

Subcenter

There are five (5) subcenters in the Tone River Basin, namely, the Tone River Integrated Dam Control Office, the Kinu River Integrated Dam Control Office, the Tone River Upper Reaches Construction Office, the Tone River Lower Reaches Construction Office, and the Edo River Construction Office. Subcenters also collect hydrological data from the automatic observation stations and the monitor stations, as well as information from other related subcenters to perform monitoring and water management in the coverage area, and perform data processing, displaying and recording. The processed data and some flood-related information are then relayed to the control center and monitor stations.

Monitor Station

The local construction offices except the subcenters play the role of monitor station. Various hydrological observation data and some information on flood are collected and relayed to subcenters by monitor stations. The monitor station, receiving the processed data from the subcenter, displays and records them.

Among the hydrological observation stations installed in the Tone River Basin, the number of stations with telemeter systems utilized for flood prediction are 106 for rainfall and 60 for water level, as shown in Fig. 9A-7.

2.3 Dissemination

Under the Flood Defense Law and the Meteorological Service Law, the Kanto Regional Construction Bureau and the Forecasting Department of the Meteorological Agency issue flood forecasting jointly, which are promptly transmitted through a dissemination network to prefectural governments, the press and other information media, flood defense administrators and other parties concerned, as shown in Fig. 9A-2.

In accordance with the Flood Defense Law, flood defense warning concerning flood inundation issued by the Local Construction Offices is transmitted to the Prefectural Government concerned, through the dissemination network as shown in Fig. 9A-3, and it is obligatory on the part of the prefectural government thus transmitted to relay such warning to the local government, the city, town and village and/or flood defense administrators. Upon receipt of the flood defense warning, the head of the local government [mayor of city, or the head of the town or the village] or the flood defense administrator mobilizes and/or dispatches, as the necessity dictates, the flood defense corps to meet the emergency (Flood Defense Law).

The detail items concerning the flood forecasting and defense warning that are issued in each prefecture is prescribed in the Flood Defense Plan formulated by the Prefectural Governor (Flood Defense Law), as well as in the Area Disaster Prevention Plan formulated by the Disaster Prevention Council of the same prefecture (Disaster Countermeasures Basic Law). With respect to flood defense such as flood forecasting, warning and other defense activities, the organizations of the control center and the subcenter are presented in Table 9A-4 and Table 9A-5.

Table 9A-1. OUTLINE OF FLOOD FORECASTING AND FLOOD DEFENSE WARNING IN JAPAN

Particulars	Executive Agency (Issuer)	Legal Provision	Rivers, Lakes, Seacoast	Contents	Addressees of Information
Flood Forecasting	Director-General of Japan Meteorological Agency and Minister of Construction (jointly)	<ul style="list-style-type: none"> Art. 10, Par. 2, Flood Defense Law Art. 14-2, Par. 2, Meteorological Service Law 	Rivers running through more than two prefectures and/or those having large catchment area where flood inundation might cause serious damage to the national economy as a whole, designated by the Minister of Construction upon consultation with the Minister of Transport. (17 river basins out of Class A river basins; see Table 2)	When flooding is likely to occur, to indicate its conditions including water level or discharge (flood warning and/or flood information).	<ul style="list-style-type: none"> Prefectural Governors concerned Press and other information media Organizations and agencies prescribed under Art. 7, Item 4, Meteorological Service Law Enforcement Order, including Nippon Telegraph and Telephone Corporation
	Director-General of Japan Meteorological Agency	Art. 10, Par. 1, Flood Defense Law		When flood and/or high tide is likely to occur under meteorological conditions, to indicate its conditions.	<ul style="list-style-type: none"> Minister of Construction Prefectural Governors concerned Press and other information media
	Japan Meteorological Agency	<ul style="list-style-type: none"> Art. 13, Par. 1, Meteorological Service Law Art. 4, the same law Enforcement Order 		Meteorological advisories and warnings for the general public (inundation advisory, flood advisory, inundation warning and/or flood warning).	<ul style="list-style-type: none"> Press and other information media Organizations and agencies prescribed under Art. 7, Item 1, Meteorological Service Law Enforcement Order, including Nippon Telegraph and Telephone Corporation
Flood Defense Warning	Minister of Construction	Art. 10-4, Par. 1, Flood Defense Law	Rivers, lakes, or seacoasts where flood inundation or storm tide might cause damage to the national economy as a whole, designated by the Minister of Construction. (108 river basins out of Class A river basins; see Table 3)	Warning for flood defense activities (standby, preparation, mobilization, instruction, etc.).	<ul style="list-style-type: none"> Prefectural Governors concerned --> Flood Defense Administrators --> Flood Defense Corps
	Prefectural Governor	- ditto -	Rivers, lakes, or seacoasts where flood inundation and storm tide might cause a considerable degree of damage, designated by the Prefectural Governor, excluding those designated by the Minister of Construction	- ditto -	<ul style="list-style-type: none"> Flood Defense Administrators --> Flood Defense Corps
	Japan Meteorological Agency	<ul style="list-style-type: none"> Art. 14-2, Par. 1, Meteorological Service Law Art. 6, the same law Enforcement Order 		Meteorological advisories and warnings for flood defense activities (meteorological advisory, meteorological warning, high tide advisory, high tide warning, flood advisory and/or flood warning)	<ul style="list-style-type: none"> Press and other information media Organizations prescribed under Art. 7, Item 3, Meteorological Service Law Enforcement Order, including the Ministry of Construction, Prefectural Government, etc.

