The government of Japan has decided the White Paper on Disaster Countermeasures in 1988, stipulated in Disaster Countermeasures Basic Law (Article 9, Clause 2), and proposed to the National Diet. This report is the abstract of White Paper which is closely related to the international cooperation and IDNDR activities.

exchange of information on a wide array of relevant issues, such as earthquake research, response to predictions, and plans for disaster prevention, mitigation, and education. Seismologists and administrators were among the some 300 participants from 29 nations, including eight from Japan representing the National Land Agency, local-public organizations, and research institutions who were actively involved in the addresses and discussions.

In October 1987, the International Research and Training Seminar on Regional Development Planning for Disaster Prevention was consecutively convened in Tokyo and Nagoya. Predicated on the declaration of the International Seminar on Regional Development Planning for Disaster Prevention, held in September of the previous year with foreign policymakers and officials supervising national disaster prevention programs participating, this seminar was designed to study each nation's experience with such programs as well as to undertake study and training in regional development and disaster prevention. It was jointly sponsored and convened by UNCRD, UNDTCD, and UNU.

Another gathering, the 20th Typhoon Committee meeting, was held in Bangkok, also in October 1987. The Typhoon Committee was established under ESCAP (Economic and Social Commission for Asia and the Pacific) and WMO in 1968. Its role is to review activities aimed at reducing typhoon-caused damage, offer recom-

mendations on meteorological, hydrological, and disaster prevention schemes, and to promote the establishment of typhoon warning systems, flood control, and disaster prevention drills and programs. Its annual meeting rotating among 10 member nations, including Japan, the Committee has made crucial contributions to the reduction of devastation in the typhoon-prone nations of the Pacific region.

A forthcoming event scheduled to convene July 18–24, 1988 and sponsored by Kagoshima Prefecture, the Kagoshima International Conference on Volcanoes will deal with the theme, "Coexistence between Human Beings and Volcanoes." Vulcanologists and policymakers will be among the some 3,000 participants from roughly 40 nations including the United States, Italy, and Indonesia. Meaningful dialogue is expected on such topics as reduction of volcanic devastation and the utilization of volcanic resources.

From July 27 to 29, Japan (with the Institute for Social Safety Science acting as sponsor) will host the Second U.S.-Japan Workshop on Urban Earthquake Hazard Reduction. The first was held in August 1984. Researchers and policymakers from the two countries will discuss the findings of studies on urban disaster prevention.

The Ninth World Conference on Earthquake Engineering will consecutively convene in Tokyo and Kyoto from August 2 to 9 of this year (sponsored by the Science Council of Japan, etc.). Fifty-seven nations including Japan, the United States, and Canada are expected to take part in this event, at which information on the latest research findings in relevant fields will be exchanged.

In addition to the above, other international events will be convened both domestically and abroad to take up issues on disaster prevention programs.

3. Japan's Contribution to International Cooperation

3.1 Current Cooperation

Japan's contributions to international cooperation in the field of disaster prevention have been made possible by efforts in both the government and private sectors. The government's efforts are fourfold: 1) technical cooperation, 2) grants, 3) loans, and 4) cooperation through international organizations. Private sector activities are conducted by the Japanese Red Cross and other volunteer organizations.

1) Technical Cooperation

(1) Training in disaster prevention

Various Japanese government agencies are involved in training personnel from developing countries in the expertise and techniques of disaster prevention (Table 4). These efforts play a vital role not only in imparting advanced Japanese technology to nations where it is needed, but also in furthering international understanding and goodwill.

(2) Technical cooperation centers

Cooperation of this nature is a crucial element of Japan's total effort in technical assistance and assumes the following form in principle. The Japanese government provides the machinery and other equipment necessary for center operations and assumes responsibility for technical instruction. Recipient nations bear the necessary expenses involved in center construction and operation.

