Disaster Management in JAPAN

Disaster Risk Reduction and Community D

JICA Training Course 2022

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JAPAN's Disaster Management

1. Japan, a disaster country

2. Disaster management framework

(1) Disaster Countermeasure Basic Act

(2) Disaster Management Plan

(2) Public organizations responding to disaster

3. Protecting victims' lives

(1) Disaster Relief Act

(2) Cooperation among public, mutual and self support

Japan, a disaster country

	Disaster	Dead and missing
1932	Mikawa Earthquake	2,306
1932	Makurazaki Typhoon	3,756
1946	Nankai Earthquake	1,443
1947	Katherine Typhoon	1,930
1948	Fukui Earthquake	3,769
1954	Huge Rainfall in Kyushu, Shikoku, Chugoku	1,013
1954	Huge rainfall in Wakayama	1,124
1955	Toyamaru Typhoon	1,761
1958	Kanogawa Typhoon	1,269
1959	Isewan Typhoon	5,098
1995	Great Hanshin Awaji Earthquake	6,437
2011	Great East Japan Earthquake and Tsunami	22,010

Big disasters in Japan (dead and missing with more than 1,000 after 1932, Re : White Paper on Disaster Management, Cabinet Office 2020)

Year	Disaster	Dead and missing
2004	Typhoon No.16	98
2004	Chuetsu Earthquake	68
2006-07	Heavy snow	152
2010-11	Heavy snow	131
2011	Typhoon No.12	98
2011-12	Heavy snow	133
2012-13	Heavy snow	104
2013-14	Heavy snow	95
2014	Landslide	77
2014	Ontake Volcano Eruption	63
2014-15	Heavy snow	83
2016	Kumamoto Earthquake	267
2018	Heavy Rainfall	245
2020	Heavy Rainfall	86

Big disasters in Japan (dead and missing with more than 50 after 2000, Re : White Paper on Disaster Management, Cabinet Office 2020)

The Great Hanshin Awaji Earthquake in 1995

Massive earthquake struck major urban areas with population of 3 million

1. **Date:** 5:46 am in January 17th 1995
2. **Paralyzed urban functions**
   - Collapsed Hanshin Expressway（Reopened in September 1996)
   - Railway service interruption (19 lines, 376.5km)
   - Total economic losses : around 10 trillion JPY
3. **Livelihood recovery**
   - Many people had to rebuild their houses (evacuation shelter → temporary house → permanent house)
   - 23,000 people lost their jobs

Dead	Missing	Disaster-related death	Total	Totally collapsed	Partially collapsed	Total
6,434	3	919	7,356	111,054	144,341	255,395

（ Photos by Kobe municipality ）

The Great East Japan Earthquake in 2011

1.Date & Time ： 14:46, March 11th, 2011

2. Epicenter ： Off the coast of Sanriku (Pacific Ocean)

3. Scale ：Magnitude 9.0 (the 4th largest in the world)

4. Epicentral area：450km in length, 200km in width

5. Fault slip：20～30km

【Characteristics】

1. Many dead & missing and disaster-related death*

*Death caused by deconditioning (ex. through long evacuation), less special medical treatment, less care service

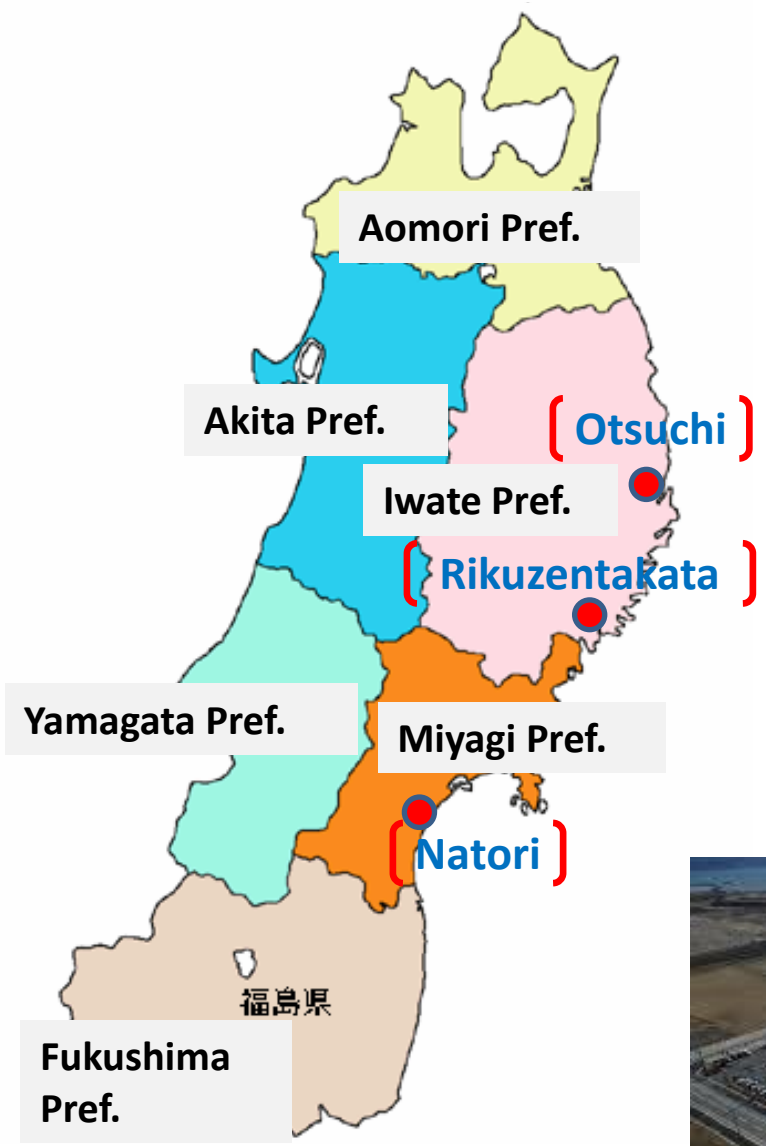
2. Many areas were swept away → rebuild or relocate

