

2. Outline of Disaster Prevention Policies in Japan

OUTLINE OF DISASTER PREVENTION POLICIES IN JAPAN

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I. National Land and Disasters in Japan

1. Disaster-prone country

(1) An insular country situated along the Eurasian continent

Japan is situated along the eastern rim of the Eurasian continent and is an insular country with many mountains extending from north to south. Due to this situation, it is influenced by air mass on the continent and another on the Pacific Ocean, featuring significant seasonal variations.

In particular, Japan has suffered from frequent torrential rains which are brought by seasonal rainfronts and typhoons. In the wintertime, the area along the Japan Sea sustains damage from heavy snowfall.

(2) A mountainous country

Mountains, volcanoes and plateaus account for 3/4 of the national land. Consequently, the majority of the people in Japan inhabit lowlands, plateaus and terraces unavoidably.

Streams of rivers in this mountainous country are so fast that a great deal of earth and sand are flowed out.

(3) A country situated in the circum-pacific seismic zone

As Japan is situated in the circum-pacific seismic zone, some 10% of earthquakes of the world occur in Japan and its periphery. A great earthquake of M8 class recurs every 10 years and a large-scale one of M7 class once a year. An earthquake sometimes causes tsunamis which may bring the damages.

(4) Country abundant with volcanoes

Japan has 83 active volcanoes which account for some 10% of all volcanoes in the world. Some people living near the volcano have frequently suffered from ashfalls, swarms of earthquakes, etc.

2. Disaster conditions

Loss of life caused by natural disasters in Japan has shown a remarkable decreasing trend during the past 30 years. Recently annual death toll by natural disasters is around 100. Figuring the numbers of casualties and missing by type of disaster, landslides and snowfall are the 2 major causes of deaths.

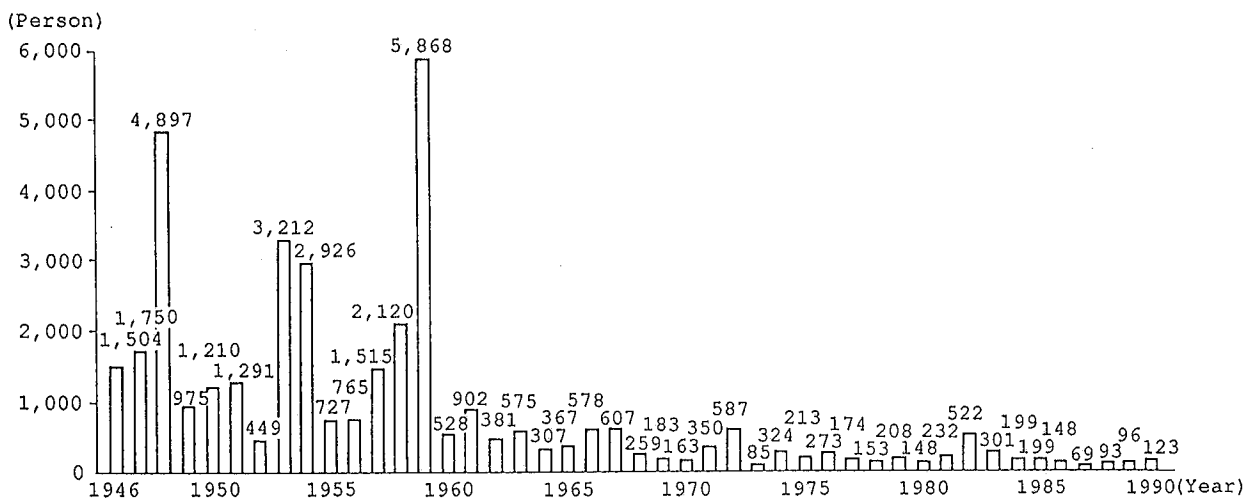


Fig. 1 Annual Death Toll by Natural Disaster

The ratio of property loss to the GNP of Japan has also been decreasing. This favorable trend is attributed not only to the fact that Japan has not been attacked by severe disasters since 1960, but also to the great investments in land conservation works, the establishment of disaster prevention systems, the advances in R&D in the field of disaster prevention, etc.

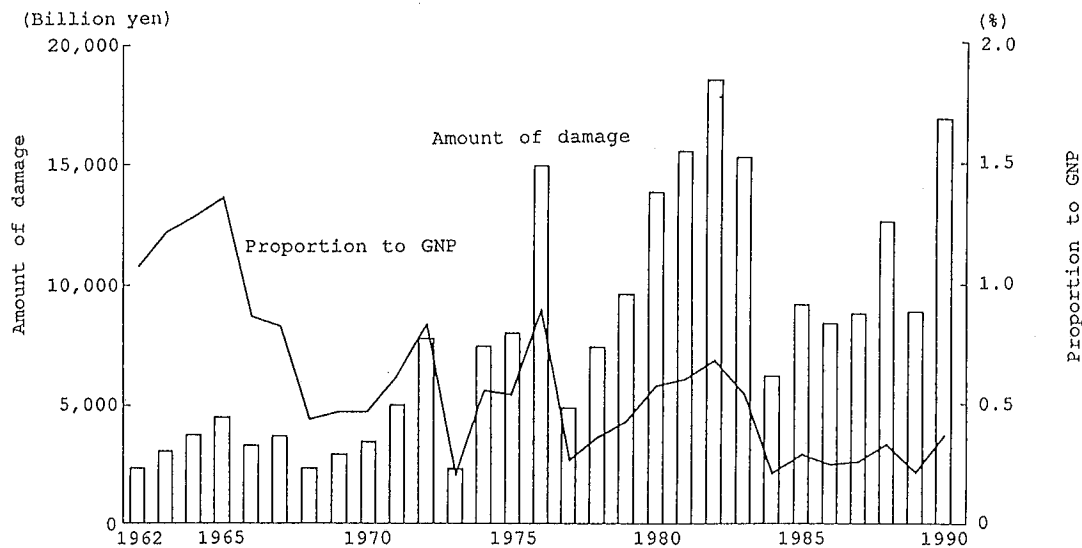


Fig. 2 Amount of Damages to Properties and its Ratio to GNP

II. Basic Framework of Disaster Prevention

1. Disaster countermeasures basic act

Since the late 1940s, Japan had been struck by various severe disasters. Such experiences were followed by many reports and recommendations for the reinforcement and consolidation of national disaster prevention systems.

In the meantime, the Ise-wan typhoon of September in 1959 which killed over 5,000 people and caused considerable damages to properties, enhanced the necessity of developing a nationwide and comprehensive system for disaster prevention. As a consequence, the "Disaster Countermeasures Basic Act" was enacted in November of 1961.

The act contains:

- o Definitions of the jurisdiction and responsibility for disaster prevention,
- o Disaster prevention system,
- o Disaster prevention plan,
- o Disaster preparedness,

- o Disaster emergency measures,
- o Disaster recovery measures,
- o Fiscal measures, and
- o State of emergency.

The Disaster Countermeasures Basic Act defines "disasters" as "damages caused by storms, heavy rainfalls, floods, high tides, earthquakes, tsunamis, volcano eruptions and other abnormal natural phenomena or large scale incidents'. "Large-scale incidents' include big fires or explosions, discharges of a large quantity of nuclear substances, shipwrecks with many passengers and so on.

