

Fig. 5.4.1 Critical Sections of Apure River

THE REPUBLIC OF VENEZUELA
 COMPREHENSIVE IMPROVEMENT
 OF THE APURE RIVER BASIN
 JAPAN INTERNATIONAL COOPERATION AGENCY

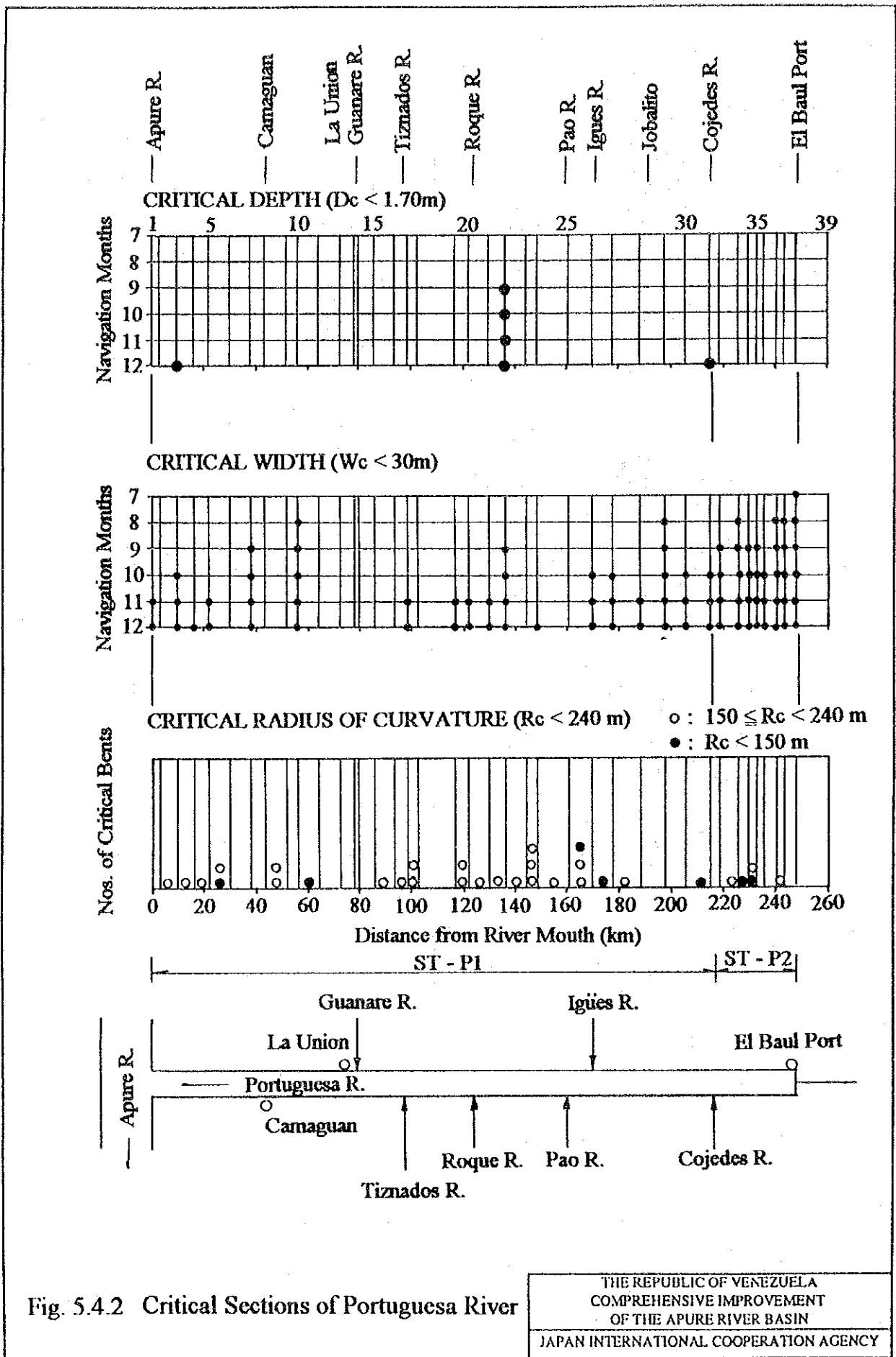


Fig. 5.4.2 Critical Sections of Portuguesa River

THE REPUBLIC OF VENEZUELA
 COMPREHENSIVE IMPROVEMENT
 OF THE APURE RIVER BASIN
 JAPAN INTERNATIONAL COOPERATION AGENCY

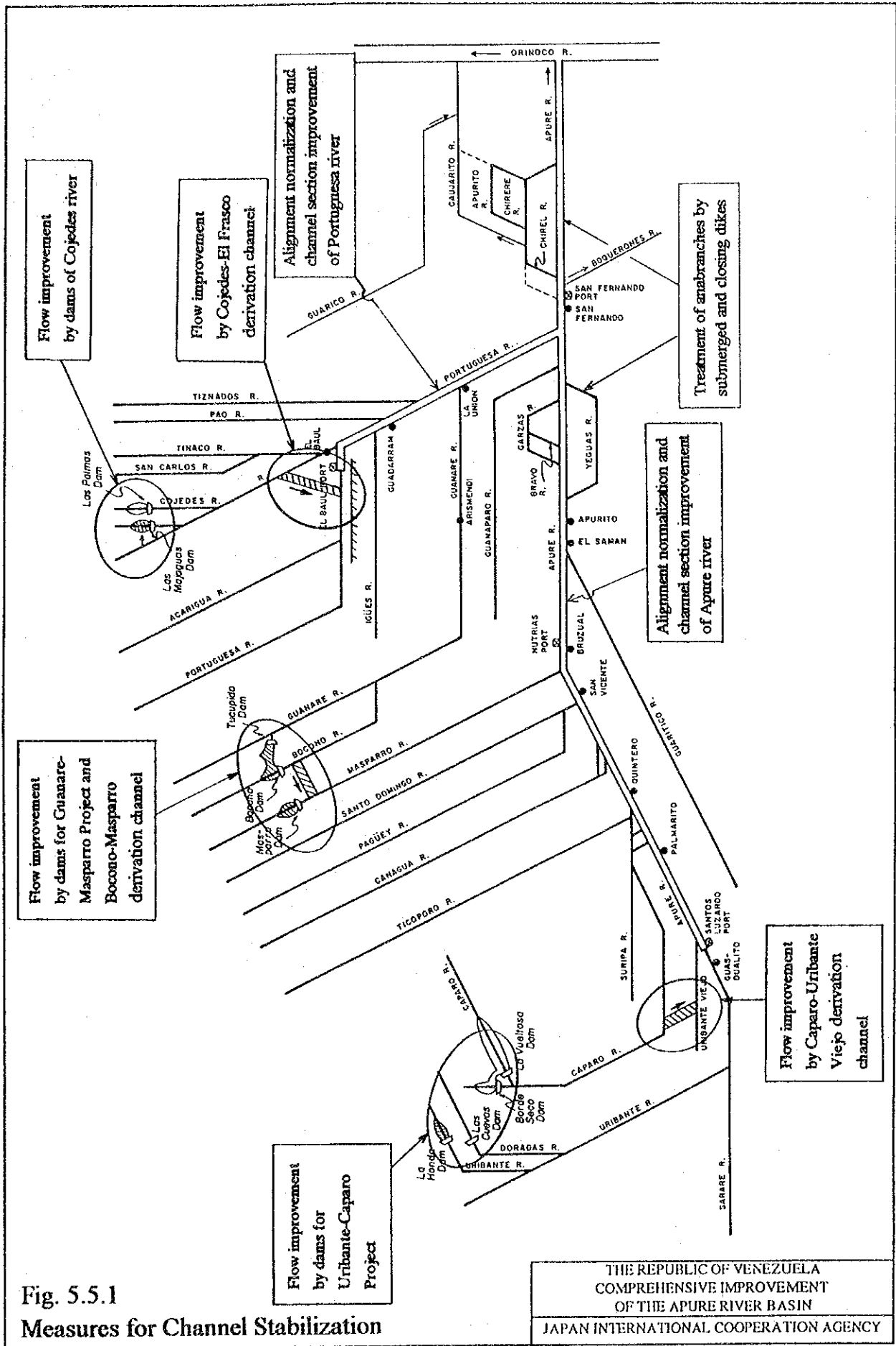


Fig. 5.5.1
Measures for Channel Stabilization

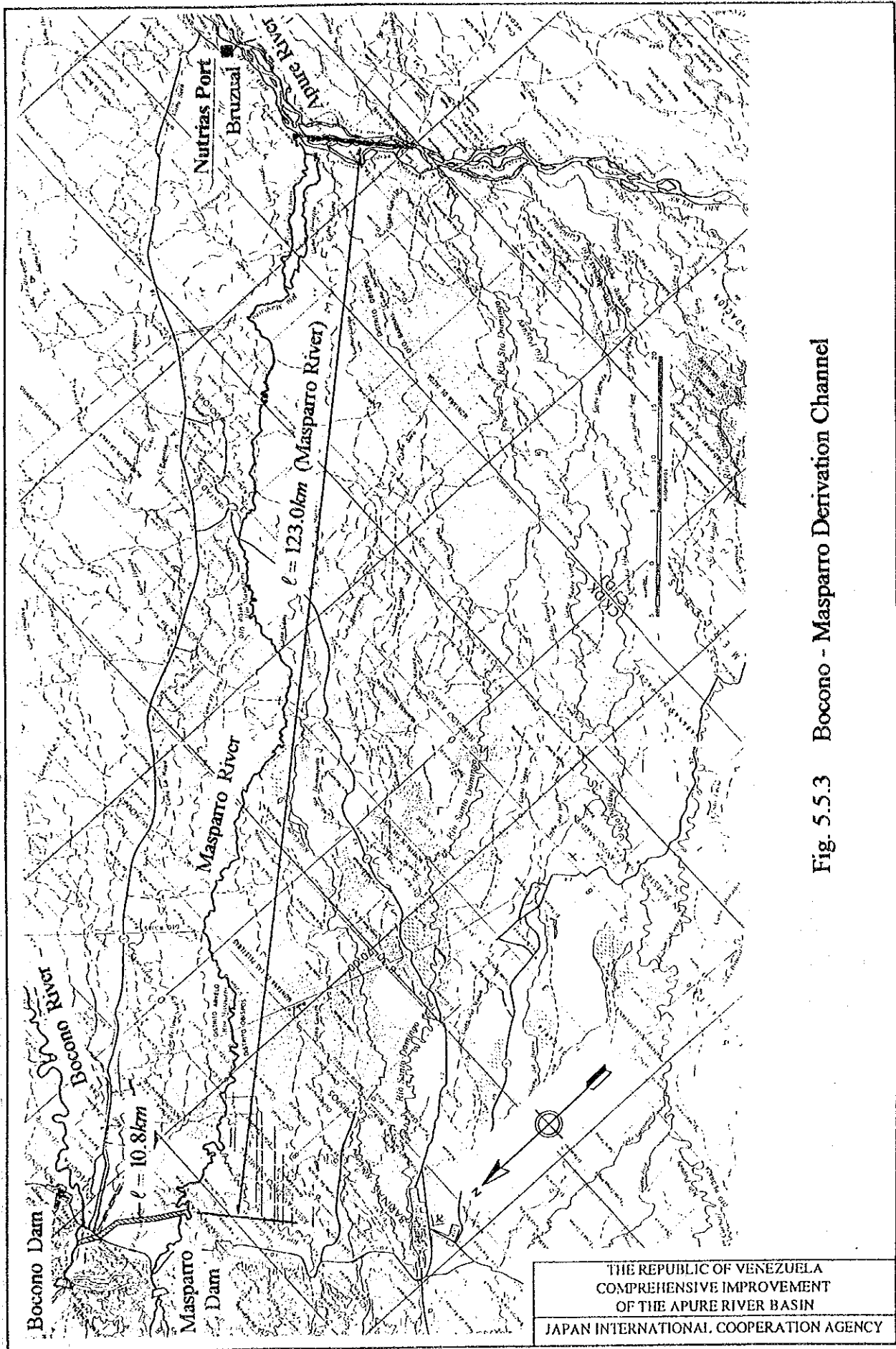


Fig. 5.5.3 Bocono - Masparro Derivation Channel

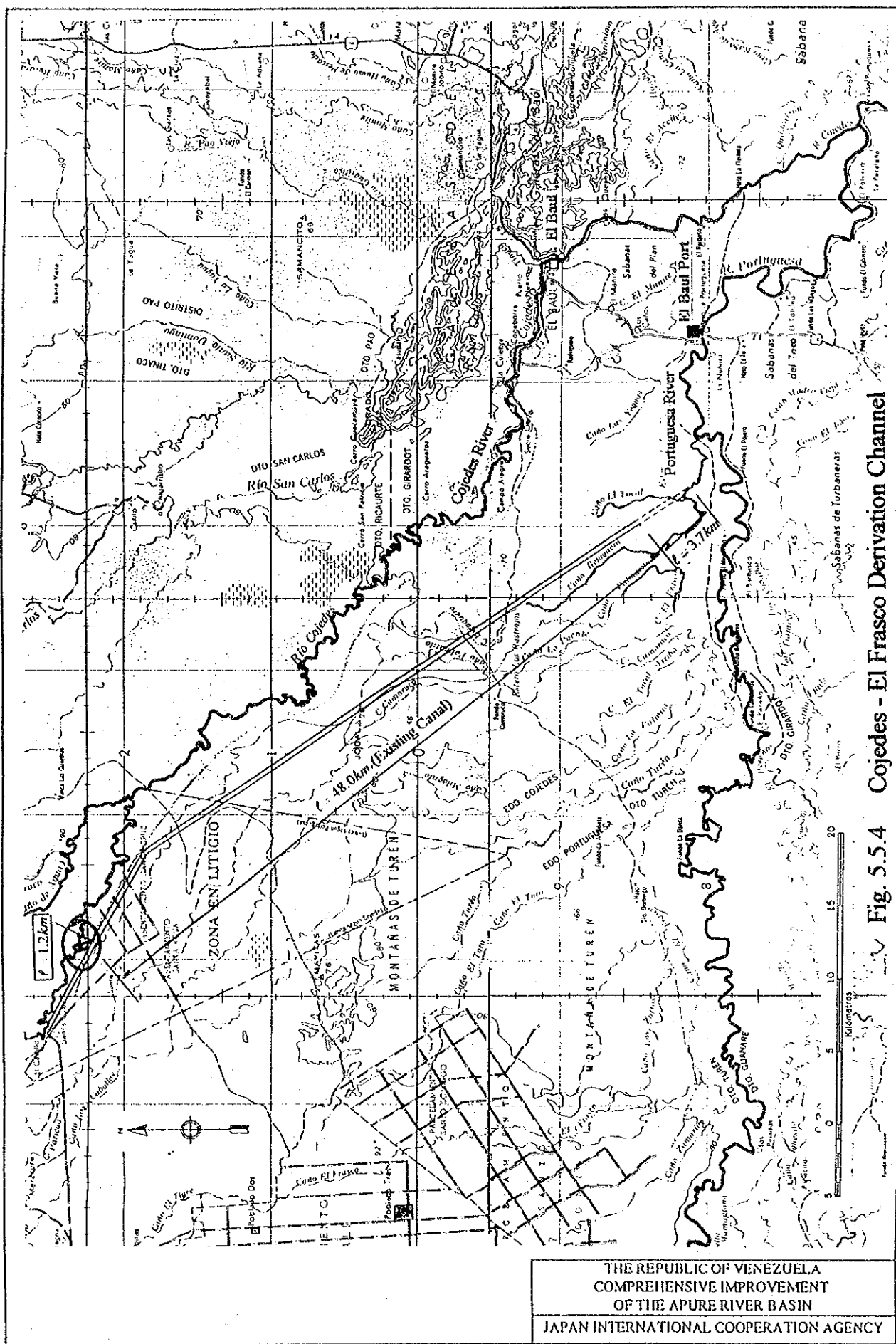
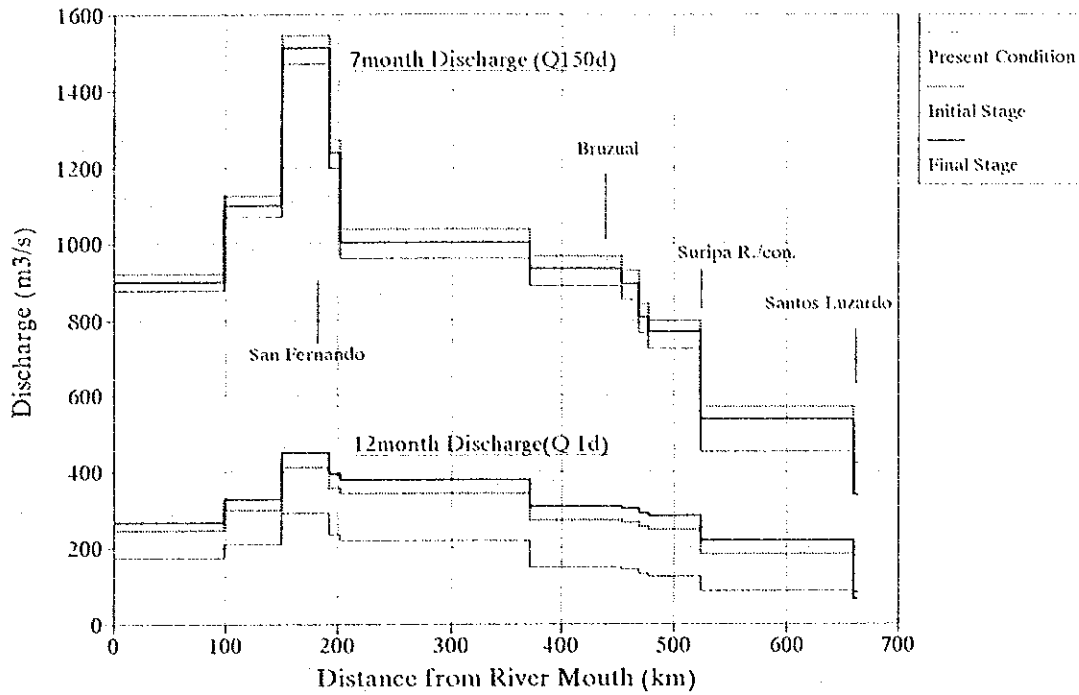


