CHAPTER 8

RIVER AND BASIN MANAGEMENT PLAN COMPONENT (4)

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8.1 Basic Policy

The basic policies for the master plan for river and basin management are summarized as follows.

① Since 70-80% of the N & P load flowing into the Patos Lake originate from non-point sources, a river and basin management plan that would ensure the effective reduction of load from non-point sources is necessary.

② Soil erosion not only reduces land productivity but also supplies pollutants to the water area and promotes the rising of the river bed and reclamation of swamps and marshes. The reduction or control of soil erosion, therefore, will be the most important issue in the river and basin management plan.

③ Phase-wise soil erosion control will be adopted in accordance with soil erosion hazards.

④ For areas prone to soil erosion but where agricultural activities thrive, an agricultural structure geared towards environmental conservation, which is not only effective for soil runoff prevention but also for the reduction of agricultural chemical and fertilizer use, will be planned and promoted.

⑤ Strengthen financial assistance, technical guidance and environmental education activities for farmers as an incentive in helping to promote the establishment of an agricultural structure geared towards environmental conservation.

⑥ Model area selection and project implementation to view the effects of soil runoff prevention, reduced agricultural chemical and fertilizer use, improved land productivity brought about by the establishment of an agricultural structure geared towards environmental conservation.

⑦ For areas prone to soil runoff but where agricultural activities thrive, soil erosion prevention project mainly focusing on afforestation will be implemented. In particular, considerations will be given to the conservation and restoration of riverine forests to effectively prevent soil runoff from flowing into the river.

⑧ Strengthen the functions of the basin committee along with relevant agencies as well as promote the shared use of information, to expedite the implementation of plans and measures for basin conservation.

8.2 Soil Erosion

To evaluate the conditions of soil erosion in the study area, annual soil loss in each sub-basin was roughly estimated with Universal Soil Loss Equation (USLE). The results of the estimation are shown in **Table 8.2-1**. The average gross soil loss is 22.8 ton/ha/year. This is a rough approximation; however, the value is considered as of adequate accuracy to compare the magnitude of soil erosion of 16 sub-basins. Further detailed study are mentioned in Chapter 3.4 of the Supporting Report.

Table 8.2-1 Annual Soil Loss in the Study Area

Sub-basin		Total area (km^2)	Eroded area (km^2)	Annual soil loss (ton/year)	Average specific soil loss (ton/ha/year)
L20	Litoral Medio	5,844	629	495,100	7.9
L30-1	Camaqua I	3,461	3,197	7,079,000	22.1
L30-2	Camaqua II	2,123	2,056	5,477,800	26.6
L30-3	Camaqua III	7,927	6,926	24,225,200	35.0
L30-4	Camaqua IV	3,999	2,341	3,637,900	15.5
L30-5	Arr. Velhaco	2,587	775	1,090,300	14.1
L30-6	Arr. Grande P.	1,401	780	3,044,200	39.0
L40-1	Mirim Eastern Coast	3,681	0	0	0
L40-2	Rio Grande	491	0	0	0
L40-3	Mangueira	3,966	0	0	0
L40-4	Jaguarao	5,497	4,154	6,151,700	14.8
L40-5	Arr. Grande M.	3,709	1,595	2,920,900	18.3
L40-6	Piratini	5,777	5,269	8,190,500	15.5
L40-7	West Sao Goncalo	933	337	873,900	26.0
L40-8	Arr. Pelotas	1,646	903	2,927,700	32.4
L40-9	Sao Jose do Norte	518	0	0	0
Total		53,560	28,962	**66,114,200**	**22.8**

Source: JICA Study Team

After the evaluation of the results of soil loss and the relationship between soil erosion and natural conditions, hazardous area of soil erosion is classified as shown in **Fig. 8.2-1**.