3. Damage by nuclear power plant accident

Dead	Missing	Disaster-related death	Total	Totally collapsed	Partially collapsed	Total
15,966	2,563	3,723	22,252	121,995	1,031,048	1,153,043

Affected Sites in the Great East Japan Earthquake

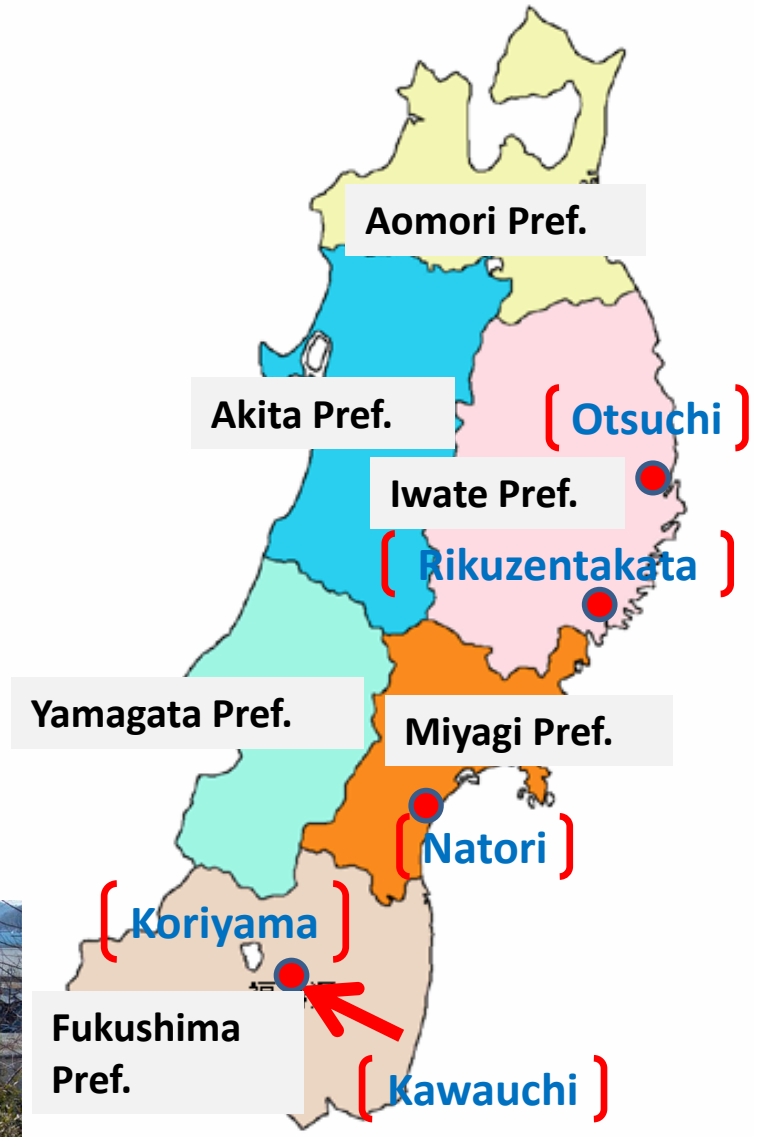
(Rikuzentakata)