Table 1 Legislative History of Disaster Prevention

Year	Name of Act (big disasters etc.)
1880	the Provision and Saving Law
1896	the River Law
1897	the Erosion Control Law the Forest Law
	} major conservation laws
1899	the Disaster Preparation Funds Special Account Law
1923	(the Kanto earthquake)
1947	the Disaster Relief Law
1948	the Fire Defense Law
1949	the Flood Prevention Law
1950	the Temporary Measures Law for Funding of Recovery Works for Agriculture, Forestry and Fishery Facilities Damaged by Disasters
1951	the Law for Funding of Recovery Works for Civil Engineering Facilities Damaged by Disasters
1955	the Temporary Measures Law for Financing Farmers, etc. Suffered from Natural Disasters
1959	(the Ise-wan typhoon)
1960	the Emergency Measures Law for Antiflood Afforestation and Water Conservation
1961	the Disaster Countermeasures Basic Act
1973	the Act on Special Measures for Active Volcanos
1975	the Law on Prevention of Disaster in Petroleum Industries Complexes
1978	the Large-scale Earthquake Countermeasures Act

2. Organizations of the promotion of comprehensive disaster prevention activities

In Japan, disaster prevention activities involve a large number of agencies and people. In order to make these activities effective, the Government, local governments, public corporations, private companies, residents, etc. must cooperate altogether, and it is important to ensure consistency and comprehensiveness of these activities.

As of March 1992, 29 administrative organs and 37 public corporations are designated as disaster prevention related agencies (Table 2).

The following organizations have been established pursuant to the Disaster Countermeasures Basic Act (except Autonomous Disaster Prevention Organizations of Residents).

(1) Central disaster prevention council

In order that the government can manage important matters related to disaster prevention, the Central Disaster Prevention Council was established. With the Prime Minister as chairperson and the heads of Designated Administrative Organs as members, the Council is required to deliberate important matters concerning disaster prevention including formulation and promotion execution of the Basic Plan for Disaster Prevention.

(2) Organizations on local level

Disaster Prevention Councils and Petroleum Complexes Disaster Prevention Headquarters were established on the prefectural level with the prefectural governors as chairperson and with representatives of the prefectural governments, Designated Local Administrative Organs, municipalities, police agencies, fire fighting agencies and Designated Public Corporations as members. Municipal Disaster Prevention Councils were established at the municipal level. These councils are to promote comprehensive

disaster countermeasures on a local basis. As of April 1989, these councils are set up in all prefectures and in 3205 of 3263 municipalities.

(3) Headquarters for disaster countermeasures

When a severe disaster occur, Headquarters for Disaster Countermeasures are to be established on the municipal, prefectural and national level depending on the condition of the disaster, to take appropriate and rapid emergency measures for the disasters.

(4) Earthquake Disaster Warning Headquarters

When an earthquake warning is issued under the provisions of the Large-scale Earthquake Countermeasures Act, the Government and relevant local governments are to establish their own Earthquake Disaster Warning Headquarters and implement emergency countermeasures against the earthquake disaster.

(5) Autonomous disaster prevention organizations of residents

In order to reduce damages from disasters the autonomous disaster prevention activities of residents play an important role. The number of autonomous disaster prevention organizations based on the voluntary solidarity of local residents is favorably increasing recently (Fig. 3).

As of April 1991, about 42% of the households are participated in the autonomous disaster prevention organizations.

Table 2. Designated Administrative Organs and Designated Public Corporations

Designated Administrative Organs (29 organs)	
Prime Minister's Office	Ministry of Health and Welfare
National Public Safety Commission	Ministry of Agriculture, Forestry and Fisheries
National Police Agency	Ministry of International Trade and Industry
Management and Coordination Agency	Agency of Natural Resources and Energy
Hokkaido Development Agency	Small and Medium Enterprise Agency
Defense Agency	Ministry of Transport
Economic Planning Agency	Maritime Safety Agency
Science and Technology Agency	Meteorological Agency
Environment Agency	Ministry of Posts and Telecommunications
Okinawa Development Agency	Ministry of Labour
National Land Agency	Ministry of Construction
Ministry of Justice	Ministry of Home Affairs
Ministry of Foreign Affairs	Fire Defense Agency
Ministry of Finance	
Ministry of Education	
Agency for Cultural Affairs	
Designated Public Corporations (37 bodies)	
Nippon Telegraph and Telephone Corporation	
The Bank of Japan	
The Japanese Red Cross Society	
Japan Broadcasting Corporation (NHK)	
Japan Highway Public Corporation	
Metropolitan Expressway Public Corporation	
New Tokyo International Airport Authority	
Power Reactor and Nuclear Fuel Development Corporation	
Japan Atomic Energy Research Institute	
East Japan Railway Company Ltd.	
Tokyo Gas Co., Ltd.	
The Tokyo Electric Power Company, Inc.	
others	

Fig. 3. Share of Households Organized in Autonomous Disaster Prevention Organizations of Residents