Fig. 5.5.4 Cojedes - El Frasco Derivation Channel

THE REPUBLIC OF VENEZUELA
 COMPREHENSIVE IMPROVEMENT
 OF THE APURE RIVER BASIN
 JAPAN INTERNATIONAL COOPERATION AGENCY

Derivation Channel with Dams
Uribante - Caparo Derivation Channel



Derivation Channel with Dams
Bocon-Masparro Derivation Channel

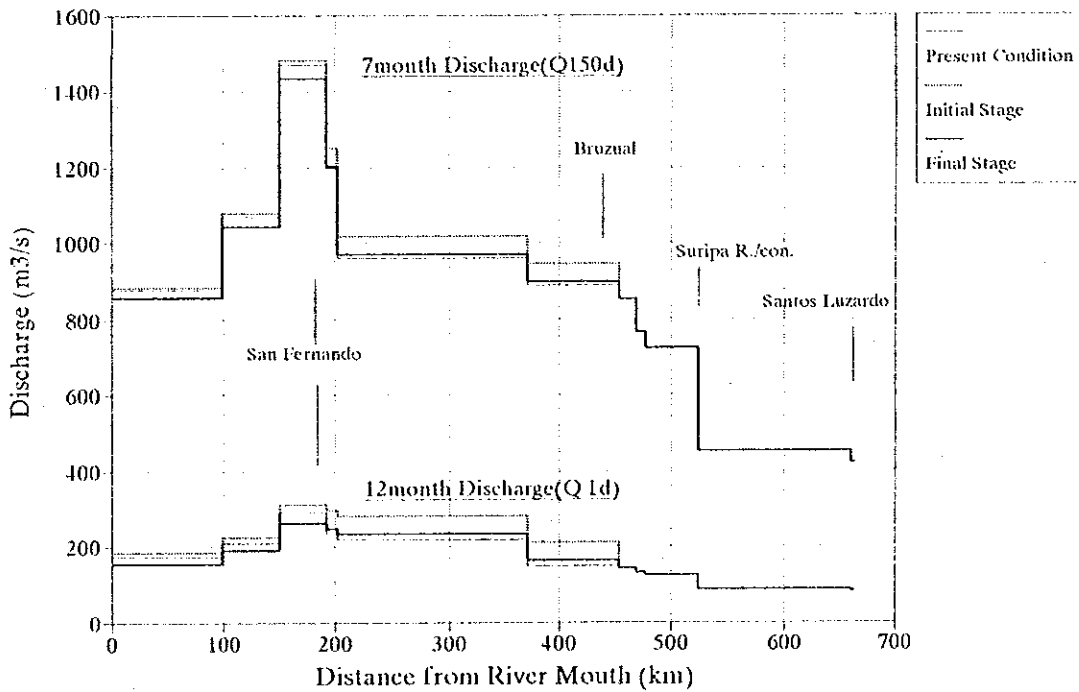


Fig. 5.5.5 Hydraulic Effect of Flow Improvement Schemes

THE REPUBLIC OF VENEZUELA
COMPREHENSIVE IMPROVEMENT
OF THE APURE RIVER BASIN
JAPAN INTERNATIONAL COOPERATION AGENCY

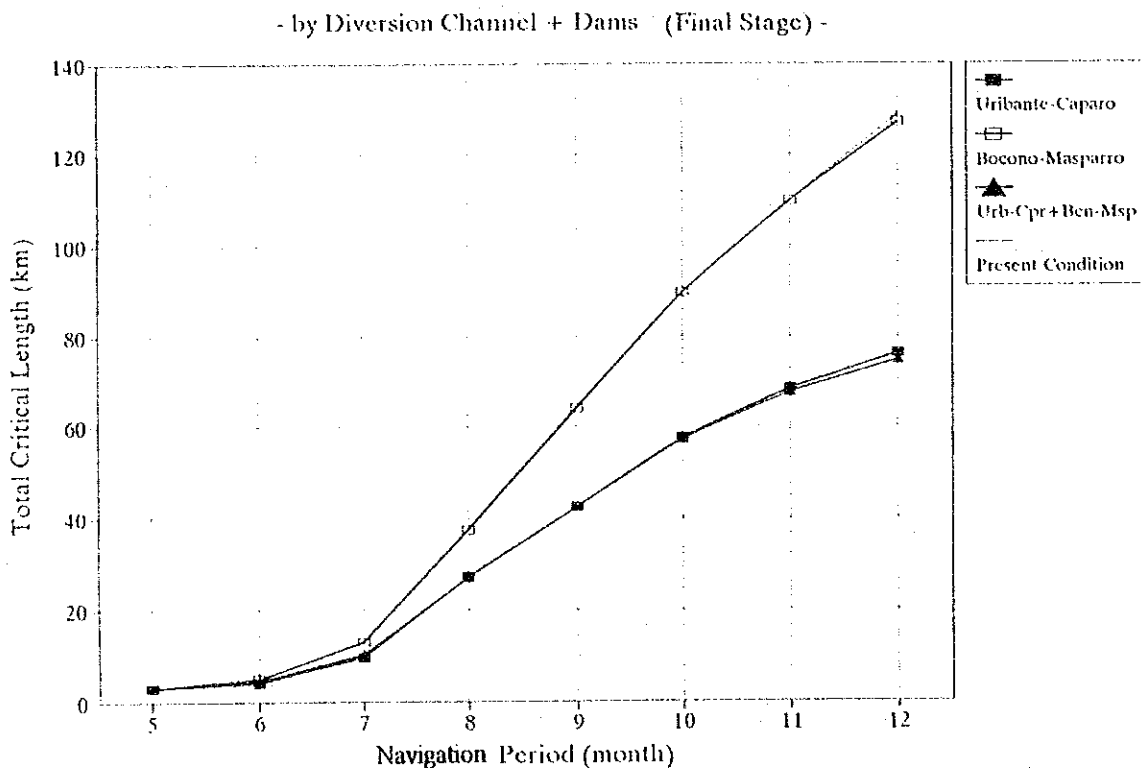
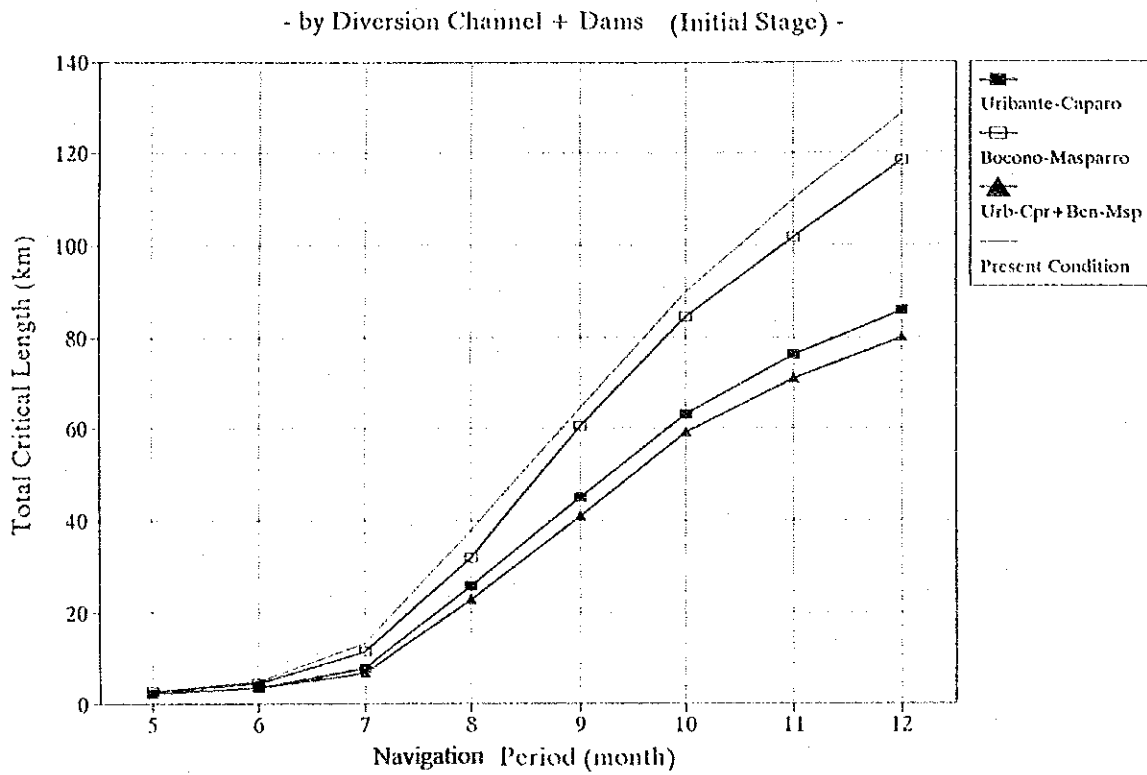
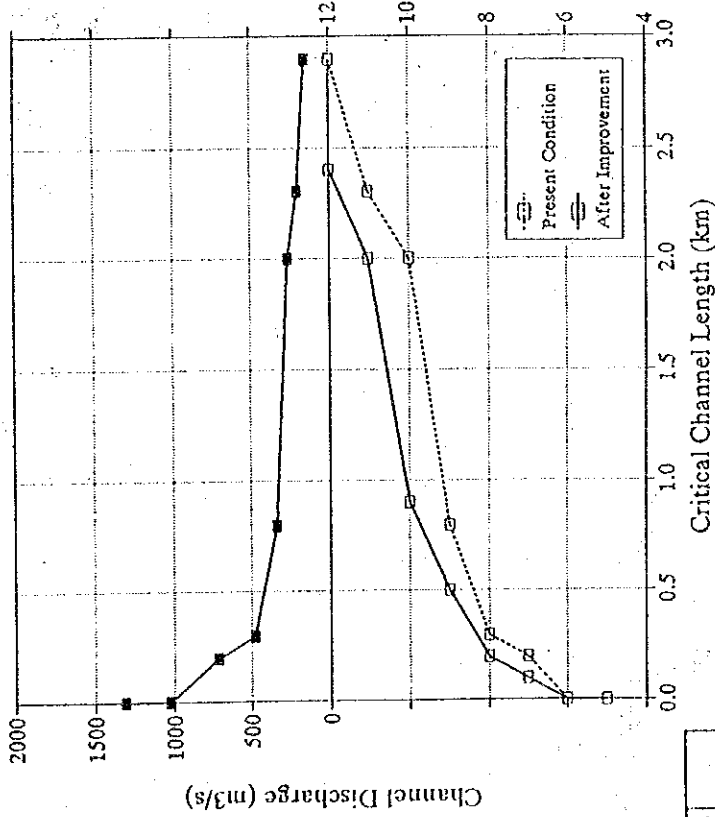


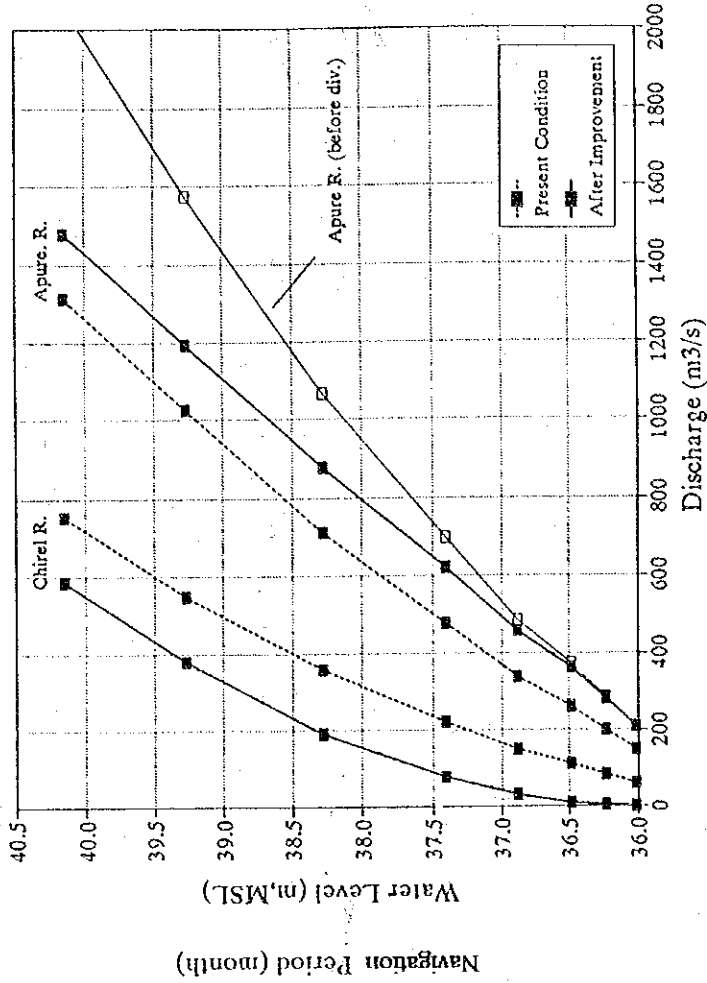
Fig. 5.5.6 Critical Channel Length

THE REPUBLIC OF VENEZUELA
 COMPREHENSIVE IMPROVEMENT
 OF THE APURE RIVER BASIN
 JAPAN INTERNATIONAL COOPERATION AGENCY

Stretch : 95.7km - Chirel R./div.

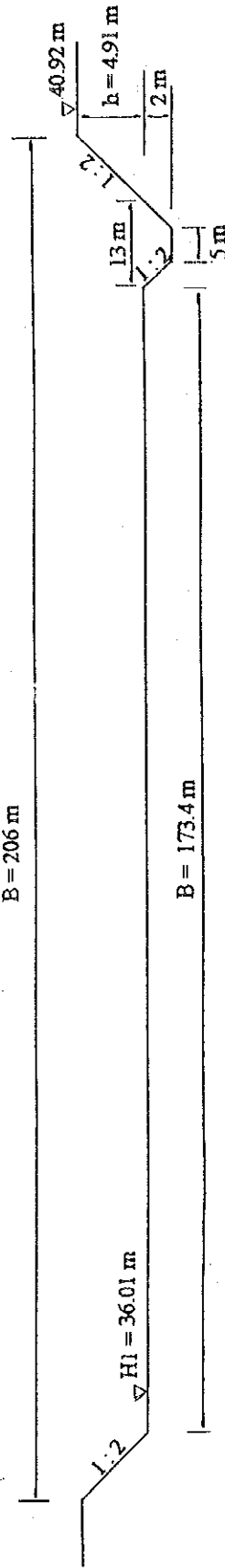


Discharge Diversion : Apure vs. Chirel Rivers



B = 206 m

B = 173.4 m



- Cross Section of Submerged Dike at Chirel River -

Fig. 5.5.7 Effect of Submerged Dike of Chirel River

THE REPUBLIC OF VENEZUELA
COMPREHENSIVE IMPROVEMENT
OF THE APURE RIVER BASIN
JAPAN INTERNATIONAL COOPERATION AGENCY

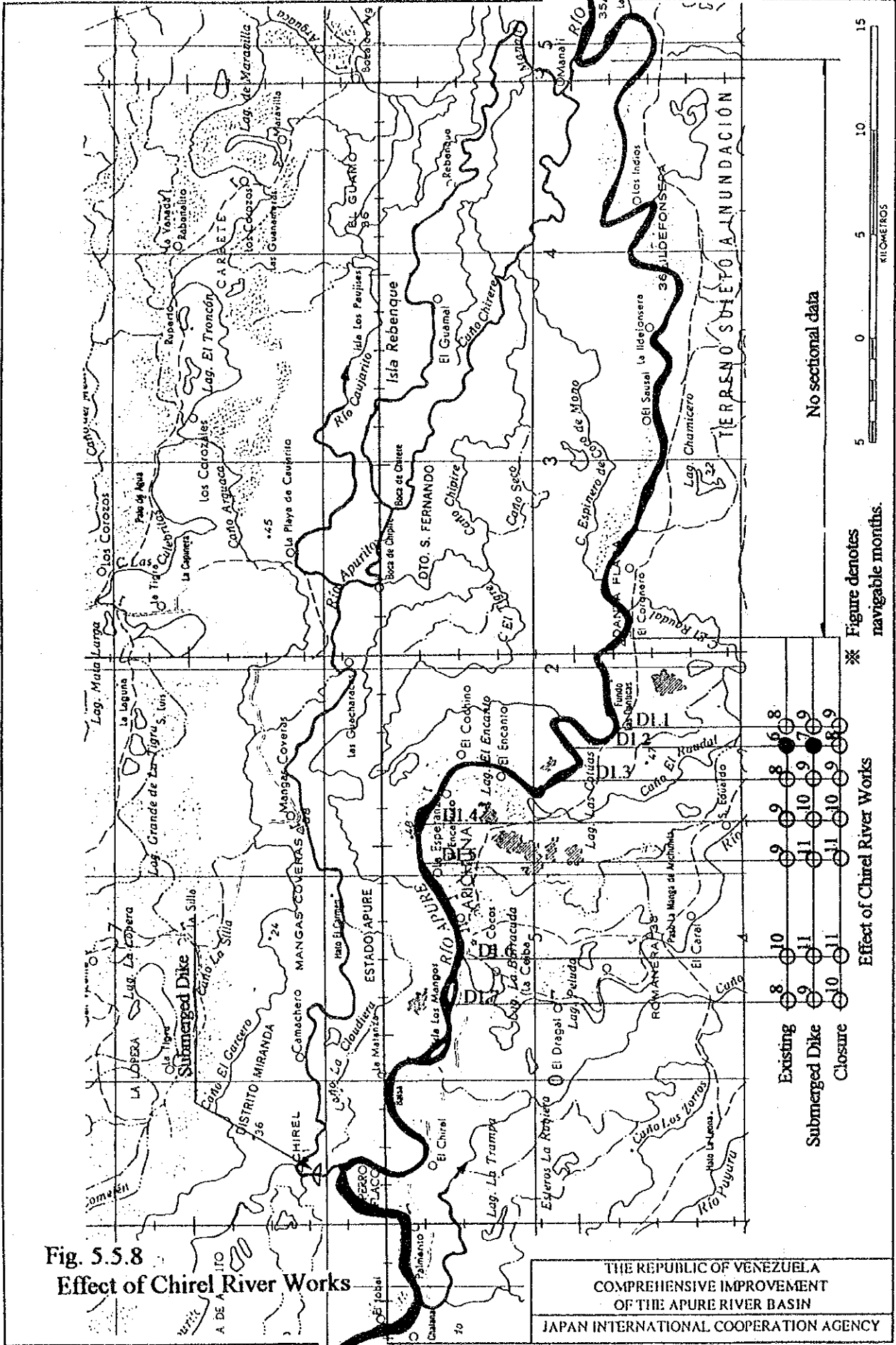
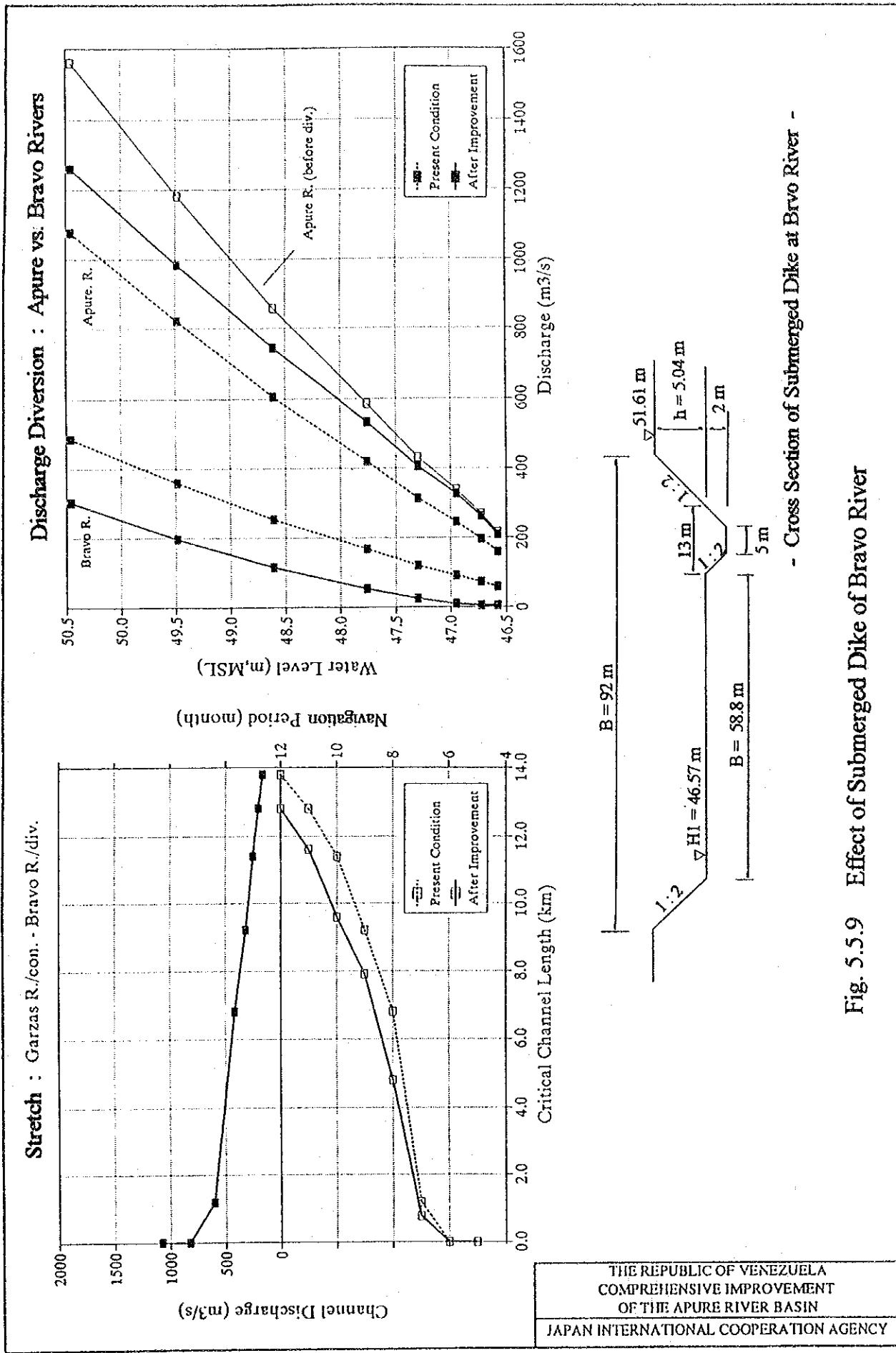