Table 9A-2(1/2). RIVERS DESIGNATED FOR FLOOD FORECASTING IN JAPAN

River Basin	River Name	Section
Chikugo	Chikugo River	From Esonoshuku Bridge to the sea
Ota	Ota River	From Kabe-cho, Hiroshima City to the sea
Yoshino	Yoshino River	From Ikeda Town to the sea
Kino	Kino River	From Funato, Iwade Town to the sea
Yamato	Yamato River	From Kashiwara City to the sea
Yodo	Yodo River	From Uji City to the sea
	Lake Biwa	Circumference of the Lake
	Kizu River	From Kamo Town to its confluence with Yodo River
	Katsura River	Section under the jurisdiction of the Minister of Construction
Yura	Yura River	-ditto-
Kiso	Kiso River	From Imawatari Weir to the sea
	Ibi River	From Ibigawa Town to the sea
	Nagara River	Section under the jurisdiction of the Minister of Construction
	Neo River	-ditto-
Tenryu	Tenryu River	Between Chuo Bridge and Koya Bridge; From Kashima, Tenryu City to the sea
Tone	Tone River	From Yattajima, Isesaki City to the sea
	Watarase River	Between Ashikaga City and its confluence with Tone River
	Kinu River	Between Kinu Bridge and its confluence with Tone River
	Kokai River	Between Mitsukaido City and its confluence with Tone River
	Edo River	Entire reach (excluding the Old Edo River)
Ara	Ara River	From Kumagaya City to the sea (excluding the Old Ara River)

Table 9A-2(2/2). RIVERS DESIGNATED FOR FLOOD FORECASTING IN JAPAN

River Basin	River Name	Section
Shinano	Shinano River	Between Ojiya City and its Okozu diversion point
	Okozu Diversion Channel	Entire reach
Agano	Agano River	From Maoroshi, Gosen City to the sea
Abukuma	Abukuma River	Three sections in Fukushima Prefecture and one section in Miyagi Prefecture
Mogami	Mogami River	Between the Matsukawa-Shirakawa Confluence and Shirataka Town, and from Sagae City to the sea
Kitakami	Kitakami River	From Yugaose Bridge to the sea (excluding the Old Kitakami River)
Ishikari	Ishikari River	From Ishikarigawa Bridge to the sea

Table 9A-3. RIVERS DESIGNATED FOR FLOOD DEFENSE WARNING IN JAPAN

Region	River Basin	Total
Hokkaido	Teshio, Shokotsu, Yubetsu, Tokoro, Abashiri, Rumoi, Ishikari, Shiribetsu, Shiribeshi-Toshibetsu, Mu, Saru, Kushiro and Tokachi	13
Tohoku	Iwaki, Mabuchi, Kitakami, Naruse, Natori, Abukuma, Yoneshiro, Omono, Koyoshi, Mogami and Aka	11
Kanto	Kuji, Naka, Tone, Ara, Tama, Tsurumi, Sagami and Fuji	8
Hokuriku	Ara, Agano, Shinano, Seki, Hime, Kurobe, Joganji, Jinzu, Sho, Oyabe, Tedoru and Kakehashi	12
Chubu	Kano, Abe, Oi, Kiku, Tenryu, Toyo, Yahagi, Shonai, Kiso, Suzuka, Kumoju, Kushida and Miya	13
Kinki	Yodo, Yamato, Maruyama, Kako, Kino, Shingu, Kuzuryu, Kita, Yura and Ibo	10
Chugoku	Tenjin, Hino, Sendai, Hii, Asahi, Takahashi, Yoshii, Gono, Takatsu, Ashida, Ota, Oze and Saba	13
Shikoku	Hiji, Shigenobu, Yoshino, Naka, Doki, Monobe, Niyodo and Watari	8
Kyushu	Chikugo, Yabe, Matsuura, Rokkaku, Kase, Honmyo, Onga, Yamaguni, Oita, Ono, Bansho, Kikuchi, Shira, Midori, Kuma, Gokase, Omaru, Oyodo, Sendai and Kimotsuki	20
Total		108