	1980	1985	1990	1991
Share	21.0	33.7	40.5	41.8

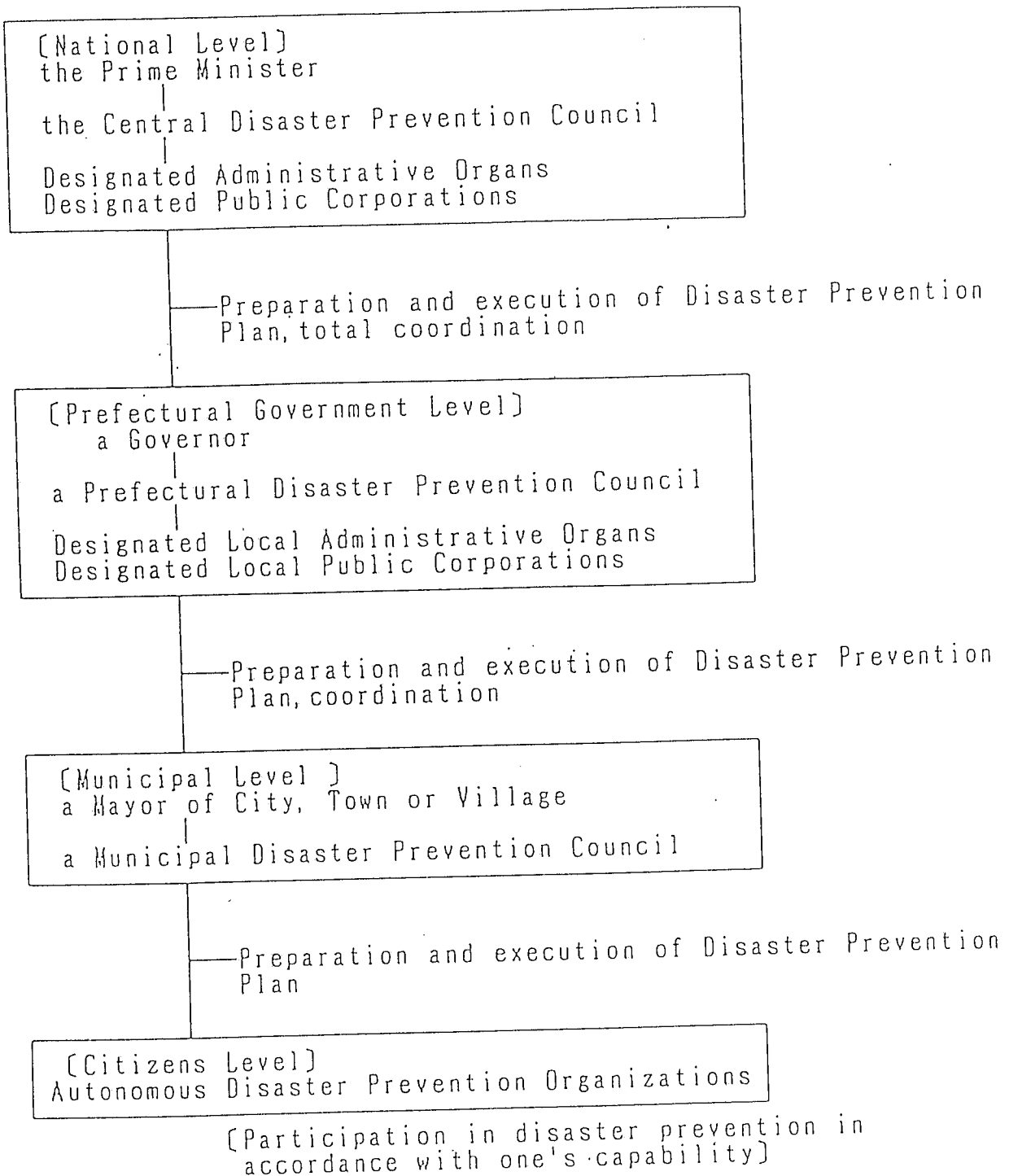


Fig. 4 The Basic Structure of Disaster Prevention related Organizations

3. Important plans for disaster prevention

Disaster prevention councils and designated organizations are required to make their own disaster prevention plans. Based upon these plans, they are engaged in improving disaster prevention systems, installing necessary observation equipment, telecommunications equipment, fire fighting equipment and flood defense facilities, and actively carrying out disaster prevention exercise. It is also necessary for organizations concerned and local residents to understand these plans in advance.

At present, as seen in Table 3, major plans include disaster prevention plans based on the Disaster Countermeasures Basic Act, earthquake disaster prevention plans based on the Large-scale Earthquake Countermeasures Act, and petroleum complexes disaster prevention plans based on the Law on Prevention of Disaster in Petroleum Industrial Complexes. These plans are reviewed each year and are revised if necessary.

(1) The Basic Plan for Disaster Prevention

The Basic Plan for Disaster Prevention provided by the Central Disaster Prevention Council is a master plan on which various disaster prevention plans are based. This "Basic Plan" presents the basic policies for establishment of the disaster prevention system, promotion of disaster prevention operations, acceleration and adaptation of disaster recovery, promotion of scientific and technological research and development on disaster prevention, and matters to be emphasized on Operational Plan for Disaster Prevention and Local Plan for Disaster Prevention.

(2) The Operational Plan for Disaster Prevention

The Operational Plan for Disaster Prevention is the plan on an operational basis made by each Designated Administrative Organ or Designated Public Corporation according to the Disaster Countermeasures Basic Act and the Basic Disaster Prevention Plan.

(3) The Local Plan for Disaster Prevention

The Local Plan for Disaster Prevention is the plan that describes what is to be done to prevent disasters in a prefecture or municipality. This plan is made by a Local Disaster Prevention Council or a head of municipality based on the Basic Plan for Disaster Prevention.

This plan describes more specific countermeasures. For instance, Emergency measures in the event of a disaster include information transmission, evacuation, rescue of victims, preparation for supplies needed for day-to-day living, medical care, prevention of epidemics and traffic measures.

(4) Earthquake Disaster Prevention Plans

Earthquake Disaster Prevention Plans include the Basic Plan of Earthquake Disaster Prevention, an Intensified Plan of Earthquake Disaster Prevention and a Short-term Plan of Earthquake Disaster Prevention. They are made by each national and local public organization or body which manages important disaster prevention facilities.

(5) Petroleum Complexes Disaster Prevention plan

A petroleum Complexes Disaster Prevention Plan is made by Petroleum Complex Disaster Prevention Headquarters and their council. This plan describes the disaster prevention systems and organizations, countermeasures to prevent disasters, emergency disaster countermeasures, etc. for a petroleum complexes and its surroundings.

**Table 3. Major Disaster Prevention Plans
and the Organs Responsible for them**

Legal basis	Plan name	Organs
the Disaster Countermeasures Basic Act	the Basic Plan for Disaster Prevention	Central Disaster Prevention Council (CDPC)
	Operational Plans for Disaster Prevention	Designated Administrative Organs (DAO) Designated Public Corporations (DPC)
	Prefectural Local Plans for Disaster Prevention Municipal Local Plans for Disaster Prevention	Prefectural Disaster Prevention Councils (PDPC) Municipal Disaster Prevention Councils or Heads of Municipalities (MDPC)
the Large-Scale Earthquake Countermeasures Act	the Basic Plan of Earthquake Disaster Prevention	CDPC
	Intensified Plans of Earthquake Disaster Prevention	DAO, DPC, PDPC, MPDC PDCPH, PDCPHC
	Short-term Plans of Earthquake Disaster Prevention	Managers and operators of hospitals, theaters, department stores, etc.
Law on Prevention of Disaster in Petroleum Industrial Complexes	Petroleum Complexes Disaster Prevention Plans	Petroleum Complexes Disaster Prevention Headquarters (PCDPH) PDCPH Councils (PDCPHC)

4. National budget for disaster prevention

The national budgetary outlay required for implementing policies such as research and development on disaster prevention, disaster preparedness, national land conservation, disaster emergency and recovery measures. (hereinafter referred to as "the disaster prevention related budget") was ¥3.1 trillion in FY 1990. As Fig. 5 shows, the disaster prevention related

budget has shown a rising trend, but the ratio of it to the entire budget has fallen from about 8% in mid-60s to about 5% level.

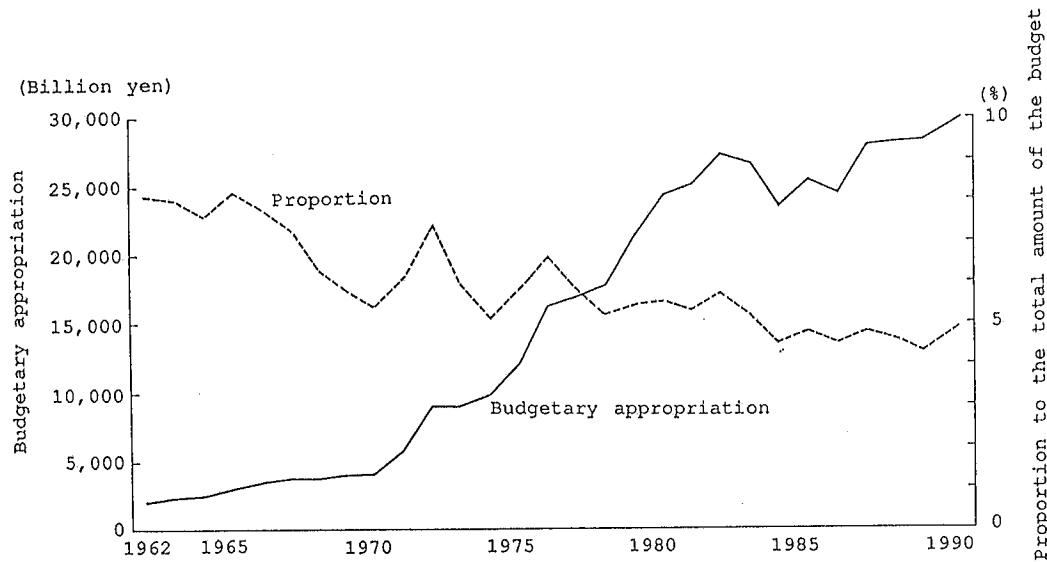


Fig. 5. Trends in the Disaster Prevention Related Budget

Fig. 6 shows the shares of four sectors such as research and development on disaster prevention, disaster preparedness, national land conservation, and recovery from disasters in the total disaster prevention related budget.

