zoning
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Dilemma 3: When to lift 'emergency provision' of acceptable radiation dose level

SFDRR Global target G: Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030.



Differences in evacuation segmentation between Fukushima and Chernobyl

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Other dilemmas are still there...

- Still no prospect in figuring out disposal of nuclear waste.
- Contaminated water – what to do?
- How to evaluate/determine the health effects with long term screening?
- Resuming operation vs. safety concerns (including evacuation planning by each municipalities).
- Population decrease in overall – how to build back better?
- Etc. etc.

At the 3rd UN Conference on Disaster Risk Reduction in Sendai in 2015, Japanese government representative declared that 'Japan will no longer create safety myths around nuclear power plants'.

*The scope of disaster risk reduction has been broadened significantly to focus on both natural and man-made hazards and related environmental, technological and biological hazards and risks. Health resilience is strongly promoted throughout.”
(Foreword, Sendai Framework for DRR)*



The screenshot shows the official website of the United Nations Human Rights Council. The header features the UN logo and the text "UNITED NATIONS HUMAN RIGHTS COUNCIL". Below the header is a navigation bar with links: HOME, ABOUT HRC, HRC SESSIONS, PRESIDENCY & MEMBERSHIP, HRC BODIES, INDEPENDENT INVESTIGATIONS, and COMPLAINT PROCEDURE. The main content area is titled "News" and "Feature Stories". A news article is displayed with the headline "Japan must step up efforts to solve human rights fallout from Fukushima disaster: UN experts". Below the headline is a link "< Back". At the bottom right, it says "Unofficial translation: [Japanes](#)". The article text begins with "GENEVA (11 March 2021) – UN experts said today contaminated water still remaining at Japan's Fukushima Daiichi poses major environmental and human rights risks and any decision to discharge it into the Pacific Ocean cannot b solution."

Summary

- Significant growth in NGO sector in Japan happened in the last 10 years, and the sector is increasingly seen as partners by various government agencies / local government units as well.
- 10 years maybe a milestone for some of us, but many consequences from the Great Eastern Earthquake and Tsunami are ongoing phenomenon.
- There are so many unknowns when it comes to Fukushima's situation, so it is not wise to put any conclusion at this point in time (so, we call it dilemma). Exploration of understanding the risk and cascading effects needs to continue with the spirit of Sendai Framework for DRR.