Table 9A-4. FLOOD DEFENSE ORGANIZATION OF THE CONTROL CENTER UNDER THE KANTO REGIONAL CONSTRUCTION BUREAU OF THE MINISTRY OF CONSTRUCTION

Particulars /1	Functions
1. Flood Forecasting Unit ° River Administration Division ° River Regulation Division	° To execute flood prediction; to prepare flood forecast dissemination message in consultation with the Meteorological Agency; and, to report the flood information to the head office of the Ministry of Construction.
2. Information Unit ° Technical Administration Division ° Planning Division	° To collect information related to flood from subcenters and meteorological data from the Meteorological Agency; and, to disseminate flood forecast information and the instructions from the chief of the control center.
3. Telecommunication Unit ° Telecommunications Division	° To ensure the functions of the telecommunication network and electric supply.
4. Mechanical Unit ° Mechanical Division	° To know the precise situation of the control center and the damage to mechanical facilities such as pump stations.
5. Damage Control Unit ° River Construction Division	° To grasp the state of damage of river structures.
6. Public Relations Unit ° River Planning Division	° To provide liaison among prefectural governments, information media and the Self Defense Force with regard to inquiries on flood.
7. Administrative Affairs Unit ° Administrative Affairs Division	° To execute administrative affairs; to supply food and sleeping accommodations; and, to purchase, store and supply the necessary materials for flood defense.

Note: /1 These are temporary units created in the flood period, functioning under the regular Divisions.

Table 9A-5. FLOOD DEFENSE ORGANIZATION OF THE SUBCENTER UNDER THE TONE RIVER LOWER REACHES CONSTRUCTION OFFICE UNDER THE KANTO REGIONAL CONSTRUCTION BUREAU

Particulars /1	Functions
1. Technical Unit I ° Inquiry Division	° To execute hydrological data collection and data processing; and, to grasp the flood situation and inform the flood forecasting from the control center and flood defense warning to related agencies.
2. Technical Unit II ° Management Division	° To grasp the state of river structures; to direct the operation of the gates; and, to inform the state of river structures to related agencies.
3. Technical Unit III ° Construction Division	° To direct flood defense works; and, to examine the necessary materials for flood defense.
4. Mechanical Unit ° Mechanical Division	° To examine the transportation method of personnel and materials; to grasp the state of refuge of construction machineries; and, to direct the control of pump stations.
5. Telecommunication Unit ° Telecommunications Division	° To ensure the functions of the telecommunication network and electric supply.
6. Administrative Affairs Unit ° Administrative Affairs Division	° To execute administrative affairs; and, to supply food and sleeping accommodations.
7. Materials Unit ° Accountants Division	° To purchase, store and supply the materials and tools for flood discharge observation and flood defense.

Note: /1 These are temporary units created in the flood period, functioning under the regular Divisions.