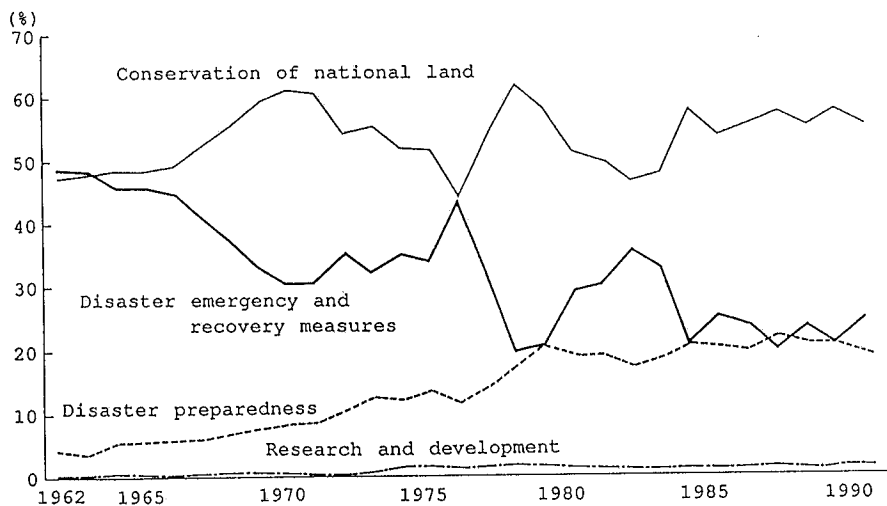


Fig. 6. Trends of Shares of 4 Sectors in the Disaster Prevention Related Budget

III. Current Major Disaster Prevention Measures

1. R&D on disaster prevention

To comprehensively and efficiently promote research and development on disaster prevention with a long-range view, the "Basic Plan for Research and Development on Disaster Prevention" was set forth (decided by the Prime Minister) in July 1981 upon the recommendation of the Science and Technology Council. The Plan is primarily intended for natural disasters, and it specifically provides the areas and targets of research and development to be promoted during the period of ten years hereafter with the goals of establishing the foundation of science and technology on disaster prevention, promotion of research and development with emphasis placed on localization of disaster, promotion of research on urban disasters and comprehensive promotion of research and development on disaster prevention, and the areas of research and development having particular importance given are as shown in Table 4.

Table 4. Research and Development Areas on which emphasis is to be placed.

Divisions	Areas
Investigation, prediction and forecasting of natural phenomena	Prediction of earthquakes Prediction of volcanic eruption Forecast of heavy rainfall, heavy snowfall and typhoon
Natural disaster prevention technology	Earthquake-proof technology Tsunami disaster prevention technology Ground disaster prevention technology at time of earthquake
Meteorological disaster prevention technology	Flood prevention technology Seashore safety technology Snow and ice damage prevention technology Technology for preventing landslides and rockslides Technology for dealing with abnormal weather
Science and technology on comprehensive disaster prevention	Technology for making cities resistant to disaster Technology for controlling transport equipment etc. in the event of earthquake Technology for preventing secondary disasters Technology for dealing with movement of people in the event of disaster

2. Disaster preparedness

(1) Disaster prevention exercise

"Comprehensive Exercise of Disaster Prevention" has been carried out on the 1st day of September every year by Designated Administrative Organs, Designated Public Corporations and local governments. Private companies, schools, residents, etc. also participate in this exercise. Other disaster prevention exercises have been frequently carried out in various parts of Japan.

Some Designated Administrative Organs, Designated Public Corporations and so on offer training courses concerning disaster prevention for their own staff, in some cases including people who are not members of their staff.

- (2) Enhancement of the awareness of disaster prevention and dissemination of knowledge on disaster prevention

In order to enhance the awareness of disaster prevention and disseminate the knowledge on disaster prevention, various activities have been carried out as follows:

- o Public relations,
- o Designation of a Disaster Prevention Week and a Disaster Prevention Day,
- o Disaster prevention fairs,
- o Contests of disaster prevention posters,
- o Compilation of the White Paper on Disaster Countermeasures, and
- o Others.

- (3) Development and improvement of disaster prevention facilities and equipment

In order to strengthen the capacity of each body concerned to prevent and mitigate disasters, each body has made efforts to improve its facilities, equipment and systems for disaster prevention such as telecommunication networks, weather observation systems and equipment, warning systems, fire-fighting facilities and equipment and various types of transportation machines.

In particular, a Disaster Prevention Radio Communication Network (DPRCN) has been established to collect and transmit information among Designated Administrative Organs, Designated Public Corporations, local governments and residents to provide for a

case that a major disaster breaks out and thereby the public telephone service would become hardly available.

The DPRCN consists of following networks:

- o the Central DPRCN which is set up-by NLA and linking the ministries, agencies and designated public corporations,
- o the DPRCN for fire fighting among Fire Defense Agency and prefectural governments,
- o prefectural DPRCN which is set up and operated by respective prefectural government,
- o municipal DPRCN which is set up and operated by each municipality, and
- o others.

Also, efforts are made to promote such projects as to make buildings less flammable, develop evacuation sites and routes, remodel urban areas and secure open space.

