Water-related Disaster Risk Reduction under the COVID-19 Pandemic

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Water-related disasters – global trend
Number of reported natural disasters (1900-2010)

Source: ISDR “EM-DAT”
Number of people affected by natural disasters (1900 – 2010)

Million people

Source: ISDR “EM-DAT”

Losses in human lives by decade (millions)

Source: WMO
95% of disasters are water-related

Number of people affected by disasters (1994-2013)

- **Flood**: 2.4 billion (42%)
- **Drought**: 2.4 billion (42%)
- **Storm**: 660 million (12%)
- **Earthquake**: 121 million (2%)
- **Temperature**: 93 million (2%)

Total: 5.7 billion

Source: CRED “The human cost of natural disasters”
Estimated damage caused by natural disasters (1900-2010)

Source: ISDR “EM-DAT”
Impact of Flood Management Investment in Japan

Fatalities by Floods, GDP, and Flood Management Budget

Number of fatalities (people)

Flood Management Cost (Nominal)
GDP (Nominal)
Number of Fatalities

*Number of fatalities exclude those who dead by tsunami
Why disasters are increasing?

- The global population growth and urbanization
- Impact of climate change
  - Rising temperature & sea level

Increase of extreme events

Megacities* 1950 (8)
- Tokyo
- Shanghai
- Moscow
- London
- Paris
- Rhine-Ruhr
- New York
- Buenos Aires

Population Trends
* > 5m people

Megacities* 2005 (8)

Changes in temperature and sea level

- Global average surface temperature
- Global average sea level

Source: IPCC SR4

Increase of extreme events

Source: U.N. Population Division

* > 5m people

Royal Colloquium: Cities at Risk – A Warmer World and the Big Chill for Urban Planners

Wolfgang Kron:  Don't leave the cities alone . . .
Unusual Climatic Events in July 2018

Translated and modified from JMA Report, 2018
Water-related disasters under COVID-19
Epidemic of COVID-19 and Cyclone Amphan in West Bengal, India

Overlap map of COVID-19 situation dashboard and the cyclone track in West Bengal, India

Daily new COVID-19 cases in West Bengal, India (21st March – 1st June)
Leaders, decision makers, and citizens should be aware that Water-related disasters continue to be imminent in countries and cities under the COVID-19 pandemic.

Disaster Risk Reduction (DRR) strategies and actions specially designed for the current pandemic situation will protect disaster-affected areas from becoming epicenters of pandemic explosion and assist with swift recoveries from disasters.

The Principles offer practical advice to political leader, managers of DRR and COVID-19 responses, and for all stakeholders to formulate strategies and actions.

While the Principles address water-related disasters, they are applicable to the other types of disasters as well.
Collection of Critical Situations during Flood Emergency Response

Critical Situations:
Situations in which local government officers don’t know what to do, are confused or in dilemma, etc., during an emergency response effort.

1. Initial Response
2. Headquarters Management
3. Structure in Government Office
4. Collecting Information
5. Collaborating with Stakeholders
6. Issuing Evacuation Advisory (Alert Level 4), etc.
7. Transmitting Information
8. Shelters

Target
The public health center informed us that a person who had temporarily evacuated at our shelter later went on to test positive for COVID-19 at the health center. However, we have no record of an evacuation by this name given to us, so we do not know the space allocated to that person.

Cause and Result
Result: The high-risk contacts of the infected person are unknown, so evacuees become worried. Also, as the used shelter space is also unclear, the entire shelter has to be disinfected.

Necessary Measures
- Management: Prepare a reception sheet for listing the names of evacuees.
- Emergency Response: Distinguish people suspected of being infected at the designated emergency evacuation sites/shelters.
- If evacuation at designated emergency evacuation sites/shelters becomes prolonged, the health of evacuees may change. Therefore, stock up on clinical thermometers in order to distinguish changes in the health of evacuees. As contact with a clinical thermometer may spread the infection, it is best to use a non-contact thermometer.
- Make evacuees aware of the need to record their health changes.
- Make evacuees aware that they should notify the shelter reception at anytime if their health changes, such as running a high temperature.
Actions by the Local Government in Japan

Manual for organizing the evacuation facility prepared by Yaizu City

“A new normal” for managing the evacuation space

A drill for organization of the evacuation facility in Okazaki City

Information sharing through website in Nara City
Case of Gifu Prefecture in Japan

- Not much is known about COVID-19 yet, but some countermeasures against natural disasters during the pandemic should be prepared.
- “Three Cs” (closed spaces, crowded places, and close-contact settings) should be avoided to prevent the disease from spreading, but evacuation shelters are a typical “3 Cs” environment.
- Natural disaster risk reduction under the COVID-19 pandemic cannot be addressed by sectionalism, but social systems, in general, are built on sectionalism.
- What to do and to be considered is different before, during, and after a disaster.
- What governments, local communities and individuals can do and should consider is different.

As the first step, we focused on flood disasters and created this guide to propose basic principles.
- We can use hazard maps and meteorological information to evacuate before a flood occurs.
- It is easier to plan countermeasures for floods than for other natural disasters.
The contents of the guide against flood disasters during COVID-19 pandemic

1. Characteristics of COVID-19 and general measures
2. COVID-19: What has already happened and what is likely to happen in the future
3. Things likely to happen in the event of a natural disaster can occur during the COVID-19 pandemic
4. Basic guidelines for disaster response during the COVID-19 pandemic
5. For individuals
6. For communities
7. For local governments
8. Basic approaches to planning evacuation
9. Basic approaches to evacuation shelter administration
10. Things to be aware of concerning evacuation destinations other than shelters
11. Challenges people will face when seeking to rebuild their lives

https://researchmap.jp/multidatabases/multidatabase_contents/detail/228424/9e67ee077cdefd9fbd1e696c2b367b6c?frame_id=1034657
Thank you very much

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