Exemplary models of such Japanese efforts include Indonesia's Volcanic Sabo Technical Center and Peru's

Table 4 Major Disaster Training Activities in 1986

Name	Description	Institution	No. of Participants
Seminar on disaster prevention technology	An introduction to Japanese disaster prevention systems; acquisition of preventive technology comprising flood, erosion, and earthquake control measures.	Science and Technology Agency (National Research Center for Disaster Prevention)	9
Seismic engineering training	Broad training from fundamentals to applications in seismology and seismic engineering.	Ministry of Construction (Building Research Institute)	19
Firefighting administration training	Introduction to Japanese administrative system for firefighting activities; aimed at upgrading similar systems in other nations.	Fire Defense Agency	10
Rescue and disaster prevention training	Personnel engaged in rescue and disaster prevention work were instructed in the latest Japanese theory and technology in their fields through lectures, training, and tours.	Maritime Safety Agency	6
Meteorological training	Training in meteorology pertinent to disaster prevention, with emphasis on general meteorology (forecasting) and weather radar.	Meteorological Agency	7

Source: Japan International Cooperation Agency, *Annual Report*

Center for Earthquake Disaster Prevention Measures (Table 5).

(3) Development project assessments

Teams of experts visit developing nations to review and assist in the drafting of mid- and long-term disaster recovery plans, which are vital to their continued development, as was done in the wake of Colombia's Mount Nevado del Ruiz eruption and the major earthquake in Mexico, both in 1985. Table 6 shows other Japanese efforts of this nature made during 1986.

(4) Dispatch of international emergency relief workers

Another crucial Japanese obligation to international society lies in sending emergency relief workers to nations crippled by natural disasters, particularly developing nations with insufficient disaster prevention frameworks.

After the aforementioned Mexican and Colombian disasters, which occurred in September and November 1985, respectively, Japan provided needed funds and also dispatched medical teams for disaster relief which form part of its Japan Medical System for Disaster Relief (inaugurated in 1982). Following these disasters,

Table 5 Technical Cooperation Centers

Name	Year Operations Begun	Description of Activities
Volcanic Sabo Technical Center (Indonesia)	1982	Training of erosion control experts and development of pertinent technology
Center for Earthquake Disaster Prevention Measures (Peru)	1986	R&D, dissemination of earthquake disaster prevention measures.

Source: Japan International Cooperation Agency, *Annual Report*

Table 6 Representative Development Projects

Project Name (Country)	Description
Manila Flood Control Plan (Philippines)	A master plan was drawn up for flood control in the metropolitan Manila area. Typhoons frequently cause the city's rivers and streams to flood.
Plan for Chao Phraya River Flood Warning System (Thailand)	A study was conducted on a proposed flood warning system for the whole Chao Phraya River Basin (162,000 sq. km).
Rimac River Disaster Prevention Plan (Peru)	A master disaster prevention plan was produced to deal with floods and landslides in the basin of the Rimac River, which runs through Lima.

Source: Japan International Cooperation Agency, *Annual Report*

however, the direct relief work of Western nations proved far more effective, heightening awareness in Japan of the need for establishing an international emergency relief framework, which includes the dispatch of rescue personnel.

Subsequently, efforts were initiated (with Cabinet approval in December 1987) to develop a system for swift action in disasters, in response to requests from other nations, ensuring the immediate and appropriate dispatch of Japan Disaster Relief Team personnel. These personnel would include emergency medical teams (to administer life-saving first aid to disaster victims), rescue workers (for rescue and other relief efforts), youth workers (for coordination and support of emergency response measures), and disaster recovery experts (to provide technical guidance and counsel for recovery efforts).

The Law Concerning the Japan Disaster Relief Team went into force on September 16, 1987. It is intended to establish a legal basis and clarify procedures for sending emergency relief teams abroad, particularly to developing nations where major disasters have occurred, in response to requests from the governments concerned. The law is also aimed at furthering the development of a

comprehensive international emergency relief system to cover a broad spectrum of activities including rescue, medical services and disease prevention, disaster emergency response and recovery strategies.

It is hoped that the Japan Disaster Relief Team will make a major contribution, as Japan, commensurate with its capabilites, meets its international obligations.

Table 7 shows recent Team actions.