(Rikuzentakata)

Affected Sites in the Great East Japan Earthquake

Otsuchi



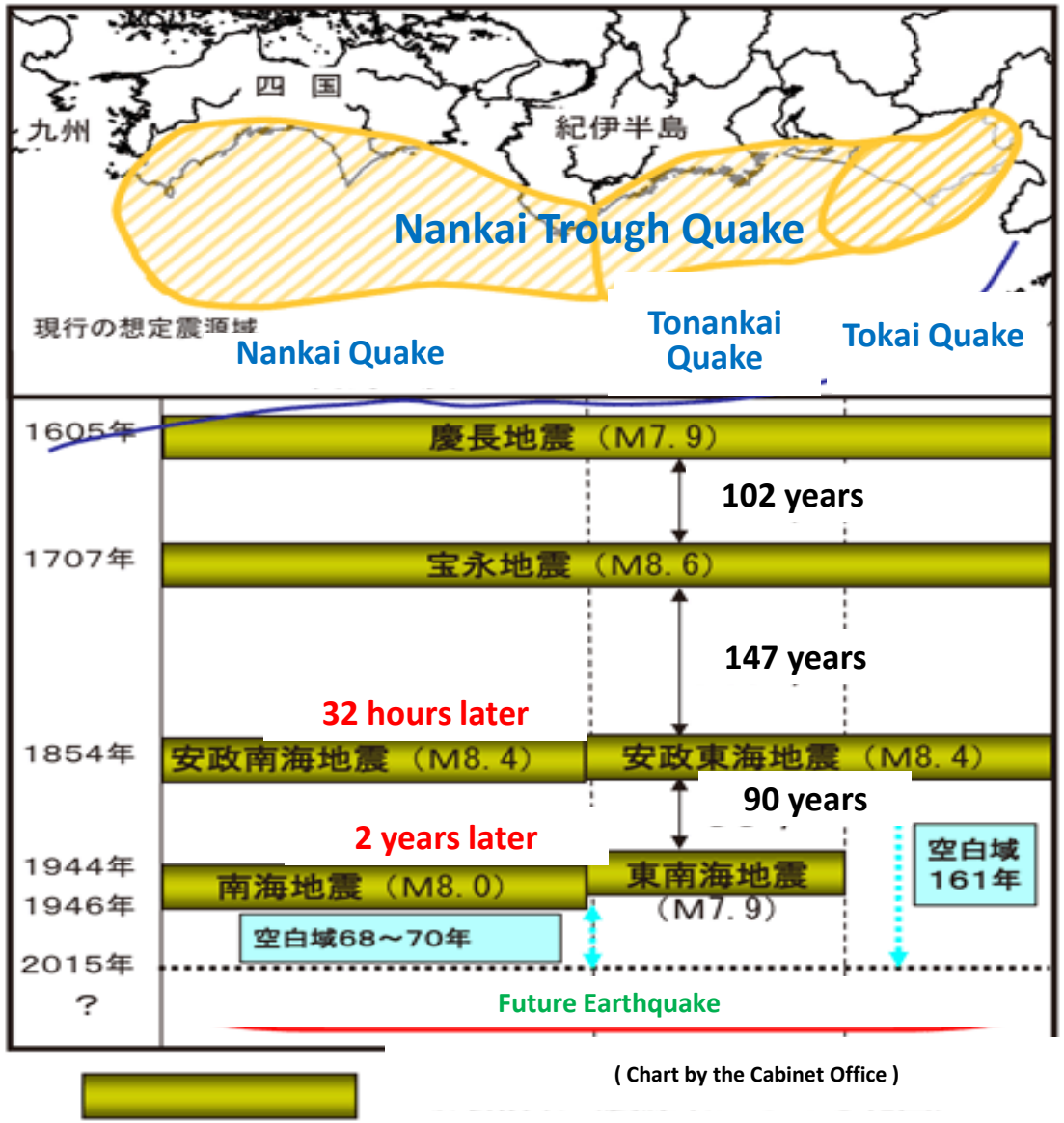
Natori

Recent Earthquake Disasters in Japan (Except for the 1995 Hanshin Awaji and the 2011 Great East Japan Earthquakes)

