

***THE JAPANESE DISASTER PREVENTION,
RECOVERY AND RELIEF MEASURES***

— Current Status and International Cooperation —

MARCH 25th , 2000

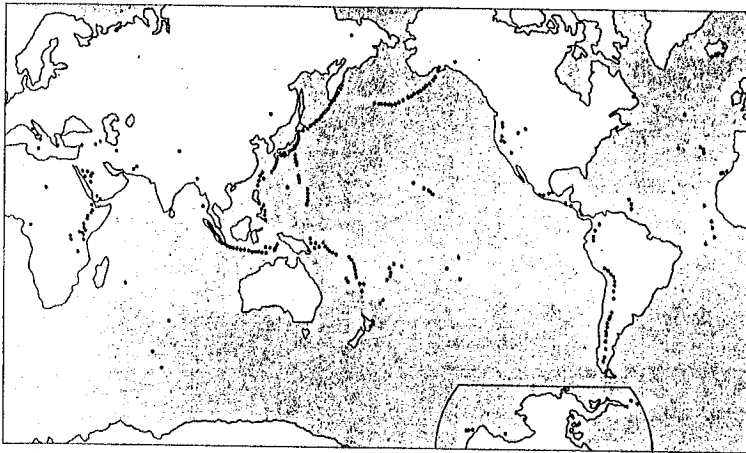
*Akio Shimada
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Disaster Prevention Bureau, NLA*

I . NATURAL AND SOCIAL CONDITIONS IN JAPAN

SUBJECT TO OCCURRENCE OF NATURAL DISASTERS

1. Steep Mountains, Weak Ground, Severe Weather Conditions
2. The Japanese Islands apt to be Damaged by Earthquakes and Volcanic Eruptions

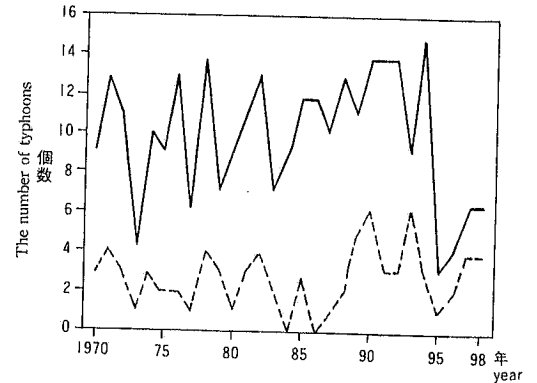
Volcanoes of the world



火山・Volcano

日本には全世界の約1割にあたる86の活火山が分布しています。
In Japan, there are 86 active volcanoes which is equivalent to about 10% of total volcanoes on the earth

The number of typhoon approaches and the shore strikings



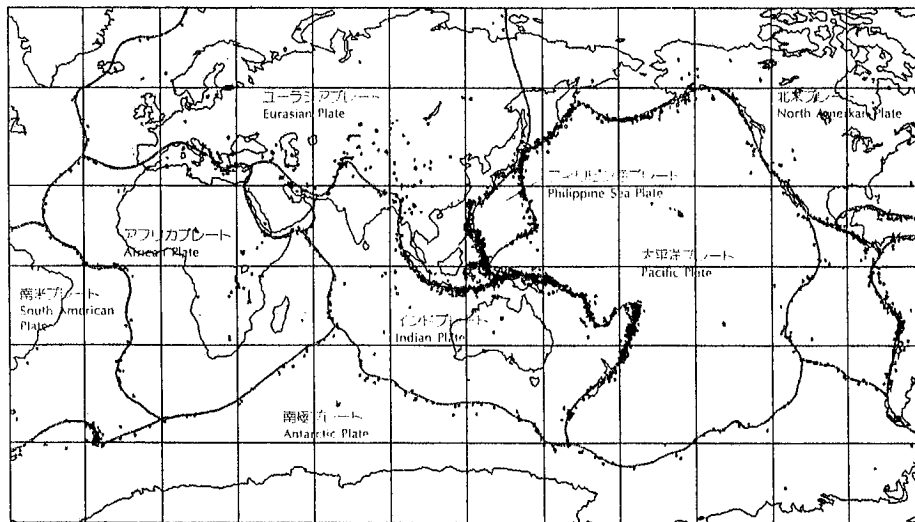
— 日本への接近数 (台風が中心が日本のいずれかの気象官署から300km以内に接近した数)

The number of typhoons whose center has approached within 300 km of meteorological offices.

--- 台風の上陸数 (台風が中心が北海道・本州・四国・九州の海岸線に達した数)

The number of typhoons whose center has reached the coastal line of Hokkaido, Honshu, Shikoku and Kyushu

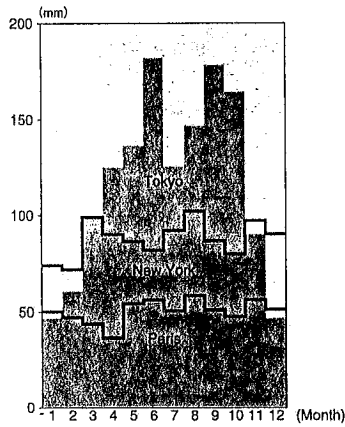
World Geographical Distribution of Hypocenters and Plates



(1988~1991年、マグニチュード5以上、100kmより浅い地質)
(1988~1991, Magnitude ≥ 5.0 , Depth ≤ 100 km)

3. Local Depopulation and Aging Developed on one hand with Urbanization on the other hand

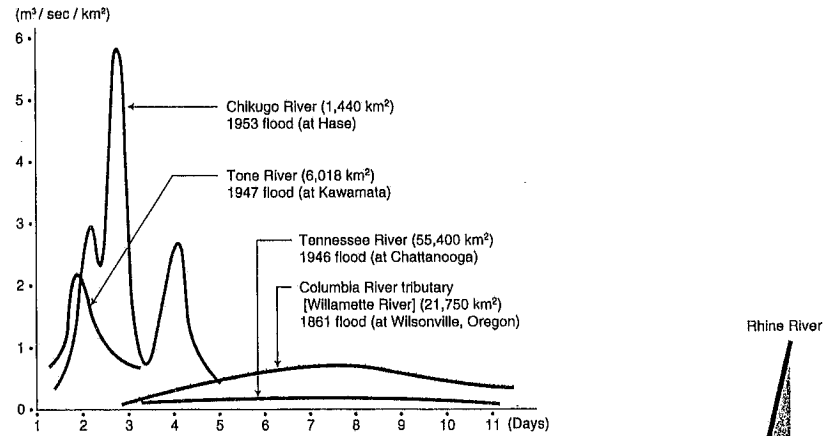
■ Japanese cities have more precipitation than large cities in other countries.



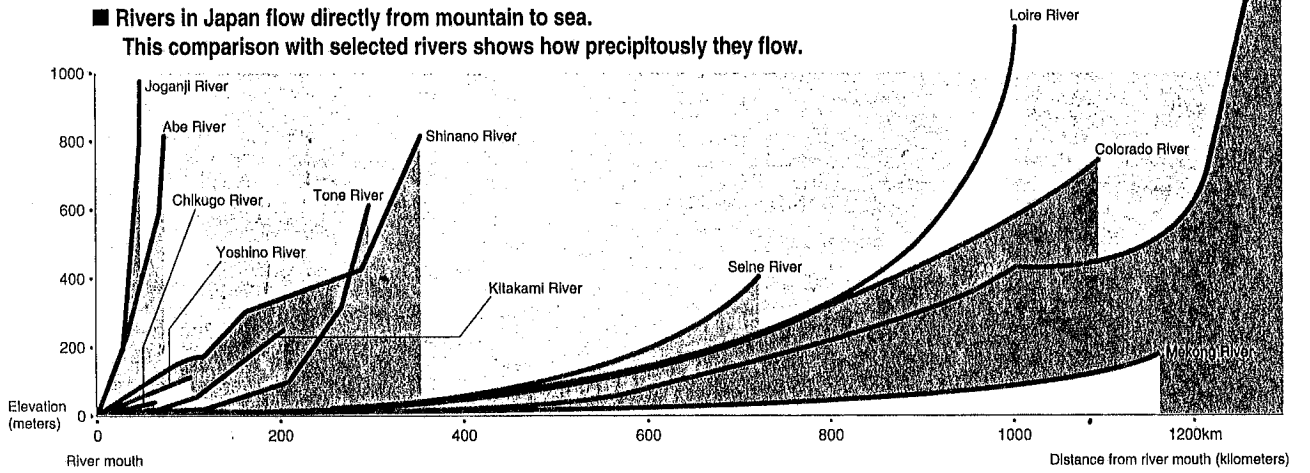
Source: Chronological Scientific Tables 1993.

■ Floods in Japan act like sprinters: short and quick.

Ratio of flood duration to flood discharge per unit area of catchment discharge. ($m^3/sec/km^2$)



■ Rivers in Japan flow directly from mountain to sea. This comparison with selected rivers shows how precipitously they flow.



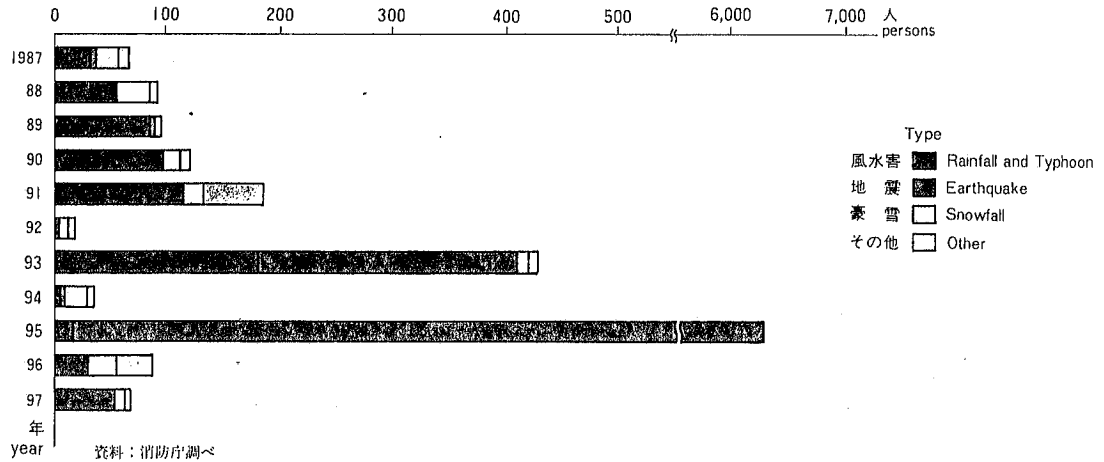
II. OUTLINE OF COUNTERMEASURES FOR PREVENTION

DISASTERS IN JAPAN

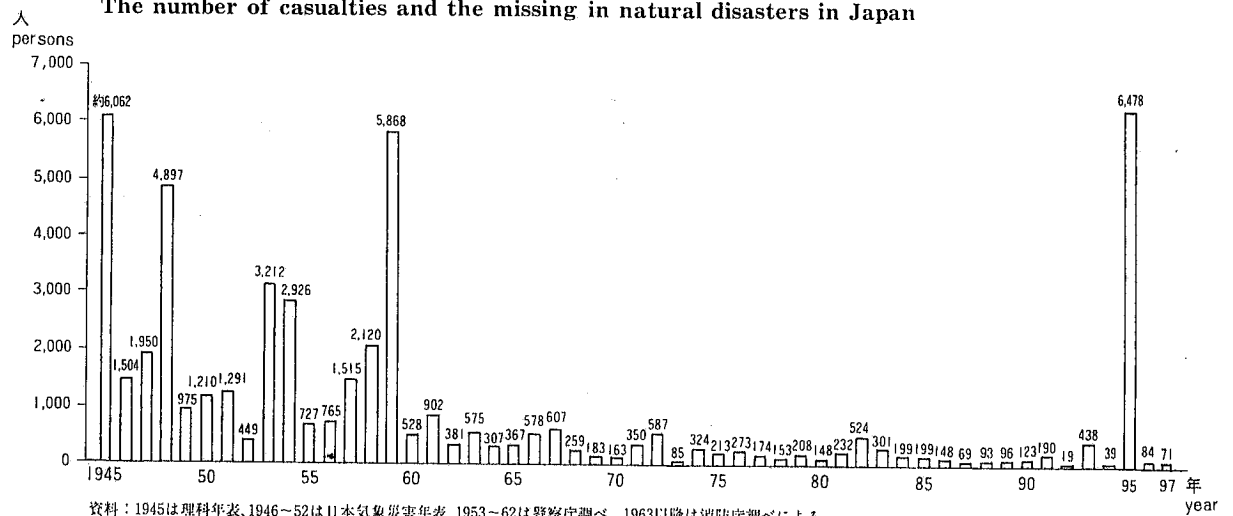
1. Flood Control as part of Disaster Prevention Programs

a. Flood damage Prevention

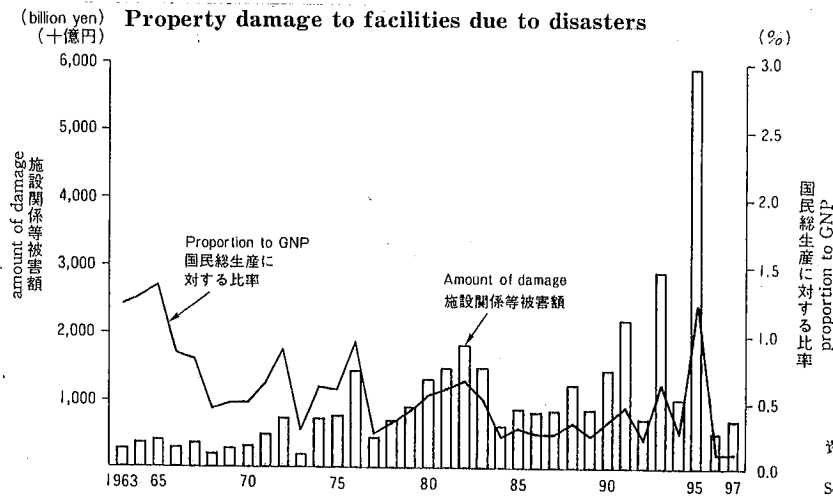
The number of casualties and the missing by type of disasters