2) Aid Grants

Cooperation in this area consists of financial aid to recipient nations which does not need to be repaid. Cash grants, along with technical assistance, are the major pillar of ODA (official development aid). Aid grant classifications include (1) general aid, (2) fisheries, (3) cultural purposes, (4) disaster relief, (5) food, and (6) food production increases. The fourth item, disaster relief, is provided to nations crippled by wind and flood damage, earthquakes, and droughts and includes humanitarian aid to refugees and other victims of conflicts.

In 1986, of the ¥181.1 billion Japan budgeted for financial assistance, ¥1,357,150,000 was distributed in disaster assistance grants.

Table 7 Recent Activities of International Emergency Relief Missions

Recipient Country	Type of Disaster	Date of Disaster	Extent of Devastation	Mission's Objectives	Period of Activities (No. of personnel)
Cook Islands	Cyclone (strong winds; rough seas)	January 1987	Port and harbor facilities, roads damaged; over 6,000 people affected	To survey disaster conditions, initiate studies and provide technical guidance in recovery efforts	January 10-17 (4)
Vanuatu	Cyclone (strong winds; heavy rains)	February 1987	15,000 homes destroyed; communications and water utilities damaged	To survey disaster conditions and distribute medical supplies	February 10-16 (2)
Ecuador	Earthquake (landslide)	March 1987	Villages buried; 2,000 deaths, 5,000 missing; oil pipeline damaged	To survey disaster conditions and distribute medical supplies	March 14-21 (3)
Maldives	Flood tides	April 1987	Coastal erosion, damage to airport facilities; cholera outbreak	To survey disaster conditions, provide technical guidance in recovery efforts, and distribute medical supplies	April 2 to May 2 (4) April 25 to May 2 (1)
China	Wildfire	May 1987	Over 200 deaths; some 17,000 sq. km of forest consumed	To survey disaster conditions and distribute medical supplies and tents	May 17-20 (1)
Bangladesh	Flooding	July 1987	30 percent of nation's land surface inundated; 570 deaths; 23.22 million affected	To survey disaster conditions and relief needs; to distribute medical supplies	August 27 to September 5 (4) September 12-18 (1)
Venezuela	Mudflow (flooding)	September 1987	91 deaths, 26 missing, 600 homes destroyed	To survey disaster conditions and learn about relief needs; to advise on disaster prevention measures	October 6-17 (7)

Sources: Ministry of Foreign Affairs; Japan International Cooperation Agency, *Annual Report*

Table 8 describes recent assistance. While often provided to regions in Asia, it was also extended to other disaster-prone regions of the world, including Cameroon, hit by a volcanic eruption that emitted poisonous gases, and El Salvador and Ecuador, which were struck by major earthquakes.

3) Loans

This form of assistance is usually a direct yen-denominated government credit which the recipient country is obligated to repay, though at low interest rates. It has proven useful in such disaster prevention efforts as civil engineering work on forestation and flood control.

Flood control projects in the Philippines and Indonesia were the major recipients of such aid in 1985 and 1986, as shown in Table 9.

4) Cooperation through International Agencies

As indicated earlier, disaster-related aid has been provided by various United Nations organizations. Japan's contribution to international cooperation through funding and endowments for U.N. organizations deeply involved in disaster planning, namely, the Food and Agriculture Organization, Development Program, UNDRO, World Food Program, Center for Human Settlements,

Table 8 Recent Major Disaster Aid Grants

Recipient Country	Project	Year	Description
Vietnam	Disaster aid	1985	Monetary aid
Vietnam	"	1985	"
Bangladesh	"	1985	"
Bangladesh	Recovery program for stricken area	1985	Funds and materials for rebuilding many homes and schools hit by a cyclone
Sri Lanka	Disaster aid	1985	Monetary aid
Kampuchean refugees, etc.	"	1985	"
Kampuchean refugees, etc.	"	1985	"
Mexico	Emergency relief	1985	"
Colombia	"	1985	"
Ecuador	Disaster aid	1985	"
Bolivia	Emergency relief	1985	"
Niger	Disaster aid	1985	"
Mali	"	1985	"
Philippines	"	1986	"
Philippines	"	1986	"
Vietnam	"	1986	"
Indonesia	Volcanic Sabo Technical Center plan	1986	Facilities and equipment for expansion and strengthening Volcanic Sabo Technical Center to cope with frequent mudflows caused by heavy rains and Indonesia's volcanic soils
Sri Lanka	Disaster aid	1986	Monetary aid
Fiji	"	1986	"
Fiji	"	1986	"
Solomon Islands	"	1986	"
Vanuatu	"	1986	"
El Salvador	"	1986	"
Jamaica	"	1986	"
Haiti	"	1986	"
Ecuador	"	1986	"
Peru	"	1986	"
El Salvador	Earthquake recovery program	1986	Equipment for removal of debris from earthquake demolished structures
Cameroon	Disaster aid	1986	Monetary aid
Comoro Islands	"	1986	"
Madagascar	"	1986	"

