

CHAPTER 1

OUTLINE OF THE STUDY

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1.1 Background of the Study

Patos and Mirim lakes are located in the southern part of Rio Grande do Sul State of the Federative Republic of Brazil. The former has a water area of about 9,794 km² (excluding Guaíba Lake) and the latter 3,738 km². Mirim Lake is located within the border between Uruguay and the Federative Republic of Brazil and 2,826 km² of it is in Brazil.

Rapid urbanization and industrialization especially in the northern area of Rio Grande do Sul State adversely affect the water quality of Patos Lake as rivers that flow into the lake carry with them pollutants originating from domestic and industrial wastewater. In addition, primitive forests around both lakes are also sharply decreasing due to agricultural development. Agricultural chemicals also further aggravate lake water quality as a considerable amount used for rice cultivation is believed to flow into the rivers that join the lake water. Other serious problems in the condition of these lakes are: decrease in water level, accumulation of sediments at the lake bottom mainly due to surface soil inflow, and the increasing volume of sludge at the lake bottom.

Under these circumstances, the Federative Republic of Brazil has launched a **National Coastal Management Plan**, under which Rio Grande do Sul State divided the coastal areas into the northern, central eastern, central western and southern areas. In relation to this plan the State Environmental Conservation Foundation has adopted environmental conservation measures for the northern coastal area of the country. These measures have not yet been applied in the southern coastal area where this study is carried out. Rio Grande do Sul State is going to formulate the **Mar de Dentro Plan** which basically aims for the conservation and development of the basins of Patos and Mirim lakes. However, no concrete policies have been formulated and the contents of the plan have not been decided yet.

With this background, in June 1996, the Federative Republic of Brazil requested the cooperation of the Government of Japan for the formulation of a master plan for the environmental management of the hydrographic basins of Patos and Mirim lakes. Both sides agreed to undertake the master plan in June 1998.

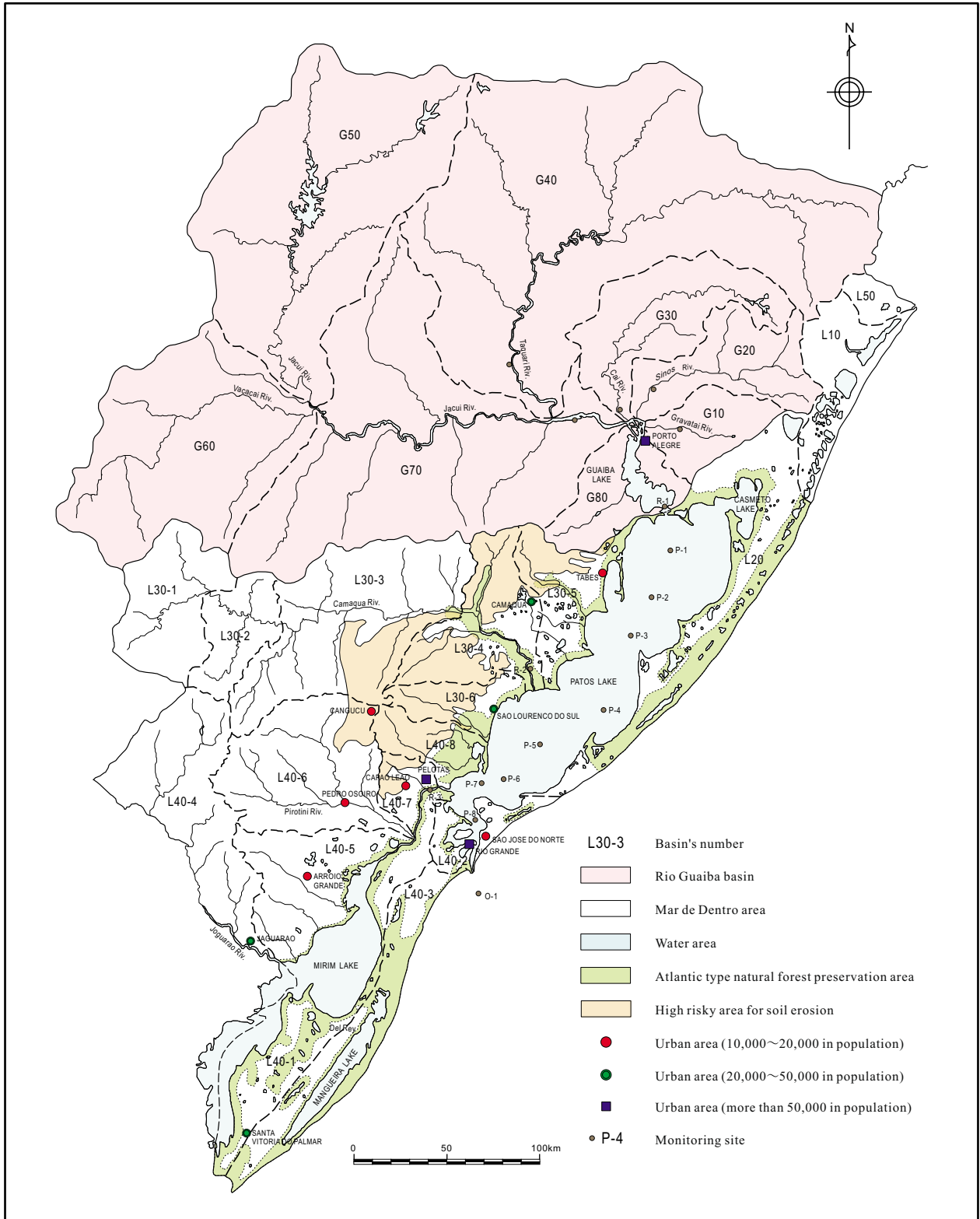
1.2 Objectives and the Contents of the Study

The objectives of the study are as follows.