Fig. 5.5.8 Effect of Chirel River Works



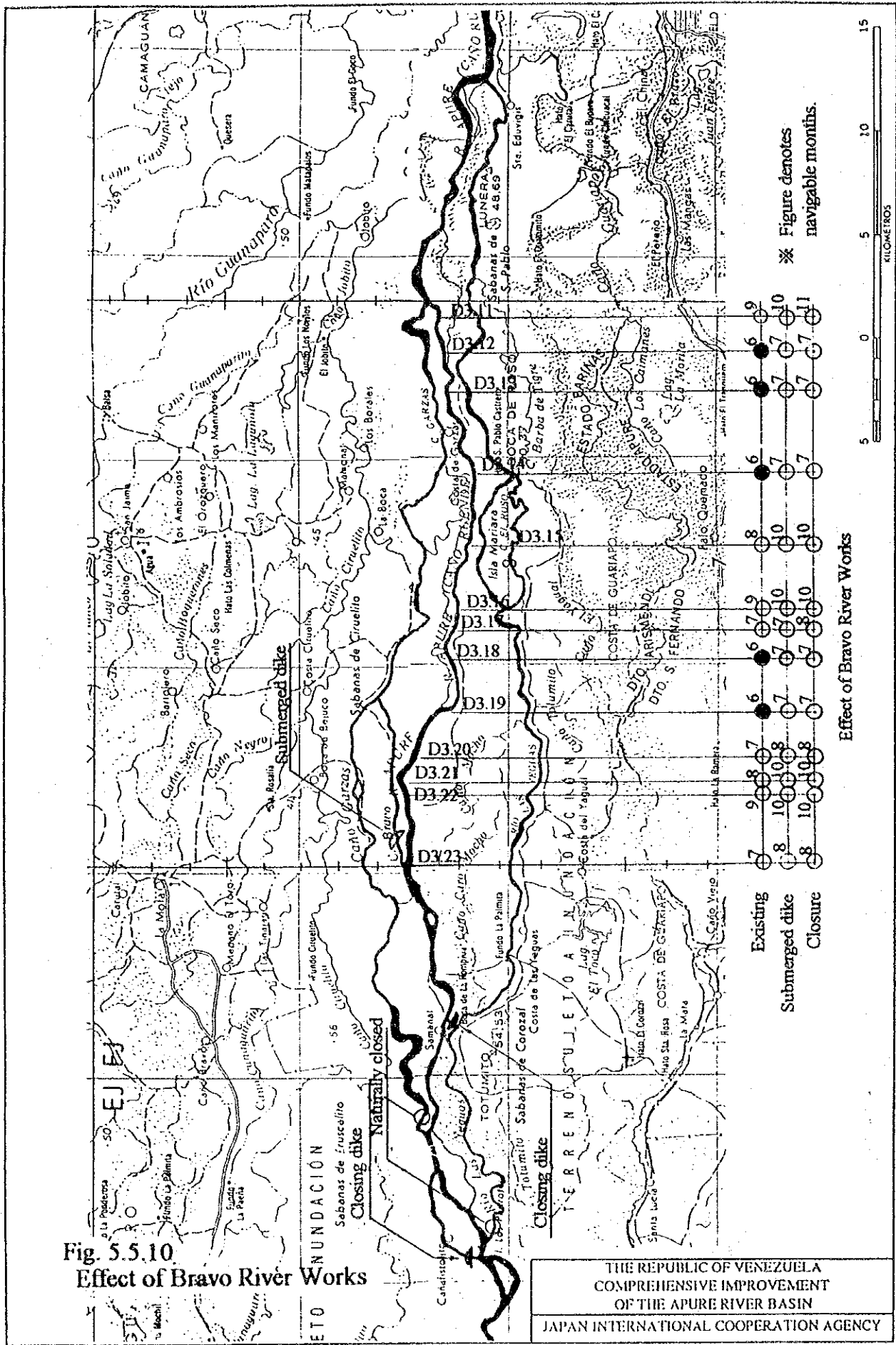


Fig. 5.5.10
Effect of Bravo River Works

THE REPUBLIC OF VENEZUELA
COMPREHENSIVE IMPROVEMENT
OF THE APURE RIVER BASIN
JAPAN INTERNATIONAL COOPERATION AGENCY

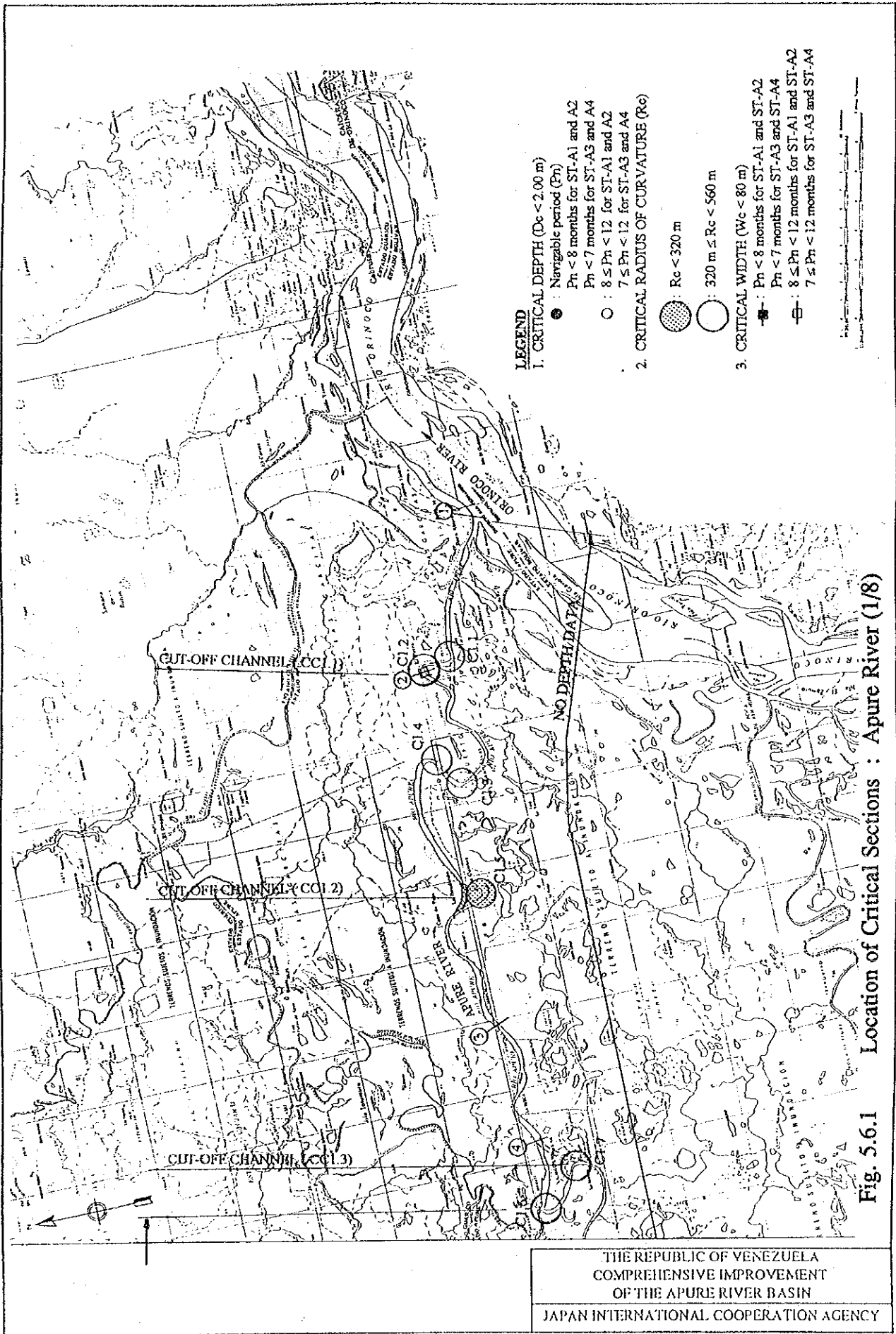


Fig. 5.6.1 Location of Critical Sections : Apure River (1/8)

THE REPUBLIC OF VENEZUELA
 COMPREHENSIVE IMPROVEMENT
 OF THE APURE RIVER BASIN
 JAPAN INTERNATIONAL COOPERATION AGENCY

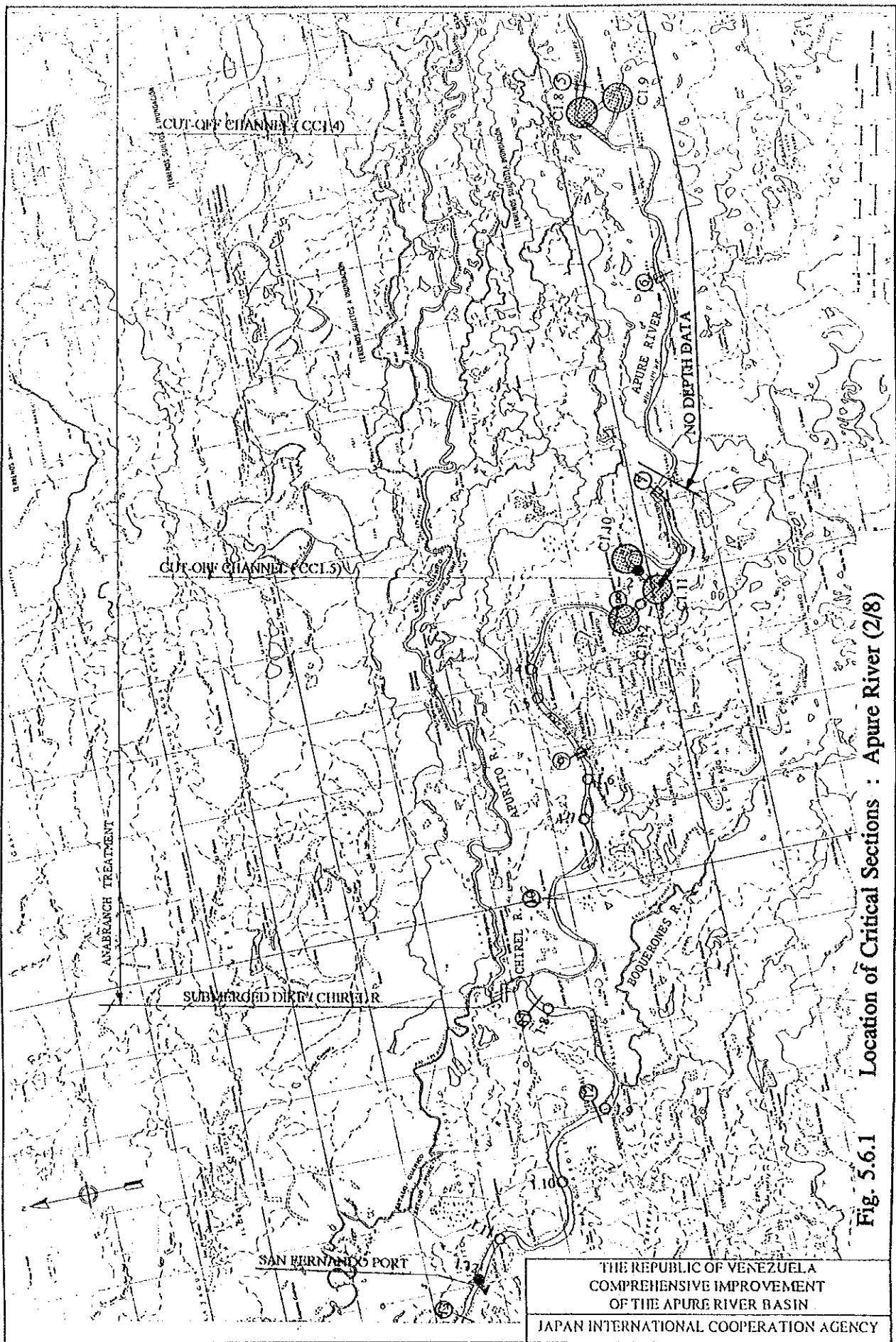


Fig. 5.6.1 Location of Critical Sections : Apure River (2/8)

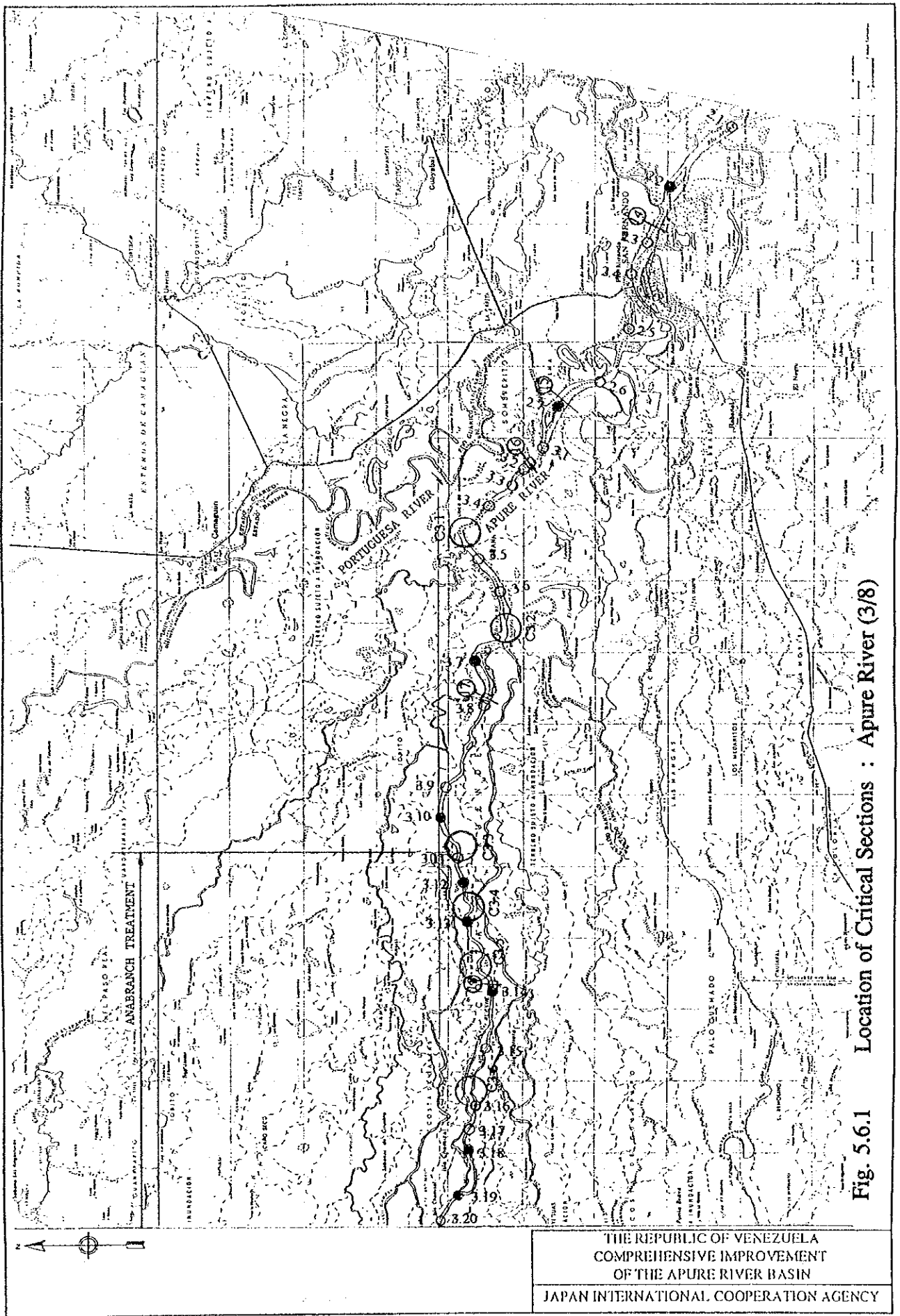


Fig. 5.6.1 Location of Critical Sections : Apure River (3/8)