1. Tottori West Quake (Jun. 2000, M7.3)
2. Geiyo Quake (Mar. 2001, M6.7)
3. Miyagi Offshore Quake (May 2003, M7.1)
4. Tokachi Offshore Quake (Sep. 2003, M8.0)
5. Niigata Chuetsu Quake (Oct. 2004, M6.8)
6. Fukuoka West Offshore Quake (Mar. 2005, M7.0)
7. Noto Peninsula Quake (Apr. 2007, M6.9)
8. Niigata Chuetsu Offshore Quake (Jun.2008, M6.8)
9. Iwate/Miyagi Inland Quake (Jun. 2008, M7.2)
10. Great East Japan Quake (Mar.2011, M9.2)
11. Kumamoto Quake (Apr. 2016, M7.3)
12. Northern Osaka Quake (Jun. 2016, M6.1)
13. Hokkaido Eastern Iburi Quake (Sep. 2018, M6.7)
14. Fukushima Offshore Quake (Feb. 2021, M7.3)
15. Fukushima Offshore Quake (Mar. 2022, M7.4)

- Japan has entered seismic activity period.
- Many inland earthquakes are said to be signal before huge disasters in the ocean trench.

Japan's Destiny against Earthquake Disaster



(Chart by the Cabinet Office)

Future Huge Earthquake Disasters in Japan

Nankai Trough Earthquake (Event probability: 70-80% within the next 30 years)

- Estimated deaths/missing: 323,000
- Estimated totally collapsed or burned houses: 2,500,000
- Estimated damage: 1.7 trillion USD

Tokyo Metropolitan Earthquake (Event probability: 70% within the next 30 years)

- Estimated deaths/missing: 23,000
- Estimated totally collapsed or burned houses: 610,000
- Estimated damage: 1 trillion USD

We aim the damage would be reduced by 50 to 80% through disaster risk reduction activities, mainly through early evacuation and earthquake-resistant building.

Various Types of Disasters

	Earthquake	Typhoon or Rainfall	Volcanic Eruption	Snowfall	Tornado or Strong wind	Others	Total
FY2012	0	3	0	1	1	0	5
FY2013	1	4	0	1	1	0	7
FY2014	1	4	1	1	0	0	7
FY2015	0	4	3	0	0	0	7
FY2016	2	4	0	0	0	0	5
FY2017	0	4	1	1	0	0	6
FY2018	3	3	1	0	0	1	8
FY2019	0	1	0	0	0	0	1
FY2020	1	6	0	1	0	0	8
FY2021	1	3	0	3	0	0	7