The number of casualties and the missing in natural disasters in Japan



Property damage to facilities due to disasters

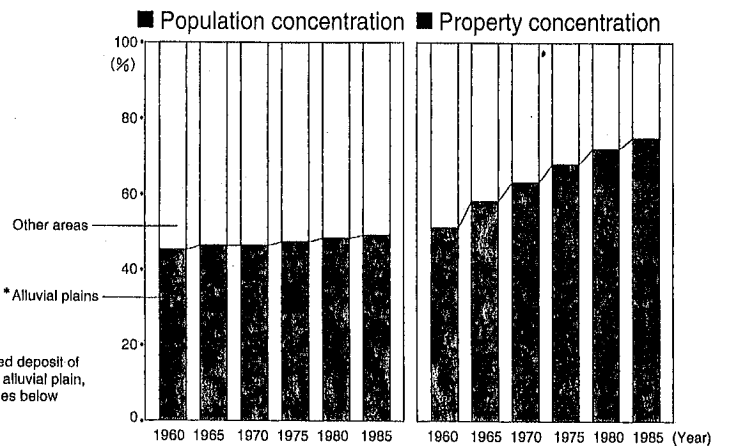
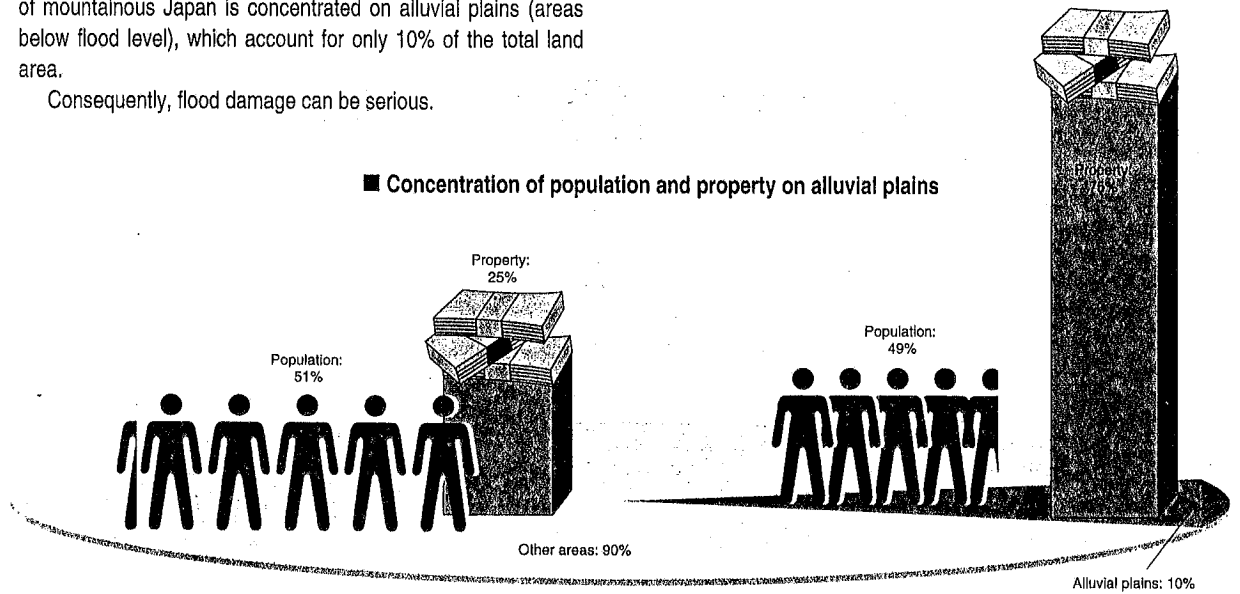


b. Urbanization and Flood Damage

Japanese cities are quite susceptible to floods. Most population and property, and therefore most flood damage, concentrate on alluvial plains.

About 50% of the population and about 75% of the real estate of mountainous Japan is concentrated on alluvial plains (areas below flood level), which account for only 10% of the total land area.

Consequently, flood damage can be serious.



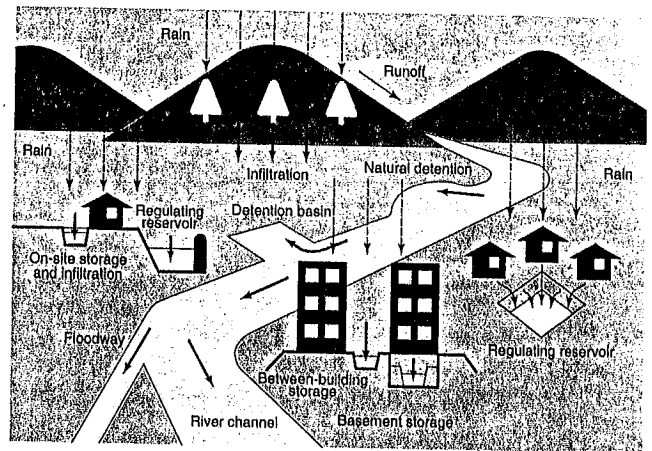
c. *Integrated Flood Control Measures*

Japan is in need of Integrated flood control to cope with rapid urbanization.

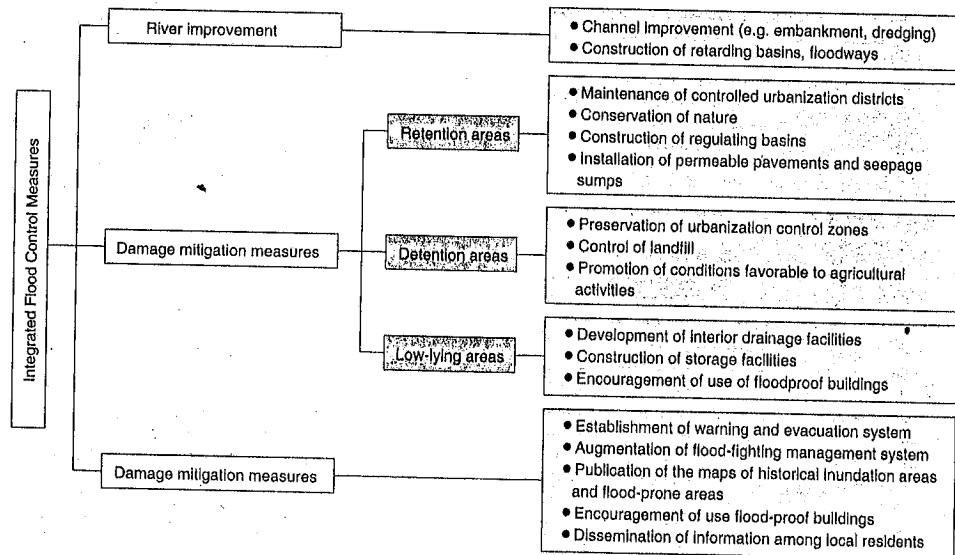
One consequence of rapid urbanization is the growing concentration of population and property in low-lying lands which have historically been subject to flooding. This trend is aggravating flood damage.

Conventional river improvement that relies on levees and detention basins is not enough. There is an urgent need for a comprehensive approach that combines (1) river basin measures, such as the construction of facilities designed to preserve and enhance the retention and detention capabilities of river basins and the development of land uses and buildings that are highly resistant to floods, and (2) damage mitigation measures, such as the establishment of warning and evacuation systems.

■ **Concept of comprehensive flood control**



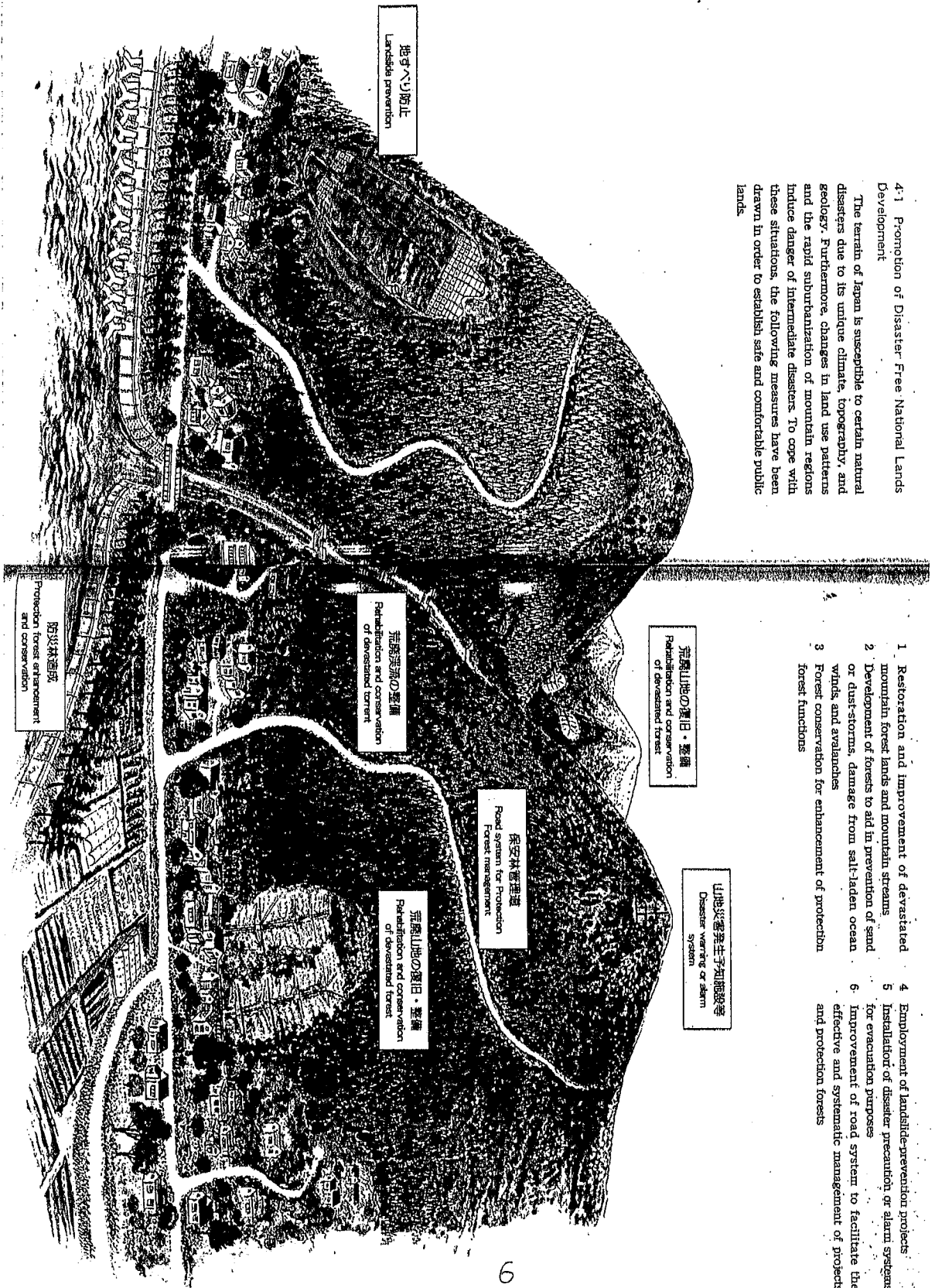
■ **Integrated of flood control measures**



2. Forest Conservation and Erosion Control

a. Forest Conservation Projects

b. Sediment Control Projects



4-1 Promotion of Disaster-Free National Lands Development

The terrain of Japan is susceptible to certain natural disasters due to its unique climate, topography, and geology. Furthermore, changes in land use patterns and the rapid suburbanization of mountain regions induce danger of intermediate disasters. To cope with these situations, the following measures have been drawn in order to establish safe and comfortable public lands.