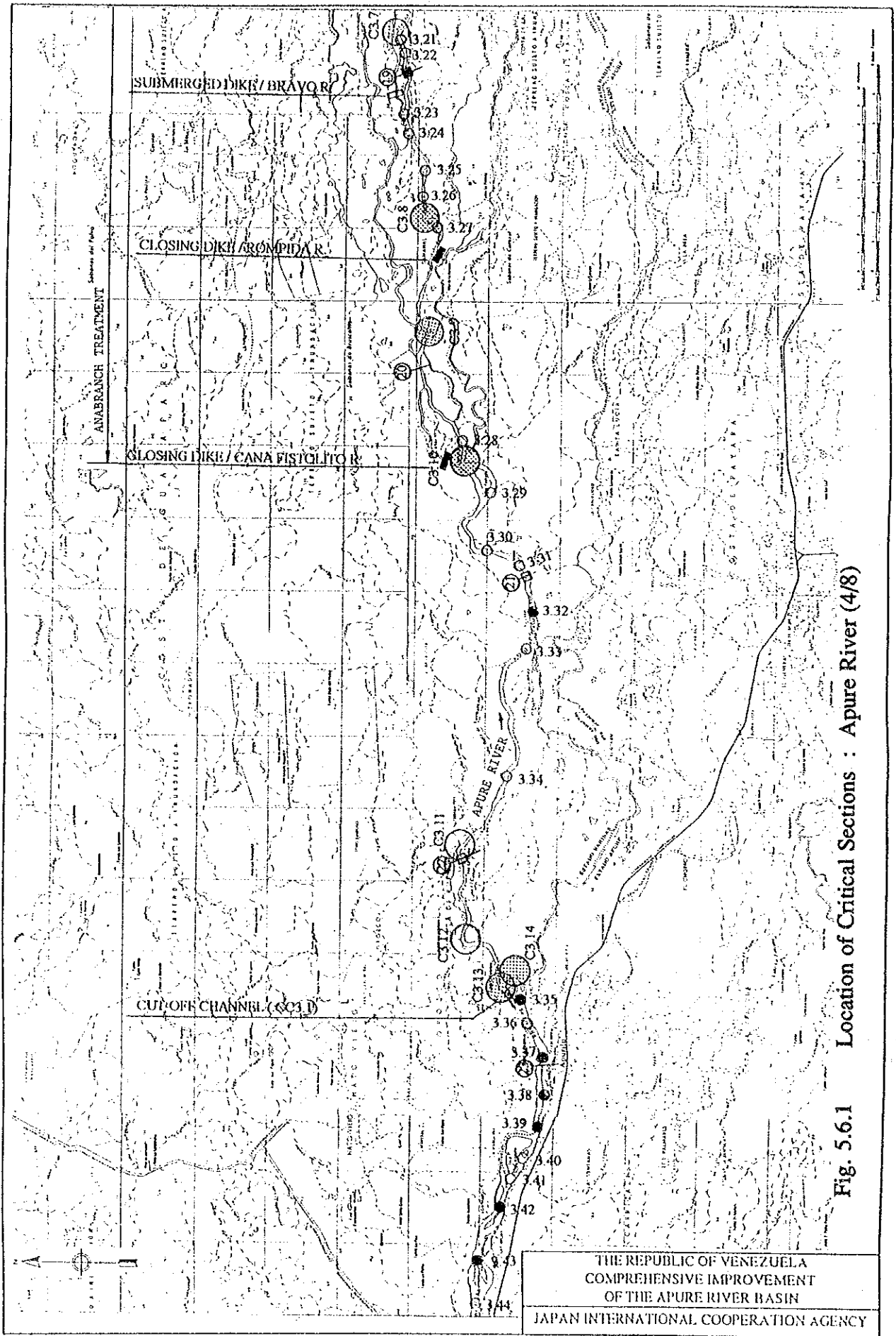


Fig. 5.6.1 Location of Critical Sections : Apure River (4/8)

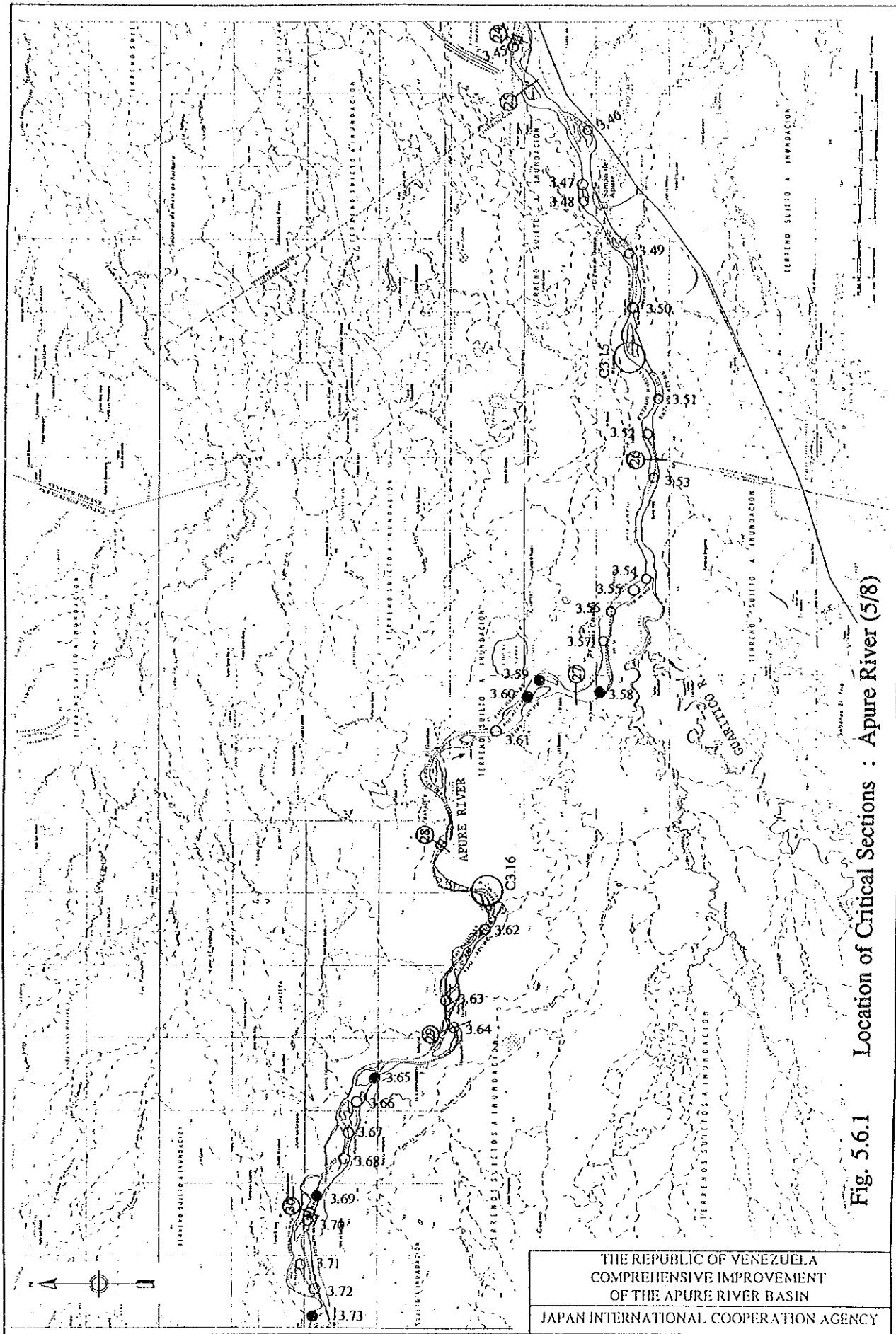


Fig. 5.6.1 Location of Critical Sections : Apure River (5/8)

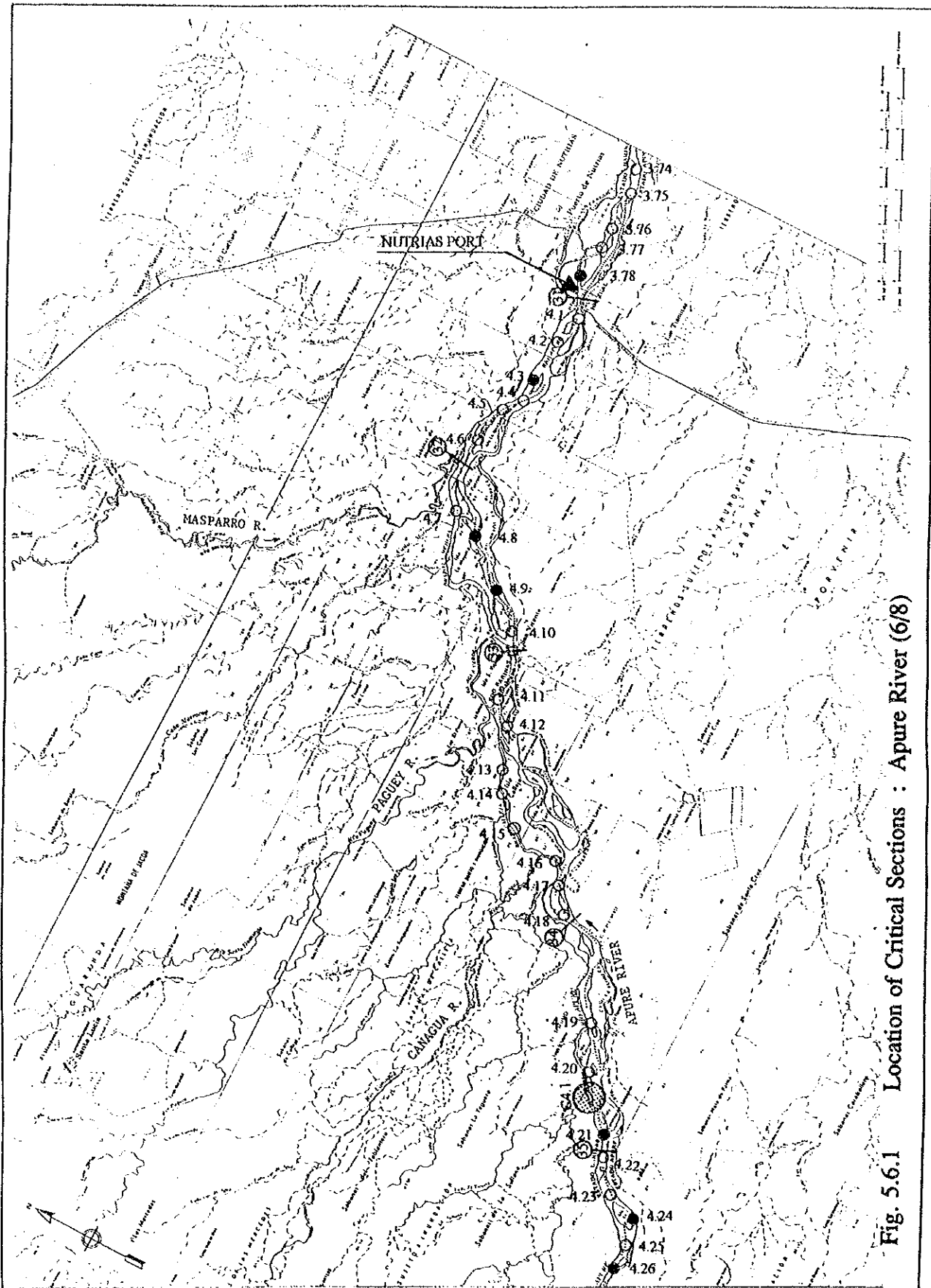


Fig. 5.6.1 Location of Critical Sections : Apure River (6/8)

THE REPUBLIC OF VENEZUELA
 COMPREHENSIVE IMPROVEMENT
 OF THE APURE RIVER BASIN
 JAPAN INTERNATIONAL COOPERATION AGENCY

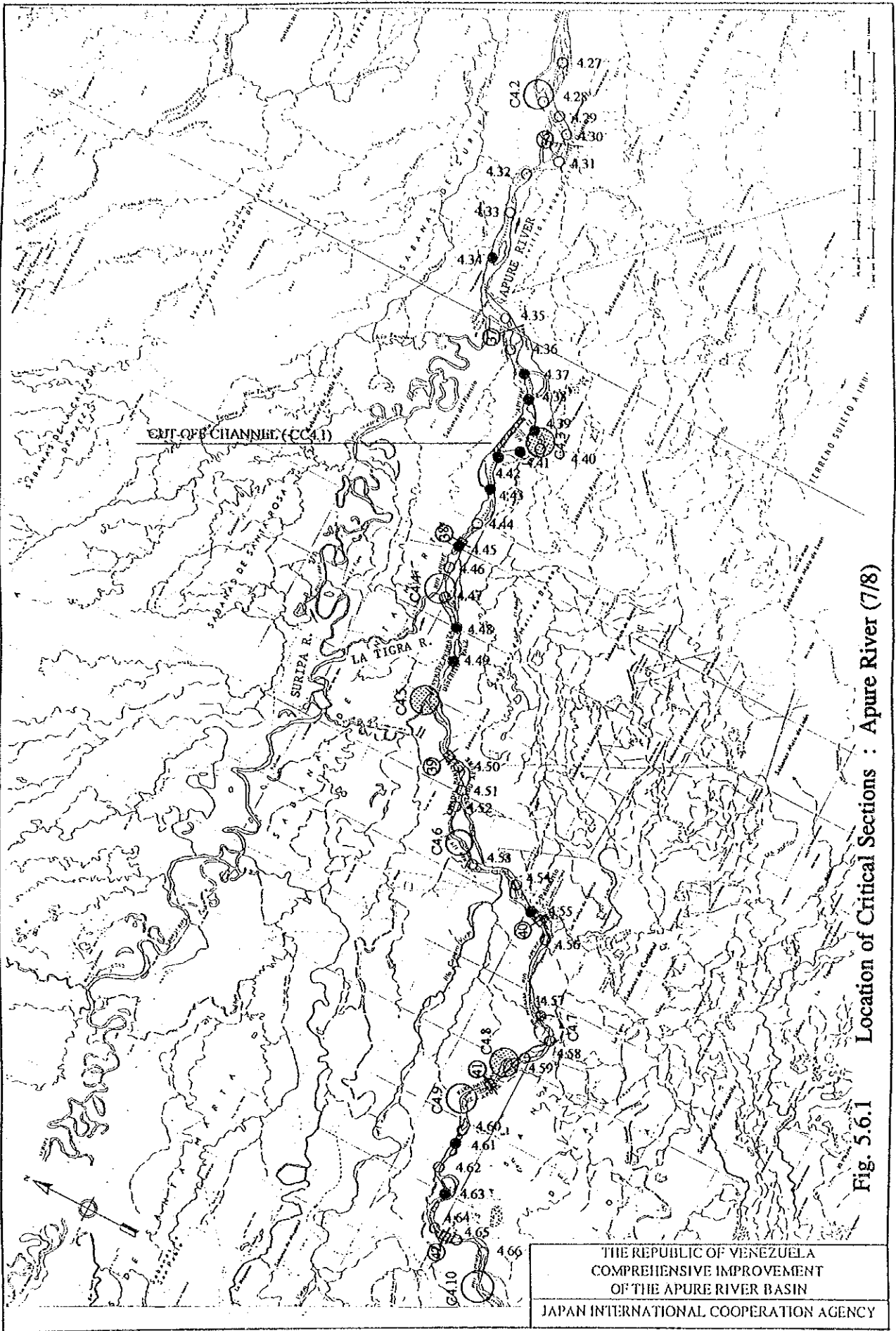


Fig. 5.6.1 Location of Critical Sections : Apure River (7/8)

THE REPUBLIC OF VENEZUELA
 COMPREHENSIVE IMPROVEMENT
 OF THE APURE RIVER BASIN
 JAPAN INTERNATIONAL COOPERATION AGENCY

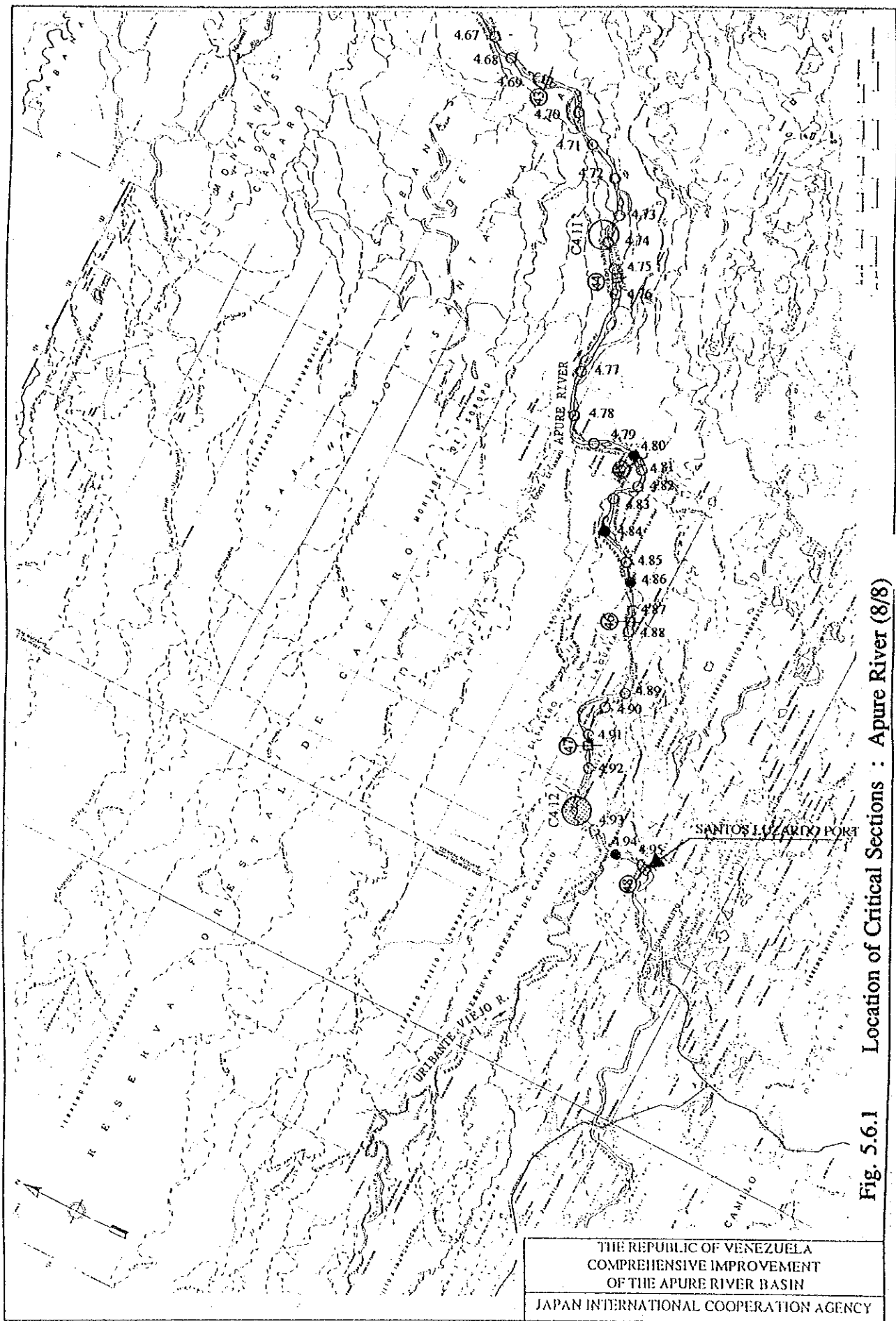


Fig. 5.6.1 Location of Critical Sections : Apure River (8/8)