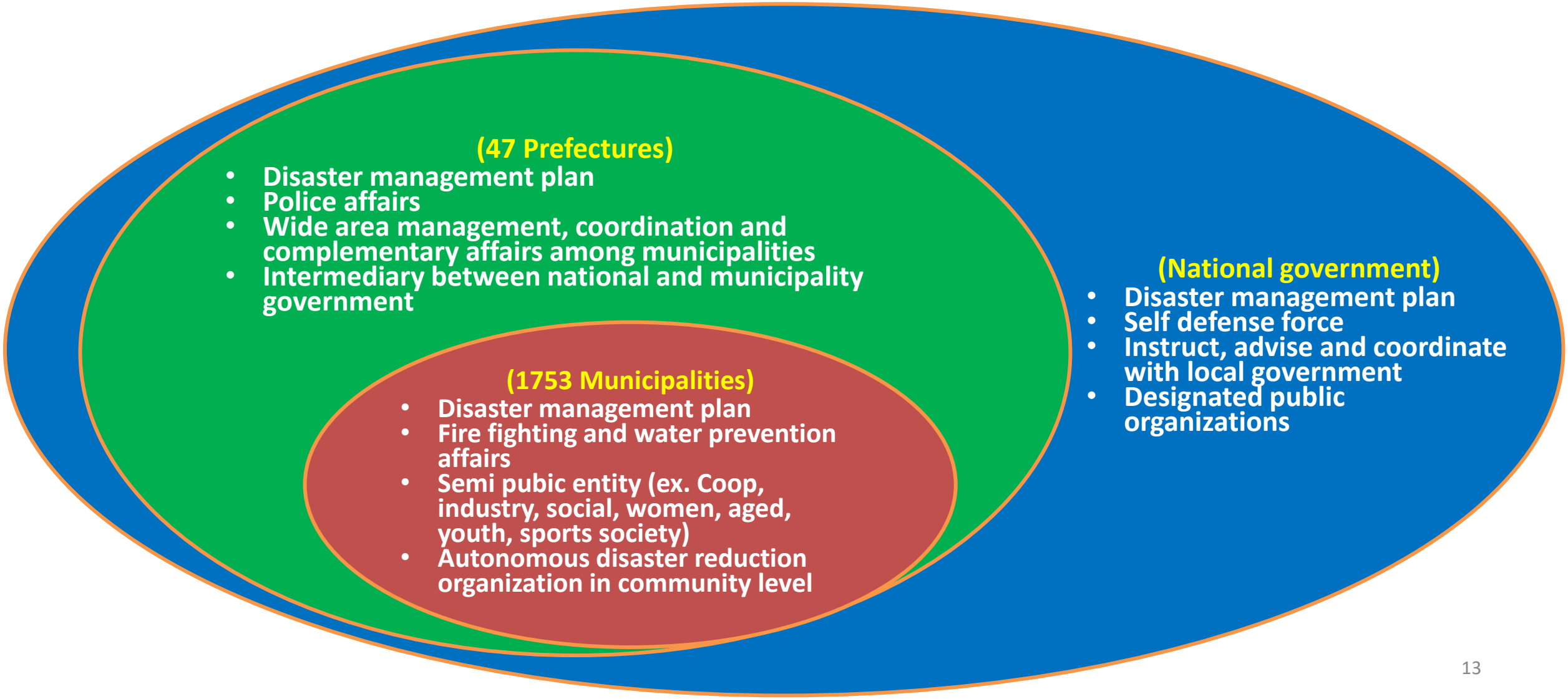
Disaster Countermeasure Basic Act

DCBA is the basis for disaster management in Japan. It was established in 1960, after the Isewan typhoon disaster happened in the previous year.

The main contents of the act are as follows;

1. **Definition of jurisdictions and responsibilities for disaster management**
2. **Disaster management system**
3. **Disaster management plan**
4. **Disaster preparedness**
5. **Disaster emergency response**
6. **Disaster recovery**
7. **Financial measures**
8. **State of emergency**