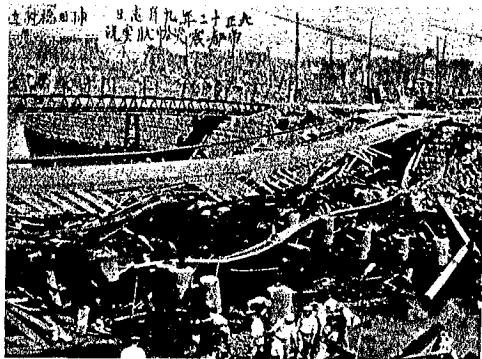
1. Restoration and improvement of devastated mountain forest lands and mountain streams
2. Development of forests to aid in prevention of sand or dust-storms, damage from salt-laden ocean winds, and avalanches
3. Forest conservation for enhancement of protection forest functions
4. Employment of landslide-prevention projects
5. Installation of disaster prevention or alarm systems for evacuation purposes
6. Improvement of road system to facilitate the effective and systematic management of projects and protection forests

3. Earthquake Disaster Countermeasures
 a. Damages from the Earthquakes in Japan

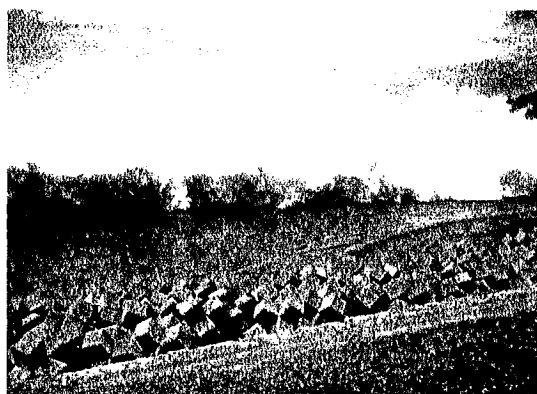
Major Earthquake Disasters after World War II in Japan

名称 NAME	発生日月 DATE	マグニチュード EARTHQUAKE MAGNITUDE	被害状況	
			死者・行方不明 DEATHS・MISSING	損失家屋 Wrecked Houses
関東大地震 Great Kanto Eq	大正12. 9. 1 1923.9.1	7.9	142,807	576,262
東南海地震 Tohankai Eq	昭和19.12. 7 1944.12.7	7.9	1,251	19,367
南海地震 Nankai Eq	昭和21.12.21 1946.12.21	8.0	1,443	13,119
福井地震 Fukui Eq	昭和22. 6.28 1948.6.28	7.1	3,789	40,035
十勝沖地震 Tokachi-oki Eq	昭和27. 3. 4 1952.3.4	8.2	33	921
チリ地震津波 Tsunami by Chile Eq	昭和35. 5.23 1960.5.23	9.5	139	2,830
新潟地震 Niigata Eq	昭和39. 6.16 1964.6.16	7.5	26	2,250
十勝沖地震 Tokachi-oki Eq	昭和43. 5.16 1968.5.16	7.9	52	691
伊豆半島沖地震 Izu-hantou-oki Eq	昭和49. 5. 9 1974.5.9	6.9	30	139
伊豆大島近海地震 Izu-Oshima-Kinkai Eq	昭和53.11.14 1978.11.14	7.0	25	96
宮城県沖地震 Miyagi-ken-oki Eq	昭和53. 6.12 1978.6.12	7.4	28	1,183
日本海中部地震 Nihon-kai-chubu Eq	昭和58. 5.26 1983.5.26	7.7	104	987
長野県西部地震 Nagano-ken-seibu Eq	昭和59. 9.14 1984.9.14	6.8	29	24
千葉県東方沖地震 Chiba-ken-Toho-oki Eq	昭和62.12.17 1987.12.17	6.7	2	116
釧路沖地震 Kushiro-oki Eq	平成 5. 1.15 1993.1.15	7.8		12
北海道南西沖地震 Hokkaido-Nansei-oki Eq	平成 5. 7.12 1993.7.12	7.8	230	594
三陸はるか沖地震 Sanriku-Haruka-oki Eq	平成 6.12.28 1994.12.28	7.5	3	72
兵庫県南部地震 (阪神・淡路大震災) Great (Hanshin-Awaji) Eq	平成 7. 1.17 1995.1.17	7.2	6,433	104,900

b. Progress of Earthquake Disaster Countermeasures

年 月 YEAR. MO	震災対策の歩み EARTHQUAKE DISASTER COUNTERMEASURES	主な災害 MAJOR DISASTERS
昭和22.10 1947.10	<p data-bbox="414 787 682 840">「災害救助法」制定 "Disaster Relief Law" enacted.</p> 	<p data-bbox="1266 619 1461 693">大正12. 9 関東大震災 1923. 9 Great Kanto Earthquake</p> <p data-bbox="1266 703 1461 777">昭和19.12 東南海地震 1944.12 Tohankai Earthquake</p> <p data-bbox="1266 787 1461 861">21.12 南海地震 1946.12 Nankai Earthquake</p> <p data-bbox="1266 871 1461 945">27. 3 十勝沖地震 1952. 3 Tokachi-oki Earthquake</p> <p data-bbox="1266 955 1461 987">33. 9 狩野川台風 1958. 9 Kanogawa Typhoon</p> <p data-bbox="1266 997 1461 1029">34. 9 伊勢湾台風 1959. 9 Ise wan Typhoon</p>
		36.11 1961.11
37. 9 1962. 9	<p data-bbox="414 1134 1234 1207">「激甚法 (激甚災害に対処するための特別の財政援助等に関する法律)」公布 "Act concerning Special Financial Support to Deal with the Designated Disaster of Extreme Severity" promulgated.</p>	
39. 7 1964. 7	<p data-bbox="414 1218 1234 1291">測地学審議会、関係各省の大臣に「地震予知」について建議 (第1次) Geodesy Council makes (1st) proposition on "earthquake prediction" to the ministers of related ministries.</p>	<p data-bbox="1266 1228 1461 1302">39. 6 新潟地震 1964. 6 Niigata Earthquake</p>
44. 4 1969. 4	<p data-bbox="414 1386 1234 1459">「地震予知連絡会」国土地理院に設置 "Coordination Committee for Earthquake Prediction" established in the Geographical Survey Institute.</p>	<p data-bbox="1266 1396 1461 1470">40~45 松代群発地震 1965~70 Matsushiro Earthquake Swarm</p> <p data-bbox="1266 1480 1461 1554">43. 5 十勝沖地震 1968. 5 Tokachi-oki Earthquake</p>
46. 5 1971. 5	<p data-bbox="414 1459 1234 1564">中央防災会議「大都市震災対策推進要綱」決定 "Essentials of Earthquake Countermeasures for Large Cities" adopted at Central Disaster Prevention Council.</p>	<p data-bbox="1266 1459 1461 1564">46. 2 米サンフェル 1971. 2 ナンド地震 San Fernando (Calif. U.S.) Earthquake</p>

年・月 YEAR, MO	震災対策の歩み EARTHQUAKE DISASTER COUNTERMEASURES	主な災害 MAJOR DISASTERS
昭和46.9 1971.9	<p>国を中心に「震災対策訓練」実施（以降、毎年） The nationally sponsored "Earthquake Disaster Countermeasures Drill" executed (has become an annual event since then).</p>	
48.7 1973.7	<p>中央防災会議「1.地震予知の推進 2.都市防災化の推進 3.防災体制の強化等」について申し合わせ Central Disaster Prevention Council agrees on "1. Promotion of earthquake prediction; 2. promotion of disaster-proof cities; 3. reinforcement of disaster prevention system"</p>	
49.6 1974.6	<p>国土庁発足（長官官房災害対策室） National Land Agency established (as well as Disaster Countermeasures Office at Minister's Secretariat)</p>	
49.10 1974.10	<p>中央防災会議に「大都市震災対策連絡会議」を設置 "Coordination Committee on Earthquake Countermeasures for Large Cities" established within the Central Disaster Prevention Council.</p>	
50.8 1975.8	<p>中央防災会議「当面の防災対策の推進について」決定 Central Disaster Prevention Council adopts the "Contemporary Promotion of Urgent Disaster Prevention Countermeasures".</p>	
51.10 1976.10	<p>閣議決定により内閣に「地震予知推進本部」の設置 "Headquarters for Earthquake Prediction Promotion" established within the Cabinet based on Cabinet Council's decision.</p>	
52.4 1977.4	<p>国土庁長官官房に「震災対策課」設置 "Earthquake Disaster Countermeasures Division" established at Minister's Secretariat in National Land Agency.</p>	
52.4 1977.4	<p>地震予知連絡会に「東海地域判定会」が設置（S54.8廃止） "Tokai Area Assessment Council" established within the Coordination Committee for Earthquake Prediction (Ablished/79.8).</p>	
53.7 1978.7	<p>国土庁「防災基地建設モデル事業」開始 "Model Project for Disaster Prevention Base Construction" started by National Land Agency.</p>	
53.6 1978.6	<p>「大規模地震対策特別措置法」公布 "Large-scale Earthquake Countermeasures Act" Promulgated.</p>	昭和53.6 宮城県沖地震
54.8 1979.8	<p>「東海地震に係る地震防災対策強化地域」の指定 Official designation made of "Areas under Intensified Measures against Tokai Earthquake Disaster"</p>	1978.6 Miyagi-ken-oki Earthquake
54.8 1979.8	<p>「地震防災対策強化地域判定会」の発足 "Prediction Committee for the Area under Intensified Measures Against Earthquake Disaster" established.</p>	
54.9 1979.9	<p>中央防災会議「東海地震の強化地域に係る地震防災基本計画」の作成 "Basic Plan regarding Areas under Intensified Measures against Earthquake Disaster for the Tokai Area" formulated at Central Disaster Prevention Council.</p>	
54.11 1979.11	<p>「広域防災基地の設置」について方針決定（国有財産中央審議会「立川飛行場返還国有地の処理について答申」） The policy adopted for Regional Disaster Prevention Base (The Central National Property Council makes recommendation on "Disposition on Reverted Nationally Owned Land of Tachikawa Air Base")</p>	
55.5 1980.5	<p>「地震財特法（地震防災対策強化地域における地震対策緊急整備事業に係る国の財政上の特別措置に関する法律）」公布 "Earthquake Special Fiscal Measures Act", or the Act concerning the Special Fiscal Measures for the Project for Urgent improvement of Earthquake Countermeasures in Areas under Intensified Measures against Earthquake Disaster promulgated.</p>	
55.12 1980.12	<p>「地震対策緊急整備事業計画」の承認 "Project Plan for Urgent Improvement of Earthquake Countermeasures" approved.</p>	
58.5 1983.5	<p>中央防災会議で「当面の防災対策の推進について」を決定 Central Disaster Prevention Council adopts the "Contemporary Promotion of Urgent Disaster Prevention Countermeasures"</p>	58.5 日本海中部地震 1983.5 Nihon-kai-chubu Earthquake
58.6 1983.6	<p>「津波警報関係省庁連絡会議」設置（S58.7「沿岸地域における津波警戒の徹底について」申合せ） "Coordination Committee for Tsunami Warning System" established. (1983.7 "Through propagation of Tsunami Warning to coastal areas" discussed and agreed upon.)</p>	



日本海中部地震による大津波（八森町）
Tidal wave in Nihon-Kai-chubu Eq (Hachimori-town)

年 月 YEAR. MO	震災対策の歩み EARTHQUAKE DISASTER COUNTERMEASURES	主な災害 MAJOR DISASTERS
1983.12	「立川広域防災基地整備推進連絡会議」設置 "Coordination Committee for Development of Tachikawa Regional Disaster Prevention Base" established.	59. 9 長野県西部地震 1984. 9 Nagano-ken-seibu Earthquake
1984. 7	国土庁に「防災局」設置 "Disaster Prevention Bureau" established in National Land Agency.	
1985. 3	「地震財特法」の一部改正（有効期限の5年延長） "Earthquake Special Fiscal Measures Act" partly revised (to extend validity term by 5 years).	62.12 千葉県東方沖地震 1987.12 Chiba-ken-toho-oki Earthquake
1985. 7	地震対策緊急整備事業計画変更の承認 The revision of "Project Plan for Urgent Improvement of Earthquake Countermeasures" approved.	
1986. 6	中央防災会議地震防災対策強化地域指定専門委員会検討結果中間報告 The interim Report on the Results of Studies by the Central Disaster Prevention Council's Expert committee for Areas under Intensified Measures against Earthquake Disaster	
1988. 6	測地学審議会「地震予知の推進について」第6次建議 Geodesy Council presents the 6th recommendation on "Promotion of Earthquake Prediction"	
1988.10	立川広域防災基地災害対策本部予備施設落成 Preparatory Institution for Headquarters for Disaster Countermeasures of Tachikawa Regional Disaster Prevention Base was opened.	
1988.12	中央防災会議「南関東地域震災応急対策活動要領」決定 Central Disaster Prevention Council adopts the "Outline of Emergency Countermeasure Activities against Earthquake Disasters in South Kanto Area"	
平成2. 3	「地震財特法」の一部改正（有効期限の5年延長） "Earthquake Special Fiscal Measures Act" partly revised (to extend validity term by 5 years).	
1990. 3	地震対策緊急整備事業計画変更の承認 The revision of "Project Plan for Urgent Improvement of Earthquake Countermeasures" approved.	
1990. 8	中央防災会議地震防災対策強化地域指定専門委員会検討結果報告 The Report on the Results of Studies by the Central Disaster Prevention Council's Expert committee for Areas under Intensified Measures against Earthquake Disaster	
1992. 8	中央防災会議「南関東地域直下の地震対策に関する大綱」決定 Central Disaster Prevention Council adopts the "General Principles relating to Countermeasures for Earthquakes Directly below the Southern Kanto Region"	平成5. 1 釧路沖地震 1993. 1 Kushiro-oki Earthquake
1993. 7	測地学審議会「地震予知の推進について」第7次建議 Geodesy Council presents the 7th recommendation on "Promotion of Earthquake Prediction"	5. 7 北海道南西沖地震 1993. 7 Hokkai-Do-Nansei-oki Earthquake
1993.11	津波警報関係省庁連絡会議「沿岸地域における津波警戒の徹底について」申合せ "Through propagation of Tsunami Warning to coastal areas" discussed and agreed upon by "Coordination Committee for Tsunami Warning System"	
1995. 3	「地震財特法」の一部改正（有効期限の5年延長） "Earthquake Special Fiscal Measures Act" partly revised (to extend validity term by 5 years).	
1995. 6	「災害対策基本法」の一部改正 "Disaster Countermeasures Basic Act" partly revised	6.12 三陸はるか沖地震 Sanriku-haruka-oki-Earthquake
1995. 6	「地震防災対策特別措置法」公布 "Earthquake Disaster Prevention Special Measures Act" promulgated	7. 1 阪神・淡路大震災 The Great Hanshin-Awaji Earthquake
1995. 7	「地震調査研究推進本部」総理府に設置 "Headquarters of Earthquake Research Promotion" established in the Prime Minister's Office	
1995. 7	「防災基本計画」改訂 "Basic Plan for Disaster Prevention" revised	
1995.12	「災害対策基本法」及び「大規模地震対策特別措置法」の一部改正 "Disaster Countermeasures Basic Act" and "Large-scale Earthquake Countermeasures Act" partly revised	
1995. 7	国土庁「地震防災情報システム（DIS）整備開始 「地域防災拠点施設整備モデル事業」開始 The National Land Agency launched the "Model Project for Local Disaster Prevention Base Facilities Development" and commences work on the "Disaster Information Systems (DIS)"	
1998.11	中央防災会議に「大都市震災対策専門委員会」設置 The "Expert Committee on Earthquake Countermeasures for Large Cities" was established in the Central Disaster Prevention Council.	
1998. 3	「地域防災計画における津波対策強化の手引き」「津波災害予測マニュアル」通知 The "Guide for Intensifying Tsunami Countermeasures in Local Plan for Disaster Prevention" and the "Tsunami Disaster Forecasting Manual" were issued.	
1998. 6	中央防災会議「大都市震災対策専門委員会」提言 Proposals by the Central Disaster Prevention Council's Expert Committee on Earthquake Countermeasures for Large Cities	
1998. 8	「南関東地域直下の地震対策に関する大綱」「南関東地域震災応急対策活動要領」の改訂決定 The Central Disaster Prevention Council moved to revise the "General Principles Relating to Countermeasures for Earthquakes Directly Below the Southern Kanto Region" and the "Guidelines for Emergency Countermeasure Activities against Earthquake Disaster in Southern Kanto Region".	
1998. 8	測地学審議会「地震予知のための新たな観測研究計画の推進について」建議 The Geodesy Council presented recommendation on "Promotion of a New Earthquake Prediction Monitoring Plan".	

