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Technologies for Disaster Risk Reduction

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Technologies for Disaster Risk Reduction

Cabinet Office of Japan

Contents

1. Overview

- To strengthen disaster prevention and response, it is necessary to utilize advanced technologies.
- Due to climate change, disasters are becoming more frequent, and disaster risk reduction has become a global challenge.

- Japan experiences frequent natural disasters, as a result, has gained advanced technologies.
- Japan's "Digital Platform for Disaster Response" enables rapid response by collecting, integrating, and sharing information.
- Japan is actively utilizing drones and satellites to assess the damage.

- ✓ Advanced technologies were used during the Noto Peninsula Earthquake in 2024, contributing to the support of affected people and the quick recovery.

- ✓ Japan will establish a new government agency—the Disaster Management Agency of Japan—next year. The agency will prioritize the use of digital and advanced technologies.

- ✓ Today, I would like to provide an overview of these initiatives in Japan.

2. Examples : advanced technologies

DATA and AI

Data collection and AI analysis make it possible to understand the situation in disaster-affected areas.

Drones and Robots

Drones and robots enhance the effectiveness and safety of rescue efforts.

SATELLITE

Satellites make it possible to assess damage in real time..

3. Noto Peninsula Earthquake (2024)

◆The magnitude 7.6 earthquake hit the Noto Peninsula on 1st January 2024.
◆ It destroyed many homes and infrastructure, generated a tsunami, and left over 500 people dead.


Collapsed houses


Damaged roads


Damaged fishing ports


Tsunami damage


Fire damage


Landslide

New technologies
for emergency response on Noto Peninsula Earthquake

- ✓ Actively utilized trailer houses. They were used not only for victims but also for volunteers.
- ✓ High-performance drones enabled rapid assessment of the disaster and delivered relief goods.
- ✓ ‘Mobile pharmacy’ (vehicle with pharmacy functions) delivered medicines.

Trailer house

(a housing unit attached to a vehicle and is movable)

High-performance drone

Mobile pharmacy (a vehicle with pharmacy functions)

4. Establishment of "Disaster Management Agency of Japan" (2026)

- **Japan**, one of the most disaster-prone economies in the world, **must strengthen its disaster resilience to protect human life and rights,** and prepare for a catastrophic disaster in the future.

- To minimize casualties, and to maintain social-economic functions, **the Japanese government should advance pre-disaster measures proactively**.

- To this end, the Japanese government is shaping a vision for disaster risk reduction with a long-term perspective, in collaboration with the private sector.
  "Disaster Management Agency of Japan" will be established in 2026 as the command center for disaster response—from pre-disaster to recovery and reconstruction.

- "Disaster Management Agency of Japan" will be **established directly under the Cabinet**.
  The new agency will have expert staff and sufficient budget. The Minister in charge of the new agency will have the authority to make recommendations to other ministers.

Disaster Management Agency of Japan:

Schedule

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Disaster Management Agency of Japan:

Three Functions

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✓Based on past experiences and advanced knowledge, **Formulate National Strategy for disaster risk reduction**

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- ✓Disaster risk Assessment
- ✓Make buildings earthquake resilient
- ✓Improve evacuation shelters
- ✓Prepare for recovery and reconstruction

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- ✓Immediate disaster-response
- ✓Support for disaster-affected areas
- ✓Continuous support until reconstruction

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Disaster Management Agency of Japan:

Key Initiatives

1) Comprehensive support for disaster victims

2) Promote digital technologies

3) Education and training

4) Collaboration among private sector

5) Research & development

6) International cooperation

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Disaster Management Agency of Japan : Key Initiatives

1) Comprehensive support for disaster victims

- Improve living conditions during evacuation, such as adequate stockpiling, etc.
- Drills for implementation of evacuation shelters.
- Develop a system for medical care and welfare service.
- Assess challenges faced by women, the elderly, children, and the disabled.

2) Promote digital technologies

- Develop a digital platform accessible to public and private sectors.
- Promote a digital support (collecting data on disaster victims, etc.)
- Develop a digital infrastructure for rapid damage assessment.
- Utilize satellites, drones, generative AI, etc.

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Disaster Management Agency of Japan: Key Initiatives

3) Education and training

- Practical disaster education from early childhood.
- Promote disaster education on the community level.
- Share disaster records, challenges, and lessons learned.

4) Collaboration among private sector

- Collaboration with NPOs and private companies.
- National registration system for disaster-related NPOs and volunteer organizations [from July 2025]
- National registration system for disaster relief vehicles such as kitchen cars, trailer houses, and toilet trucks [From June 2025]

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Disaster Management Agency of Japan: Key Initiatives

5) Research & development

- Acknowledge technological needs and integrate technologies for DRR.
- Refine damage-estimation capabilities.
- Collaboration with research institute and universities.

6) International cooperation

- Disaster risk reduction is a global challenge
- Strengthen international cooperation by sharing experience and knowledge, etc.
- Provision new technologies globally.
- Japan host 2027 APMC/DRR(Asia Pacific Ministerial Conference on DRR)

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