Role of National & Local Government by Disaster Countermeasure Basic Act



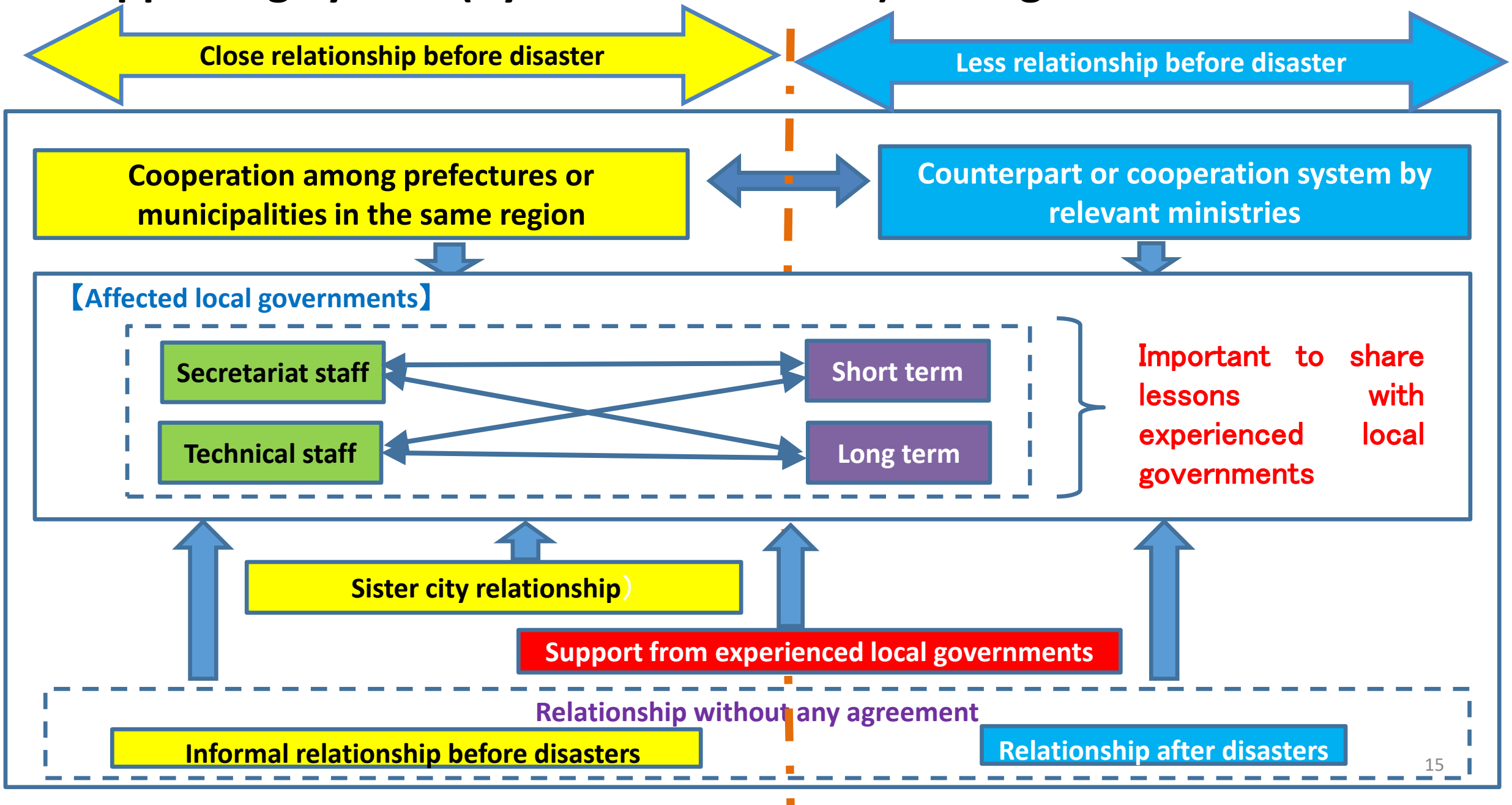
Disaster Countermeasure Basic Act

【Main Revision after the 2011 Great East Japan Earthquake】

1．Strengthening capacity of responding to disaster

- **Original Basic idea: municipality ➡ prefecture ➡ national government (=Bottom-up approach)**
- **However, national or prefecture government should launch response activities without request from municipality or prefecture one.**
- **National or prefecture government can implement activities on behalf of prefecture or municipality one.**
- **Supporting system should be developed among local governments.**

Supporting System (by Human Resource) among Local Governments



Disaster Countermeasure Basic Act

2. Ensuring smooth and safe evacuation

- **Municipality should designate temporary evacuation sites (A) as well as evacuation shelter ones (B) in advance.**
- **Municipality should share victim's personal information of people in need (ex. aged, disabled) among relevant organization.**

(A) Site to save lives against impending disasters（ex. hilly site, rooftop of building)
(B) Site to stay for a certain period by disaster (ex. school gymnasium, hotel)

Disaster Countermeasure Basic Act

3. Improving countermeasure to protect disaster victims

- Municipality should improve environment of evacuation sites for victims to stay longer.
- Municipality should develop victim records to share personal information among relevant support organizations.

4. Strengthening disaster management capacity in normal times

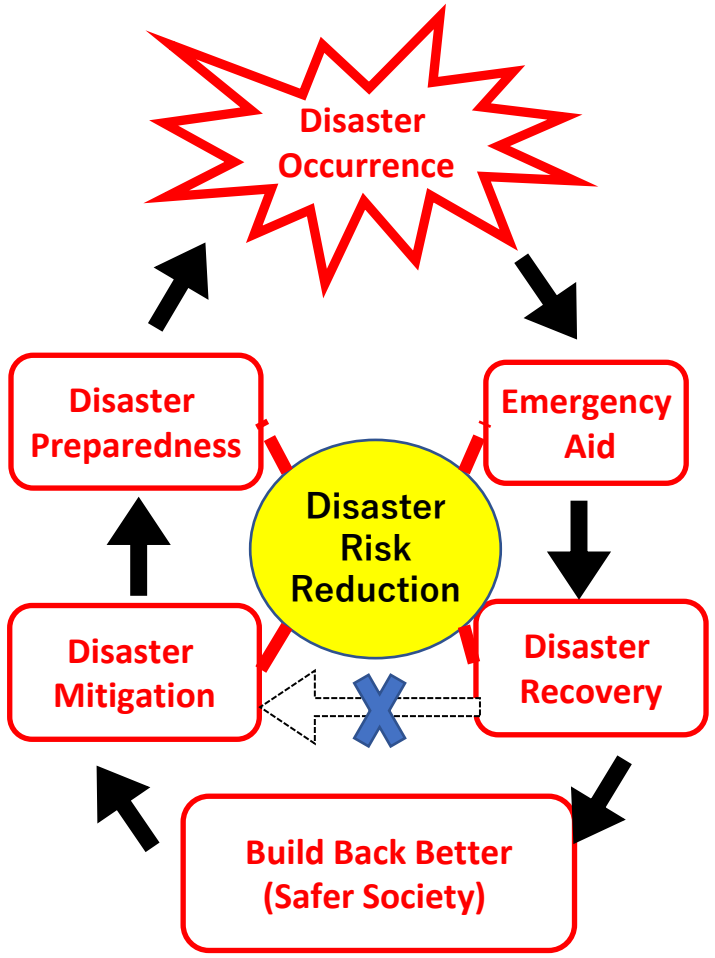
- Disaster education or drill
- Community disaster management plan
- Cooperation with volunteers
- Cooperation agreement with private business companies

Disaster Management Plan (Stipulated by DCBA)

1. The Basic Disaster Management Plan (national level)

- It is the foundation of the nation's disaster management measures.
- It was revised entirely, based on the lesson from the 1995 Great Hanshin-Awaji Earthquake.
- It clarifies the duties assigned to the national government, public corporations and the local government in implementing measures.
- It also describes the sequence of disaster countermeasures such as preparation, emergency response, recovery and reconstruction, according to the type of disaster (earthquake, flood and storm, volcano, snow, and several accidents).