Source: Ministry of Foreign Affairs

Table 9 Recent Major Cases of Disaster-Related Loans and Assistance

Recipient Country	Project	Year	Description
Philippines	Dam operation and flood warning system	1985	Establishment of a major flood warning system on Luzon Island to ensure stable and effective dam water discharges and broadcast appropriate warnings to alert downstream inhabitants during floods, thereby mitigating the loss of human life and property and adding stability to the lives of flood basin inhabitants.
Philippines	Flood control and irrigation program for lower reaches of the Pampanga River	1985	Engineering assistance (studies, design) in the construction of flood control facilities and irrigation facilities for the lower reaches and western regions, respectively, of the Pampanga River, to decrease typhoon-induced flood damage and increase rice production in the central Luzon region.
Indonesia	Flood control on the upper reaches of the Solo River	1985	Modification of the upper reaches of the Solo River to protect the river basin, particularly the city of Solo, from flooding that occurs once every 10 years on average.
Indonesia	Mount Merapi Emergency Disaster Prevention	1985	Erosion control engineering projects to protect vulnerable areas from devastation (landslides, mudflows) caused by eruptions of Mount Merapi, located in central Java near the city of Jogjakarta.
Indonesia	Flood control of the Surabaya River	1985	Engineering assistance (studies, design) in modification of the Gunungsari(?) waterway and Gudorus(?) River, to protect urban areas of the city of Surabaya, particularly the western portions, from frequent water damage.
Indonesia	Modification of lower reaches of Asahan River	1986	Engineering assistance (studies, design) in modification of the Asahan and Cilawu Rivers to protect areas along the Asahan from massive damage caused by the rivers' flooding, which occurs once every 10 years on average.

Source: Ministry of Foreign Affairs

World Meteorological Organization, and others, reached about $100 million in 1986.

3.2 Japanese Framework for International Cooperation

Numerous government ministries and agencies are very involved in international disaster prevention efforts. Those specifically engaged in the technical and funding aspects of such cooperation are outlined below.

1) Japan International Cooperation Agency (JICA)

The JICA was established as a special corporation in 1974 to assist in the socioeconomic growth of developing nations and promote international cooperation through technical assistance at the government level. As one of its endeavors to fulfill these aims, the agency is actively launching training and developmental studies in disaster prevention as well as Japan Disaster Relief Team projects.

2) Overseas Economic Cooperation Fund

The Overseas Economic Cooperation Fund was established to promote industrial development and economic stability in the world's developing regions. As part of the government's system of economic cooperation, it provides credits to other nations. This

form of aid has been effective in forestation and flood control projects.

3) Japanese Red Cross Society

A body established on the principles of the International Red Cross, the Japanese Red Cross Society is engaged in humanitarian relief projects, of which disaster relief activities are a vital part. It also occasionally acts as an intermediary for the distribution of Japanese aid grants for disaster relief.

4) Volunteer Organizations

Some Japanese volunteer organizations have been set up to provide assistance to refugees and others in need. They have been at the center of relief efforts to help victims of severe African drought conditions. It is hoped that their recently increased efforts on an international scale will extend to disaster prevention activities.

3.3 Japan's Role

As an "advanced nation" in disaster prevention, one with the capacity to lead global cooperation in this field, Japan must play an active role in international disaster prevention efforts.