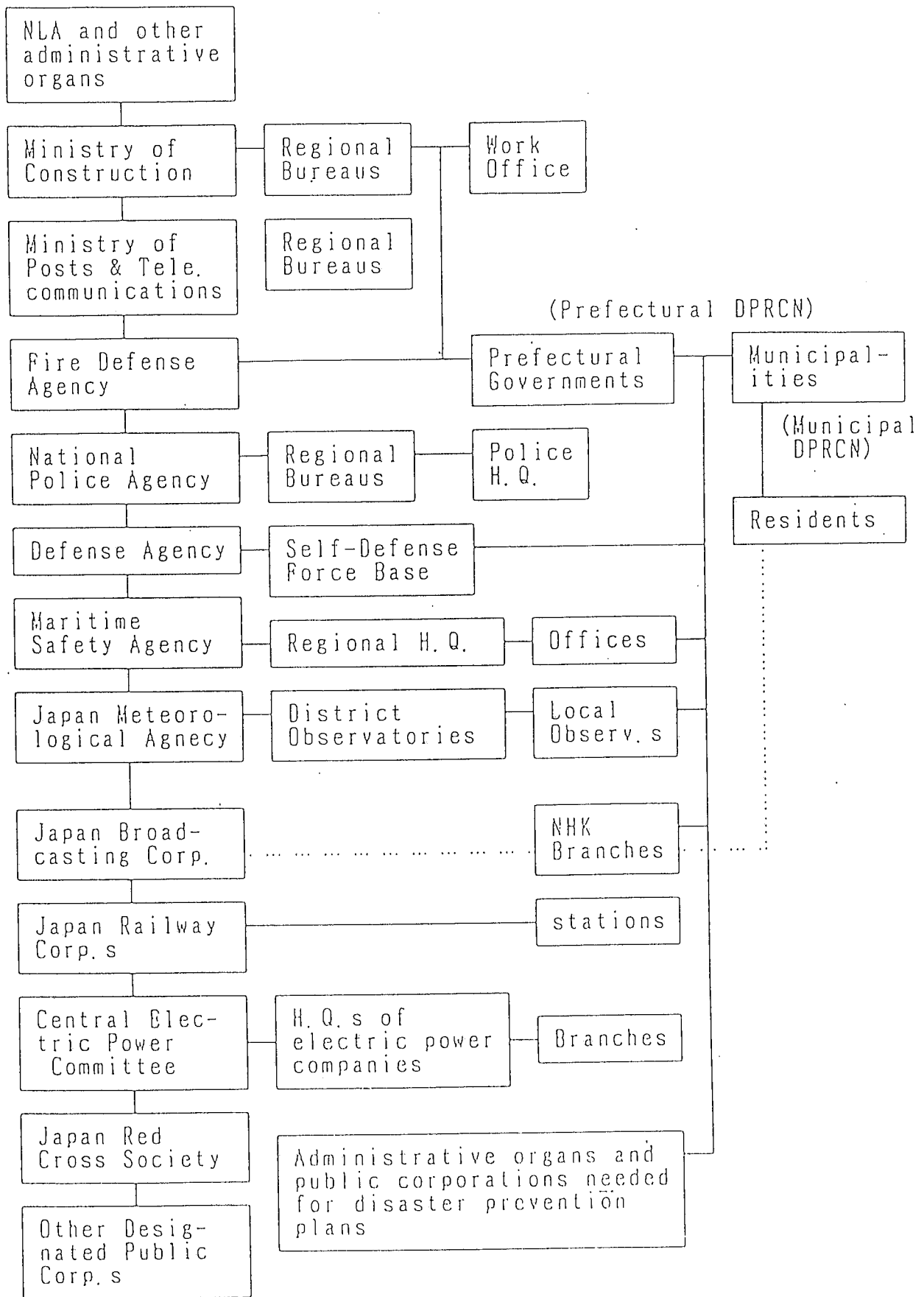


Fig. 7. The Disaster Prevention Radio Telecommunication Network

3. National land conservation

Japan suffers considerable damages brought by earthquakes, floods of rivers and landslides caused by typhoons and heavy rains, etc.. In order to mitigate these kinds of damages, it is surely effective to invest in the conservation of the national land.

Actually a very large amount of investment extending over a long period of time has been made in accordance with the national plans as seen in Table 5.

Table 5. Five-year Plans Related to National Land Conservation

plans	no.	period	planned amount (bil. ¥)
Forest Consevation Pro- ject Five-year Plans	1st	1960-64	73
	2nd	1965-69	167
	3rd	1968-72	290
	4th	1972-76	580
	5th	1977-81	1,030
	6th	1982-86	1,470
	7th	1987-91	1,410
Flood Control Project Five-Ye- ar Plans	1st	1960-64	365
	2nd	1965-69	850
	3rd	1968-72	1,500
	4th	1972-76	3,000
	5th	1977-81	5,810
	6th	1982-86	8,250
	7th	1987-91	8,000
Seashore Project Five-year Plans	1st	1970-74	320
	2nd	1976-80	510
	3rd	1981-85	820
	4th	1986-90	760
Steep Slope Col- lapse Counterme- asures Project Five-year Plans	1st	1983-87	390
	2nd	1988-92	500

4. Disaster emergency measures

When a disaster occurs or is about to occur, national agencies, local public organizations, and public corporations are required to cooperate closely:

- o to collect information on the disaster,
- o to issue and disseminate warnings (of storms, etc.),
- o to advise or order evacuation,
- o to carry out fire fighting and flood prevention activities,
- o to rescue and assist victims,
- o to prepare temporary schools for infants and students affected by the disaster,
- o to recover damaged facilities as soon as possible,
- o to keep clean to prevent epidemics, etc.,
- o to head off crimes and maintain social order, and
- o to ensure emergency transport.

rapidly and systematically in order to mitigate the damage.

(1) Headquarters for disaster countermeasures

When a disaster is likely to cause severe damages, Municipal Headquarters for Disaster Countermeasures is set up in the municipality concerned which is directly responsible for carrying out emergency countermeasures against the disaster. In addition, depending on its situation, the Prefectural Headquarters for Disaster Countermeasures or the Headquarters for Major Disaster Countermeasures is set up.

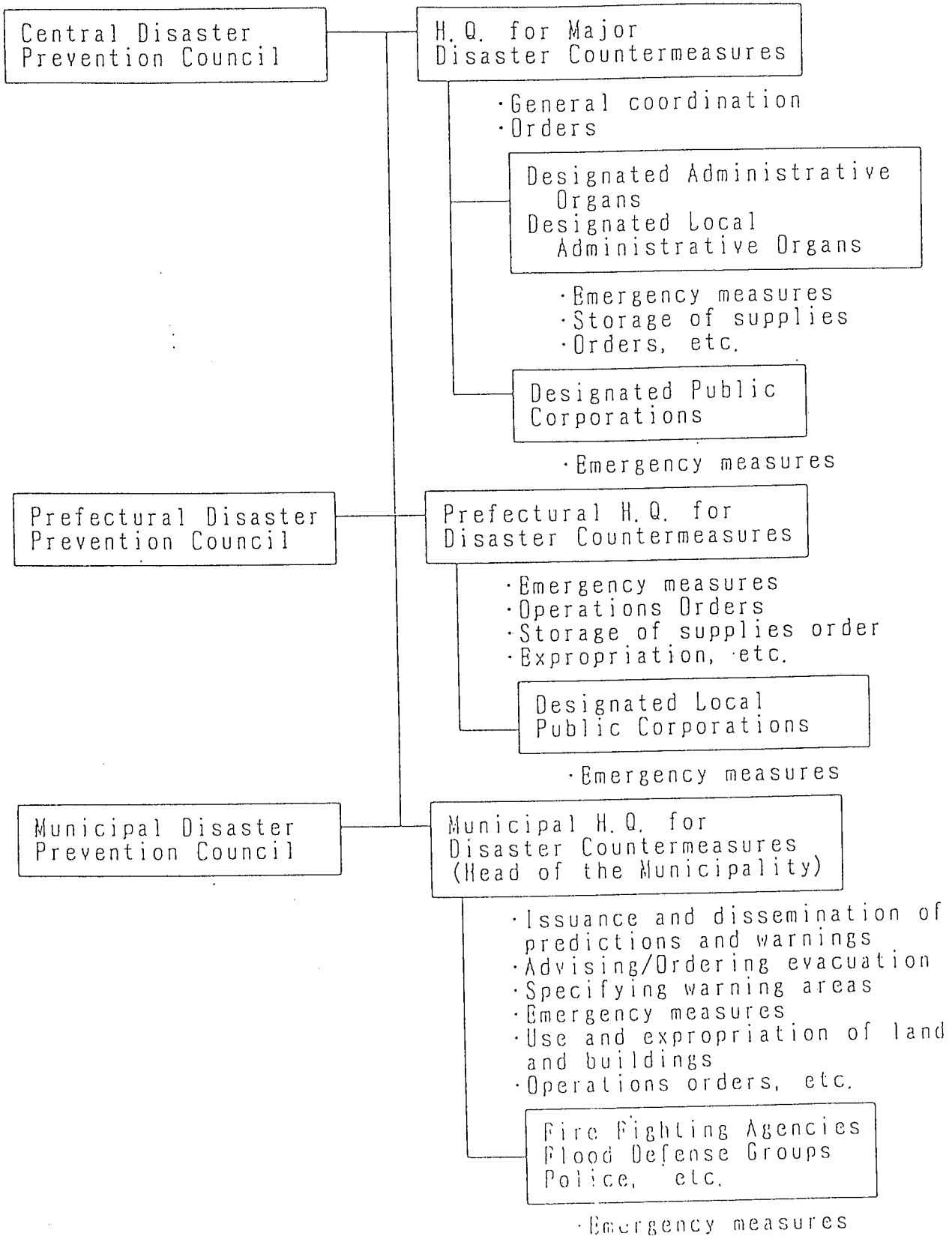


Fig. 8. Emergency Measures When a Severe Disaster Occurs

(2) Application of the Disaster Relief Law

If numerous households affected by a disaster are large relative to the population of a municipality or a prefecture, then the Disaster Relief Law is invoked and measures are taken to aid victims (Table 7).