【Disaster cycle】



Disaster Management Plan

2. The Disaster Management Operation Plan

- **It is a plan made by each ministry and designated public corporations (ex. Bank of Japan, electric or gas companies, JR and Japan Red Cross).**

3. Local Disaster Management Plan on prefecture level

4. Local Disaster Management Plan on municipality level

5. Community Disaster Management Plan

- **Not compulsory but encouraged to promote mutual activities (by the Disaster Countermeasure Basic Act revised after the 2022 Great East Japan Earthquake)**
- **Each community can stipulate its content based on their characteristics (ex. disaster drill, stockpile of goods or materials)**

Public Organizations to Respond to Disaster

1. Fire fighting agency

- Municipality basis, in principle
- In huge disasters, emergency fire response teams are dispatched to severely affected sites under the control of national fire fighting agency.
- Fire brigade comprising of local people (voluntary, special public servant)

(Photos by Tokyo Fire Fighting Agency)

2. Police

- Prefecture basis
- Instructing evacuation, rescuing people, searching missing people, autopsy, ensuring traffic

(Photo by Kanto Region Police Bureau)

Public Organizations to Respond to Disaster

3. Self Defense Force

- SDF troops are, in principle, dispatched, according to the request from prefecture governors.
- In the emergency time, municipality mayors can directly ask SDF to dispatch their troops.
- In other cases, the Ministry of Defense can dispatch the troops, based on the laws (ex. huge earthquake, nuclear power accident)

Photos by SDF

4. JAPAN Coast Guard

- Search and rescue activities at sea
- Transporting relief goods
- Assessment of marine geological survey

Photos by JCG

Public Organizations to Respond to Disaster

5. TEC-FORCE (Technical Emergency Control Force)

- The Ministry of Land, Infrastructure, Transport and Tourism dispatch their professional staff to support technical matters to assess damage situation and implement recovery projects instead of municipal staff.

(Photos by TEC FORCE)

6. DMAT (Disaster Medical Assistance Team)

- Medical team consisting of emergency physician, nurse and logistic secretariat
- They are dispatched to affected sites to support medical care, coordinate medical resources, including sending injured to non-affected hospitals.

(Photos by JICA)

Disaster Relief Act

1. Evacuation shelter

- Elementary & Junior high school, community center, hotel
- Facility: partition, TV, public phone, temporary laundry room, temporary kitchen, toilet
- Evacuation shelter with special care service : welfare facility for aged or disabled

Disaster Relief Act

2. Temporary house

1) Temporary house by construction

- Prefabricated structure (standard), Wooden structure transformed into permanent housing, shipping container home, mobile home
- **Width (standard)**：29.7㎡（2 bedrooms, kitchen, bathroom and toilet)
- **Facility**：air conditioner, stove, washing machine, TV, rice cooker, microwave, water boiler
- Temporary community center, temporary shop, clinic or other facilities

2) Temporary house by making use of rental apartment

- Time-consuming, easy to find
- Victims are scattered, isolation

Disaster Relief Act

3. Food and water provision

- Bento (boxed meal with rice and side dish), bred, in principle (in large amount beforehand, equally, immediately delivered)
- Emergency food or cooked food
- Drinking, domestic and medical water

(Photos by Rakuten)

4. Cloth, bedding, other daily necessities

5. Medical and midwifery service

6. Search and rescue activities

Disaster Relief Act

7. Temporary housing repairment

- **Repairing living room, kitchen and toilet**

8. School supplies

- **Textbook, teaching materials, stationary, school bag**

9. Burial

10. Search and cope with corpse

11. Removing debris

Cooperation between Public and Private Sector
Lesson from the Great Hanshin Awaji Earthquake

1. The 1995 Great Hanshin Awaji Earthquake revealed the limit of government capacity, especially to support recovery of individual victim.
2. Voluntary activities by NPO or NGO have developed as disasters repeatedly hit Japan.
3. Community is also a place where mutual support is implemented by neighbors.