First, as a nation continually threatened and often stricken by earthquakes, typhoons, floods, and other potentially disastrous natural occurrences, Japan has accumulated considerable expertise in responding to and recovering from disasters. It also possesses a full array of the advanced hardware and software essential for viable disaster prevention and response programs.

Information exchange and technological advances on a global scale will be critical to disaster prevention efforts in the areas of land protection; disaster assessment, prevention for buildings, prediction, recovery, and prevention systems; emergency response; scientific and engineering research; and increasing public awareness of disaster prevention needs.

Japan can and should actively promote and fully contribute to international cooperation and information exchange, based on its many years of experience, experiments, and research in: (1) land protection through reforestation and flood control; (2) meteorological observation, warnings, and disaster prevention information and communication networks; (3) disaster prevention assessment methods such as identifying danger spots and testing for earthquake resistance; (4) advising, under the Basic Disaster Countermeasures Law, on disaster prevention; (5) disaster prevention systems; (6) firefighting and flood control; (7) recovery

work, and (8) forecasting and warning against earthquakes in the Tokai region.

Secondly, as the world's second largest economic power and as a nation highly dependent on external economic relations, Japan bears a commensurate responsibility in offering economic assistance to developing nations. It has accordingly strengthened cooperation in disaster prevention. Natural disasters, which inflict immense economic losses, bring more serious consequences on the economies of the developing nations than on others. Mitigation of economic losses through disaster prevention aid, therefore, takes on even greater importance. From this standpoint, the Japanese role in economic assistance for research and development, disaster preparedness, and emergency aid will be crucial.

4. Prospects for International Cooperation

4.1 Outlook and Issues for an International Framework

International cooperation in disaster prevention has made steady progress thanks to the concerted efforts of the United Nations and national governments. Nevertheless, there are several positive steps that could be taken in the areas of research and development, preparedness, and emergency aid.

The first, which affects all these areas, is reviewing the basic objectives of global coordination in disaster prevention and the global strategies and plans of action that will underlie such coordination.

UNDRO is making steady progress toward systematic coordination of emergency aid, but concerned government agencies in each country must support these efforts with their own studies of prevention and action plans for such coordination.

Second, academic associations now play a principal role in international cooperation in research and development and disaster prevention. A similar governmental role should be considered as well to promote useful applications of research findings and technical transfers.

Third, in the area of emergency aid, efforts are also needed to speed up provision of appropriate disaster relief, the proper shipment of supplies, and coordination in the chain of command. Toward these ends, liaison channels between the U.N., donor nations, and the recipient nations could be better developed.

Fourth, there is room for improvement of technical and financial cooperation in the areas of research and development and disaster preparedness, which, from an international standpoint as well, suffer from the lack of an adequate framework for their

comprehensive emphasis in disaster prevention programs and research and development. Consequently, opportunities for Japan to offer relevant know-how to developing nations are decreased. It is vital that Japan help remedy these circumstances through technical and financial cooperation.

To satisfactorily deal with the above issues and facilitate more effective international activities, an international network must be devised to systematically promote (1) disaster assessment, (2) preparedness, (3) prediction, (4) emergency aid, (5) recovery, (6) disaster prevention systems, and (7) the development of disaster prevention technology. Japan must continue its cooperation with the U.N. and other nations and support the development of such a network.

Raising awareness of the need for disaster prevention efforts and encouraging consensus on the importance of viable measures will be crucial to realizing the aforementioned international cooperation and comprehensive coordination toward a global reduction of disasters.

4.2 International Decade for Natural Disaster Reduction

Japan has actively supported the initiative behind the International Decade for Natural Disaster Reduction (IDNDR), which was adopted by the 42nd United Nations General Assembly

in December 1987 as a major component of global efforts to encourage the development of disaster prevention systems and cooperation.

The concept was initially proposed by Dr. Frank Press, president of the U.S. National Academy of Sciences, at the Eighth World Conference on Earthquake Engineering in 1984. It called for the designation of the 1990s as a decade for worldwide natural disaster reduction, designed to be achieved through joint international research and demonstration projects, and encouraged global moves in that direction.