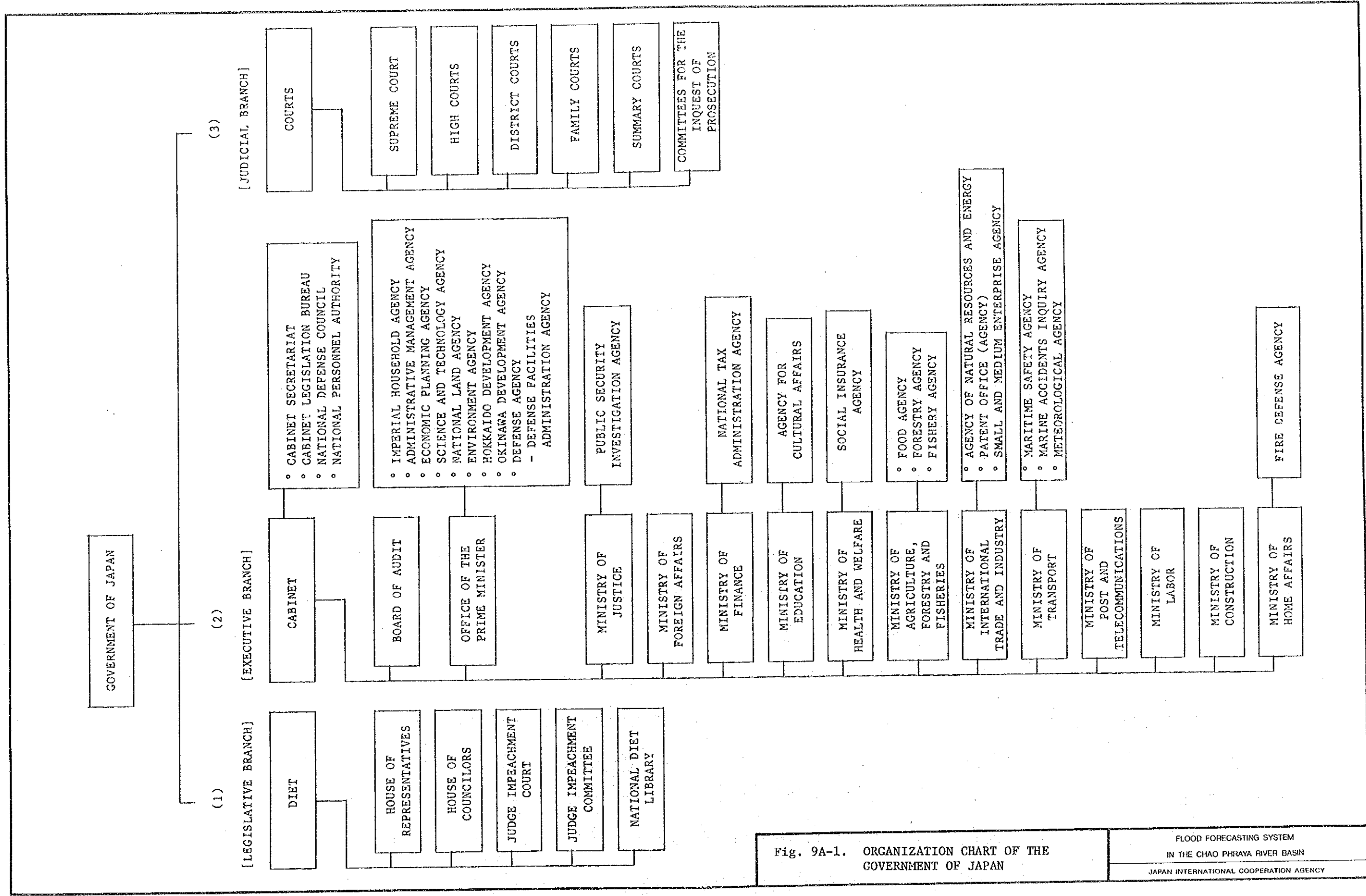


Fig. 9A-1. ORGANIZATION CHART OF THE GOVERNMENT OF JAPAN

FLOOD FORECASTING SYSTEM
 IN THE CHAO PHRAYA RIVER BASIN
 JAPAN INTERNATIONAL COOPERATION AGENCY

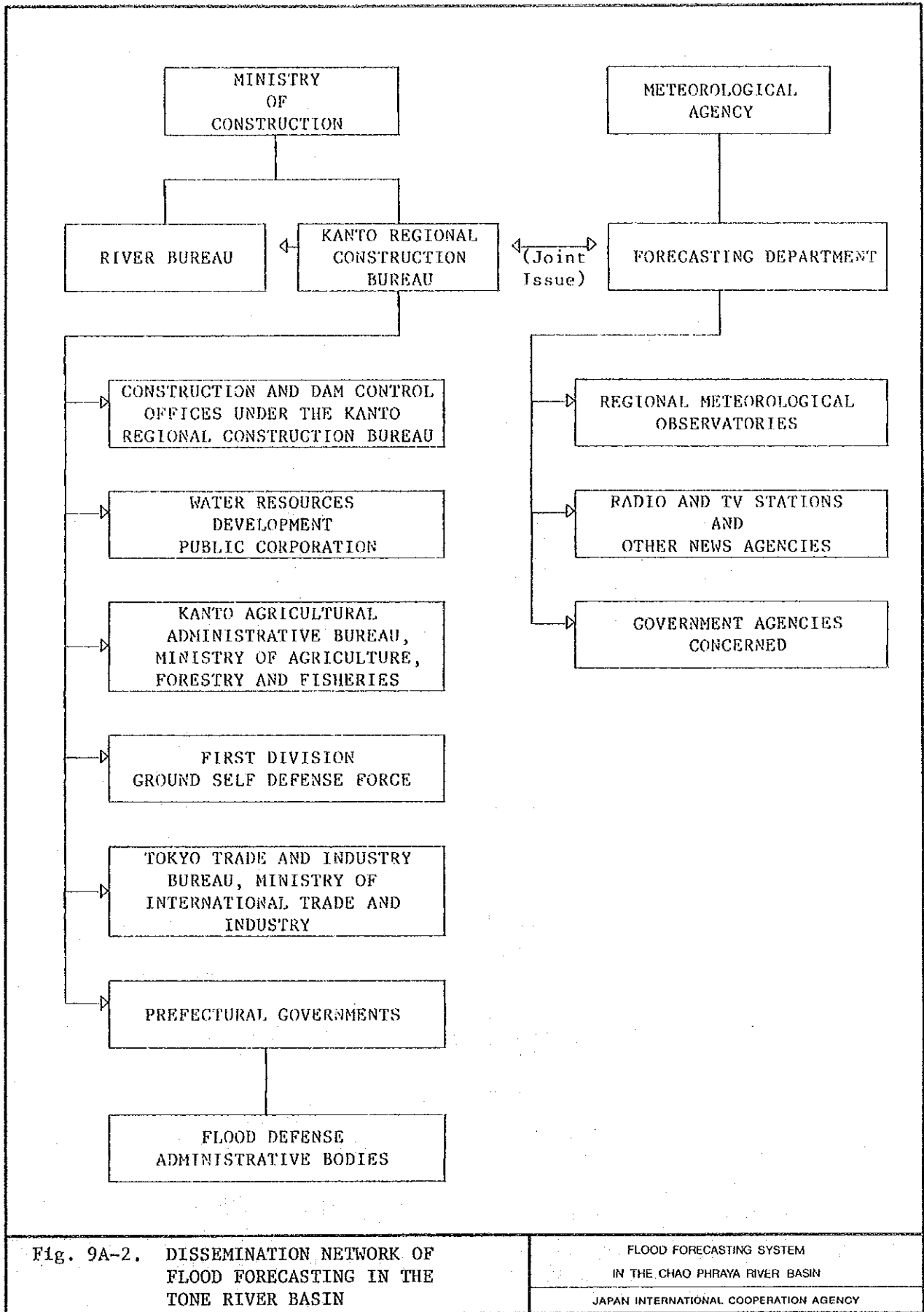


Fig. 9A-2. DISSEMINATION NETWORK OF FLOOD FORECASTING IN THE TONE RIVER BASIN