III. SHORT HISTORY OF ANTI-DISASTER MEASURES IN JAPAN

1. Anti-disaster Measures during the High-growth Period

a. Establishment of the Basic Legal Framework for Anti-Disaster Measures

b. Disaster Prevention

c. Disaster Restoration and Recovery Countermeasures

ANTI-DISASTER MEASURES		MAJOR DISASTERS
		昭和28. 7 豪雨 (北九州、和歌山県等) 1953. 7 Torrential Rain in Kitakyushu and Wakayama
		昭和29. 9 洞爺丸台風 1954. 9 Tohyamaru Typhoon
昭和30. 8 1955. 8	天災による被害農林漁業者に対する資金の融通に関する暫定措置法(天災融資法) Temporary Measures Law for Financing Farmers, Forestrymen and Fishermen Suffered from Natural Disasters	
昭和31. 5 1956. 5	海岸法 Seashore Law	
昭和33. 3 1958. 3	地すべり等防止法 Landslide Prevention Law	昭和32. 7 諫早豪雨 1957. 7 Torrential Rain in Isahaya
昭和35. 3 1960. 3	治山治水緊急措置法 Forest Conservation and Flood Control Urgent Measures Law	昭和33. 9 狩野川台風 1958. 9 Kanogawa Typhoon
昭和35. 6 1960. 6	防災の日創設 Designation of "Disaster Prevention Day"	昭和34. 9 伊勢湾台風 1959. 9 Isewan Typhoon
昭和36. 11 1961. 11	災害対策基本法 Disaster Countermeasures Basic Act	昭和35. 5 チリ地震津波 1960. 5 Chile Earthquake Tsunami
昭和37. 4 1962. 4	豪雪地帯対策特別措置法 Special Measures Act for Countermeasures in High Snowfall Areas	
昭和37. 9 1962. 9	激甚災害に対処するための特別の財政援助に関する法律(激甚法) Act concerning Special Financial Support to Deal with the Designated Disaster of Extreme Severity	
昭和38. 6 1963. 6	防災基本計画策定 Formulation of "Basic Plan for Disaster Prevention"	昭和38. 1~2 北陸豪雪 1963. 1~2 Hokuriku Heavy Snowfall
昭和39. 7 1964. 7	河川法(新) River Law (Revised)	昭和39. 6 新潟地震 1964. 6 Niigata Earthquake
昭和39. 7 1964. 7	測地学審議会「地震予知」について建議 Geodesy Council's Proposition on "Earthquake Prediction"	
昭和44. 4 1969. 4	地震予知連絡会設置 Establishment of Coordination Committee for Earthquake Prediction	昭和43. 5 十勝沖地震 1968. 5 Tokachi-oki Earthquake
昭和44. 7 1969. 7	急傾斜地の崩壊による災害の防止に関する法律 Law concerning Prevention of Steep Slope Collapse Disaster	
昭和48. 6 1973. 6	火山噴火予知計画策定 Formulation of "Plan for Volcanic Eruption prediction"	
昭和48. 7 1973. 7	活動火山周辺地域における避難施設等の整備等に関する法律(昭和53年4月に活動火山対策特別措置法に改正) Act concerning Improvement, etc. of Refuges, etc. in Vicinal Areas of Active Volcanoes (revised to the Act on Special Measures for Active Volcanoes in 1978)	
昭和48. 9 1973. 9	災害弔慰金の支給等に関する法律 Law for the payment of Solatia for Disaster	
昭和49. 6 1974. 6	国土庁発足 Establishment of National Land Agency	昭和49. 5 伊豆半島沖地震 1974. 5 Izu-hanto-oki Earthquake
昭和49. 6 1974. 6	火山噴火予知連絡会設置 Establishment of Coordinating Committee for Prediction of Volcanic-Eruption	昭和49. 12 三菱石油水島製油所重油流出事故 1974. 12 Oil Outflow Accident at Mizushima Refinery
昭和50. 12 1975. 12	石油コンビナート等災害防止法 Law on Prevention of Disaster in Petroleum Industrial Complexes and other Petroleum Facilities	
昭和51. 10 1976. 10	地震予知推進本部設置 Establishment of HQ for Earthquake Prediction Promotion	

INTERNATIONAL AGREEMENTS		NATURAL DISASTERS	
昭和53. 6 1978. 6	大規模地震対策特別措置法（地震防災基本計画） Large-scale Earthquake Countermeasures Act (Basic Plan for earthquake Disaster Prevention)	昭和53. 1 1978. 1	伊豆大島近海地震 Izu-Ohshima-Kinkai Earthquake
昭和55. 5 1980. 5	地震防災対策強化地域における地震対策緊急整備事業に係る国の財政上の特別措置に関する法律（地震財特法） Special Fiscal Measures Act for Urgent Improvement Projects for Earthquake Countermeasures in Areas under Intensified Measures against Earthquake Disaster	昭和53. 6 1978. 6	宮城県沖地震 Miyagi-ken-oki Earthquake
昭和62. 9 1987. 9	国際緊急援助隊の派遣に関する法律 Law concerning Dispatch of Japan Disaster Relief Team	昭和55. 12 1980. 12	豪雪（北陸、東北等） Heavy Snowfall
平成 4. 8 1992. 8	南関東地域直下の地震対策に関する大綱 General principles relating to Countermeasures for Earthquakes Directly Below the South Kanto Region	昭和57. 7 1982. 7	豪雨（長崎県等） Torrential Rain
平成 7. 6 1995. 6	災害対策基本法一部改正 Partly revision of Disaster Countermeasures Basic Act	昭和58. 5 1983. 5	日本海中部地震 Nihon-kai-chubu Earthquake
平成 7. 6 1995. 6	地震防災対策特別措置法 Earthquake Disaster Prevention Special Act	昭和58. 5 1983. 5	豪雨（島根県等） Torrential Rain
平成 7. 7 1995. 7	防災基本計画修正 Amendment of Basic Plan for Disaster Prevention	昭和58. 10 1983. 10	三宅島噴火 Miyakejima Is. Eruption
平成 7. 11 1995. 11	災害対策基本法及び大規模地震対策特別措置法一部改正 Partly revision of Disaster Countermeasures Basic Act and Large-Scale Earthquake Countermeasures Act	昭和58. 12 1983. 12	豪雪（北陸、東北等） Heavy Snowfall
平成 8. 6 1996. 6	特定非常災害の被害者の権利利益の保全等を図るための特別措置に関する法律 Laws regarding special measures to weigh the preservation of rights and profits of the victims of specified disasters	昭和59. 9 1984. 9	長野県西部地震 Nagano-ken seibu Earthquake
平成 9. 5 1997. 5	密集市街地における防災街区の整備の促進に関する法律 Act for Densely Inhabited Areas Improvement for Disaster Mitigation	昭和59. 12 1984. 12	豪雪（北陸、東北等） Heavy Snowfall
平成10. 5 1998. 5	被災者生活再建支援法 Act concerning Support for Reconstructing Livelihoods of Disaster Victims	昭和61. 11 1986. 11	伊豆大島噴火 Izu-Ohshima Is. Eruption
平成11. 7 1999. 7	地震防災基本計画修正 Amendment of Basic Plan for earthquake Disaster Prevention	平成 3. 6 1991. 6	雲仙岳噴火 Unzendake Eruption
		平成 5. 7 1993. 7	北海道南西沖地震 Hokkaido-Nansei-oki Earthquake
		平成 5. 8~9 1993. 8~9	豪雨（九州等） Torrential Rain
		平成 7. 1 1995. 1	阪神・淡路大震災 The Great Hanshin-Awaji Earthquake
		平成 9. 1 1997. 1	ナホトカ号海難流出油災害 Oil Outflow Accident by wreckage of Russian tanker

2. Anti-disaster Measures that have been Revised to Date

a. The Disaster Countermeasures Basic Act

BASIC FRAMEWORK OF DISASTER PREVENTION

(1) 災害対策基本法

昭和34年の伊勢湾台風は大きな被害をもたらしましたが、これを契機として、総合的かつ計画的な防災行政体制を整備しようという機運が高まりました。その結果、昭和36年11月に「災害対策基本法」が制定されました。同法の主な内容は次のとおりです。

1. 防災責任の明確化
2. 防災体制
3. 防災計画
4. 災害予防
5. 災害応急対策
6. 災害復旧対策
7. 財政措置
8. 災害緊急事態

DISASTER COUNTERMEASURES
BASIC ACT

The large-scale "Ise-wan Typhoon" of 1959 caused a great disaster. This enhanced the motivation to establish a comprehensive and objective administrative system for disaster prevention, leading to promulgation of the "Disaster Countermeasures Basic Act" in November 1961.

The Act contains:

1. Definitions of the jurisdiction and responsibility for disaster prevention;
2. Disaster prevention system;
3. Disaster prevention plan;
4. Disaster preparedness;
5. Disaster emergency response;
6. Disaster recovery;
7. Fiscal measures; and
8. State of emergency.

(2) 組織

ORGANIZATION

(国レベル)	(National level)
内閣総理大臣	Prime Minister
中央防災会議	Central Disaster Prevention Council
指定行政機関	Designated Administrative Organs
指定公共機関	Designated Public Corporations

防災計画の策定、実施、総合調整
Formulation and execution of disaster prevention plan, comprehensive coordination

防災基本計画の策定、実施の推進
Formulation and promoting execution of the Basic Plan for Disaster Prevention

防災業務計画の策定、実施
Formulation and execution of Operational Plan for Disaster Prevention

防災計画の策定、実施、総合調整
Formulation and execution of disaster prevention plan, comprehensive coordination

都道府県地域防災計画の策定、実施の推進
Formulation and promoting execution of the Local Plan for Disaster Prevention

(都道府県レベル)	(Prefectural Government Level)
知事	Governor
都道府県防災会議	Prefectural Disaster Prevention Council
指定地方行政機関	Designated Local Administrative Organs
指定地方公共機関	Designated Local Public Corporations

(市町村レベル)	(Municipal level)
市町村長	Mayors of Cities, Towns and Villages
市町村防災会議	Municipal Disaster Prevention Council

防災計画の策定、実施
Formulation and execution of disaster prevention plan

市町村地域防災計画の策定、実施の推進
Formulation and promoting execution of the Local Plan for Disaster Prevention

(住民レベル)	(Residents level)
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指定行政機関

国の防災関係機関として、国土庁等31の中央省庁が、「指定行政機関」として、指定されています。

Designated Administrative Organs

As the national organizations for disaster prevention, 31 ministries and agencies including National Land Agency are designated as "Designated Administrative Organs".

指定公共機関

防災関係の公的機関として、日本電信電話(株)、日本銀行、日本赤十字社、日本放送協会をはじめ運輸、電力、ガス等の分野で49機関が「指定公共機関」として指定されています。

Designated Public Corporations

As the public corporations for disaster prevention, 49 corporations in the fields of transportation, electric power, gas, etc., including Nippon Telegraph and Telephone, Nippon Broadcasting Corporation are designated as "Designated Public Corporations".

