

High risky areas are located in Cangucu region and Sutil & Duro river basin. In the sloped area of these regions, small scale consignment cultivation from international tobacco companies have rapidly increased in recent years. Consequently, reduction of forest area is a growing anxiety because of tree felling for drying of tobacco.

8.3 Constraints and Alternatives for Master Plan

The problems and constraints in the river and basin management are summarized as follow:

Inefficiency of Governmental Organization

Inefficiency of the basin management committee

- Undeveloped monitoring system for river and basin conservation
- Undeveloped agricultural supporting systems (technical and financial)

Lack of Integrated Master Plan on River and Basin Management

- Continued deforestation of natural forest due to unsystematic agricultural development and absence of forest conservation plans
- Absence of integrated water resource development plans, and integrated flood/sediment control plans

Existence of Erosive Soil and Steep Slope

- Erosion due to erosive soils and steep slopes
- Absence of approach roads to rivers and upstream basins

Lack of Basic Data

- The basic information for the production of the 1: 50,000 map was derived from aerial photos taken in 1975. Moreover, there are no information on cross and longitudinal sections of the main river.
- There are no data on the inventory of small scale river structures and irrigation facilities (dams, reservoirs, weirs and pump stations etc.).
- There are few data on hydrology and flood records.
- There are few experimental data and studies on the USLE equation.

Apathy of Inhabitants

- Illegal farming, mining and water utilization
- Soil erosion by inappropriate land use and farming practices
- Anxiety concerning mass consumption of agricultural chemicals

Considering the above-mentioned constraints and problems, the following plans will be required for the river and basin management in the study area.

Considering the above-mentioned matters, strategy and alternatives of master plan for “River and Basin Management (**RABM**)” are established as follows:

- (1) Strengthening of governmental organizations and integration of information regarding **RABM**. (This matter is excluded in this section because it will be comprehensively studied in **Chapter 11**)
- (2) Promotion of environmental conservation agriculture and erosion control with participatory approach

Alternative-1: Cangucu Region Environmental Conservation
Agriculture Promotion Program

Alternative-2: Sutil and Duro Basins Erosion and Sediment Control
Program

- (3) Formulation of Master Plan for Integrated River Management and Basin Conservation in the Main Basins

Alternative-3: Camaqua River Basin Integrated River Management and Basin Conservation Plan

Alternative-4: Piratini River Basin Integrated River Management and Basin Conservation Plan

The causal relationship between constraints and alternatives is illustrated in the **Fig. 8.3-1.**

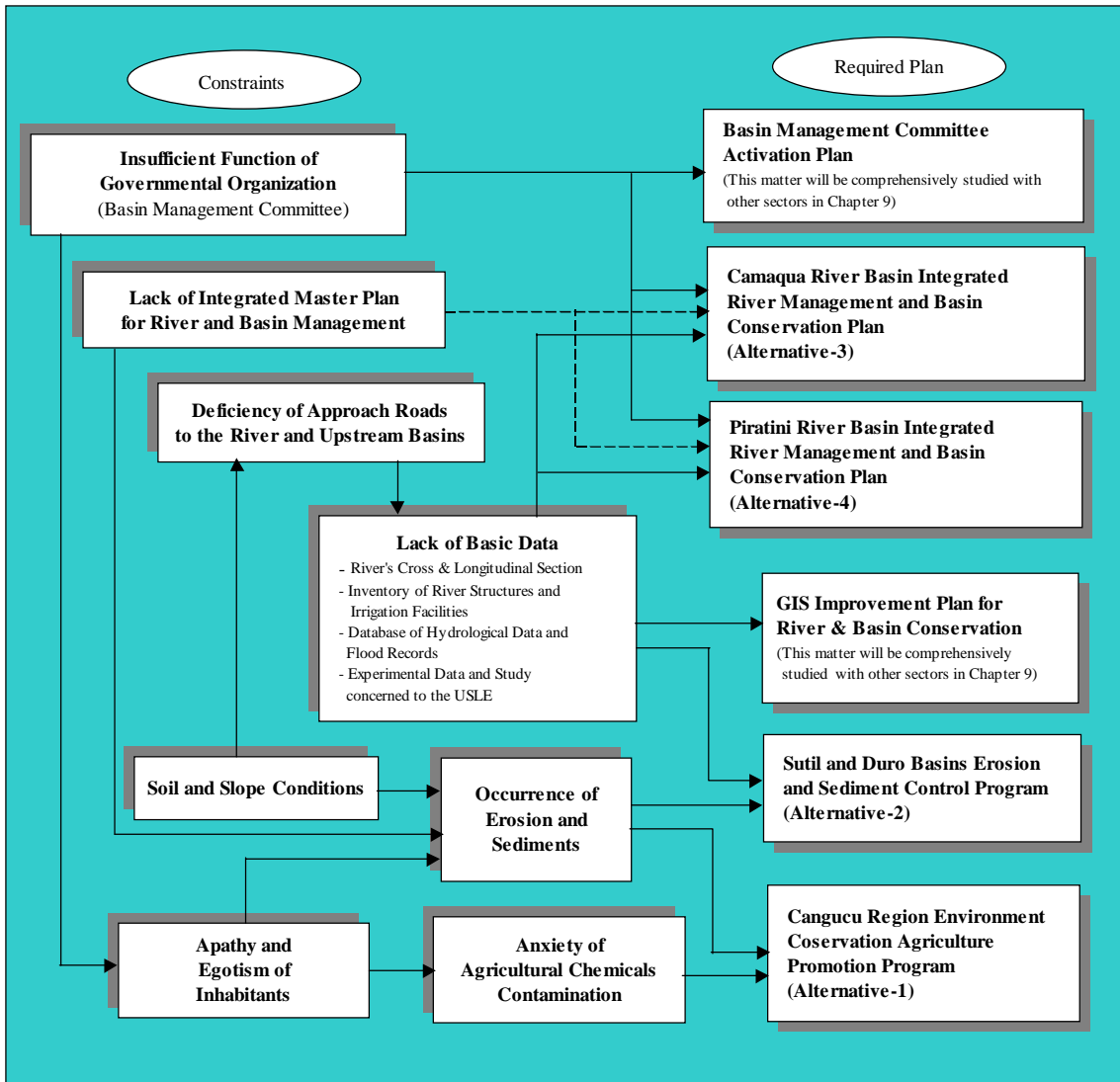


Fig. 8.3-1 Relation between Constraints and Alternatives