These measures include:

- o providing accommodations such as emergency temporary housings,
- o providing food and drinking water,
- o providing or loaning clothing, bedding, and other items needed for day-to-day life,
- o medical care,
- o rescuing victims,
- o emergency repairs to victims' houses,
- o providing and loaning funds and tools needed for making living, and
- o providing materials for study.

(3) Payment for solatia

Solatia (condolence money) have been given to families of those killed in natural disasters based on the Law for the Payment of Solatia of Disasters. The number of cases and amount of solatia of natural disasters in recent years are shown in Table 8.

**Table 6. Headquarters for Disaster countermeasures
Set up by Local Governments**

		1985	1986	1987	1988	1989
Prefectural H.Q. for Disaster Countermeasures	Org. s	10	14	7	8	10
	Times	25	19	21	25	32
Municipal H.Q. for Disaster Countermeasures Org. s		1,342	778	899	914	1,132

Table 7. Application of the Disaster Relief Law

	1985	1986	1987	1988	1989
Number of Municipalities Applied to	24	40	8	11	13
Expenditure under the Disaster Relief Act (¥Mil.)	109	812	68	114	41
(Assistance from the National Treasury (¥Mil.))	54	406	34	57	21

Table 8. Payment of Solatia of Natural Disasters

	1985	1986	1987	1988	1989
Number of Cases	132	115	14	31	26
Amount of Solatia Granted (¥Mil.)	280	242	27	59	50
(Assistance from the National Treasury (¥Mil.))	140	121	14	29	25

5. Disaster recovery measures

(1) Designation of extreme-severity disaster

When a serious disaster is designated as the "disaster of extreme severity", various special measures are allowed.

(2) Disaster recovery project

When public engineering facilities, educational facilities, welfare facilities, or agricultural forestry, and fishery facilities are damaged by unusual natural phenomena such as storms, floods, high tides, earthquakes, these facilities shall be mostly recovered to their original forms. In some cases, new facilities will be constructed or old facilities will be improved in order to prevent a recurrence of the disaster.

Disaster recovery project carried out directly by the Government or by local governments with subsidies granted by the Government include:

- o recovery project of public utility facilities,
- o recovery project of agricultural, forestry, and fishery facilities,
- o recovery project of educational facilities,
- o recovery project of welfare facilities, and
- o other recovery project.

Table 9. Loans for Recovery

Recipient	Loan Organs	Loan Name
Farmers, Foresters, Fishermen	Agricultural Cooperatives, City Bank	Working funds, Business funds (Natural Disaster Loan Act)
	Agriculture, Forestry and Fishery Finance Corp.	Owner-cultivator maintenance funds
	Okinawa Development Finance Corp.	Funds for facilities designated by a competent minister (disaster restoration)
Businessmen engaged in smaller enterprises	Smaller Business Finance Corp.	Recovery loans
	Shoko Chukin Bank	Recovery loans
	People's Finance Corp.	Disaster loans
	Okinawa Development Finance Corp.	Funds for facility recovery
Medical care facilities	Social Welfare and Medical Service Corp.	Recovery funds
	Okinawa Development Finance Corp.	Recovery funds
Businessmen in environmental sanitation related business	Environmental Sanitation Finance Corp.	Disaster loans
	Okinawa Development Finance Corp.	Recovery loans
Lower income households	Municipalities, Prefectural Social Welfare Committee	Support funds for recovery
		Household recovery funds
Private social welfare facilities	Social Welfare and Medical Service Corp.	Recovery funds
Private school	Japan Private Schools Promotion Foundation	Recovery expenditures
Residential victims	Housing Loan Corp.	Housing recovery funds
	Okinawa Development Finance Corp.	Housing recovery funds

(3) Disaster loans

Persons engaged in agriculture, forestry and fisheries and smaller enterprises and of lower income who incurred damages will have various loans allowed under generous conditions than are usually allowed.

(4) Disaster compensation

In order to compensate farmers, foresters and fishermen for losses incurred in disasters and to aid in providing stability for their business and recovering their production system, a variety of compensation systems for damages have been established.

Losses of crops, livestock, garden facilities, etc, can be compensated by the Agriculture Mutual Aid enterprise, etc.. Losses of small-scale fishermen can be compensated by the Fisheries Mutual Aid Enterprise, etc.. Losses in unforeseen accidents involving fishing boats can be compensated through fishing boat insurance. Losses to the cargo in fishing boats, for example, the haul of fish, can be compensated through fishing boat cargo insurance. The Japanese government reinsures these insurances.

(5) Earthquake insurance

Earthquake insurance systems have been established to compensate for damages to residential buildings, household effects, etc. due to destruction, fires or landslides caused directly or indirectly by earthquakes, volcanic eruptions and tsunamis. Because there are concerns that a large-scale earthquake could create damages beyond the mortgage and because of the difficulty of measuring the level of danger of earthquakes, the Government reinsures these earthquake insurances.

(6) Tax reduction of exemption

The Government and local governments can take measures such as tax reduction, tax exemption or respite of tax payment for those whose houses or household goods were damaged by disasters.

(7) Measures for Local Governments

The Government can take measures such as delivery special tax allocation and permissions of local bonds for local governments which bear heavy burdens for disaster recovery.

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(NOTE)

Vol. 2 : A Plan for Countermeasures against Earthquake
Disaster

Vol. 3 : A Plan for Countermeasures against Nuclear Disaster

激甚災害の指定基準 (公共土木施設災害復旧事業の場合)

APPLICABLE STANDARDS
OF
EXTREME-SEVERITY DISASTER
(in the case of recovery projects of public utility facilities)

C : 被害を受けた地方公共団体における復旧事業の事業費の査定額の合計
Total assessed cost necessary for the recovery projects by the local governments damaged by the disaster.

$$C = \begin{matrix} C_1 & + & (C_{1,1} + C_{1,2} + \dots + C_{1,M_1}) \\ + C_2 & + & (C_{2,1} + C_{2,2} + \dots + C_{2,M_2}) \\ + C_3 & + & (C_{3,1} + C_{3,2} + \dots + C_{3,M_3}) \\ & & \vdots \\ + C_i & + & (C_{i,1} + C_{i,2} + \dots + C_{i,j} + \dots + C_{i,M_i}) \\ & & \vdots \\ + C_N & + & (C_{N,1} + C_{N,2} + \dots + C_{N,M_N}) \end{matrix}$$

N : Number of prefectures damaged by the disaster

M_i : Number of cities/towns/villages damaged by the disaster in the Prefecture-(i)