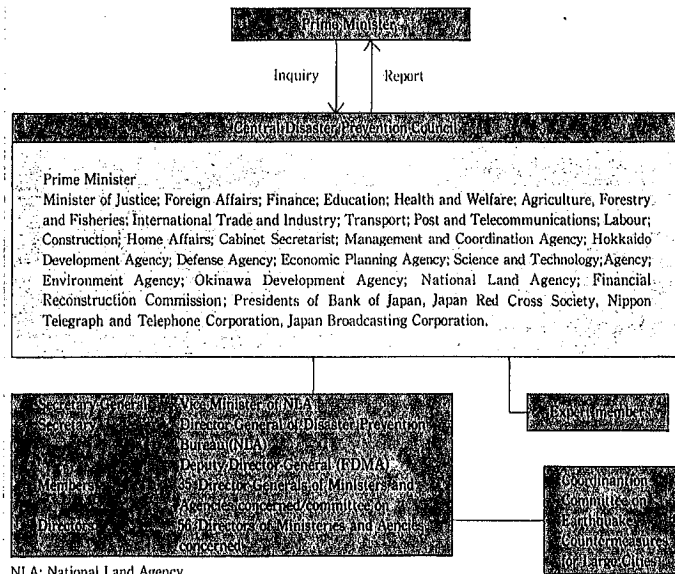
b. *Central Disaster Prevention Council*

c. *Disaster Prevention Plans*

Central Disaster Prevention Council

The Government has established Central Disaster Prevention Council for deliberation of important matters concerning disaster prevention including formulation and promoting the execution of the Basic Plan for Disaster Prevention, with the Prime Minister as chairperson and the Minister of State and other scholars and experts as members. The Government is making efforts to promote extensive and comprehensive countermeasures against disasters.

Organization of Central Disaster Prevention Council



NLA: National Land Agency
 FDA: Fire and Disaster Management Agency

DISASTER PREVENTION PLANS

Basic Plan for Disaster Prevention

The Basic Plan for Disaster Prevention is a master plan on which various disaster prevention plans are based, and it was formulated by the Central Disaster Prevention Council

Operational Plan for Disaster Prevention

The Operational Plan for Disaster Prevention is a disaster prevention plan to be formulated by the respective Designated Administrative Organs and Public Corporations according to the Basic Plan for Disaster Prevention

Local Plan for Disaster Prevention

The local plan for Disaster Prevention is a disaster prevention plan to be formulated by the respective Prefectural or Municipal Disaster Prevention Councils according to the respective local situations.

d. Outline of the Basic Plan for Disaster Prevention

THE OUTLINE OF THE BASIC PLAN FOR
DISASTER PREVENTION

1. The Basic Plan for Disaster Prevention is the basis of the nation's disaster prevention measures and the uppermost plan in the field of disaster prevention which is prepared by the Central Disaster Prevention Council (with the Prime Minister as the chair-person) under Article 34 of the Disaster Countermeasures Basic Act. Based on this plan, the Designated Administrative Organs and the Designated Public Corporations make the Operational Plan for Disaster Prevention, and the local public bodies formulate the Local Plan for Disaster Prevention. The plan was drastically revised in July 1995 and June 1987.
2. The features of new Basic Plan for Disaster Prevention. Revised plan has been made concrete and practical based on the experiences through the disasters of the Great Hanshin-Awaji Earthquake. The new plan describes in detail the roles of the state, public corporation and local public bodies in implementation of the measures so that the roles assigned to each body are clearly defined. The plan also describes disaster preparedness, disaster response and disaster recovery and reconstruction by type of disasters. The edition of Earthquake Disaster Countermeasures for example the contents of each chapter are as follows.

Chapter 1. Disaster Preparedness

- Making a nation and local communities strongly resistant to earthquake disasters.
- Preparations for prompt and smooth emergency disaster countermeasures, disaster rehabilitation and recovery
- Promotion of disaster prevention activities by the citizens
- Promoting research and observation etc. on earthquake disasters and earthquake disaster prevention

Chapter 2. Disaster Response

- Gathering and transmission of information and securing communications directly after occurrence
- Establishing a system of activities
- Rescue, first aid, medical service, and fire-fighting activities
- Securing emergency transportation, and emergency transportation activities
- Activities for evacuation and shelter
- Activities for the procurement and supply of food, drinking water, and other daily requisites
- Activities related to public health and sanitation, epidemic control, disposal of remains, etc.
- Activities related to maintaining social order, stability of commodity prices, etc..
- Activities for emergency restoration of facilities and equipment
- Activities for transmission of correct information to disaster victims etc.
- Activities for preventing secondary disasters
- Acceptance of voluntary support

Chapter 3. Recovery and Rehabilitation

- Deciding basic directions for regional rehabilitation
- Method of promoting speedy restoration in the disaster area to its original state
- Method of promoting systematic rehabilitation
- Support for reconstructing the livelihoods of disaster victims, etc.
- Support for the recovery of disaster-stricken small and medium companies, and other economic recovery

IV . PRESENT TOTAL STRUCTURE OF DISASTER COUNTERMEASURES IN JAPAN

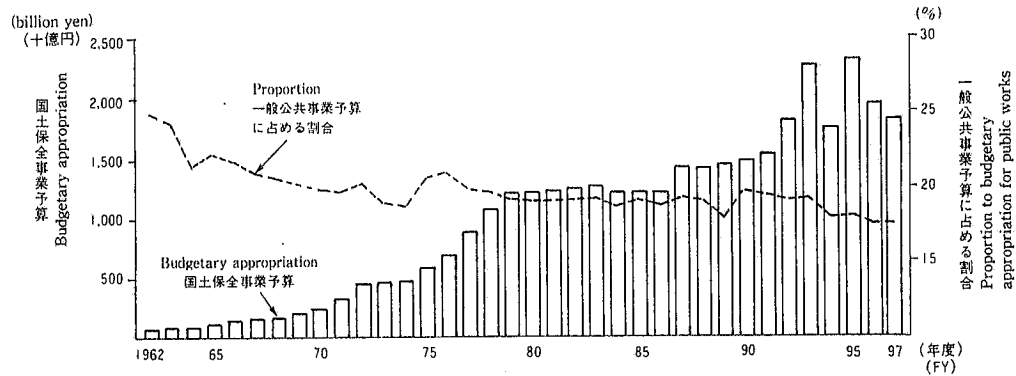
1. Disaster Preparedness
 - a. Disaster Prevention Exercise
 - b. Improvement of Disaster Prevention Facilities and Equipment
2. National Land Conservation

事業種別	年度	期間	金額(億円)
治山事業 五箇年計画	第1次	昭和35-39	729
	第2次	40-44	1,670
	第3次	43-47	2,900
	第4次	47-51	5,800
	第5次	52-56	10,300
	第6次	57-61	14,700
	第7次	62-平成3	14,100
	第8次	平成4-8	19,000
	第9次	9-15	20,000
治水事業 五箇年計画	第1次	昭和35-39	3,650
	第2次	40-44	8,500
	第3次	43-47	15,000
	第4次	47-51	30,000
	第5次	52-56	58,100
	第6次	57-61	82,500
	第7次	62-平成3	80,000
	第8次	平成4-8	109,000
	第9次	9-15	116,000
海岸事業 五箇年計画	第1次	昭和45-49	3,200
	第2次	51-55	5,100
	第3次	56-60	8,200
	第4次	61-平成2	7,600
	第5次	平成3-7	10,400
	第6次	8-12	13,400
急傾斜地崩壊対策 事業五箇年計画	第1次	昭和58-62	3,900
	第2次	63-平成4	5,000
	第3次	平成5-9	5,800
	第4次	10-14	5,900

事業種別	年度	期間	金額(億円)
Forest Conservation Project Five Year Plans	1st	1960-64	72.9
	2nd	65-69	167
	3rd	68-72	290
	4th	72-76	580
	5th	77-81	11,030
	6st	82-86	1,470
	7st	87-91	1,410
	8st	92-97	1,900
	9st	98-2003	2,000
Flood Control Project Five Year Plans	1st	1960-64	365
	2nd	65-69	850
	3rd	68-72	1,500
	4th	72-76	3,000
	5th	77-81	5,810
	6st	82-86	8,250
	7st	87-91	8,000
	8st	92-97	10,900
	9st	98-2003	11,600
Seashore Project Five Year Plans	1st	1970-74	320
	2nd	76-80	510
	3rd	81-85	820
	4th	86-90	760
	5th	91-95	1,040
	6st	96-2000	1,340
Steep Slope Collapse Countermeasures Project Five Year Plans	1st	1984-87	390
	2nd	88-92	500
	3rd	93-98	580
	4th	99-2004	590

国土保全事業予算の推移

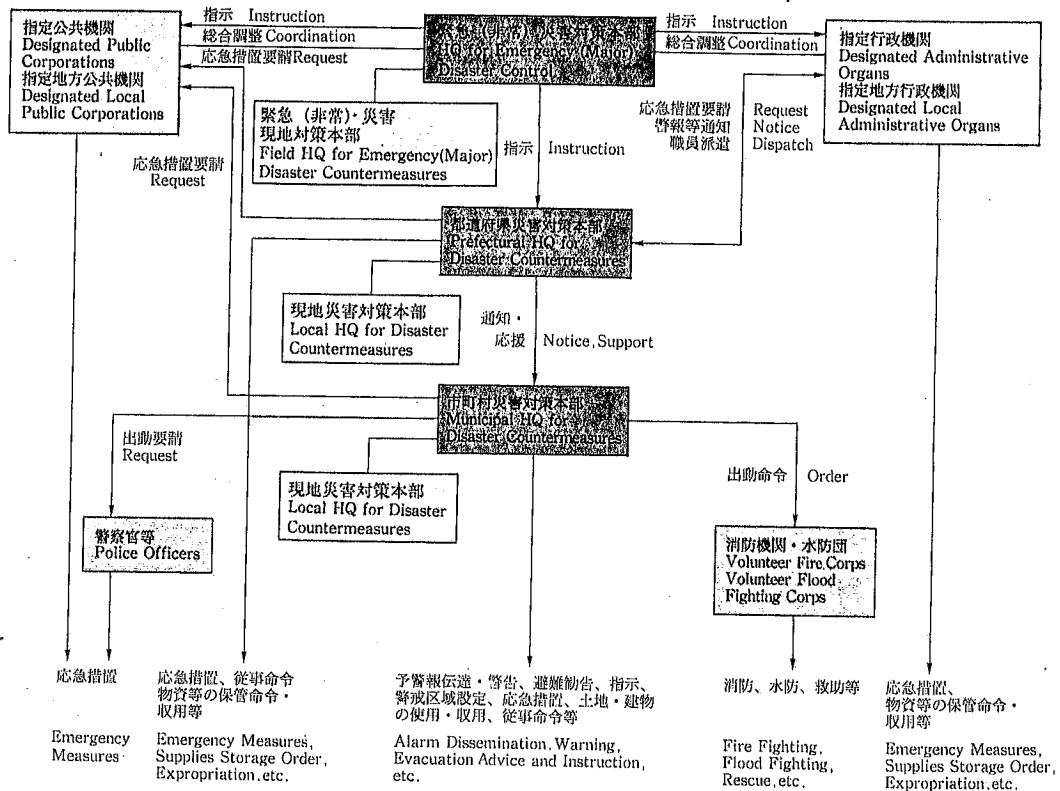
Budgetary appropriations pertaining to the national land conservation projects



3. Disaster Emergency Response

a. Disaster Emergency Response

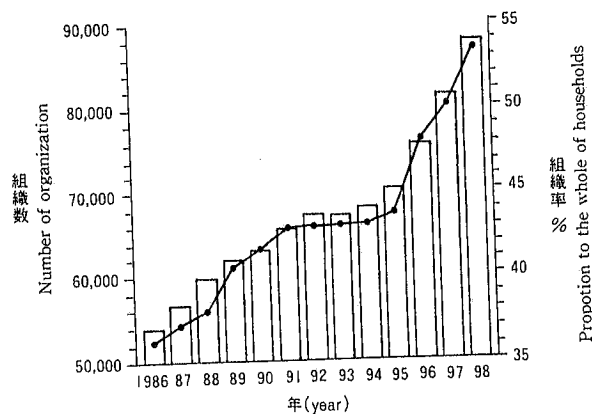
b. Voluntary Disaster Prevention Organization and Volunteer Activities



※ 注：指定行政機関に対する指示は、緊急災害対策本部の場合のみである。

* Note: The instruction to the designated administrative organs is issued only in the case of the HQ for Emergency Disaster Countermeasures.

自主防災組織の組織率と組織数
Voluntary disaster prevention organization



4. *Disaster Recovery and Reconstruction*

a. *Measures for Recovery and Reconstruction*

b. *Recovery and Reconstruction Systems*

① Disaster Recovery Project

Recovery of damaged public engineering facilities, educational facilities, welfare facilities and agricultural, forestry and fishery facilities is made directly by the Government or by local governments with subsidies granted by the Government.

② Disaster Relief Loans

Persons engaged in agriculture, forestry and fisheries and smaller enterprises and of lower income who incurred damage can have various low interest loans allowed under rather generous conditions than normal ones.

③ Disaster Compensation and Insurance

Damaged enterprises or persons engaged in agriculture, forestry and fisheries can have the economic losses compensated for. Earthquake insurance is reinsured by the Government.

④ Tax Reduction or Exemption

For the affected persons, measures of reducing, exempting or allowing respite for collection of income and residence taxes are taken.

⑤ Tax Allocation to Local Governments and Local Bonds

For the affected local governments, measures such as delivery of special tax allocation and special permission of issuance of local bonds are taken.

⑥ Designation of Extreme-Severity Disaster

When a disaster involving damage of extreme severity occurs it is designated as the "disaster of extreme severity" and allows various special measures to be taken for disaster recovery project, etc.