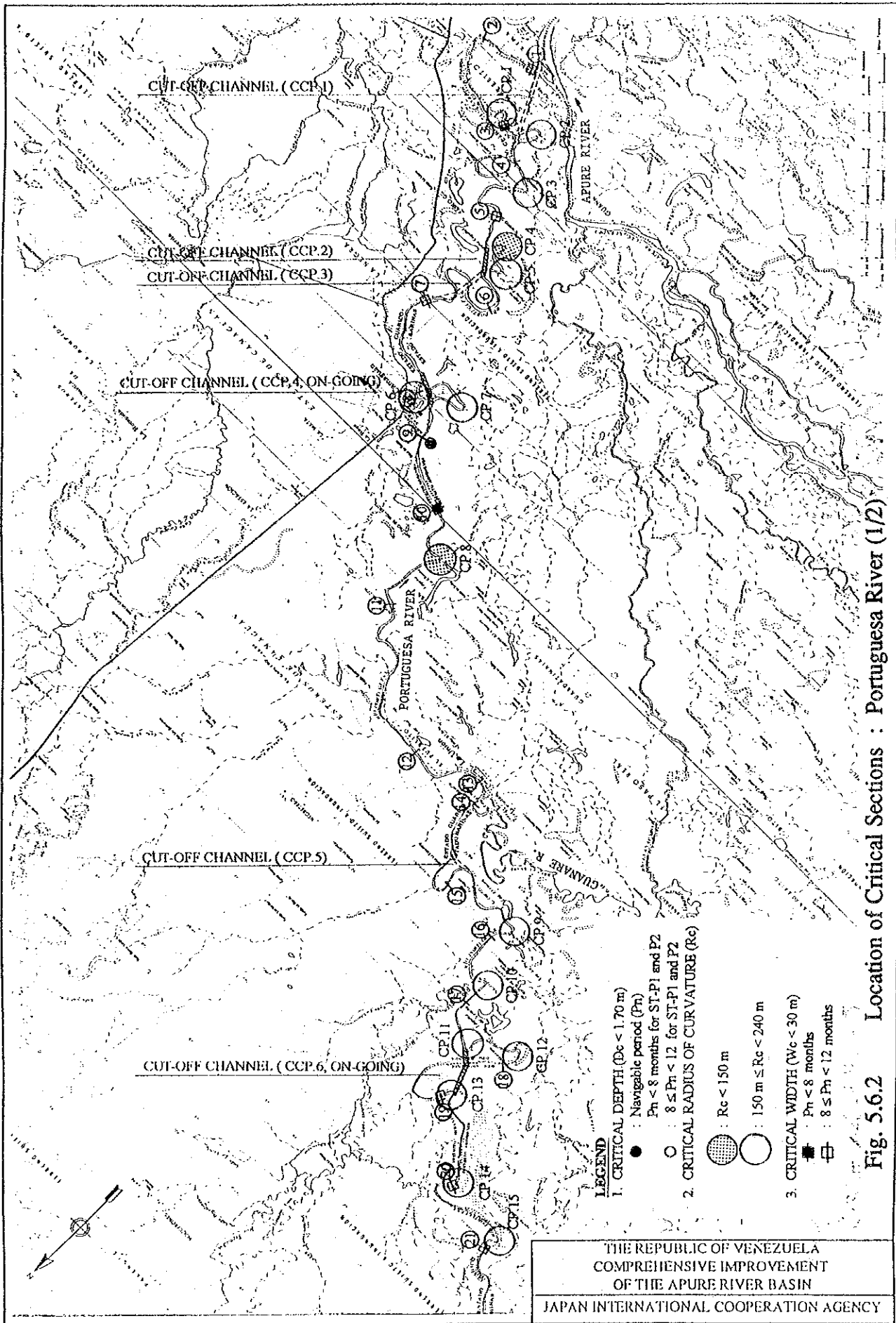


Fig. 5.6.2 Location of Critical Sections : Portuguesa River (1/2)

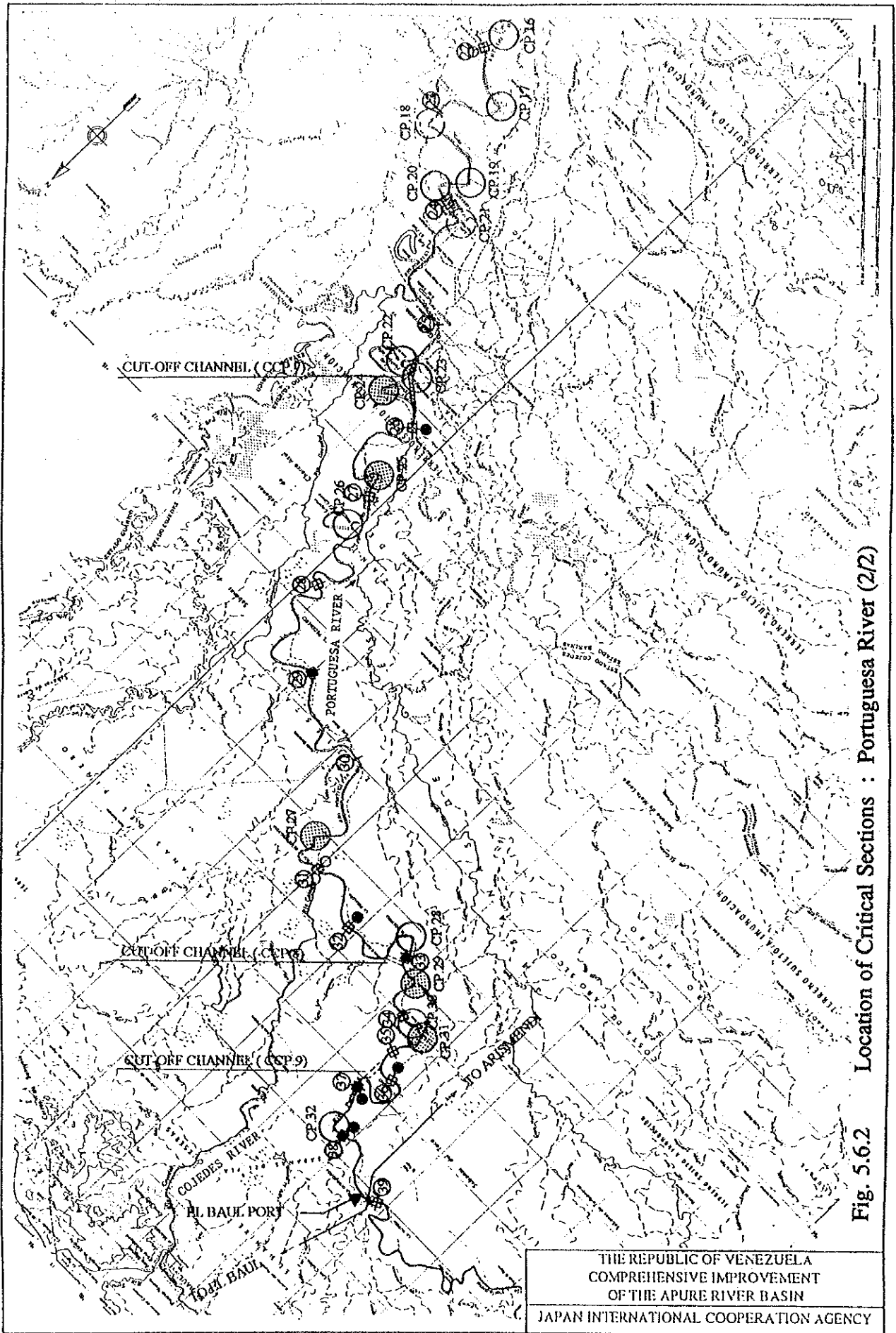
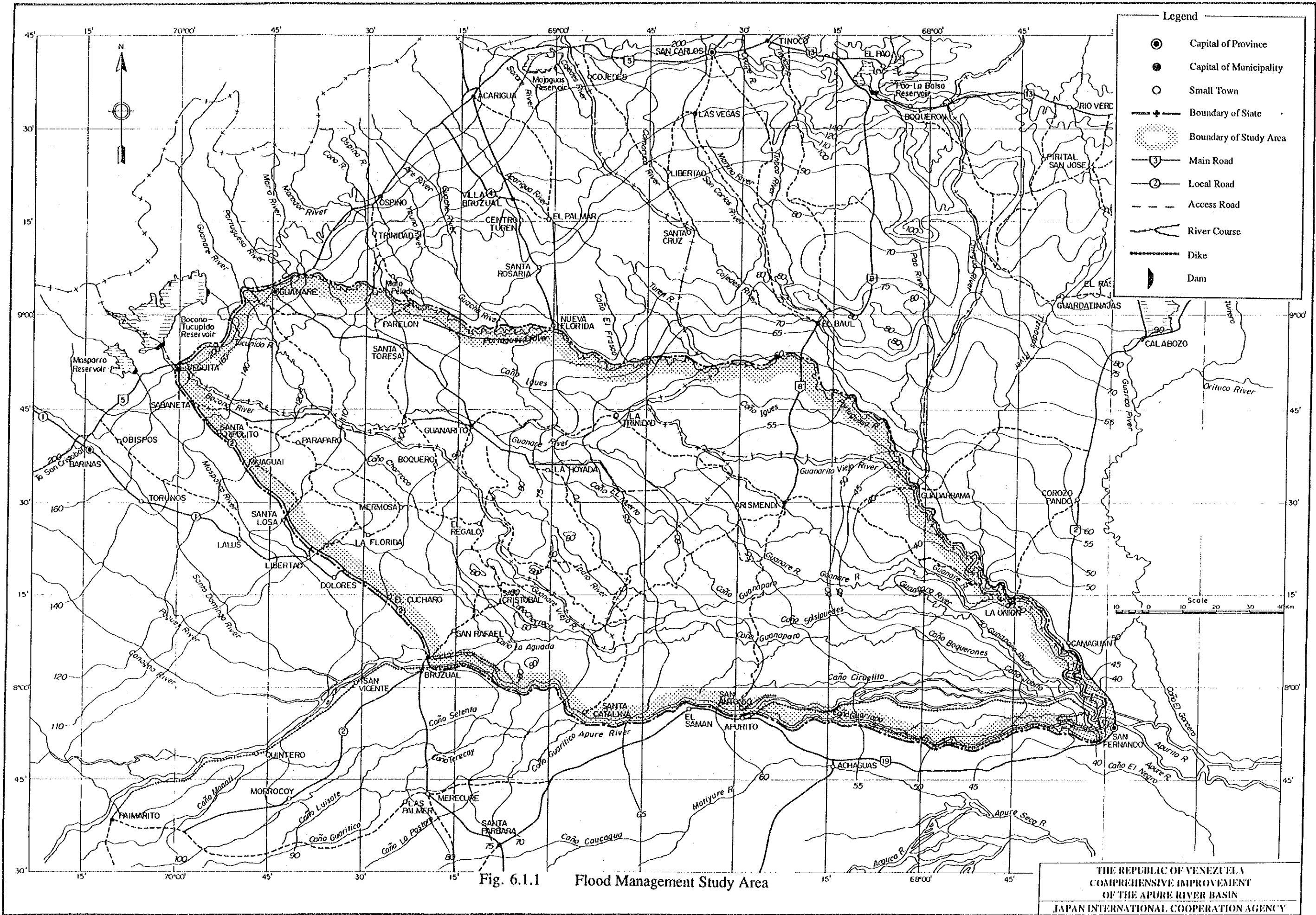
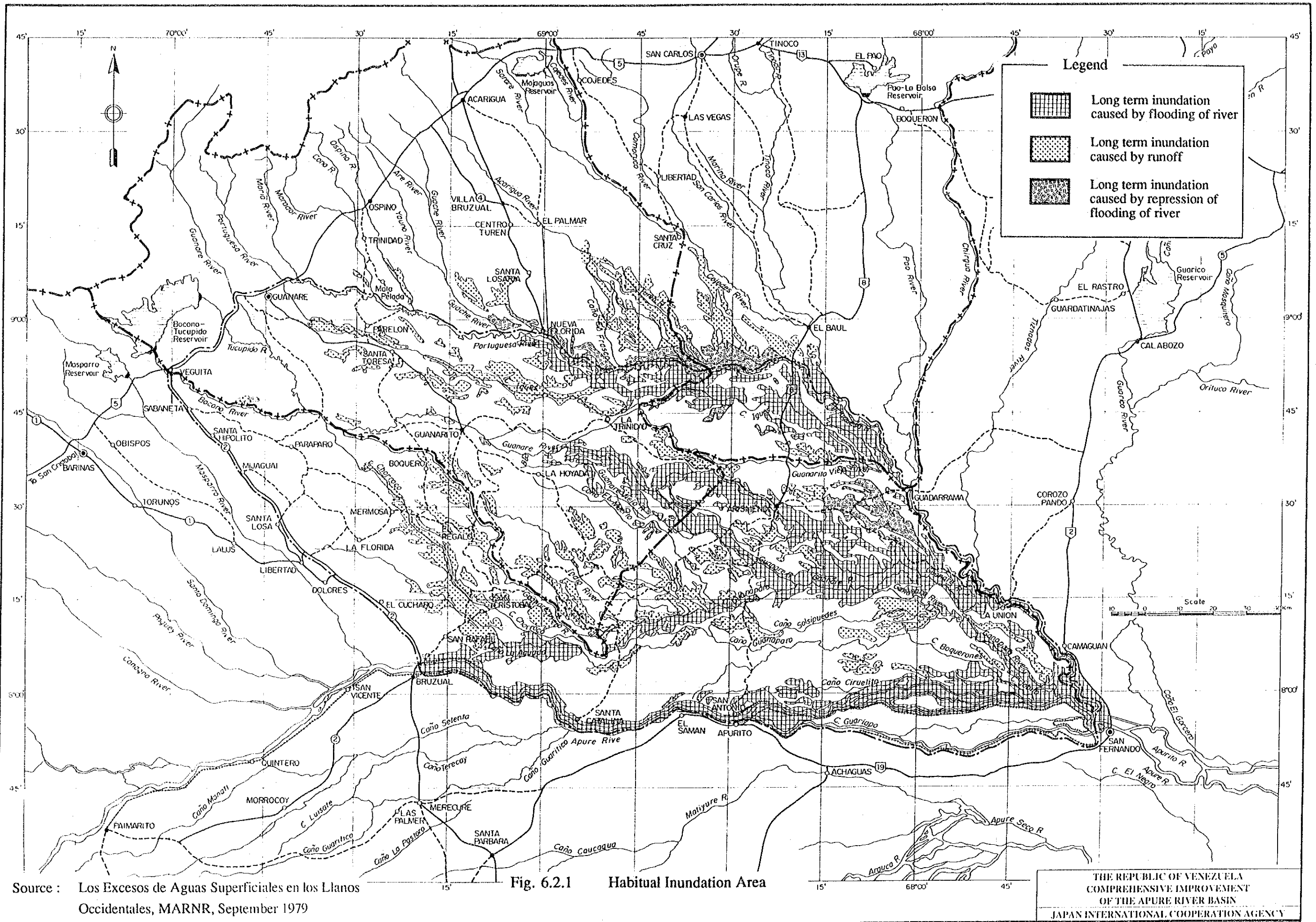


Fig. 5.6.2 Location of Critical Sections : Portuguesa River (2/2)





Source : Los Excesos de Aguas Superficiales en los Llanos Occidentales, MARNR, September 1979