C_i : 被害を受けた都道府県 (i) における復旧事業の事業費の査定額
Assessed cost necessary for the recovery projects by the Prefecture-(i) damaged by the disaster.

c_{i,j} : 都道府県 (i) の中の被害を受けた市町村 (j) における復旧事業の事業費の査定額
Assessed cost necessary for the recovery projects by the City/Town/Village-(j) damaged by the disaster in the Prefecture-(i)

T : 全国の地方公共団体の税収入の合計
Total tax revenue of all local governments in Japan

T_i : 被害を受けた都道府県 (i) の税収入
Tax revenue of the Prefecture-(i) damaged by the disaster.

t_{i,j} : 都道府県 (i) の中の被害を受けた市町村 (j) の税収入
Tax revenue of the City/Town/Village-(j) damaged by the disaster in the Prefecture-(i)

Applicable Standards of Extreme-Severity Disaster

Standard (a) : $C > T \times 4/100$

or

Standard (b) : $C > T \times 1.2/100$ AND

There are more than 1 prefectures where $C_i > T_i$

or

Standard (c) : $C > T \times 1.2/100$ AND

There are more than 1 prefectures where
 $\sum_{j=1,2,3,\dots,M_i} c_{i,j} > \sum t_{i,j} \times 25/100$

激甚災害の指定基準の適用例
 EXAMPLE OF DESIGNATION OF
 EXTREME-SEVERITY DISASTER
 (in the case of recovery projects of public utility facilities)

9つの市町村を含む3つの都道府県で被害が発生した
 3 prefectures including 9 cities/towns/villages were damaged by the disaster.

Damaged - Prefecture	City/Town/Village	Cost necessary for recovery projects	Tax revenue	Special financial support **
Pref. 1		$C_1 = 100$	$T_1 = 1000$	×
	City①	$c_{1,1} = 5$	$t_{1,1} = 100$	×
	City②	$c_{1,2} = 45$	$t_{1,2} = 100$	applied
	Town③	$c_{1,3} = 20$	$t_{1,3} = 20$	applied
		$(\Sigma c_{1,j} = 70)$	$(\Sigma t_{1,j} = 220)$	
Pref. 2		$C_2 = 300$	$T_2 = 1000$	applied
	City④	$c_{2,1} = 25$	$t_{2,1} = 50$	applied
	Town⑤	$c_{2,2} = 5$	$t_{2,2} = 80$	×
	Town⑥	$c_{2,3} = 10$	$t_{2,3} = 20$	applied
		$(\Sigma c_{2,j} = 40)$	$(\Sigma t_{2,j} = 150)$	
Pref. 3		$C_3 = 10$	$T_3 = 600$	×
	City⑦	$c_{3,1} = 25$	$t_{3,1} = 300$	×
	Village ⑧	$c_{3,2} = 15$	$t_{3,2} = 200$	×
	Village ⑨	$c_{3,3} = 5$	$t_{3,3} = 100$	×
		$(\Sigma c_{3,j} = 45)$	$(\Sigma t_{3,j} = 600)$	
$C = \Sigma C_i + \Sigma c_{i,j}$				

in the case of ;

$T = 30,000$ (Total tax revenue of all governments in japan)

① $0.012 < C/T = 565/30,000 = 0.019 < 0.04$
 Standard (a) is not applied
 Standard (b) and (c) may be applied

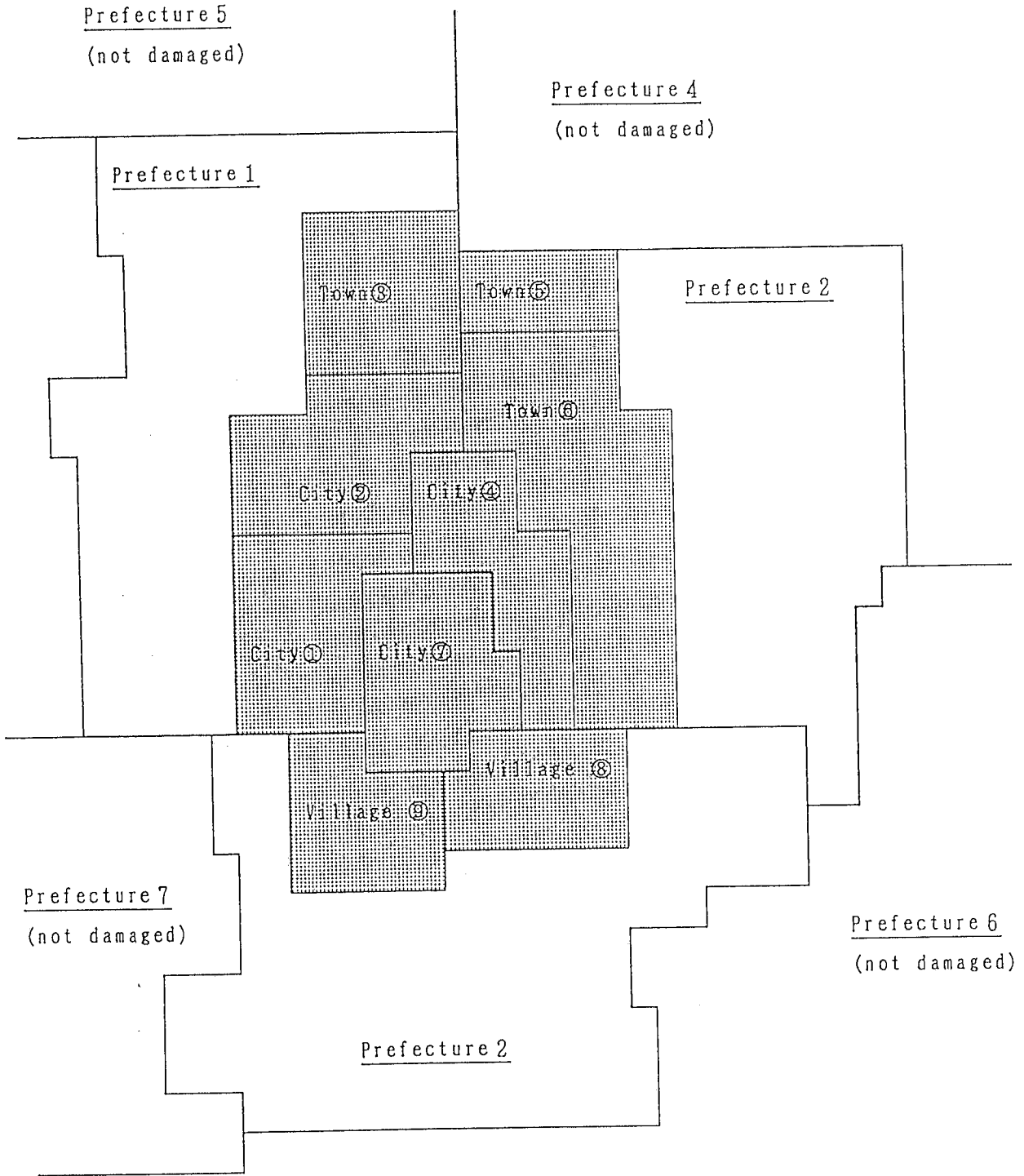
↓
 ② Pref. 1 : $C_1 = 100 < T_1 = 1000$
 Pref. 2 : $C_2 = 300 < T_2 = 1000$
 Pref. 3 : $C_3 = 10 < T_3 = 600$
 Standard (b) is not applied
 Standard (c) may be applied