In response to Dr. Press's proposal and similar moves by the National Academy of Sciences, an IDNDR discussion group was established within the Science Council of Japan to study its substance. Within the government, an IDNDR Liaison Committee was formed by the National Land Agency together with other government ministries and agencies. These groups have exchanged information on diverse activities related to the IDNDR concept and plan to study Japan's approach to its implementation.

During the general debate at the 42nd United Nations General Assembly in 1987, Japanese Prime Minister ~~Noboru Takeshita~~ stressed the necessity for the world body to establish and strengthen frameworks for preventing natural disasters and

providing prompt and effective emergency relief when they do occur. With Morocco, which held similar views, Japan proposed a draft resolution, declaring the 1990s as the International Decade for Natural Disaster Reduction. Ultimately, 93 U.N. members joined as cosponsors, and the resolution was unanimously adopted at the General Assembly's plenary session on December 11, 1987. The major objectives of the resolution are:

- establishment of early warning systems,
- the proposal of guidelines and strategies for the application of existing hazard mitigation knowledge,
- development of scientific and engineering know-how for disaster prevention,
- dissemination of pertinent information, and
- encouragement and evaluation of technical aid, technological transfers, demonstration projects, and education and training.

After studying the U.N. Secretary-General's report, which will be submitted to the 43rd General Assembly in 1988, the U.N. will decide on the substance and posture of its approach to the IDNDR concept. At the 45th General Assembly in 1989, it will receive the U.N. Secretary-General's report and decide on the framework for attaining its objectives.

Disaster Prevention Measures Implemented in 1986

1. Laws and Regulations

Laws and regulations governing firefighting units with rescue capabilities were revised.

2. Scientific and Engineering Research

Approximately ¥28.7 billion in national expenditures were devoted to a broad range of scientific and engineering research and development activities in the following areas: (1) wind and water damage (large-scale precipitation experiments, landslide prevention, etc.), earthquakes (prediction, observation of crustal deformations, etc.), snow damage (avalanches, road damage prevention, etc.), and damage from fires and hazardous materials (fire-resistant construction; safe handling of explosives, pressurized gases, LPG, etc.; prediction of volcanic eruptions, etc.).

3. Preparedness Measures

Japan sought to further develop meteorological and seismic observations, firefighting, and flood control facilities. It specifically promoted the development of disaster prevention areas to cope with earthquakes in large cities and conducted extensive inspections and surveys to assist in the establishment of anti-disaster programs.

Other major activities included the observance of a disaster prevention week, during which fairs and comprehensive disaster prevention drills were held.

National expenditures financing these measures came to about ¥602.2 billion, while ¥119 billion in credits were extended.

4. Land Protection

The national government spent some ¥1,364.7 billion on a multitude of projects, giving priority to regions requiring immediate disaster prevention measures. The projects included work on waterways, dams, erosion control, landslide countermeasures for steep inclines, reforestation, coastal and farmland protection, disaster-related activities, ground subsidence, sewerage, etc.

5. Disaster Recovery

a. Emergency disaster response measures

To better deal with natural disasters, Japan strongly backed police, Self-Defense Force, firefighter, and Maritime Safety Agency efforts to monitor disaster-prone areas, conduct evacuations, and rescue disaster victims. Various assistance measures were also taken for the enforcement of the Disaster

Relief Law, tax exemptions, and the designation of severe disaster areas.

b. Disaster recovery projects

Disaster recovery projects for public facilities conform to the following guidelines: directly supervised recovery projects must be completed within two years, and government-assisted projects must be completed in three. Directly supervised government disaster recovery projects started in 1985 and government-assisted projects started in 1984 were completed.

Similar recovery projects for agricultural, forestry or fishery facilities conform to the following guidelines: directly supervised projects schedule recovery in two years, and government-assisted projects in three. Directly or agency-supervised government disaster recovery projects started in 1985 and government-assisted projects started in 1984 were completed.

Other disaster recovery projects were undertaken as needed.

Furthermore, necessary measures were taken for natural disasters in 1986 requiring emergency recovery efforts.

c. Fiscal and monetary action

The government took various steps to ensure the availability of necessary funds for recovery efforts. These included loans from the People's Finance Corporation and the Housing Loan Corporation, benefits from the disaster insurance system, and relief measures related to local subsidies and local government bonds.