Fig. 6.2.1 Habitual Inundation Area

THE REPUBLIC OF VENEZUELA
 COMPREHENSIVE IMPROVEMENT
 OF THE APURE RIVER BASIN
 JAPAN INTERNATIONAL COOPERATION AGENCY

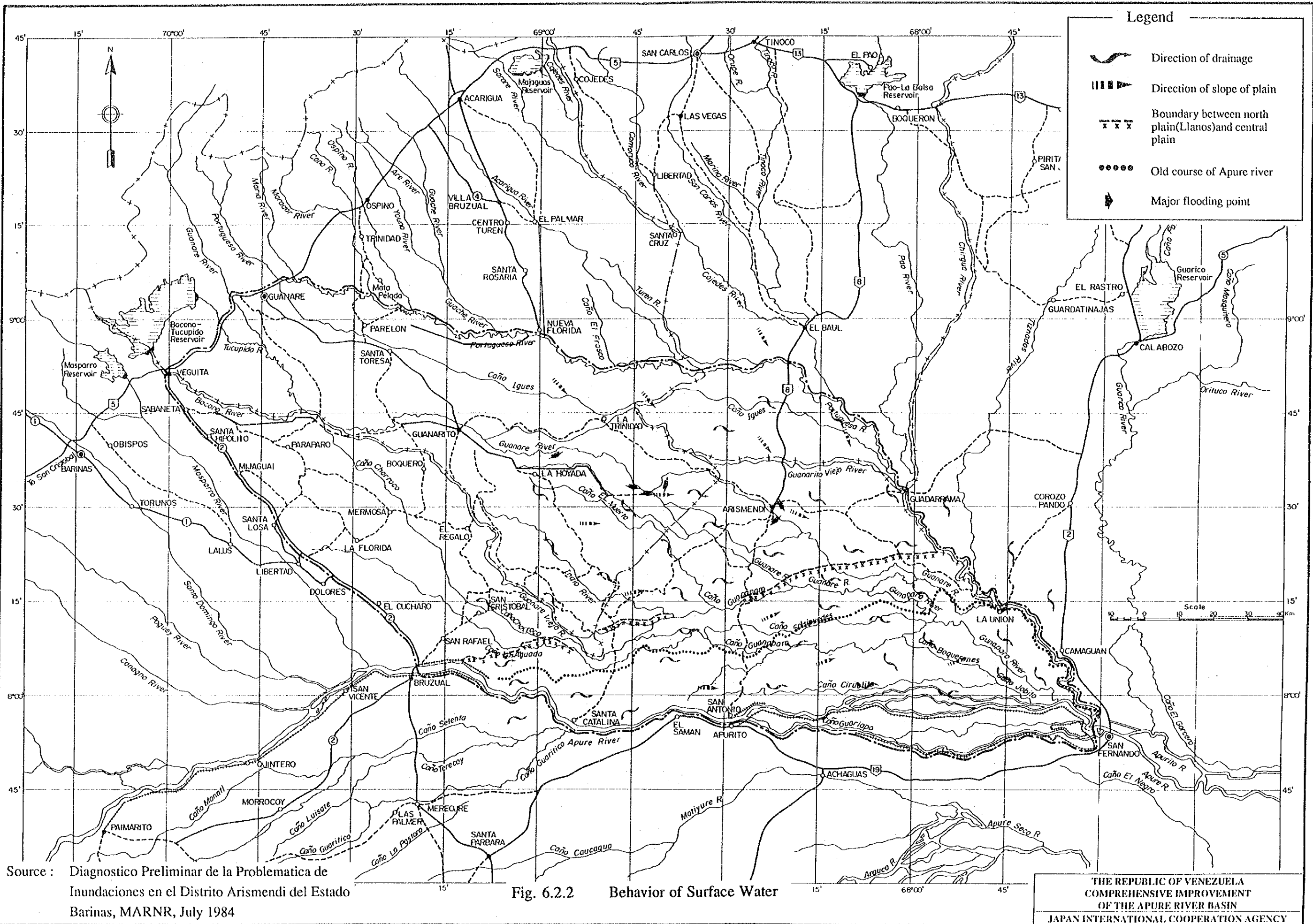
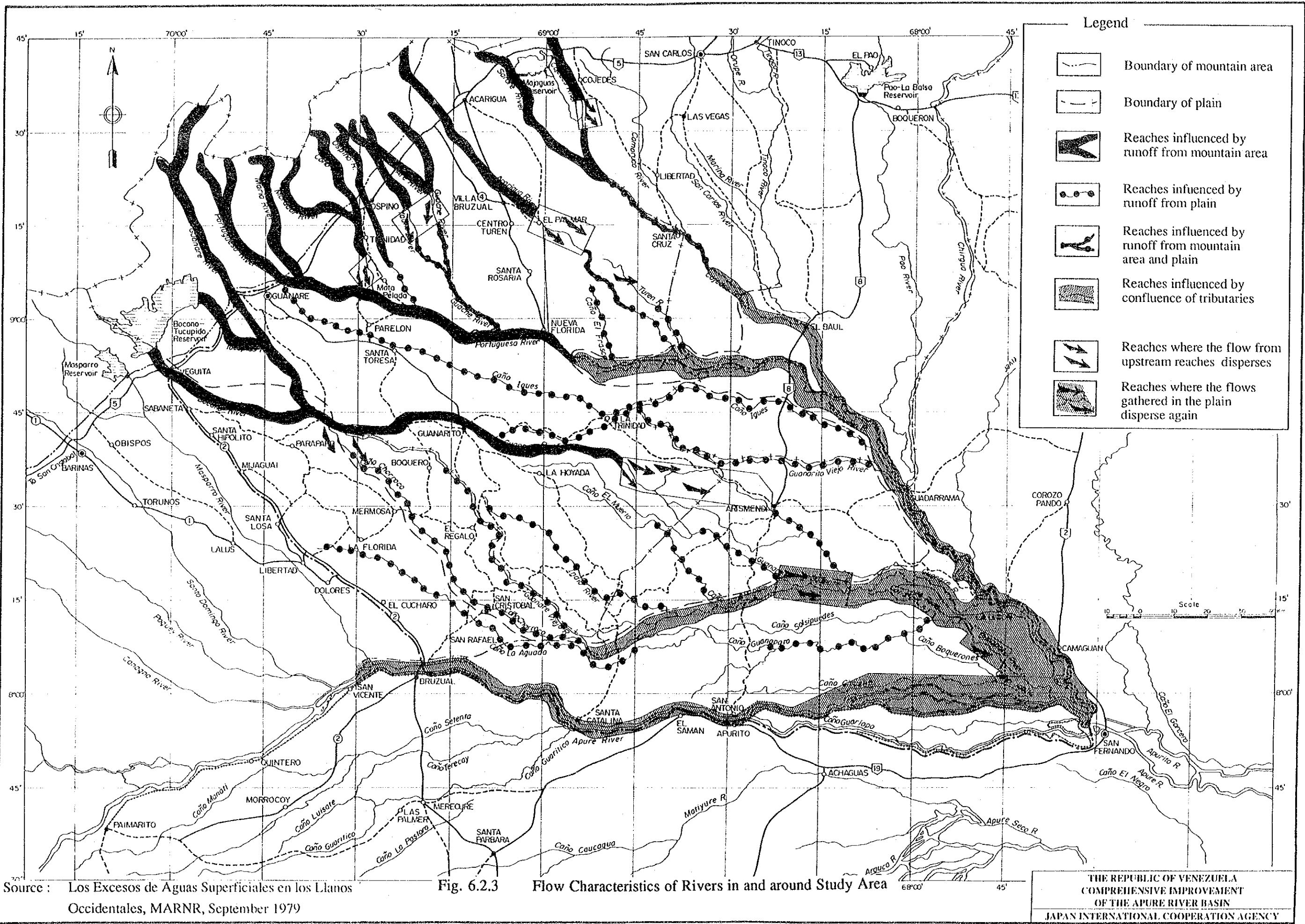
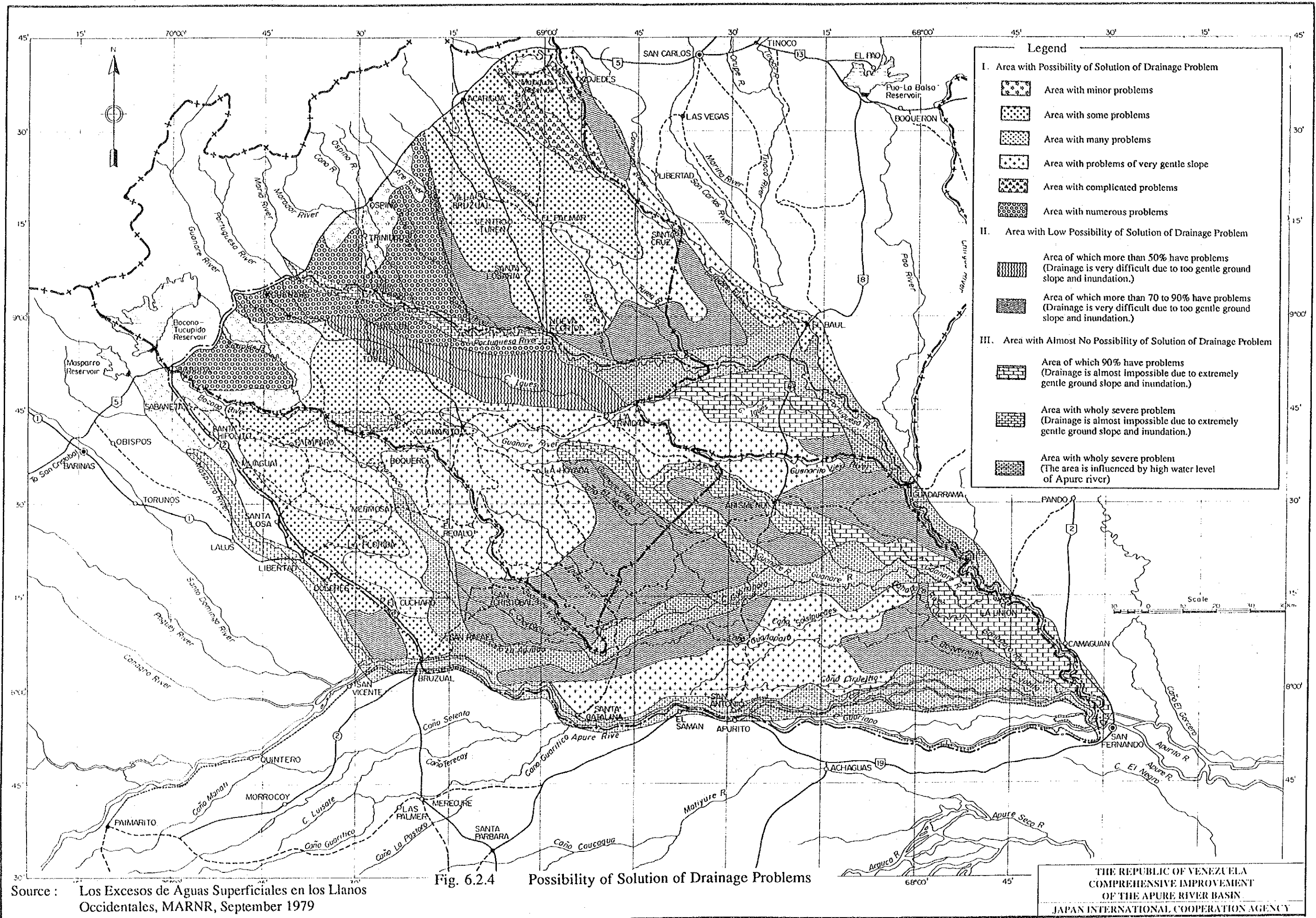
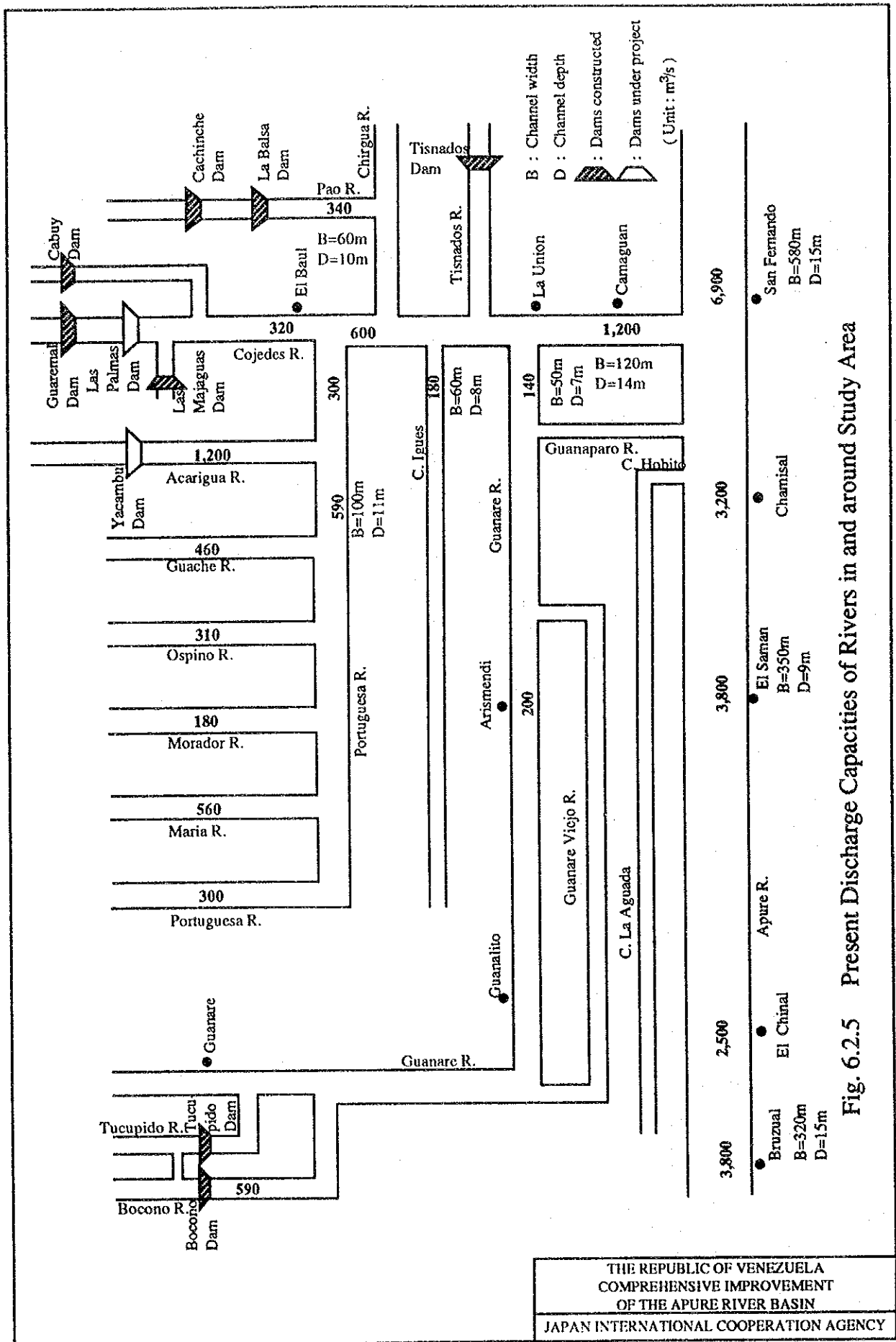
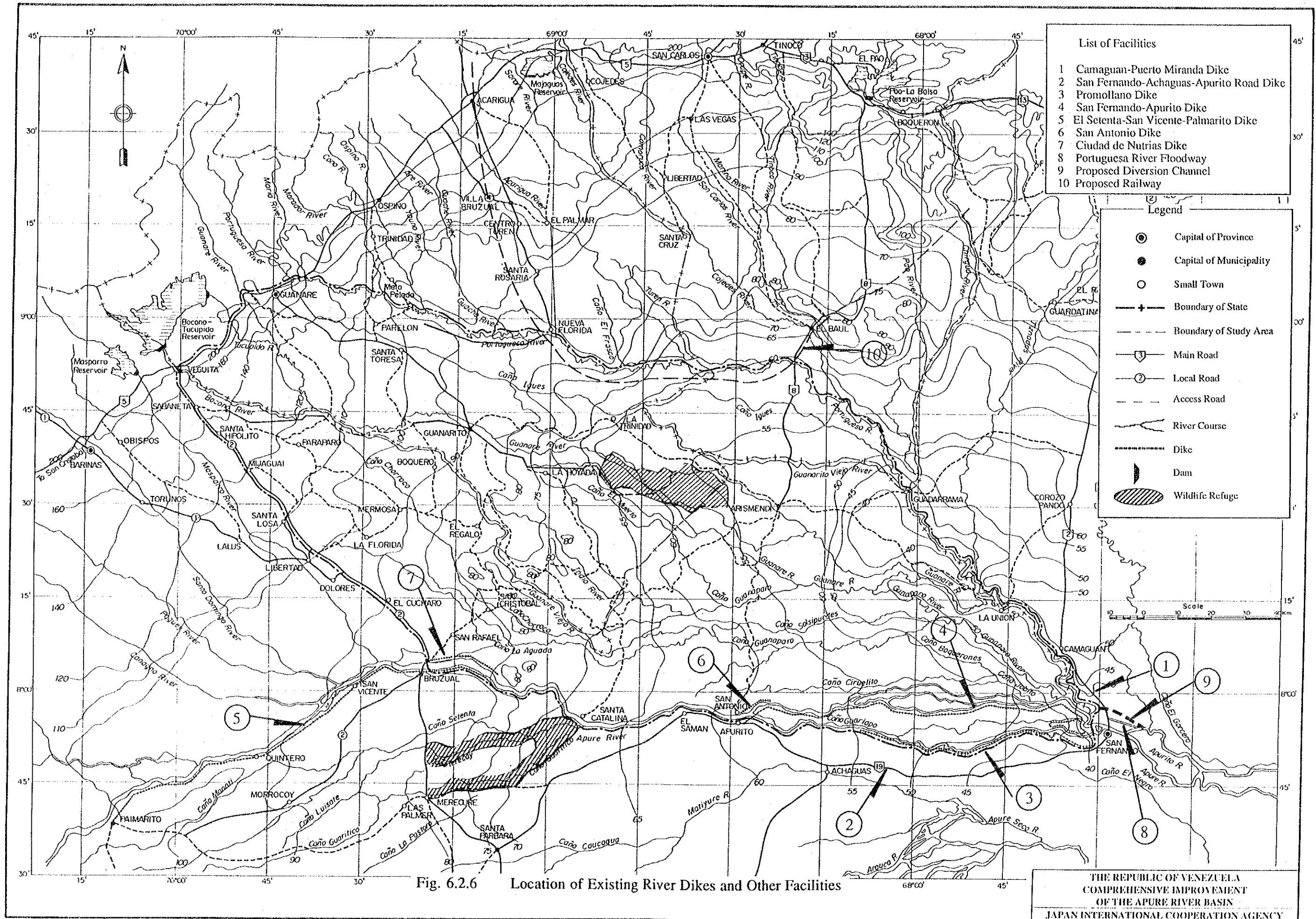


Fig. 6.2.2 Behavior of Surface Water









- List of Facilities
- 1 Camaguan-Puerto Miranda Dike
 - 2 San Fernando-Achaguas-Apurito Road Dike
 - 3 Promollano Dike
 - 4 San Fernando-Apurito Dike
 - 5 El Setenta-San Vicente-Palmarito Dike
 - 6 San Antonio Dike
 - 7 Ciudad de Nutrias Dike
 - 8 Portuguesa River Floodway
 - 9 Proposed Diversion Channel
 - 10 Proposed Railway

- Legend
- Capital of Province
 - Capital of Municipality
 - Small Town
 - +— Boundary of State
 - - - - - Boundary of Study Area
 - Main Road
 - Local Road
 - - - - - Access Road
 - River Course
 - Dike
 - Dam
 - ▨ Wildlife Refuge