⑦ Assistance to Reconstruction Plan

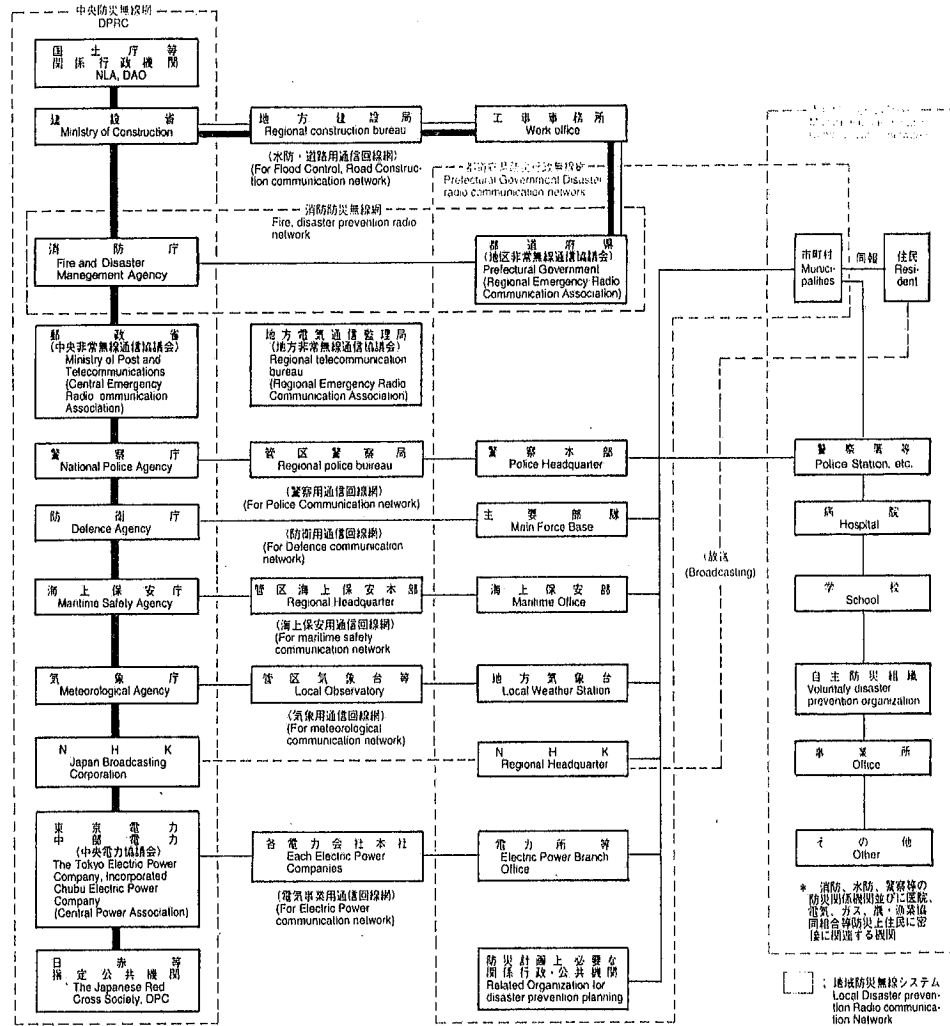
The assistance is given to the reconstruction plan of local governments that should be promptly and accurately formulated and executed.

⑧ Assistance to the recovery of sufferers' life

The assistance is given to sufferers who must restore their self-supporting life, by paying the disaster condolence money or the disaster impediment sympathy money to the sufferers, and providing loans of the disaster assistance funds or the livelihood welfare funds.

5. Information and Telecommunication System

Disaster Prevention related communication network



6. *Earthquake Disaster Countermeasures*
a. *Making Cities More Disaster Resistant*

Proposals by the Central Disaster Prevention Council's
Expert Committee on Earthquake Countermeasures for
Large Cities

I. 総論

- 第1 はじめに
- 第2 本提言の対象区域の考え方
- 第3 大都市地域における地震活動
 - 1 南関東地域における地震活動の評価
 - 2 近畿圏及び中部圏における地震発生可能性の評価
 - 3 地震発生による危険度
- 第4 大都市地域における大規模震災の特殊性

II. 大都市地域における震災対策の推進

- 第5 大都市地域における震災対策の重点課題
 - 1 大都市地域における予防対策・応急対策の備えの基本的視点
 - 2 予防対策における重点課題
 - 3 応急対策の備えにおける重点課題
- 第6 地震発生可能性の評価に関する情報の活用のあり方
 - 1 地震発生可能性の評価に関する情報の防災対策への活用のあり方
 - 2 地震防災対策と地震調査研究との関係のあり方
- 第7 大都市地域の震災対策に関する各種の対策の体系的あり方
 - 1 大都市地域の震災対策に関する国と地方公共団体の連携の推進
 - 2 圏域ごとの連携による震災対策の充実・強化策のあり方
 - 3 特定の課題ごとに作成する実践的な対策
- 第8 大都市地域の震災対策の推進体制
 - 1 連携面に配慮した震災対策の推進体制
 - 2 今後の本専門委員会の活動

I. Introduction

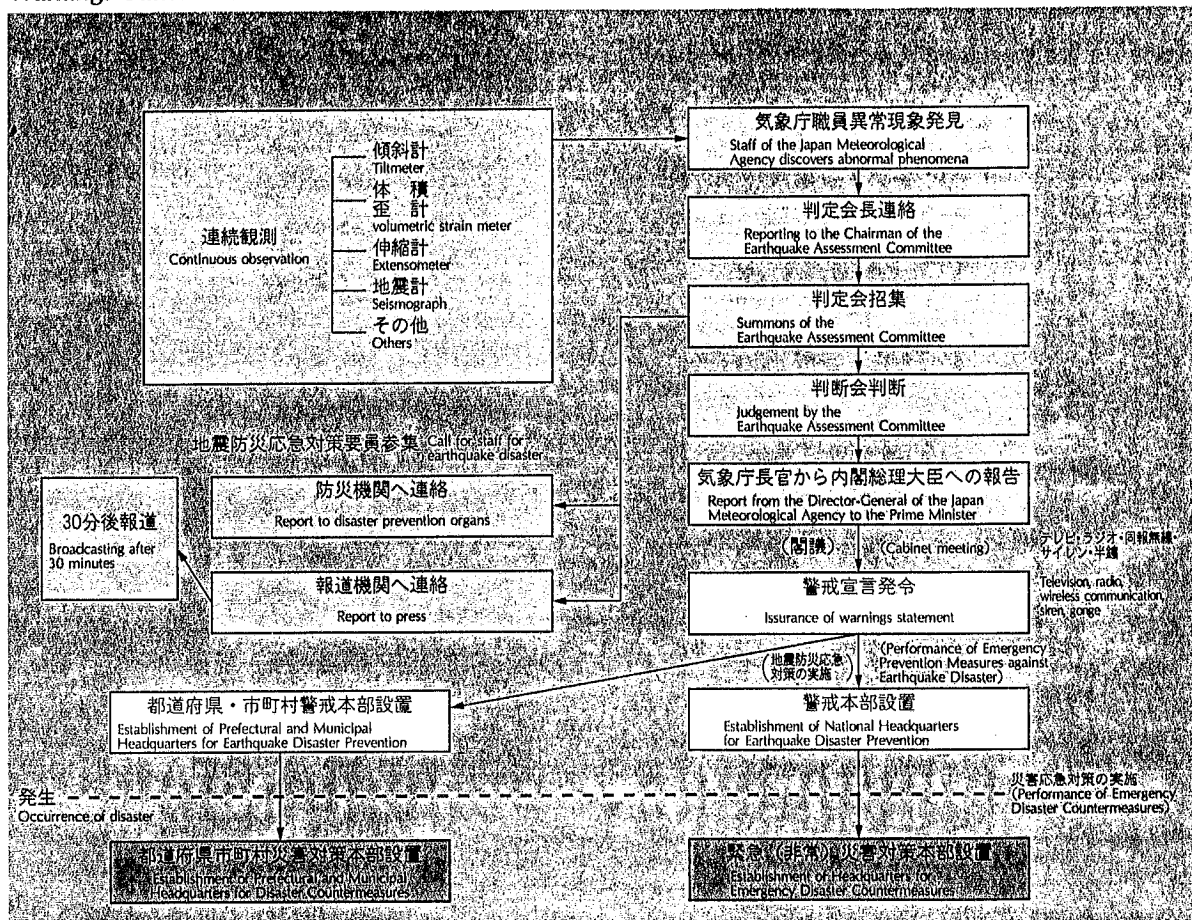
- Section 1: Preface
- Section 2: Reasons for Selecting Areas Targeted in the Proposals
- Section 3: Seismic Activity in Large City Areas
 - 1. Evaluation of seismic activity in Southern Kanto Region
 - 2. Evaluation of probability of earthquake occurrence in the Kinki and Chubu regions.
 - 3. Level of danger by earthquakes
- Section 4: Unique Aspects of Major Earthquake Disasters in Large City Areas

II. Promotion of Earthquake Countermeasures in large City Areas

- Section 5: Main Challenges for Earthquake Countermeasures in Large City Areas
 - 1. Basic approach to establishing preventive measures and preparation of emergency measures in large city areas
 - 2. Main challenges for preventive measures
 - 3. Main challenges for preparation for emergency measures
- Section 6: How Information from Evaluations of Probability of Earthquake Occurrence Should be Applied
 - 1. How information from evaluations of the probability of Earthquake Occurrence should be applied to disaster countermeasures
 - 2. Ideal relationship between earthquake disaster countermeasures and seismic research
- Section 7: How the Various Individual Earthquake Countermeasures for Large City Areas Should be Interrelated
 - 1. Promoting coordination between national and local authorities' earthquake countermeasures for large city areas
 - 2. How the earthquake countermeasures of urban and regional areas should be coordinated
 - 3. Practical countermeasures being drawn up for specific challenges
- Section 8: System for Promoting Earthquake Countermeasures for Large City Areas
 - 1. System for promoting earthquake countermeasures designed to be implemented in coordination
 - 2. Future activities of the Expert Committee

b. Earthquake Disaster Countermeasures in the Tokai Area

Process from the discovery of abnormal phenomena to issuance of Warnings Statement



Measures when a Warnings Statement is Issued

施設 Facility	対応措置 Measures	
	強化地域 (Tokai Area)	東京都 (Tokyo Area)
電気・ガス・水道 Electric Power, Gas and Water Supply	供給 (ガスは併せて緊急停止への準備) Supply (gas: Prepare for emergency stop)	供給 Supply
電話 Telephone	通話規制 (青・黄・緑、防災用は確保) Call restricted (blue, yellow, green, for disaster prevention are in operation)	通話規制 (青・黄・緑、防災用は確保) Call restricted (blue, yellow, green, for disaster prevention are in operation)
鉄道 Railway	最寄駅に停車、強化地域外から進入禁止 All cars will stop in the nearest safe stations; Prohibit inflow from outside areas	地域の状況に応じ可能な限り運転 According to the local circumstances, operate as much as possible
バス・タクシー・船 Bus, Taxi and Ships	運行中止 Operation Stop	地域の状況に応じ可能な限り運転 According to the local circumstances, operate as much as possible
道路 Road Traffic	強化地域外からの進入制限 避難路、緊急輸送路では通行禁止、制限 減速運転 (一般20km/h、高速40km/h) Prohibit inflow from outside areas as much as possible, evacuation route and urgent transportation route stop or restricted to slow driving (general road 20km/h, express way 40km/h)	非強化地域から都内への進入は極力制限 減速運転 (一般・首都高20km/h、高速40km/h) Prohibit inflow from non-intensified areas into Metropolitan Area as much as possible, limited speed driving (general and metropolitan express road 20km/h, express way 40km/h)
銀行・郵便局 Bank and Post Office	営業停止 Operation stop	極力営業 Operate as much as possible
デパート・スーパーマーケット Department Store, Supermarket	顧客を外に誘導 Lead shoppers to out	極力営業 Operate as much as possible
病院 Hospital	外来診療は中止 Operation for outpatients stop	保護者引渡し、帰宅 Hand off students to guardians, back home
学校 School	保護者引渡し、帰宅 Hand off students to guardians, back home	退社する場合は時差退社 Leave office at different time
オフィス Office	退社する場合は時差退社 Leave office at different time	

c. Earthquake Disaster Countermeasures in the Southern Kanto Region

【事前対策】 (Preventive measures)

〔南関東地域直下の地震対策に関する大綱〕

"General Principles Relating to Countermeasures for Earthquakes Directly Below the Southern Kanto Region"

震災対策の基本方針を示すもの

Points outlining the basic policy on earthquake countermeasures:

- ① 地震に強い南関東地域の形成
Formation of the Southern Kanto Region, an area highly resistant to earthquakes.
- ② 応急対策の備え
Preparation for emergency measures.
- ③ 地震危険性の特に高い地域の対策
Establishment of measures for highly dangerous zones by earthquakes.
- ④ 総合的な災害応急能力の向上
General improvement of ability to respond to earthquakes.
- ⑤ 南関東地域に集積する特殊な機能に対する配慮
Taking into consideration the unique functions concentrated in the Southern Kanto Region.
- ⑥ 地域防災に関する調査研究の推進と成果の防災対策への活用
Promotion of survey research on disaster countermeasures and application of results when formulating countermeasures.
- ⑦ 対策の効果的な推進
Effective implementation of countermeasures.

