

MUNICIPAL WATER SUPPLY PROBLEMS IN WEST-CENTRAL ILLINOIS:  
AN ASSESSMENT OF PROBLEMS AND SOLUTIONS

An Abstract of a Thesis  
Presented to the  
Department of Geography  
Western Illinois University

In Partial Fulfillment  
of the Requirements for the Degree  
Master of Arts

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May 1988

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## ABSTRACT

Municipal water supply systems experience a wide range of problems that affect their ability to operate. Some communities are more successful in solving water supply problems than others. The factors responsible for the successful resolution of such problems in western Illinois were the focus of this study.

To better understand the nature of these factors, questionnaires were used to collect data from 51 communities in a nine county area to test the hypothesis that success in solving water supply problems was related to population size. A number of previous studies concluded that larger communities in the United States generally were more successful in solving water supply problems because more resources were available to contribute toward that success.

The hypothesis was tested using the Chi-square statistic and a point-biserial correlation. The statistical tests revealed no significant relationship between population size and success. Additional Chi-square tests were performed to measure success against six community variables: median home value, presence of a city manager, number of certified full-time water plant operators, the existence of a written water plan, gallons treated per day per capita and the source of water. Each of these tests revealed that success was not significantly related to any of the six variables.

A qualitative approach was next used to analyze the questionnaires because the hypothesis had been rejected and the reasons why certain communities were successful and others not still remained unclear. A geographical examination of the area indicated a

preference for some successful communities to cluster around a regional water supply system and some unsuccessful communities to be located in an area where they shared the same groundwater aquifer. No reasons, however, were forthcoming to help clarify how success or lack of it were related to these patterns.

A re-examination of the questionnaires indicated that successful communities tended to take action to solve water supply problems by using a variety of options, including: increasing water rates to finance needed work, obtaining loans for repairs and expansion, and connecting to regional water systems when this alternative was feasible. People in unsuccessful communities, by contrast, more often did nothing to solve existing water supply problems, continued to consider alternatives, hoped for state and federal regulations to be relaxed and delayed taking action until forced to do so.

Future studies could examine in more detail the role of "active" people in successful communities in an effort to expand our knowledge of how local leadership was able to deal effectively with municipal water supply problems.