Fig. 6.2.6 Location of Existing River Dikes and Other Facilities

THE REPUBLIC OF VENEZUELA
 COMPREHENSIVE IMPROVEMENT
 OF THE APURE RIVER BASIN
 JAPAN INTERNATIONAL COOPERATION AGENCY

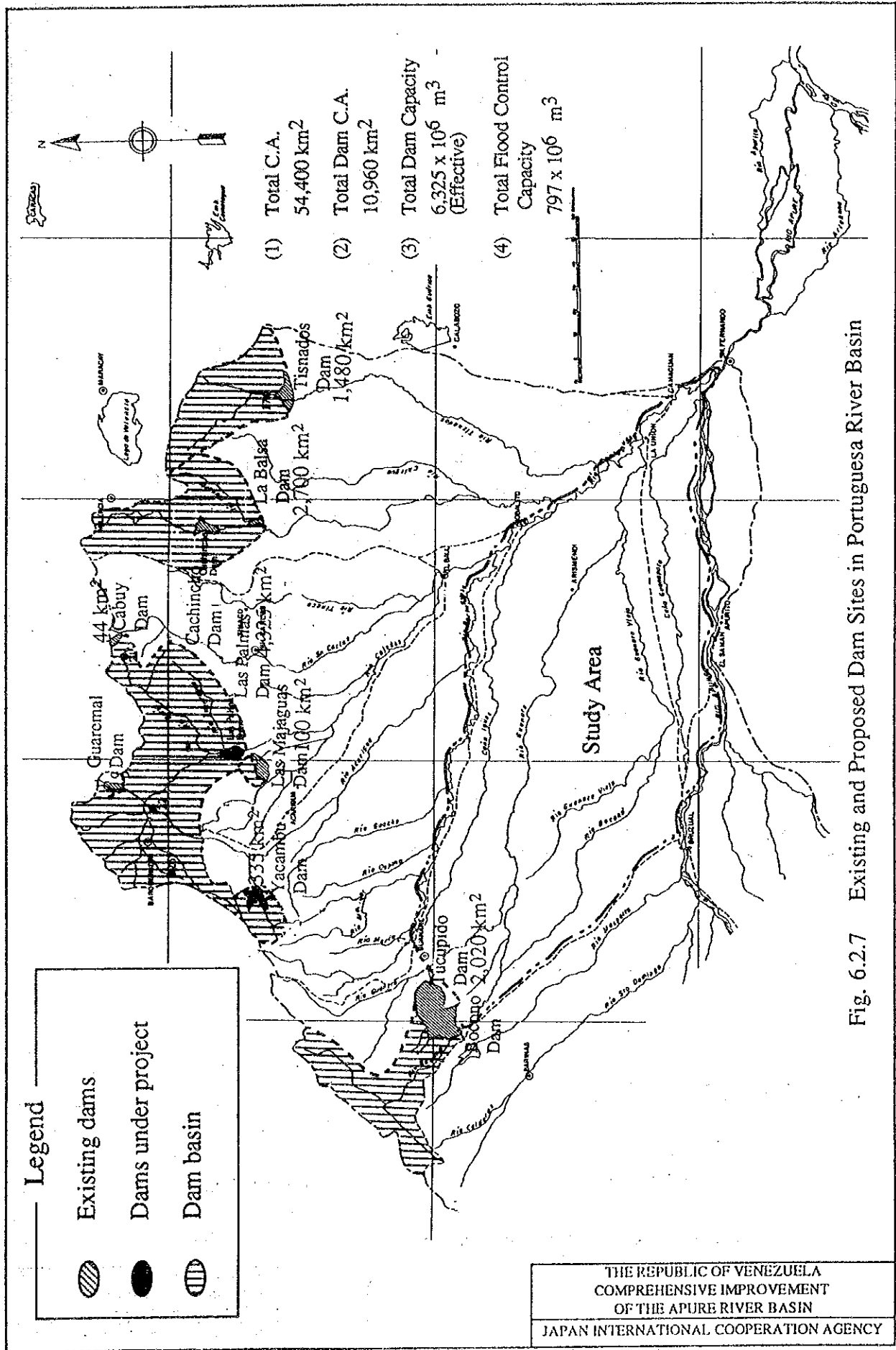
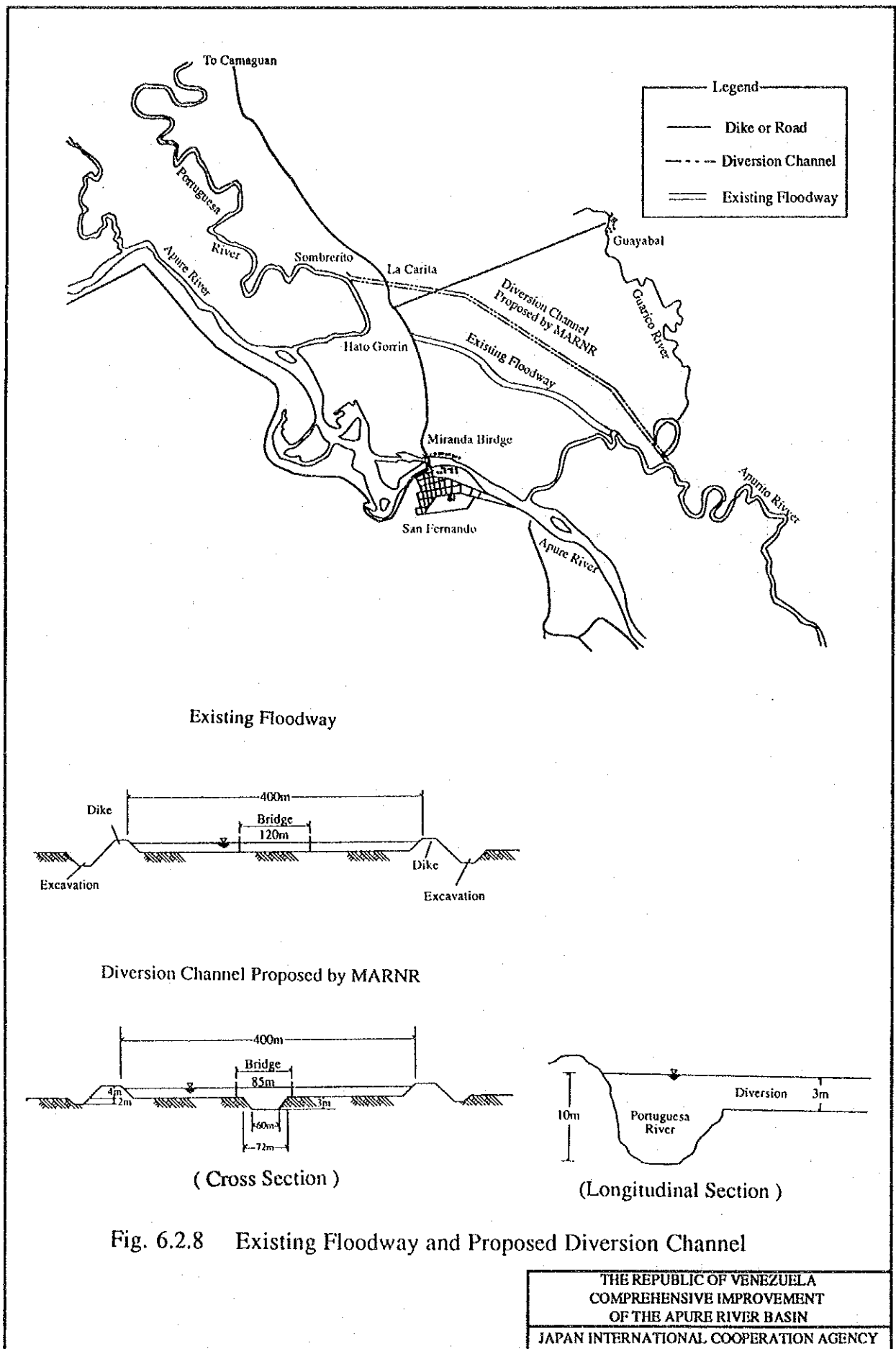
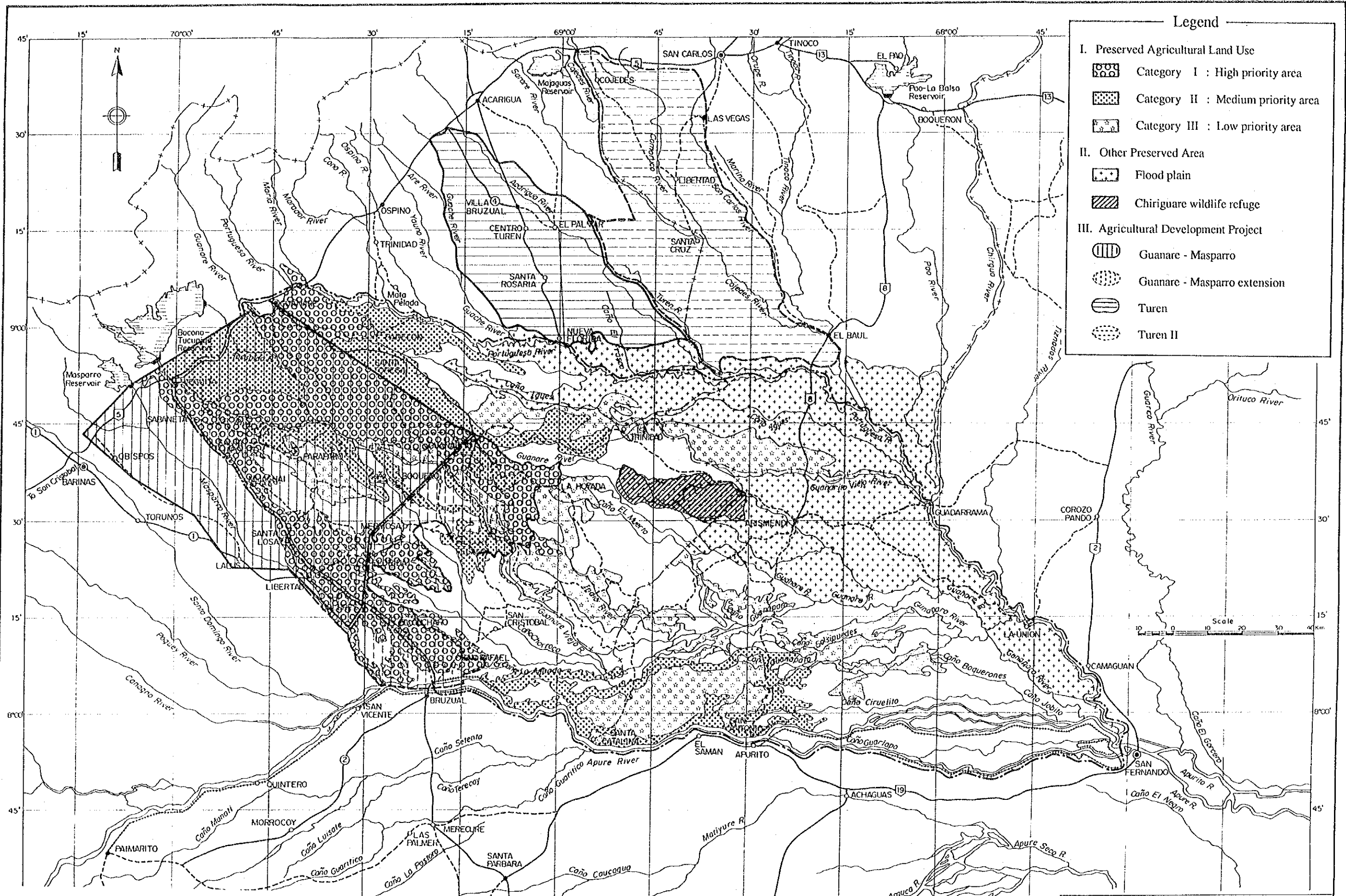


Fig. 6.2.7 Existing and Proposed Dam Sites in Portuguesa River Basin





Source : Plan de Ordenacion del Territorio Estado Barinas(1987), Portuguesa(1986), Cojedes(1985), MARNR

Fig. 6.2.9 Preserved Agricultural Land Use Area and Existing Agricultural Development Projects

THE REPUBLIC OF VENEZUELA
 COMPREHENSIVE IMPROVEMENT
 OF THE APURE RIVER BASIN
 JAPAN INTERNATIONAL COOPERATION AGENCY

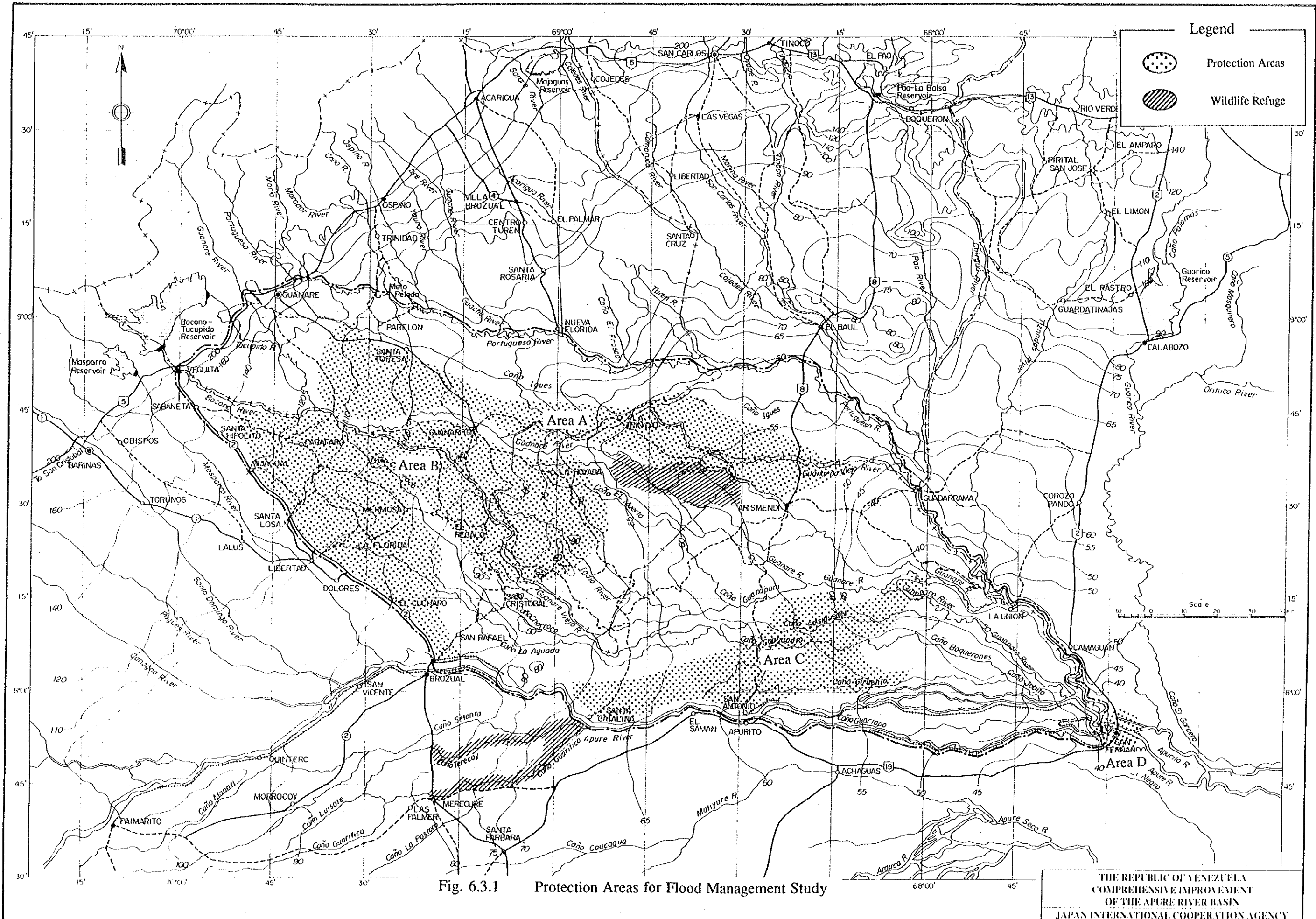


Fig. 6.3.1 Protection Areas for Flood Management Study

THE REPUBLIC OF VENEZUELA
 COMPREHENSIVE IMPROVEMENT
 OF THE APURE RIVER BASIN
 JAPAN INTERNATIONAL COOPERATION AGENCY

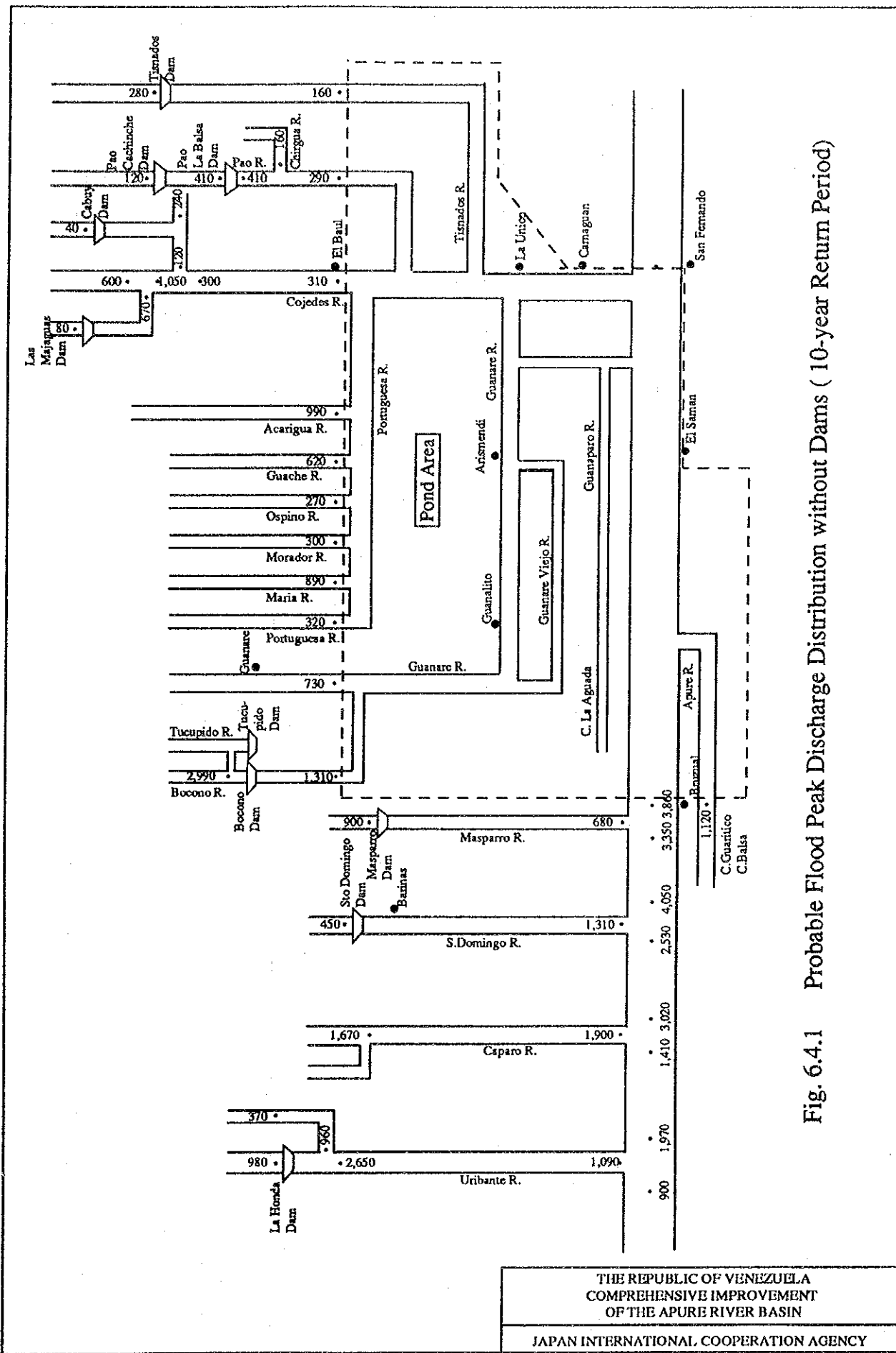


Fig. 6.4.1 Probable Flood Peak Discharge Distribution without Dams (10-year Return Period)

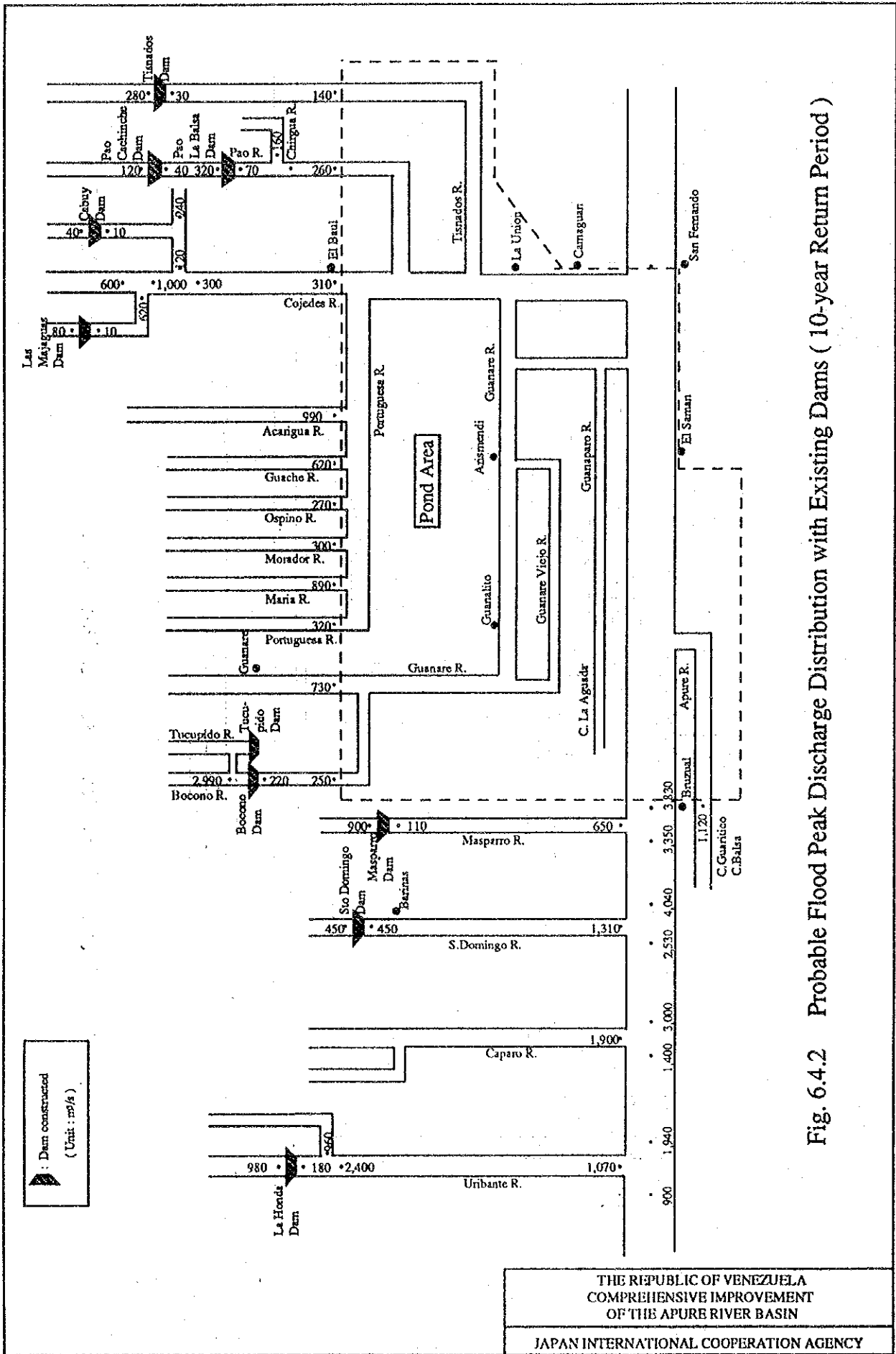


Fig. 6.4.2 Probable Flood Peak Discharge Distribution with Existing Dams (10-year Return Period)