↓
 ③ Pref. 1 : $\Sigma c_{1,j} / \Sigma t_{1,j} = 70 / 220 = 0.32 > 0.25$ *
 Pref. 2 : $\Sigma c_{2,j} / \Sigma t_{2,j} = 40 / 150 = 0.27 > 0.25$ *
 Pref. 3 : $\Sigma c_{3,j} / \Sigma t_{3,j} = 45 / 600 = 0.08$
 Standard (c) is applied

**) Applicable Standards of Special Financial Support

Prefecture : $C_i / T_i > 0.2$
 City/Town/Village : $c_{i,j} / t_{j,j} > 0.1$

(EXAMPLE OF DESIGNATION OF EXTREME-SEVERITY DISASTER)



area damaged by the disaster
(3 prefectures including 9 cities/towns/villages)

DISASTER PREVENTION PREVENTION BUDGET [NATIONAL LEVEL]

(million yen)

項 目 I t e m s		事業費 Total cost (A)	国 費 National Budget (B)	その他 Other's Budget (C)=(A)-(B)
科学技術の研究 Research and Development		31,135	31,051	84
災害予防 Disaster Pre- paredness	教育訓練 Enhancement of the Awareness of Disaster Prevention & Dissemination of Knowledge on Disaster Prevention	3,407	3,303	104
	防災施設設備の整備 Development and Improvement Disaster Prevention Facilities and Equipment	1,001,651	574,862	426,789
	災害危険地住宅移転等 Transferring of houses from the disaster-prone areas	1,369	687	683
	その他 Others	8,926	8,221	705
	(Total)	1,015,353	587,073	428,281
国土保全 National Land Conservation		2,827,458	1,550,177	1,277,281
災害応急及 び普及事業 Disaster emergency and measures	災害応急事業 Disaster emergency measures	193	97	96
	災害復旧事業 Disaster recovery measures	614,722	480,495	134,227
	(Total)	614,915	480,592	134,323
財政金融 措 Finance Measures	災害融資 Disaster Loans	281	187	94
	災害保険 Casualty Insurance	99,197	99,197	
	地方交付税等 Grant from the National Governm ent to a Local Government	77,221	77,221	
	(Total)	176,699	176,605	94
TOTAL		4,665,560	2,825,498	1,840,063

DISASTER PREVENTION PREVENTION BUDGET [NATIONAL LEVEL]

(million yen)

項 目 I t e m s		省庁 Admini- srtative Organs	事業費 Total cost (A)	国 費 National Buget (B)	その他 Other's Buget (C)=(A)-(B)
科学技術の研究 Research and Development		HDA STA EA MOE MAFF MITI MOT MSA MA MPT MOL MOC FDA	45 22,314 5 3,102 489 1,131 171 110 1,212 108 297 1,992 157	45 22,314 5 3,102 489 1,131 86 110 1,212 108 297 1,992 157	84
		(TOTAL)	(31,135)	(31,051)	(84)
災害予防 Disaster Pre- paredness	教育訓練 Enhancement of the Awareness of Disaster Prevention & Dissemination of Knowledge on Disaster Prevention	NPA DA STA NLA MAFF MITI MOT MSA MA MPT MOL FDA	166 2 103 3 187 247 8 2 152 18 2,436 83	162 2 103 3 87 247 8 2 152 18 2,436 83	4 100
		(TOTAL)	(3,407)	(3,303)	(104)
	防災施設設備の整備 Development and Improvement Disaster Prevention Facilities and Equipment	NPA STA NLA MOE ACA MHW MAFF MITI MOT MSA MA MPT FDA	492 1,381 1,524 9,295 2,955 19,301 5,233 10,480 13,515 45,440 17,239 842,381 32,416	482 1,381 902 5,014 964 10,147 4,187 8,505 8,274 45,440 17,239 459,878 12,449	10 622 4,281 1,991 9,153 1,046 1,975 5,241 382,503 19,967
		(TOTAL)	(1,001,651)	(574,862)	(426,789)
	災害危険地住宅移転等 Transferring of houses from the disaster-prone areas	MOT	1,369	687	683

DISASTER PREVENTION PREVENTION BUDGET [NATIONAL LEVEL] (continued)

(million yen)

Pre- paredness (continued)	その他 Others	NPA	395	395	
		DA	4	4	
		STA	1,147	1,147	
		NLA	256	256	
		MOE	1	1	
		MHW	4	4	
		MAFF	845	845	
		MITI	4,047	4,047	
		MOT	51	51	
		MSA	45	45	
		MA	4	4	
		MPT	10	10	
		MOL	712	712	
		MOC	133	133	
FDA	1,271	566	705		
	(TOTAL)	(8,926)	(8,221)	(705)	
国土保全 National Land Conservation		EA	152	71	82
		NLA	41	41	
		MAFF	524,623	296,885	227,737
		MITI	11,504	6,067	5,437
		MOT	82,418	41,506	40,912
		MOC	2,208,721	1,205,607	1,003,113
		(TOTAL)	(2,827,458)	(1,550,177)	(1,277,281)
災害応急及 び普及事業 Disaster emergency and measures	災害応急事業 Disaster emergency measures	MOE	2	1	1
		MHW	191	96	96
	(TOTAL)	(193)	(97)	(96)	
災害復旧事業 Disaster recovery measures		MOE	912	643	269
		ACA	28	15	13
		MHW	372	186	185
		MAFF	109,930	98,571	11,360
		MOT	5,836	4,238	1,598
		MPT	3	3	
		MOC	497,641	376,839	120,802
(TOTAL)	(614,722)	(480,495)	(134,227)		
財政金融 措置 Finance Measures	災害融資 Disaster Loans	MHW	281	187	94
	災害保険 Casualty Insurance	MAFF	99,197	99,197	
	地方交付税等 Grant from the National Government to a Local Government	MHA	77,221	77,221	
TOTAL			4,665,560	2,825,498	1,840,063

指定公共機関

Designated Public Corporations

日本電信電話 (株)	:	Nippon Telegraph and Telephone Corporation (NTT)
日本銀行	:	The Bank of Japan
日本赤十字社	:	The Japanese Red Cross Society
日本放送協会	:	Japan Broadcasting Corporation (NHK)
水資源開発公団	:	Water Resources Development Public Corporation
新東京国際空港公団	:	New Tokyo International Airport Authority
動力炉・核燃料開発事業団	:	Power Reactor & Nuclear Fuel Development Corporation
日本原子力研究所	:	Japan Atomic Energy Research Institute
電源開発 (株)	:	Electric Power Development Co., Ltd.
国際電信電話 (株)	:	Kokusai Denshin Denwa Co., Ltd. (KDD)
日本たばこ産業 (株)	:	Nippon Tobacco Inc.
日本通運 (株)	:	Nippon Express Co., Ltd.
日本原子力発電 (株)	:	The Japan Atomic Power Company
日本道路公団、 首都高速道路公団 道路関係 4公団 等	:	4 corporations in the field of highway including Japan Highway Public Corporation, Metropolitan Expressway Public Corporation
東日本旅客鉄道 (株) 鉄道関連 7社 等	:	7 corporations in the field of railway including East Japan Railway Company Ltd.
東京ガス (株) 等 ガス関連 3社	:	3 corporations in the field of gas including Tokyo Gas Co., Ltd.
東京電力 (株) 等 電力 10社	:	10 corporations in the field of electric power including The Tokyo Electric Power Company, Inc.

(3 7 b o d i e s)