- (1) To formulate a water quality and environmental management plan to strengthen water quality monitoring and wetland conservation at the districts around Patos and Mirim lakes.
- (2) To transfer technology to the Brazilian counterparts during the course of the study.

1.3 Study Area

Patos and Mirim lakes basin used in this report indicates that the area including the Guaiba river basin and Mar de Dentro area as shown in **Fig. 1.3-1**. The study covers this Patos and Mirim lakes basin which is approximately 150,000km². Because of the IDB financed Pro Guaiba Program in the Guaiba River basin, which is in the northern half of the Patos lake basin, only pollution load analysis based on available data was carried out therein. The study, therefore, mainly covered the Mar de Dentro area (approximately 66,000km²), which makes up the southern half of Patos Lake basin.



THE STUDY ON THE ENVIRONMENTAL MANAGEMENT OF THE HYDROGRAPHIC BASIN OF PATOS AND MIRIM LAKES IN THE FEDERATIVE REPUBLIC OF BRAZIL

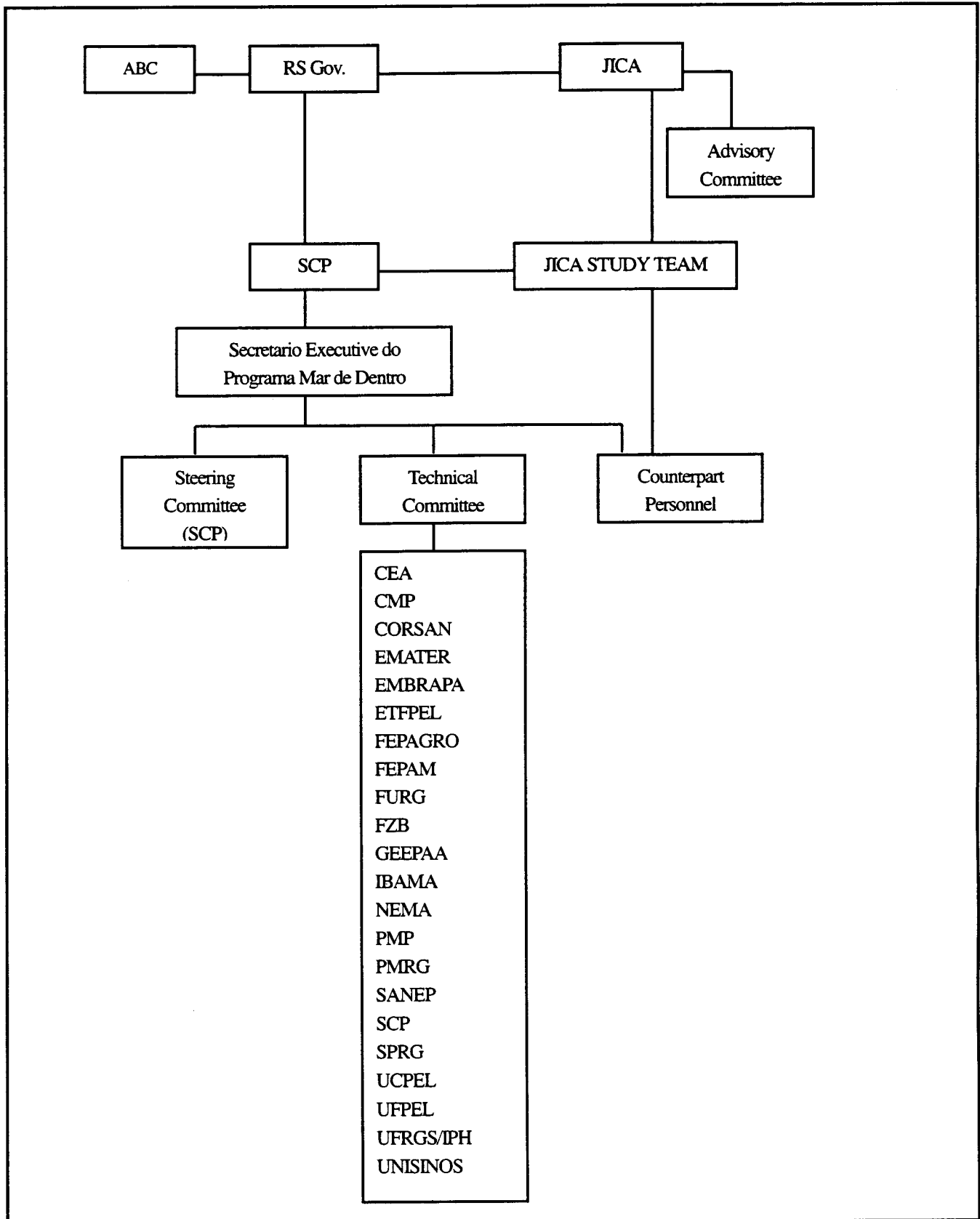
Fig. 1.3-1

Study Area

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1.4 Implementation of the Study