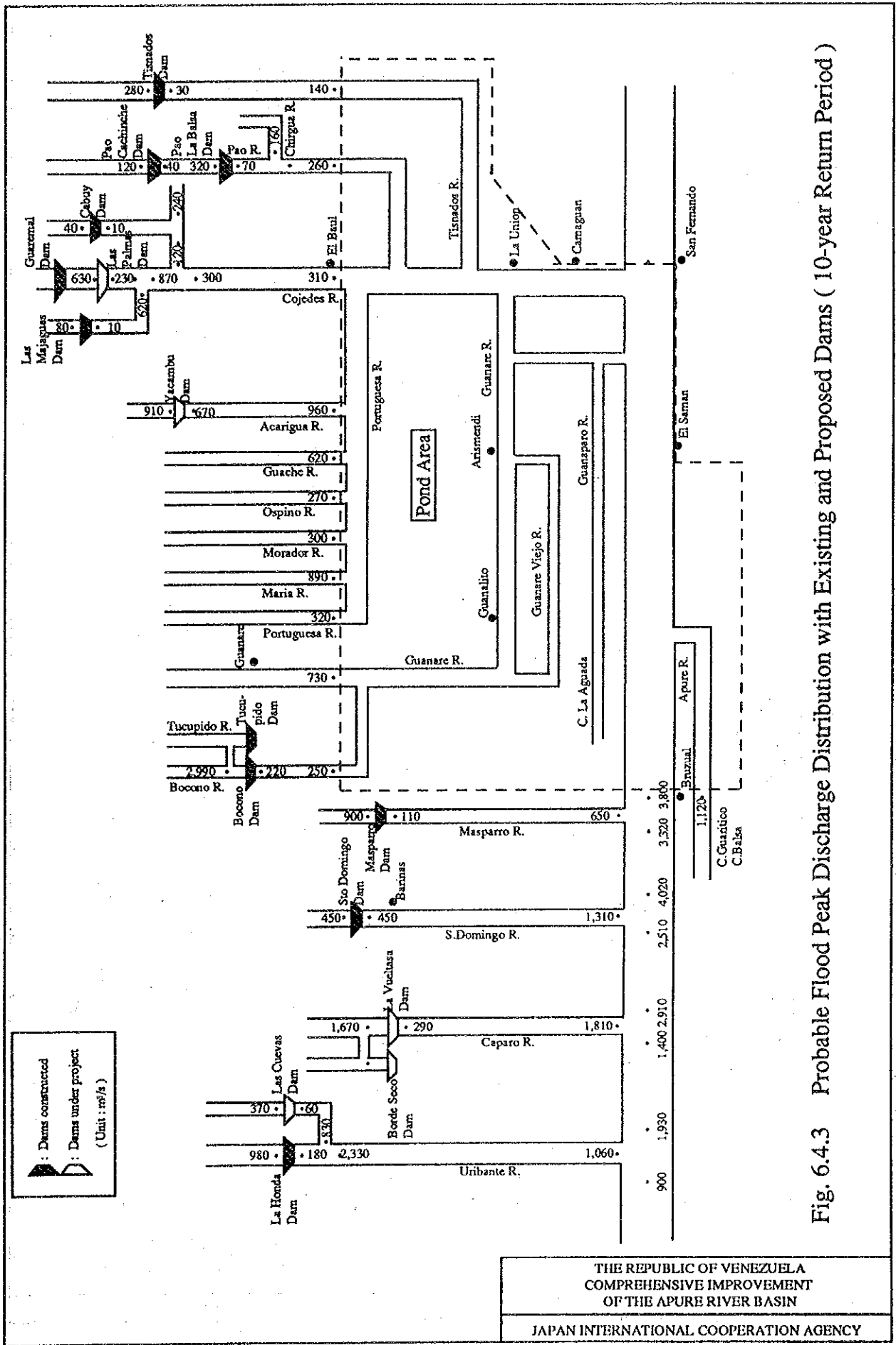


Fig. 6.4.3 Probable Flood Peak Discharge Distribution with Existing and Proposed Dams (10-year Return Period)

THE REPUBLIC OF VENEZUELA
 COMPREHENSIVE IMPROVEMENT
 OF THE APURE RIVER BASIN
 JAPAN INTERNATIONAL COOPERATION AGENCY

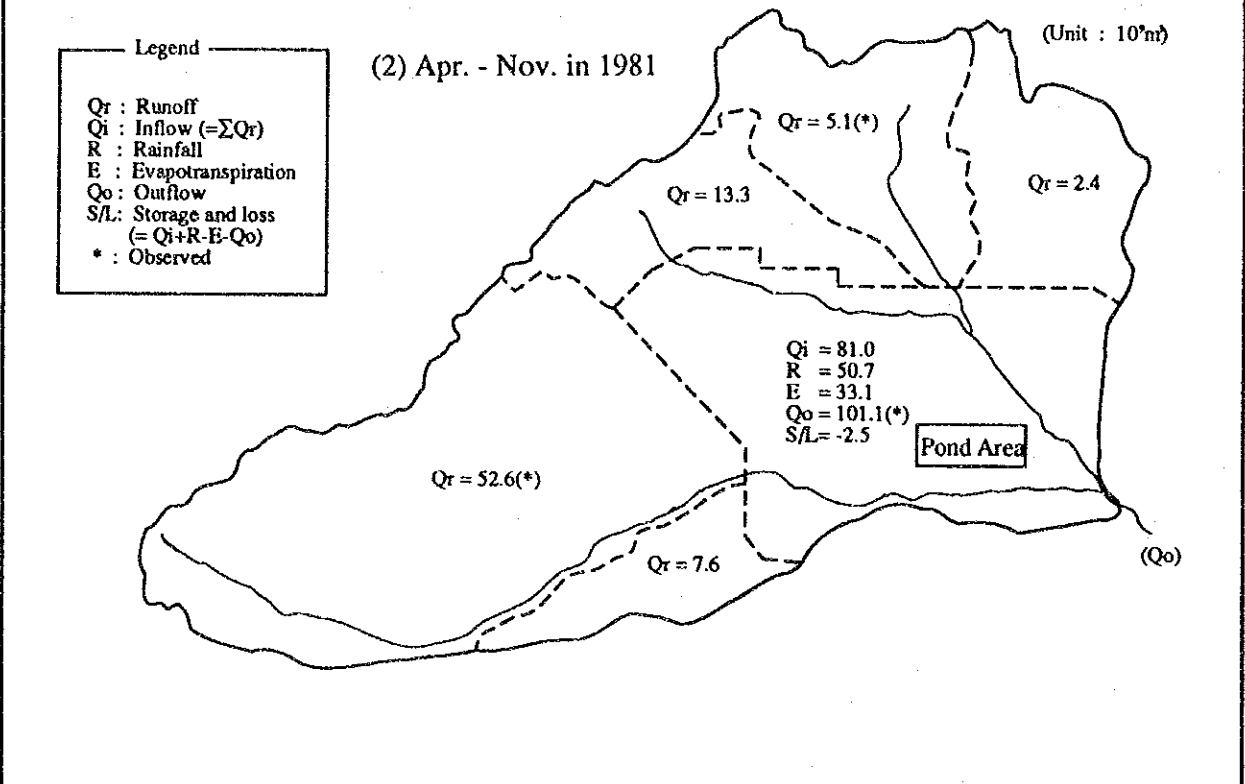
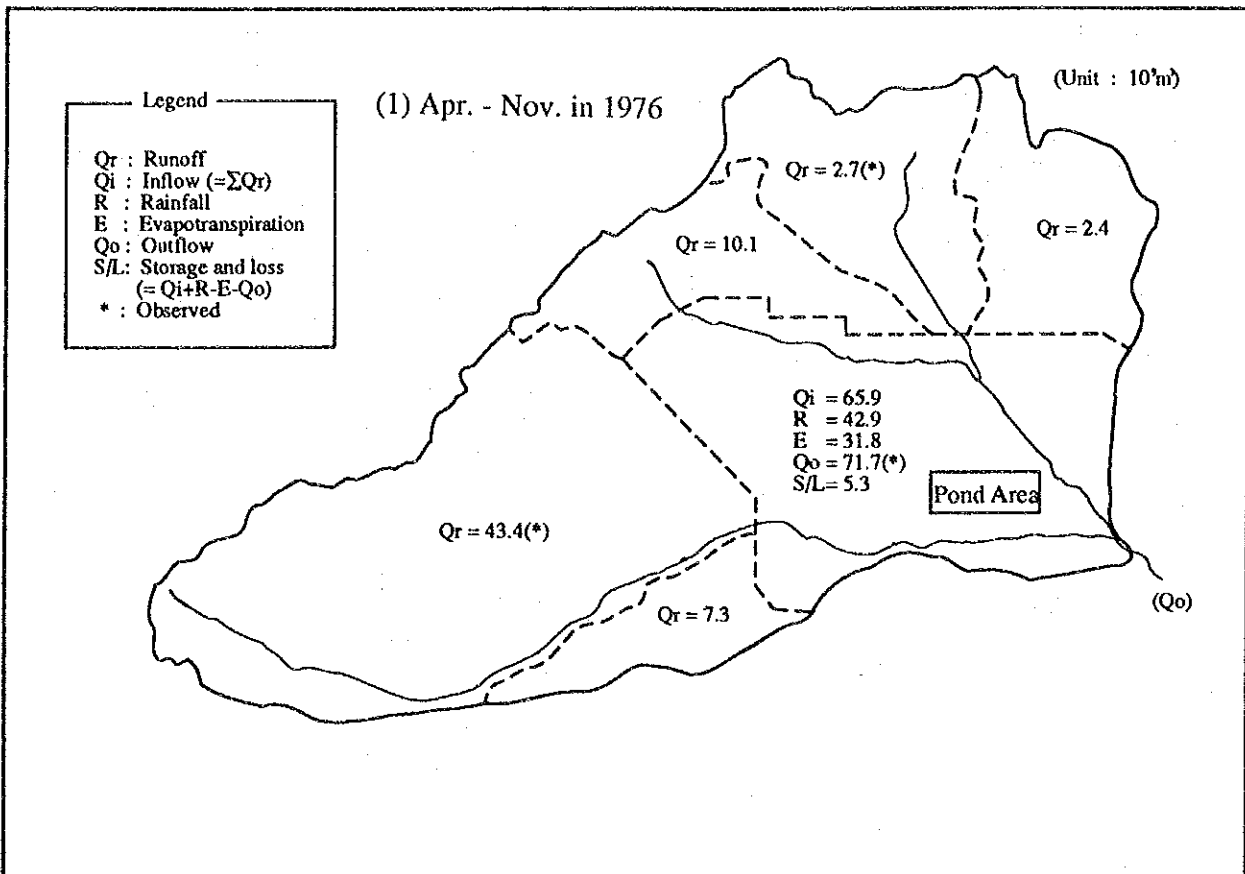


Fig. 6.4.4 Water Balance in Pond Area for Apr. - Nov. in 1976 and 1981

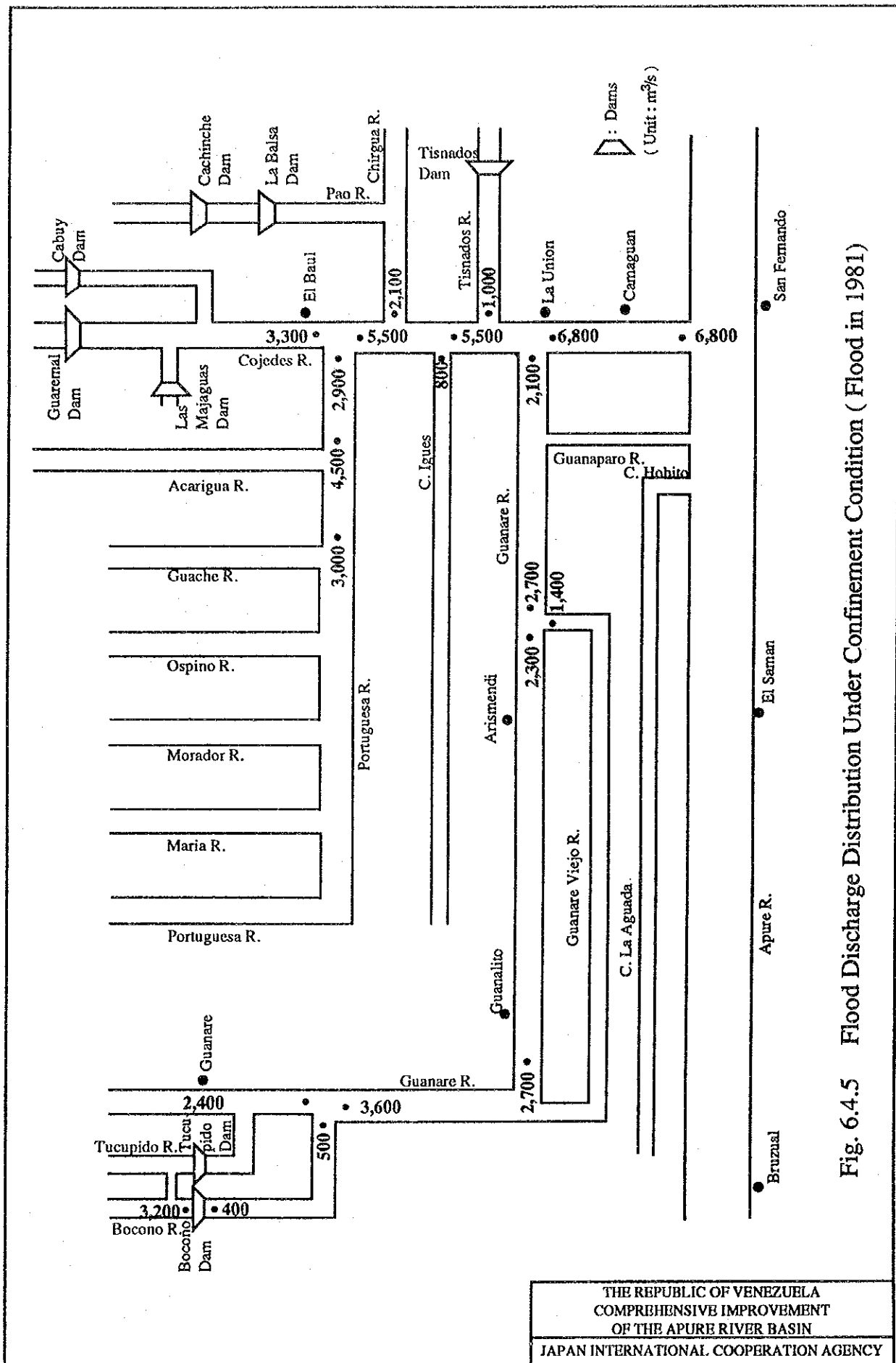


Fig. 6.4.5 Flood Discharge Distribution Under Confinement Condition (Flood in 1981)

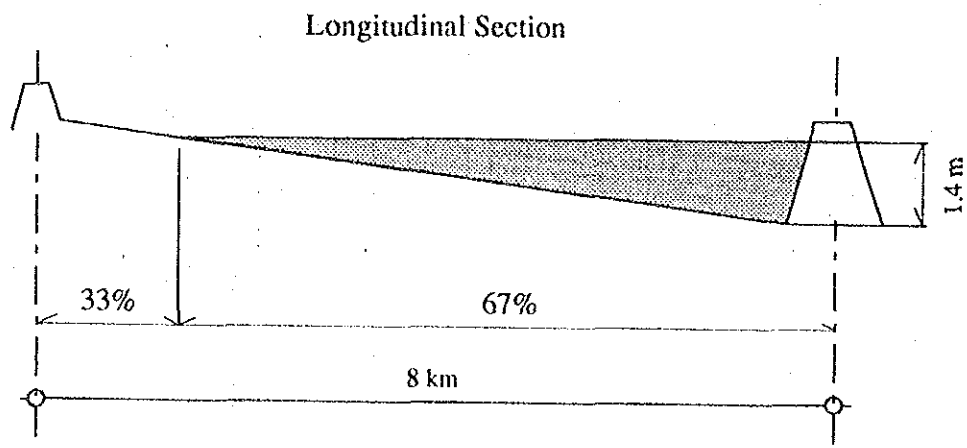
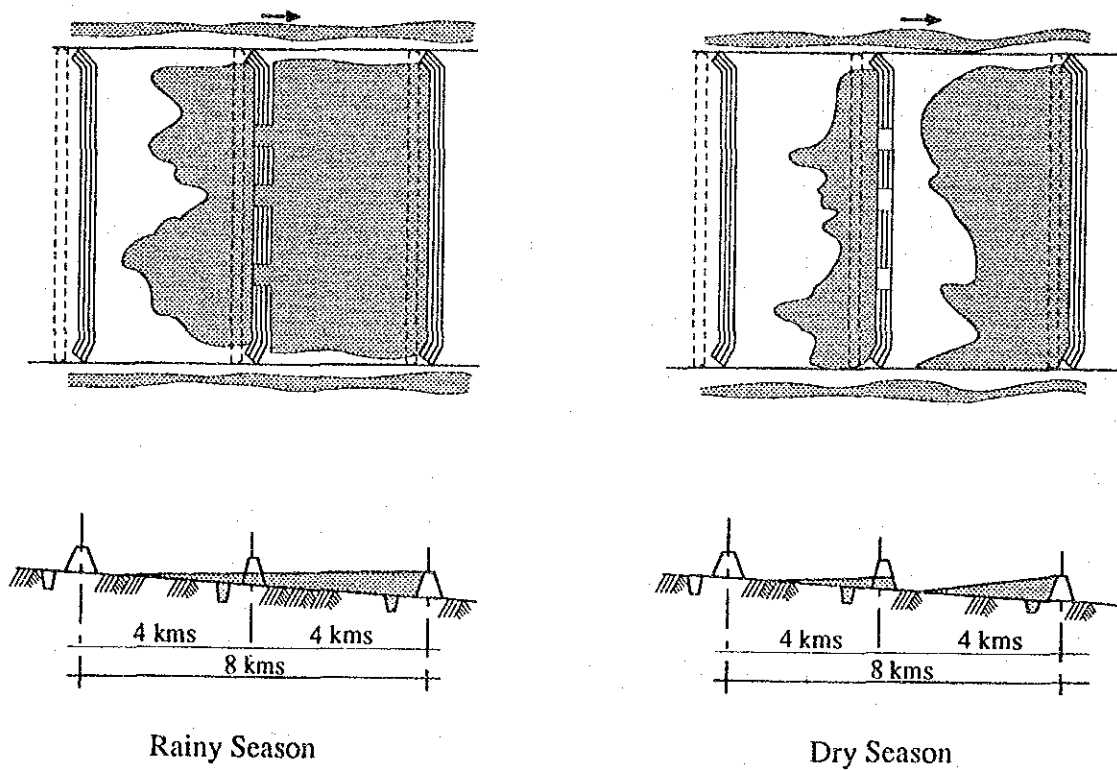


Fig. 6.4.6 Schematic Figure of Apure Module

THE REPUBLIC OF VENEZUELA
 COMPREHENSIVE IMPROVEMENT
 OF THE APURE RIVER BASIN
 JAPAN INTERNATIONAL COOPERATION AGENCY