National expenditures and loans for the above measures totaled ¥581.6 and ¥185.2 billion, respectively.

6. 1986 Budget for Disaster Prevention

The table below shows disaster prevention-related allocations for 1986.

(in millions of yen)

Budget / Item	Project expenditures	National expenditures	Public corporation disbursements	Loans
Scientific and engineering research	28,727	28,646	72	–
Disaster preparedness	937,641	482,889	119,345	118,983
Land protection	2,334,747	1,354,397	10,343	–
Disaster recovery, etc.	733,361	581,462	103	185,226
Total	4,034,475	2,447,394	129,863	304,209

Notes: 1. Overlapping figures between the general and special accounts and between those for concerned government agencies have been excluded.
2. National expenditures are the sum of the original, reserve, and supplementary figures plus or minus diversions.
3. Figures and budget totals have been rounded off to the nearest million.

Outline of Disaster Prevention Programs for 1988

1. Promotion of Scientific and Engineering Research

Scientific and engineering research will be promoted in numerous areas pertinent to implementing more effective measures against disasters and devastation caused by wind and water, earthquakes, snow, fire, dangerous materials, and volcanoes. The efforts will take up such themes as the prediction of earthquakes and volcanic eruptions, the mechanisms of natural disasters and measures for averting them, and building safety.

2. Improvements in Disaster Preparedness

Various disaster preparedness projects are to be promoted in addition to educational approaches and drills or guidance and instruction. These are efforts to fortify emergency supply reserves and enhance meteorological, seismic, and volcanic observation facilities as well as firefighting and communications facilities. Attention will also be given to strengthening disaster prevention measures at facilities storing oil or other dangerous materials and at nuclear power plants. Other projects will be undertaken to promote viable measures for regions with heavy rainfalls, to move homes away from hazardous areas, and to establish disaster prevention areas.

3. Land Protection

The government will place emphasis on important waterways, insufficiently improved small- and mid-sized rivers, and dangerous regions requiring immediate action in its efforts to accelerate reforestation and flood control projects for land protection. It will also implement policies for countermeasures and projects on landslides on steep inclines, coastal and farmland protection, ground subsidence, etc.

4. Measures for Emergency Response; Rapid, Proper Recovery Activities

Japan will strive to develop a more viable disaster prevention system permitting faster and more appropriate emergency relief efforts and devise measures to provide the necessary emergency response in actual disaster situations.

In compliance with the guidelines mentioned (in VI.5.b.) above which require completion of directly supervised government disaster recovery projects in two years and government-assisted projects in three, projects of the former category initiated in fiscal 1987 and of the latter in fiscal 1986 will be completed by the end of fiscal 1988. Besides budgeting for the fiscal 1987 projects to ensure their fast and effective implementation, the government will also

devise other needed financial means, including disaster loans, and strive to expeditously secure funding for such projects.

5. 1988 Budget for Disaster Prevention Activities

Disaster prevention-related allocations for 1988 are as follows.

(in millions of yen)

Item	Fiscal 1988		
	Budget	Loans	Total
Scientific and engineering research	30,802	-	30,802
Disaster preparedness	611,446 (152)	141,108 (141,108)	752,554 (141,260)
Land protection	1,376,303	-	1,376,303
Disaster recovery, etc.	248,326	42,600 (28,300)	290,926 (28,300)
Total	2,266,877 (152)	183,708 (169,408)	2,450,585 (169,560)

Notes: 1. Itemized disaster prevention appropriations in the government's original budget were rounded off to the nearest million yen. Overlapping between the general and special accounts and between those for concerned government agencies (Japan Broadcasting Corporation, Agriculture, Forestry and Fisheries Finance Corporation, Housing Loan Corporation, Japan Private School Promotion Foundation) have not been included.

2. Figures in parentheses ( ) are those used by the government agencies concerned. Figures for land protection figures of concerned government agencies were obtained by subtracting state subsidies from allocations for the government agencies concerned.
3. Itemized figures and totals have been rounded off to the nearest million.
4. Budget figures include those for projects utilizing profits from the sale of NTT shares.

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