The study covers a wide variety of issues, therefore, its implementation will require the assistance of related agencies. Accordingly, for the smooth execution of the study, the Steering Committee (SCP) and the Technical Committee were organized (refer to **Fig.1.4-1**).



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Fig. 1.4-1

**Executing Structure
of the Study**

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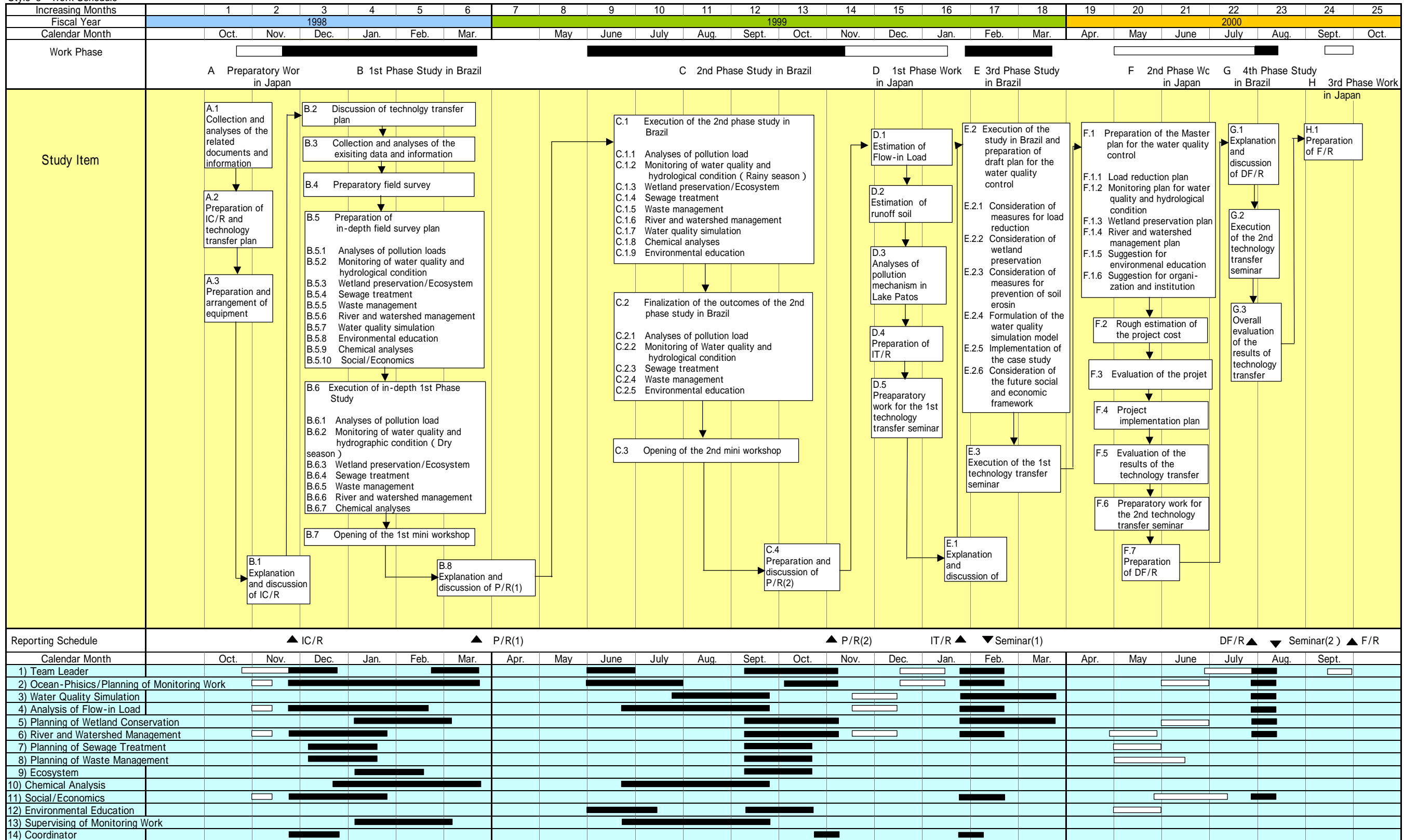
1.5 Study Schedule

The study was conducted for a period of 24 months, from October 1998 to September 2000.

Fig. 1.5-1 shows the study procedure and assignment schedule of the JICA study team.

Fig.1.5-1 Work Flow of the Study

Style-5 Work Schedule



Work in Japan Study in Brazil