FLOOD FORECASTING SYSTEM
 IN THE CHAO PHRAYA RIVER BASIN
 JAPAN INTERNATIONAL COOPERATION AGENCY

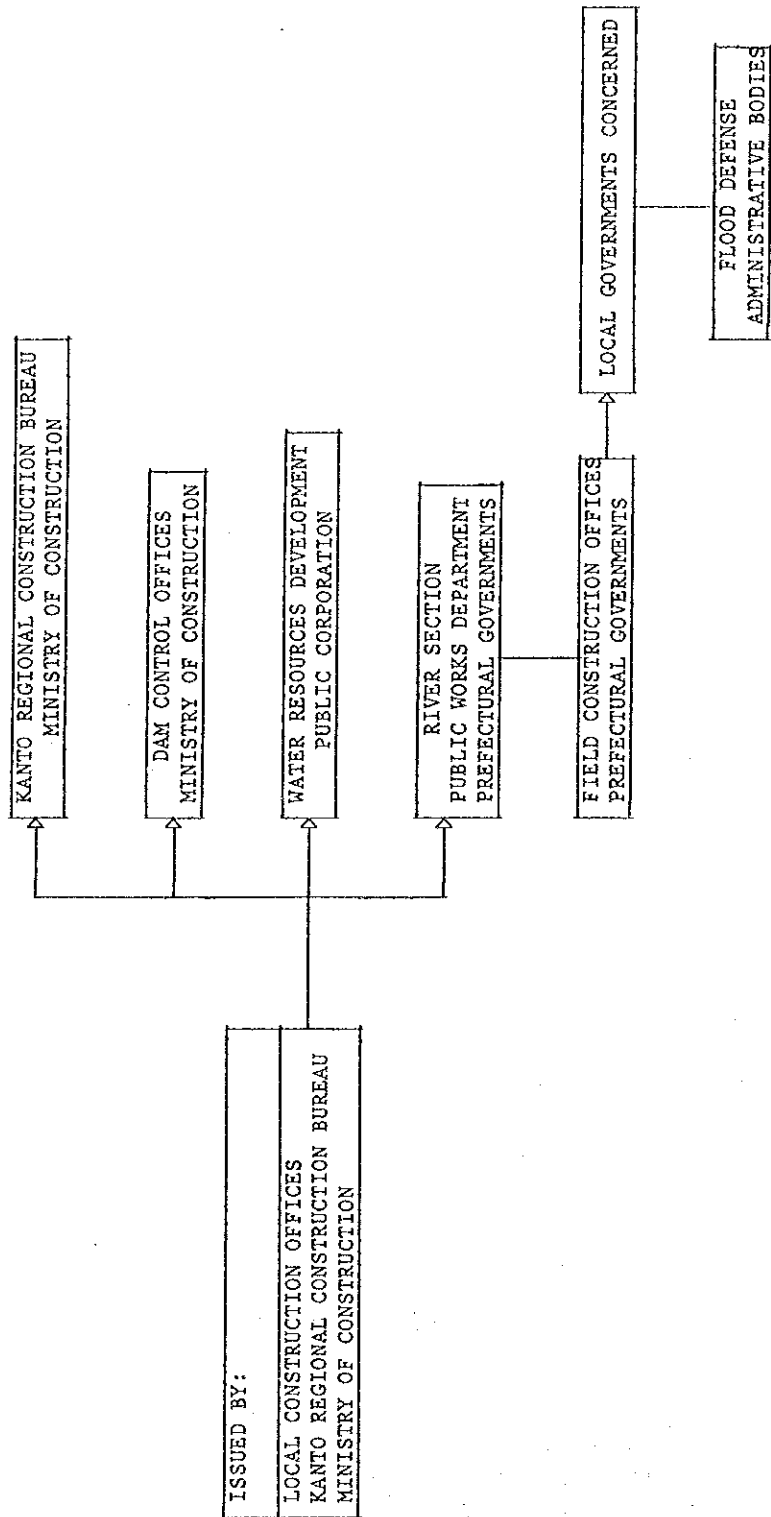


Fig. 9A-3. DISSEMINATION NETWORK OF FLOOD DEFENSE WARNING IN THE TONE RIVER BASIN

FLOOD FORECASTING SYSTEM