(Characteristics of mutual support)

- Close to people
- Expertise
- Network

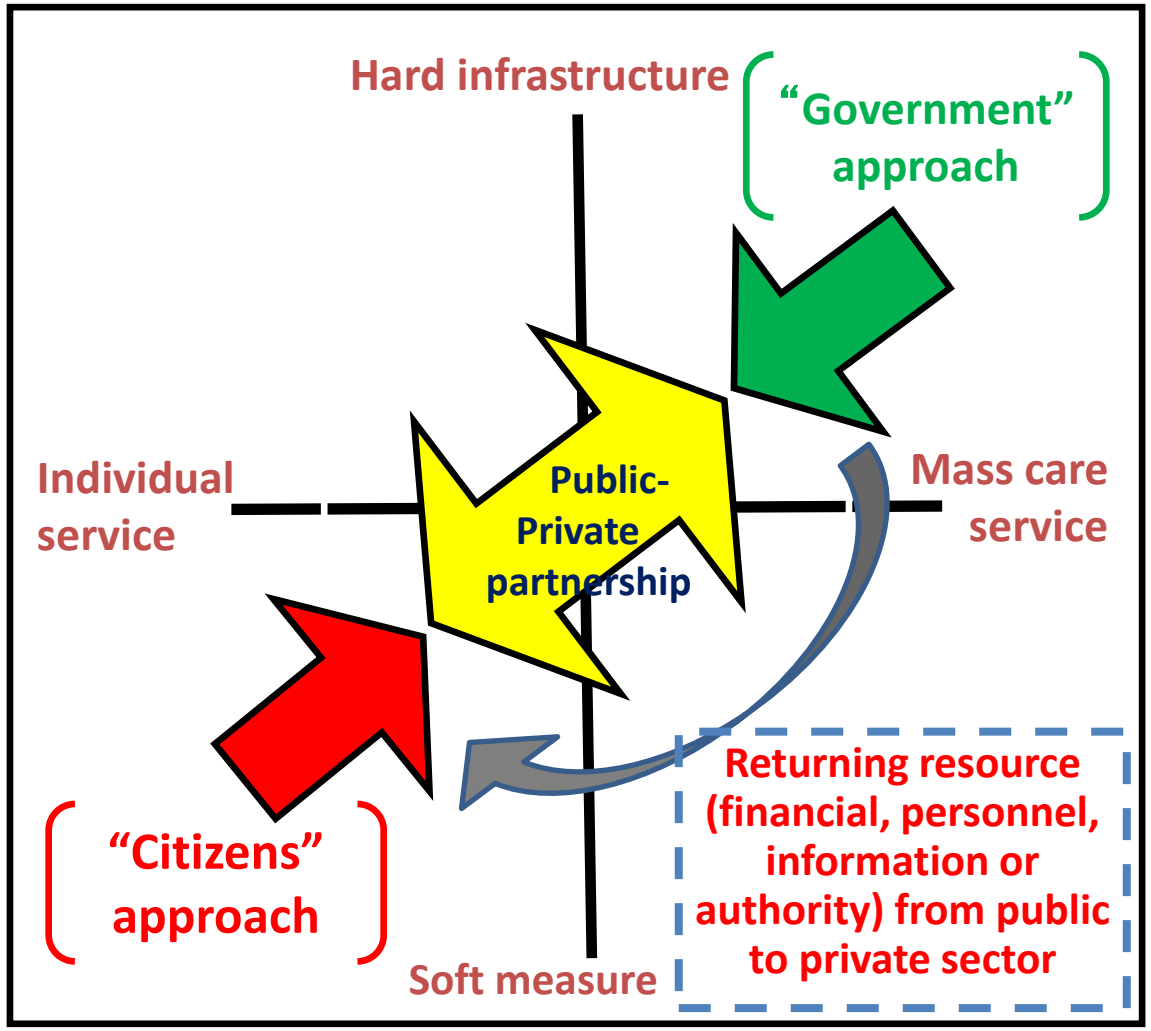
4. Self support has been strengthened through disaster education or public awareness.

Cooperation among Public, Mutual and Self Support

(Challenges)

1. **In general, more people are not interested in disaster risk reduction. They tend to depend on government activities (= Government should do everything).**
2. **Although people who engage in mutual or self support are increasing, they lack of necessary resources (financial, personnel, information or authority).**
3. **Government priority is not always strong (administrative and financial reform)**

Cooperation among public, mutual and self supports （Both “bottom-up” and “top-down” approaches)



Sharing roles between public and private sectors

1. The government puts high priority on institution building for public interest (mass care service).
2. Hard infrastructure also should be developed by the government.
3. Citizens (volunteers) launch support to each victim as individual service.
4. They can get access to privacy of victims when they build personal relationship, which is supported by soft measure.
5. Approach by both sectors lead to “public-private partnership”.
6. The government should repay its resource to citizens.

Thank you for your attention !

If you have any enquiries, please do not hesitate to contact to me

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