

TR-17

Development of Optimization Systems Analysis Technique for Texas Water Resources

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This report summarizes the results of the research project, *Development of Optimization - Systems Analysis Techniques for Texas Water Resources*.

Several analytical models which were obtained and modified for use in evaluating water resource problems are described. A method for evaluating the optimum blend of water from two or more reservoirs to meet several concurrent quality criteria is presented.

The special importance of estuarine analysis methods relating to water quality is outlined and two models are presented one for a steady state dispersion of wastes in partially mixed estuaries and the other an optimization scheme using linear systems analysis to determine the optimum waste loads into an estuarine system under a variety of constraints.

Interbasin transfer of water is examined and one plan evaluated to demonstrate the use of analytical models for streamflow evaluation, field determination and reservoir simulation.

The use of a Leontief input-output model to predict economic growth as a function of resource use is developed and an example presented using the area affected by the Blackburn Crossing Reservoir in East Central Texas.

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