IN THE CHAO PHRAYA RIVER BASIN
JAPAN INTERNATIONAL COOPERATION AGENCY

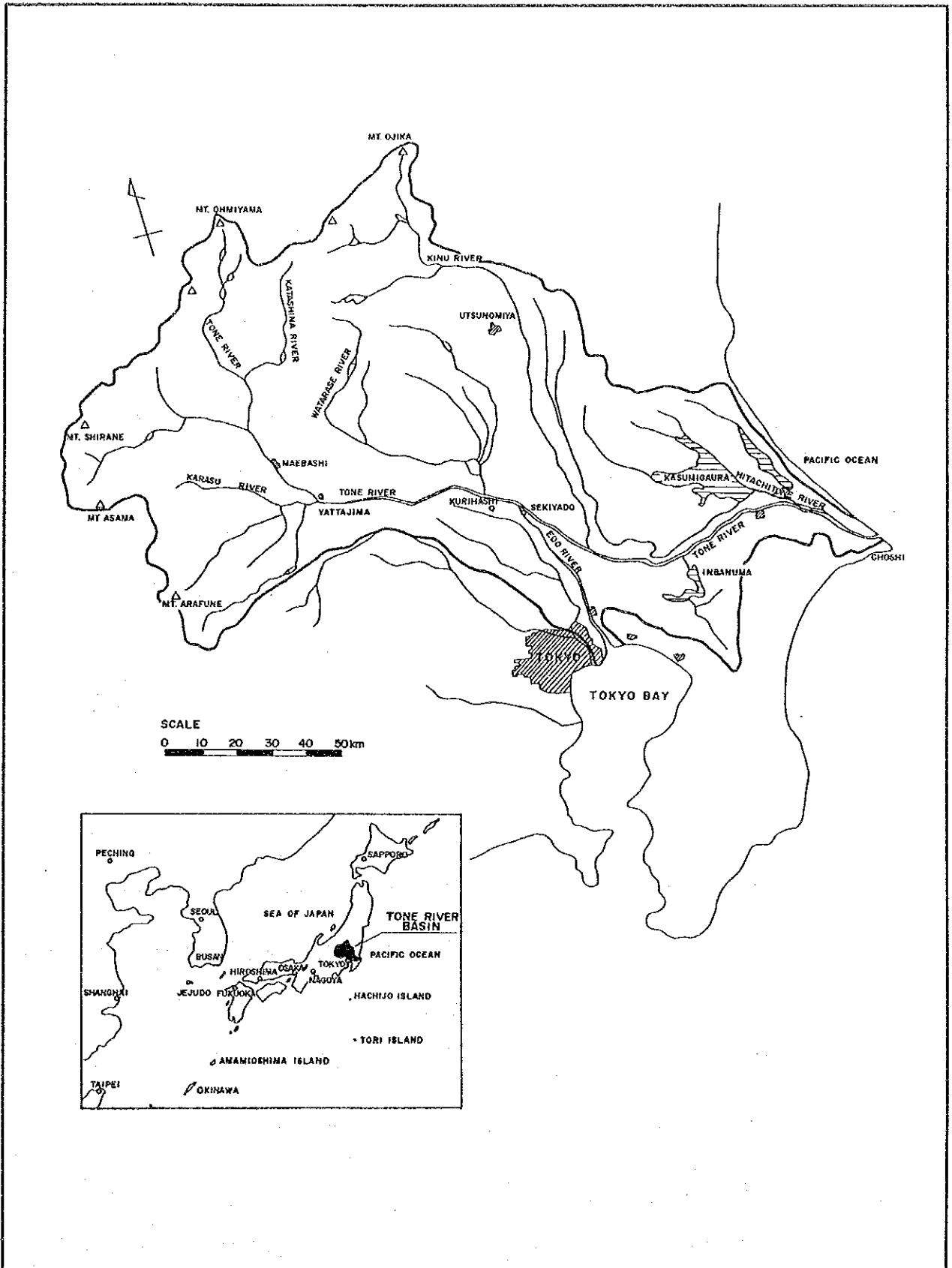


Fig. 9A-4. TONE RIVER BASIN MAP

FLOOD FORECASTING SYSTEM
 IN THE CHAO PHRAYA RIVER BASIN
 JAPAN INTERNATIONAL COOPERATION AGENCY

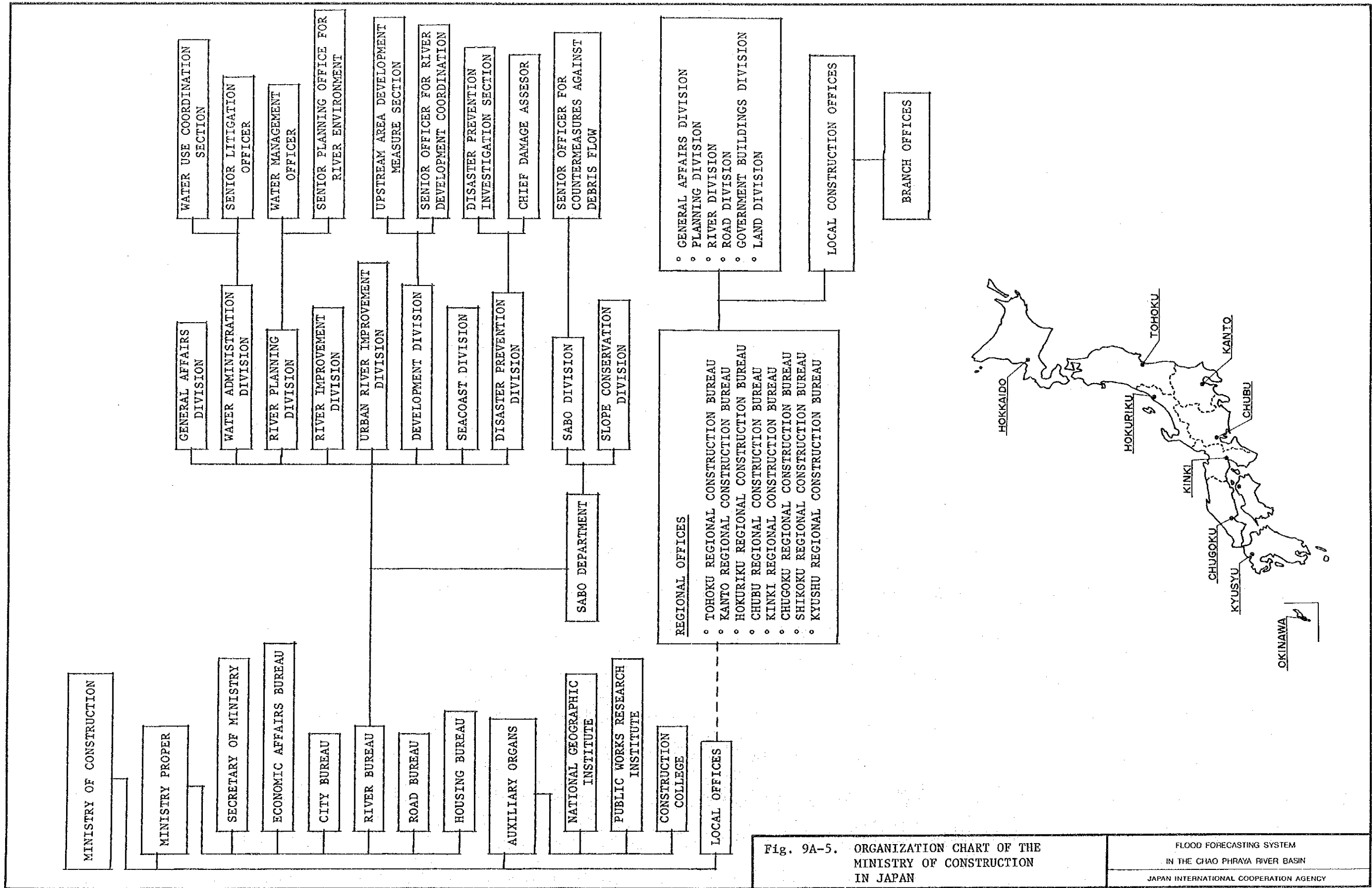


