

CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

7.1 CONCLUSIONS

7.1.1 SOUNDNESS OF THE PROJECT

The Feasibility Study proposes the construction of the main/collector sewers together with the wastewater treatment plants to collect and treat the wastewater from the high priority districts in the Santiago City.

Technically, the proposed system will handle the estimated quantity of wastewater thorough the year 2015 in accordance with generally accepted engineering practice. The collected wastewater will be treated with the conventional activated sludge and oxidation ditch processes, which are currently best available secondary treatment methods.

The WWTPs effluent quality levels will comply with the wastewater discharge quality standards as set forth to the Yaque del Norte River and its tributaries. The Project, as detailed, is sound and urgently needed for the improvement of water pollution in public waterways, sanitary conditions, and health of the communities.

The Feasibility Study has verified the technical, economic, institutional and environmental feasibility of the proposed First Stage Project, however, the Study also has revealed that the Project is financial difficult in implementing. At the beginning of the Project, the investment costs for the construction and rehabilitation works of such magnitude would be financially serious burden to the present CORAASAN.

In view of the situation, the study evaluated the financial feasibility for the financial and institutional support from the State and international lending agencies. The Project is logically related to present and proposed plans for Santiago's growth and development, and is financially self supporting, therefore, its funding and execution is to be recommended.

7.1.2 BENEFITS OF THE PROJECT

Significant benefits to public health and economy can be derived from the proposed Project, including both direct and indirect. All anticipated benefits have been evaluated on the basis of either quantifiable or non-quantifiable parameters. However, since these benefits are not fully quantifiable, non-quantifiable considerations have become important in the overall economic justification of the Project.

Evaluation of the major benefits includes avoidance of productivity losses due to water-borne diseases and avoidance of the much higher costs of controlling water pollution by other means. However, it is not possible to quantify all the benefits expected in monetary terms. Although no B/C analysis was made, health and sanitation benefits, water pollution control benefits, benefits derived from increasing land values, and other benefits are expected. If no sewerage and sanitation systems were provided in the Area, water pollution and public sanitary conditions, which are already deplorable level in many areas will become progressively worse.

7.2 RECOMMENDATIONS

7.2.1 IMPLEMENTATION OF THE PROJECT

The study concluded that the implementation of the Project is feasible, whereas the State and external financial support is essential. The CORAASAN should take the first action to realize the Project, which is to take a decision of implementation of the Project.

Because the Project would cause a heavy financial burden on the CORAASAN and affect the other new projects, every effort should be exercised to the maximum extent to squeeze out self-financing sources.

Some important institutional arrangements will need to be established so that the new organization can assume full control and responsibility for the planning, designing and construction supervision of the wastewater collection and treatment facilities.

The support and technical advice of other government departments, particularly the SEMARENA, INDRHI and Santiago Municipality to CORAASAN, will be essential for the success of the Project, and to ensure that users of the new wastewater system are provided with a reliable, efficient and effective service.

7.2.2 IMPLICATIONS OF FURTHER ACTIONS AND STUDIES

Because of the recommended plan for the positive control of water qualities in the waterways in the Area, several special actions and investigations are necessary to provide a sound basis for detailed planning and system design. Specifically, urgent studies and actions should be undertaken for the continued protection and improvement of the environment of the Area.

In order to execute the program for the wastewater discussed in this report, it will be necessary to have an expertly managed system of authority, responsibility and control overall aspects of the Project. This program execution should incorporate management techniques most current and suitable to Santiago.

The Study concluded that the Project is feasible while the state support is essential. The success of the project strategy for wastewater management system improvement and environmental protection in the Santiago City and its surrounding areas requires the implementation of a range of actions, including:

- Enforcement of controls over what enters the river and groundwater particularly from industrial and commercial activities, which need to enhance their wastewater pre-treatment practices;
- Strengthening of the CORAASAN to take responsibility for the management, implementation and operation of the Project;
- Construction of new sewers to collect wastewater from the peripheral urban areas, followed by full connection of property wastewater discharges to them;
- Further construction and rehabilitation of WWTP facilities to serve areas of the Santiago and its surrounding areas, to provide biological treatment to all wastewater flows;
- Introduction of public education programs to promote community participation and understanding of the importance and benefits of public sanitation works;
- Training of personnel in project management, financial management, operation and maintenance of wastewater facilities, and testing and monitoring, techniques;
- Attention to such infrastructure items as new and improved highways, electricity, telephone, solid waste disposal, and major housing projects and renovations; and
- Planning for the future to ensure that future urban developments are provided with wastewater/sanitation facilities.