【災害応急対策】 (Emergency disaster measures)

〔南関東地域震災応急対策活動要領〕

"Guidelines for Emergency Countermeasure Activities against Earthquake Disasters in Southern Kanto Region"

地震発生時に各関係機関が行うべき応急対策活動の内容とその手順を定めたもの

Points that set out the duties the various agencies and authorities involved are to carry out during earthquakes:

- ① 情報・広報活動
Gathering and disseminating information.
- ② 緊急輸送のための交通の確保・緊急輸送活動
Securing the means for and providing emergency transportation.
- ③ 救助・救急・医療活動
Providing rescue, first aid and medical treatment.
- ④ 食料、飲料水及び生活必需品の調達、供給活動
Procuring and supplying food, drinking water and the basic necessities of daily life.
- ⑤ 応急収容活動
Providing emergency housing.
- ⑥ ライフライン施設の応急対策活動
Emergency measures to provide lifeline facilities.
- ⑦ 保健衛生、防疫、遺体処理活動
Maintaining sanitation, preventing epidemics and handling corpses.
- ⑧ 二次災害の防止活動
Preventing secondary disasters.
- ⑨ 自主的支援の受入れ
Coordinating volunteer aid.
- ⑩ アクションプランの作成が必要となる課題の提示
Proposing challenges that require an action plan.

〔アクションプラン〕

応急対策の分野ごとに実践的な対応パターンを構築する

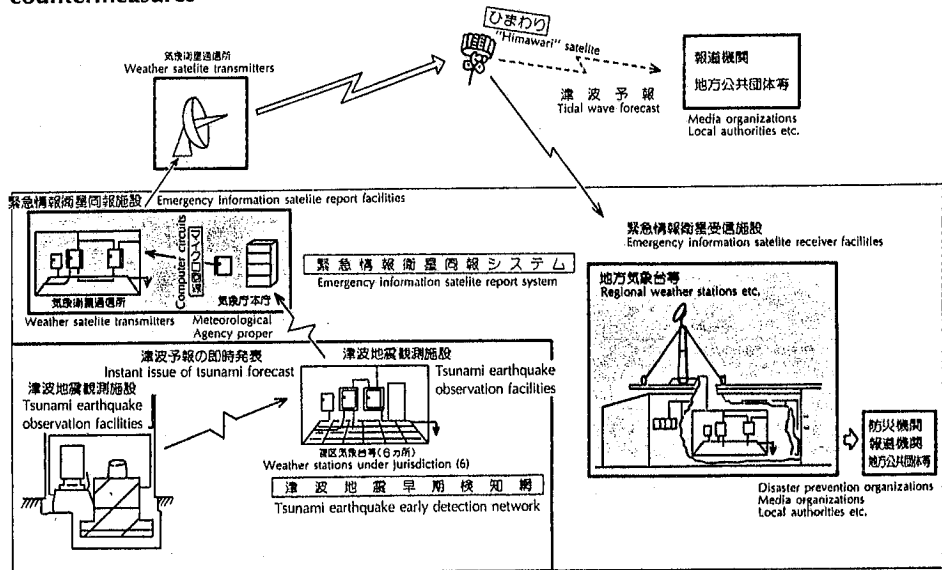
〔Action Plans〕

These establish practical response procedures for each area covered by an emergency measure.

- 輸送路、輸送拠点を含めた輸送ネットワーク
Transportation networks consisting of routes and bases
- 輸送拠点（特に広域的な輸送拠点）
Transport bases (over wide areas)
- 傷病者の搬送を含めた医療活動
Medical activities (including moving the wounded)
- 仮設住宅の建設場所
Areas for setting up temporary housing
- 帰宅困難者に係る対策
Measures for those facing difficulty in returning home

d. Tidal Wave Countermeasures

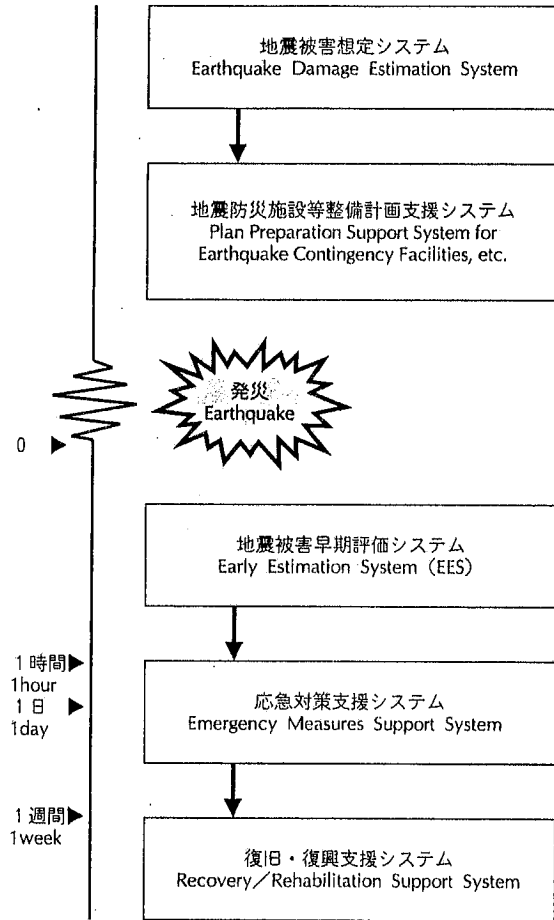
Arrangement of an emergency information infrastructure for tsunami countermeasures



資料：気象庁
Source: Japan Meteorological Agency

e. Disaster Information System

DISの構成イメージ
Constitution of DIS



7. *Countermeasures against Storms and Floods*
 - a. *Improvement of Meteorological Observation and Warning System*
 - b. *Promotion of Comprehensive Flood Control Measures*
 - c. *Promotion of Landslide Disaster Countermeasures*
 - d. *Promotion of Seashore Conservation*

PROMOTION OF COMPREHENSIVE FLOOD CONTROL MEASURES

For the rivers, flood control projects are systematically promoted according to the 9th Flood Control Project Seven Year Plan, which started in 1997, with emphasis on the development of safe social infrastructure, risk management against the flood exceeding the designed level, etc.

IMPROVEMENT OF METEOROLOGICAL OBSERVATION AND FORECAST AND WARNING SYSTEMS

To prevent the storm or flood damage or to reduce the damage, it is important to know exactly and as soon as possible the meteorological conditions including typhoon, depression and front activities causing such damages, precisely forecast the influence and promptly announce and disseminate the forecast and warning. For such purposes, the Meteorological Agency has been conducting meteorological observation with meteorological radar, meteorological satellites and meteorological observation instruments distributed throughout the country and, based upon such data, announcing forecasts and warnings. The information of the river waterlevel and rainfall amount in basins is provided by the river/basin comprehensive information system and is used extensively.

PROMOTION OF SEASHORE CONSERVATION

To prevent disaster or seashore erosion due to high tide and tsunami, improvement of seashore conservation facilities and the seashore environment are systematically carried out according to the 6th Seashore Projects Seven Year Plan with 1996 as the first year.

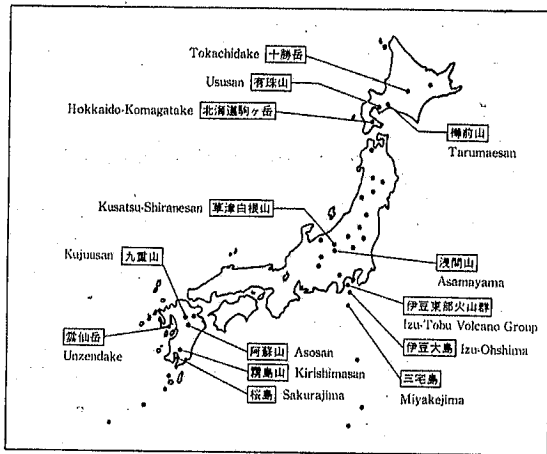
8. Volcanic Disaster Countermeasures

a. Improvement of Volcanic Activity Observation and Investigation System

b. Countermeasures upon Active Volcano Disaster Countermeasures Special Measures Act

- 1) Improvement of evacuation facilities
- 2) Improvement of disaster prevention farming facilities
- 3) Improvement of volcanic ash control facilities
- 4) Volcanic ash removal
- 5) Promotion of forest conservation and erosion control projects

火山分類地図
Classification of volcanos



注：□で囲んだ13火山が「活動的で特に重点的に観測研究を行うべき火山」。それ以外の24火山が「活動的火山及び潜在的爆発力を有する火山」である。
note: □ Volcanos which are active and for which observation and investigation be made selectively, others active volcanoes or volcanoes having explosion potential.

IMPROVEMENT OF VOLCANIC ACTIVITY OBSERVATION AND INVESTIGATION SYSTEM

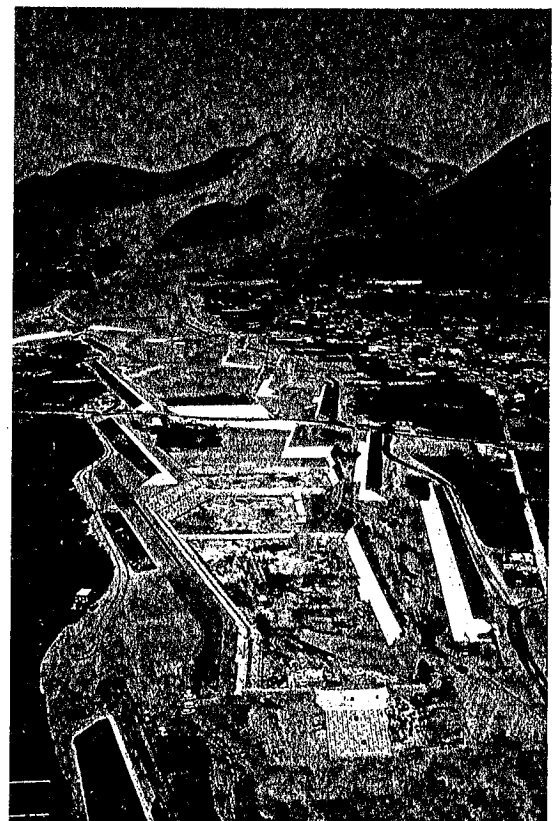
By the activity of a volcano, the area in the vicinity sustains damage from lava flows, pyroclastic flows, mud flows, volcanic ashes and volcanic earthquakes. To cope with such volcanic disasters, it is required, first of all, to predict the volcanic activity. Presently observation and investigation of volcanos are being carried out under the "Sixth Volcanoes Eruption Prediction Plan (1999-2003)". Of 86 active volcanoes in Japan, 13 volcanoes including Sakura-jima and Aso-san are classified as "volcanoes which are active and for which observation and investigation be made selectively" and 24 volcanoes as "active volcanoes or volcanoes having explosion potential".

The "Coordinating Committee for Prediction of Volcanic Eruption" is set up for comprehensive judgement of volcanic activities.

COUNTERMEASURES UPON ACTIVE VOLCANO DISASTER COUNTERMEASURES SPECIAL MEASURES ACT

According to the "Act concerning Improvement, etc. of Refuges etc. in Vicinal Areas of Active Volcanoes" promulgated in July 1973 (Revised to "Active Volcano Disaster Countermeasures Special Measures Act" in Apr. 1978), the following measures are taken.

- ① Improvement of evacuation facilities
- ② Improvement of disaster prevention farming facilities
- ③ Improvement of volcanic ash control facilities
- ④ Volcanic ash removal
- ⑤ Promotion of forest conservation and sabo project



雲仙岳 土石流対策
Unzendake countermeasures against debris flow.

9. Other Disaster Countermeasures

a. Countermeasures Against Snowfall Disaster

b. Countermeasures Against Large Accidents

1) Maritime disaster

2) Aviation disaster

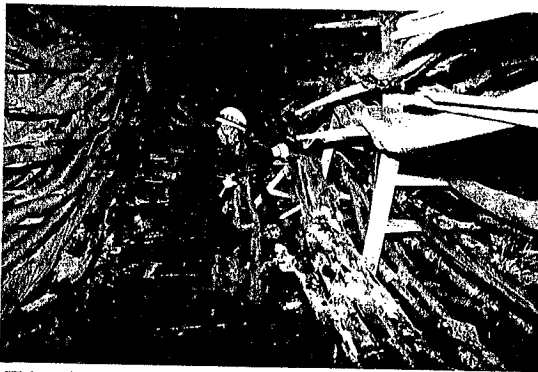
3) Railroad disaster

4) Nuclear disaster

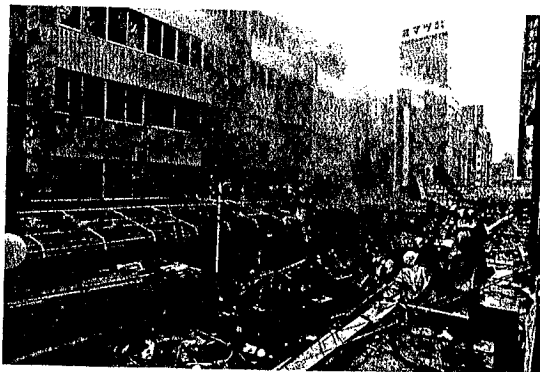
5) Disaster due to hazardous materials, large-scale fire and forest fire

COUNTERMEASURES AGAINST SNOWFALL DISASTER

The area constituting about one-half of the national land of Japan has high snowfall in winter and designated as "high snowfall area" under the "High Snowfall Area Countermeasures Special Measures Act". Thus, it has various countermeasures carried out, including security of transportation and communications and improvement of national land conservation facilities.

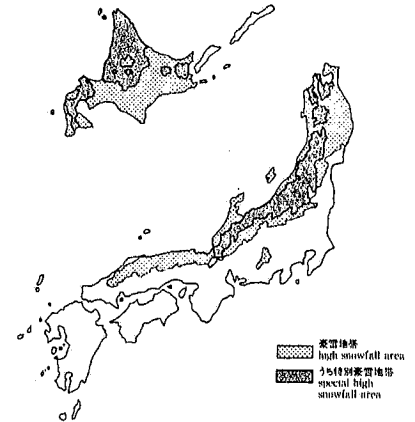


昭和59年 世田谷ケーブル火災
Telecommunication Cables Fire in Setagaya, Tokyo 1984



昭和54年 静岡駅前地下街ガス爆発
Gas explosion in underground of Shizuoka Station 1979
(写真提供：静岡県)
(Source: Shizuoka Pref.)