Fig. 9A-5. ORGANIZATION CHART OF THE MINISTRY OF CONSTRUCTION IN JAPAN

FLOOD FORECASTING SYSTEM
IN THE CHAO PHRAYA RIVER BASIN
JAPAN INTERNATIONAL COOPERATION AGENCY

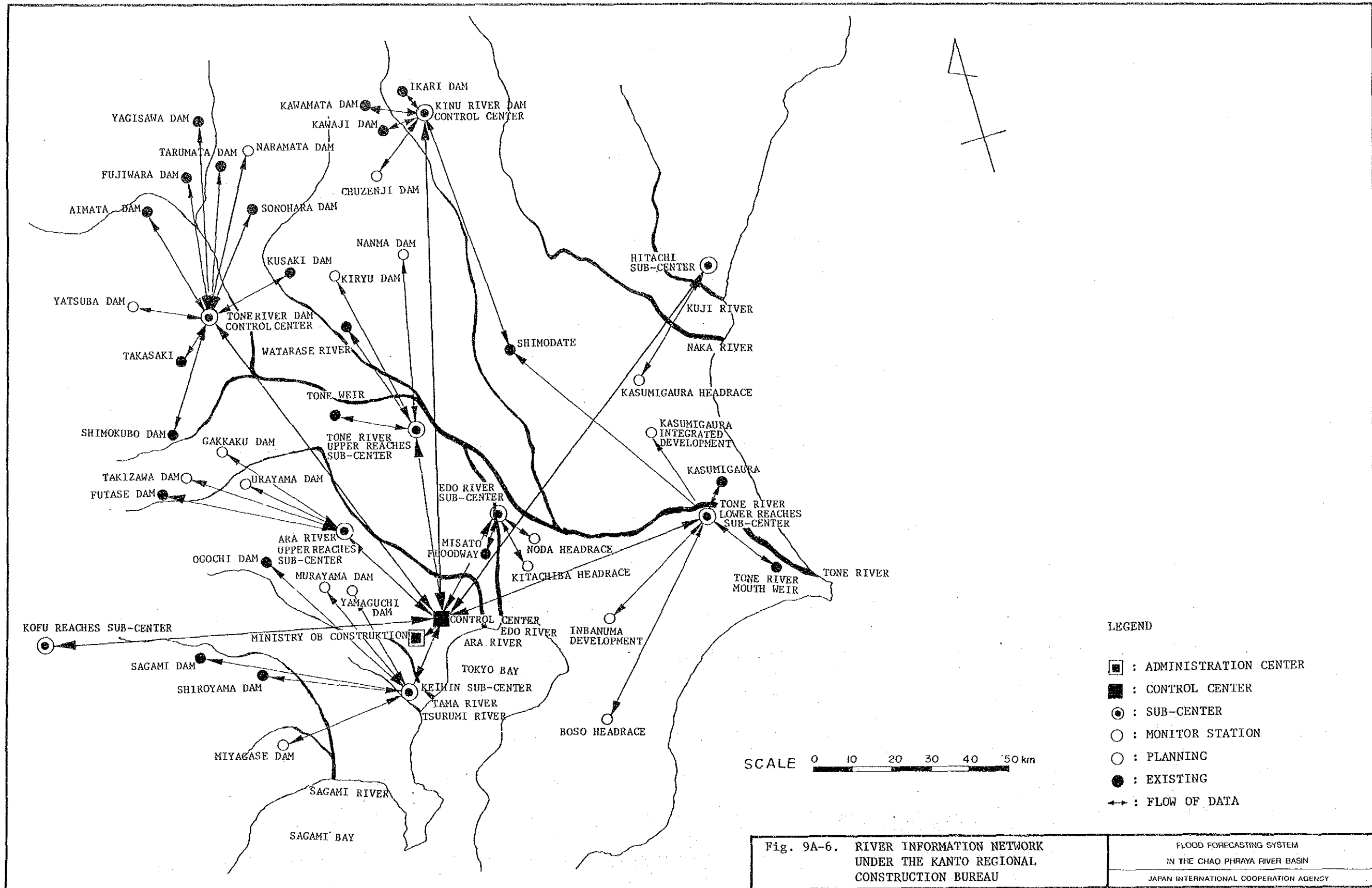


Fig. 9A-6. RIVER INFORMATION NETWORK UNDER THE KANTO REGIONAL CONSTRUCTION BUREAU

LEGEND

- : ADMINISTRATION CENTER
- : CONTROL CENTER
- : SUB-CENTER
- : MONITOR STATION
- : PLANNING
- : EXISTING
- ↔ : FLOW OF DATA

FLOOD FORECASTING SYSTEM
IN THE CHAO PHRAYA RIVER BASIN
JAPAN INTERNATIONAL COOPERATION AGENCY



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