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Identification of Water Resources Planning Problems in the Metropolitan Area of Greater San Antonio and its Associated Counties

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- Full Text

Growth in population and economic activity has been accepted as the essential elements of American life for almost two centuries. Since the beginning of the seventies, we have begun to concern ourselves with the quality of this growth. Meanwhile, modern civilization has created the high concentration in urban areas, the enormous inflation of resources consumption and the consequent increase of production requirements. Unfortunately, all these phenomena also became the driving force for the acceleration of waste generation and resources depletion.

The development of the San Antonio metropolitan area has followed the same pattern as that of other urban areas in the United States. It has become the largest metropolitan area primarily depending upon groundwater for its water supply. The availability of water has also played a most important role in shaping the history and development of the San Antonio area and its vicinity. Along with age of this metropolitan area, multiplicity of governments, planning agencies, river authorities and interest groups in water resources management have evolved into a complicated system in this area. Thus, it was realized that an overview embedded with the systems approach for the current water resources problems is needed. However, the total spectrum of problems would be enormous and the analysis phase must then be concentrated on one of the most urgent problems.

The primary objective of this study as reported herein is to give overview of the current status of different aspects of urban water. resources management in the San Antonio area. Special emphasis has been placed upon handling of water quantity and quality data and analysis of regional water quality of the San Antonio River. Specific investigations which have been conducted are as follows:

1. Identification of basic managerial problems for the urban water resources management in the San Antonio area.

2. Development of information storage and retrieval programs for quality and quantity.
3. Development of a mathematical model describing the variability ofregional water quality of San Antonio River Basin.

There are three distinct parts in this report. The first part describes urban water resources management components in San Antonio (Chapters II and III). The second part describes the information retrieval programs developed in this project (Chapter IV), and the third part concentrates on the development of a regional water quality reliability analysis model and its implications.