豪雪地帯及び特別豪雪地帯指定地域
High snowfall area and special high snow area



COUNTERMEASURES AGAINST LARGE ACCIDENTS

Along with the sophistication, complication, and diversification of our society and industry, for the purpose of strengthening prevention measures against accidents and disasters, the Basic Plan For Disaster Prevention was revised in June 1997, to add measures against accidents and disasters (Maritime Disaster, Aviation Disaster, Railroad Disaster, Road Disaster, Nuclear Disaster, Disaster due to Hazardous Materials, Large-Scale Fire, Forest Fire). Thus, it has various countermeasures carried out.

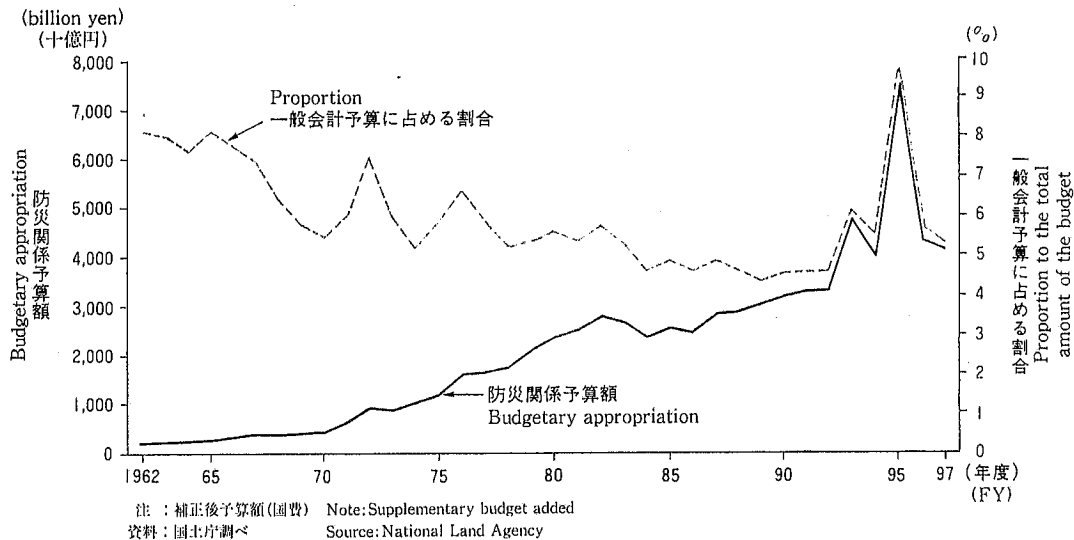
10. Disaster Prevention Related Budget

a. Budgetary appropriation by the Government for disaster prevention

b. Classification of the budgetary appropriation for disaster prevention

防災関係予算の推移

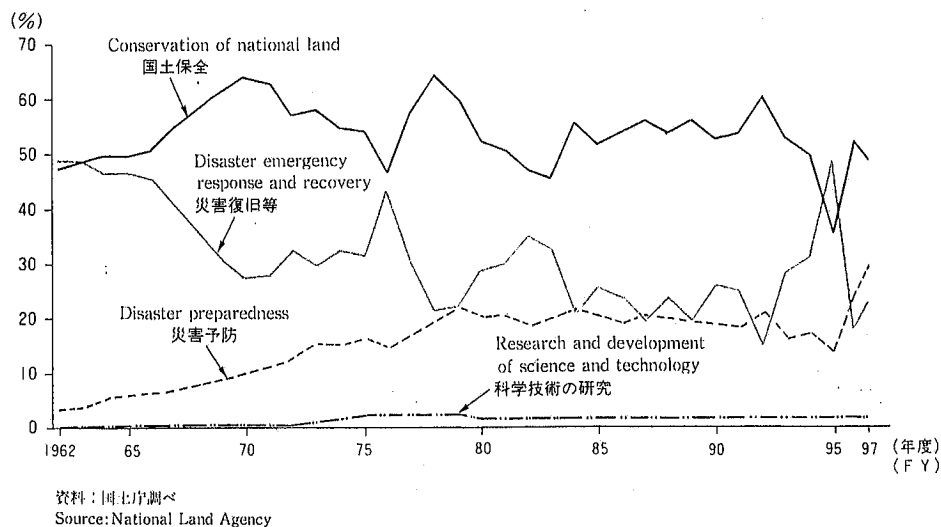
Budgetary appropriation by the Government for disaster prevention



Budgetary appropriation by the Government for disaster prevention is about 3.8 trillion yen for FY 1997 accounting for about 5% of the total amount of the budget for general accounts.

防災関係予算内訳の推移

Classification of the budgetary appropriation for disaster prevention



The budgetary appropriation for disaster prevention can be classified into 4 categories : ① research and development, ② disaster preparedness, ③ conservation of national land and ④ disaster emergency response and recovery. Their proportions to the total budget are shown in the graph below.

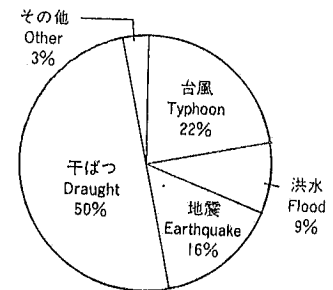
V. INTERNATIONAL COOPERATION

1. Japan's international cooperation for natural disasters
 - a. Technical cooperation
 - b. Grant funds
 - c. Loans
 - d. Multilateral cooperation through UN organizations

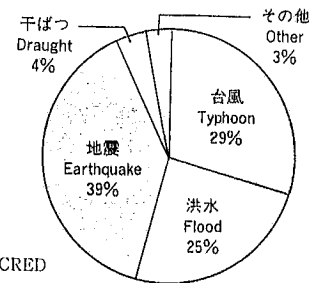
DISASTER IN THE WORLD

Natural disasters such as earthquakes, storms, floods, volcanic eruptions and landslides are estimated to have claimed some 3.7 million lives worldwide in 30 years from 1965 and the immediate property damage is reported to exceed 674 billion dollars. As the greatest disasters, there may be cited the Great Kanto Earthquake in 1923, the cyclone in Bangladesh in 1970, 1991, and the Tangshan Earthquake in China in 1976 in which more than 100,000 people were killed. In 1998 we have experienced many disasters in all over the world, for example flood in China and Bangladesh, tsunami in PNG, Harricane Mitch in Central America

死者数(約370万人：1965-1996)
number of casualties (3.7 mil persons)



被災者数(約38億人：1965-1996)
number of affected (3.8 bil persons)



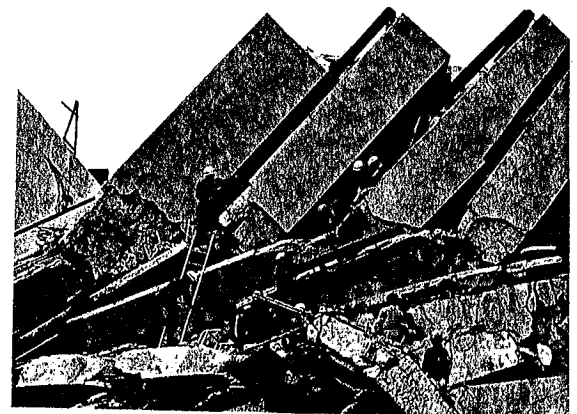
出典 (source) : CRED

JAPAN'S INTERNATIONAL COOPERATION FOR NATURAL DISASTER REDUCTION

Japan experienced numerous natural disasters in the past, and through these experiences, has developed advanced disaster countermeasures. Therefore Japan is positively promoting the international cooperation in the field of disaster prevention.

The Japanese Government is promoting the international cooperation in four categories, ①technical cooperation such as providing training courses for experts of other disaster prone countries and dispatch of experts to these countries, ②grant funds, ③loans, ④multilateral cooperation through UN organizations. In 1987, the Law concerning Dispatch of Japan Disaster Relief Teams was legislated, thus the organizational arrangements for international emergency disaster relief activities were enforced.

The non-governmental bodies such as the Japanese Red Cross, are also active in this area, especially in emergency disaster relief assistance.



国際緊急援助隊の活動 (フィリピン地震：1990)
Activity of Japan Relief Team at the time of Philippine Earthquake 1990

GRAND AID FOR DISASTER in Central and South America(1998)

(¥100 million)

Country	Grand Aid	Amount
Colombia	Emergency Relief	0.47
	Emergency Relief	0.15
Cuba	Emergency Relief	0.06
	Emergency Relief	10.00
Dominica	Emergency Relief	0.12
El Salvador	Emergency Relief	0.06
	Emergency Relief	0.14
Guatemala	Improvement of Equipment and material for Reconstruction of Hurricane Disaster	4.49
	Emergency Relief	0.18
	Emergency Relief	0.14
	Emergency Relief	0.89
Haiti	Emergency Relief	0.12
Honduras	Improvement of Equipment and material for Reconstruction of Hurricane Disaster	7.49
	Emergency Relief	0.94
	Emergency Relief	1.25
Nicaragua	Emergency Relief	0.59
	Emergency Relief	0.69

Source:Japan's ODA 1999

2. Dispatch of Japan Disaster Relief Teams

**Disaster Relief Activities in the World
Dispatch of Japan Relief Teams and Offer of Relief Supply**

Year	Relief Supply	Medical Team	Relief Team	Expert Team	Self-Defense Force
1987	4			2	
1988	16	4		2	
1989	7	2			
1990	20	2	2	3	
1991	22	7	1		
1992	18	1		2	
1993	18	1	1	1	
1994	13			1	
1995	16			1	
1996	24	1	1		
1997	19			4	
1998	30	4	1	1	1
Total	207	22	6	17	1

Source: Japan International Corporation Agency

Note: The figures above are based on the date from the legislation of the Law concerning Dispatch of Japan Disaster Relief Teams to 1998

Disaster Relief Activities and Dispatch of Japan Relief Teams in Central and South America

(As for Mar. 1999)

Year	Country	Disaster	Activity (amount)	Dispatched Team (number of the dispatched)
1997	Mexico	Hurricane, Oct. '97	Relief Supply (approx.17million yen)	
	Ecuador	Flood, Dec. '97	Relief Supply (approx.7million yen)	
	Peru	Flood, Jan. '98	Relief Supply (approx.10million yen)	
	Paraguay	Storm, Jan. '98	Relief Supply (approx.10million yen)	
	Peru	Flood, Mar. '98	Relief Supply (approx.25million yen)	
1998	Uruguay	Flood, May. '98	Relief Supply	
	Argentina	Flood, May. '98	Relief Supply	
	Bolivia	Earthquake, May. '98	Relief Supply	
	Mexico	Downpour, Sep. '98	Relief Supply	
	Cuba	Hurricane, Sep. '98	Relief Supply	
	Dominica	Hurricane, Sep. '98	Relief Supply	
	Haiti	Hurricane, Sep. '98	Relief Supply	
	St. Christopher and Nevis	Hurricane, Sep. '98	Relief Supply	
	Dominica	Hurricane, Oct. '98	Relief Supply	Medical Team
	Honduras	Hurricane, Nov. '98	Relief Supply	Self-Defense Forces (205) Nov.13 to Dec. 9
	Nicaragua	Hurricane, Nov. '98	Relief Supply	Medical Team (16) Nov.11 to 25
	El Salvador	Hurricane Nov.'98	Relief Supply	
	Guatemala	Hurricane Nov.'98	Relief Supply	
	Colombia	Earthquake, Jan. '99	Relief Supply	Relief Team (37) Jan.26 to Feb.4 Medical Team (15) Jan.28 to Feb. 10

Source: The Ministry of Foreign Affairs

3. Promoting the International Decade for Natural Disaster Reduction

Summary (Japanese Government Headquarters for IDNDR)

Japan was one of the principal proponents of the IDNDR and has been active in international cooperation in the area of disaster-reduction.

1. The Japanese Government Headquarters for IDNDR

Japan has used the decade as an opportunity to advance both international cooperation in the area of disaster-reduction and domestic disaster-reduction programs. To accomplish this better, the government established in May 1989 the "Japanese Government Headquarters for IDNDR" (president: the Prime Minister).

2. The basic policy for promoting activities for IDNDR

The first meeting of the Japanese Government Headquarters for IDNDR, which was held in November 1989, approved basic government guidelines for programs to be conducted during the decade. On the international level, the guidelines mandate active participation in and cooperation for the programs planned for the decade by the United Nations and others. In particular, they call for contributions to the mitigation of damage from natural disasters in developing countries by providing from a long-term vantage point: 1) technical cooperation to assist in raising the levels of disaster-reduction science and technology and disseminating that information, and assistance for human resources development and improved disaster-reduction systems; 2) assistance for specific projects that will contribute to disaster-reduction; 3) communication of Japanese experiences and knowledge at international conferences and other fora for the exchange of experiences and knowledge among countries; and 4) enhancement of international emergency assistance

3. IDNDR conferences

- 1) Japan hosted and actively participated in a United Nations-sponsored "World Conference on Natural Disaster Reduction" in the city of Yokohama in 1994.
- 2) The Japanese Government Headquarters for IDNDR held international conferences in 1990, 1991, 1992, 1993, 1995, 1996, 1997, 1999.
- 3) Establishment of the Asian Disaster Reduction Center