

# COUPLED WATER SUPPLY AND WASTEWATER DISPOSAL MANAGEMENT ISSUES

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## INTRODUCTION

An emerging engineering issue in master planning for water supply and wastewater disposal is the concept of coupled alternatives. Coupled alternatives involve the concurrent evaluation of both water supply and wastewater disposal with respect to total water resources management, as opposed to incremental planning of separate water supply or wastewater disposal alternatives. Methods of managing these issues in the future so as to develop coherent resource management plans will need to be addressed for successful future projects.

Historically, most entities have organized their technical staffs into separate management and operations teams. This has resulted partly from the genesis of each program: water supply interests have sought the best water source and wastewater interests have pursued goals from a disposal perspective. As a result, communities have conducted master planning for water supply and wastewater disposal as separate efforts. This partitioning of interrelated water resources demands is frequently reinforced by regulatory agencies organizing their technical staffs into separate water supply, wastewater management, and water resources departments. In rare cases, wastewater disposal has partially displaced water supplies through reuse of wastewater, but these have largely been driven by a need to dispose of wastewater.

Subtle but compelling technological and regulatory changes over the past decade have fostered a convergence of objectives between the water supply and wastewater disposal perspectives. This is particularly true in the southeastern U.S., where rapid growth has forced officials to investigate long-term regional solutions in resource management; this in turn has led to the recognition that traditional responses will not address the support of projected development. The resulting change in focus has led to innovative approaches to water resource management, particularly the use of renovated wastewater as a resource to augment available water supplies instead of coincidental displacement from a wastewater disposal perspective.

Two examples of such an approach are the Sea Pines Landscape irrigation project on Hilton Head Island, South Carolina, to optimize use of limited groundwater resource-

es; and Gwinnett County, Georgia, where reuse of renovated water may be the best source for augmenting limited surface-water resources. Each of these projects represents integration of water supply planning with wastewater management planning to accomplish a coordinated solution to resource management. They provide a cross-section of the nature of resource management issues that will need to be addressed in future facility planning and evaluation, and can serve as a prototype in coordinated resource management.

This paper will include consideration of institutional constraints, regulatory obstacles, engineering issues, and public perceptions as to their historical effects on master planning, and for each of the above-mentioned projects. These project-specific elements will be examined as they relate to the wider spectrum of infrastructure planning issues, and from that analysis, a framework for achieving successful coordinated resource planning will be identified.