



National Decentralized Water Resources Capacity Development Project

Executive Summary

Evaluating Customer Response to Decentralized Wastewater Treatment Options

Primen, Inc.
Boulder, Colorado

June 2003

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Submitted by Primen, Inc.,
Boulder, Colorado

NDWRCDP Project Number WU-HT-02-35

National Decentralized Water Resources Capacity Development Project
(NDWRCDP) Research Project

Final Report, June 2003

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This work was supported by the National Decentralized Water Resources Capacity Development Project (NDWRCDP) with funding provided by the U.S. Environmental Protection Agency through a Cooperative Agreement (EPA No. CR827881-01-0) with Washington University in St. Louis. This report has been reviewed by a panel of experts selected by the NDWRCDP. The contents of this report do not necessarily reflect the views and policies of the NDWRCDP, Washington University, or the U.S. Environmental Protection Agency, nor does the mention of trade names or commercial products constitute endorsement or recommendation for use.

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The final report was edited and produced by ProWrite Inc., Reynoldsburg, OH.

This report is available online at www.ndwrcdp.org. This report is also available through the

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WWCDMG22

This report should be cited in the following manner:

McKee, R. J. and S. McNulty. 2003. *Evaluating Customer Response to Decentralized Wastewater Treatment Options*. Project No. WU-HT-02-35. Prepared for the National Decentralized Water Resources Capacity Development Project, Washington University, St. Louis, MO, by Primen, Inc., Boulder, CO.



ACKNOWLEDGEMENTS

Appreciation is extended to the following individuals for assistance in the preparation of this report:

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Questa Engineering Corporation

David Lindbo, Ph.D.
North Carolina State University

Appreciation is also expressed to the NDWRCDP for their support of this work:

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EXECUTIVE SUMMARY

Background

The future market penetration of distributed wastewater treatment technologies (DWTT) and system management options is quite uncertain. Technological advancements have been made and customer interest has started to increase. However, there still is uncertainty in terms of technology performance, customer and regulatory acceptance, and the impact of interest group activities and agendas, among other issues. As a result of this, it is uncertain what will be the rate of increase at which decentralized wastewater treatment technologies, cluster systems, and innovative wastewater system management options will be adopted, and the timeline and market segments along which these options will be implemented.

The National Decentralized Water Resources Capacity Development Project (NDWRCDP) wishes to develop a more comprehensive and accurate understanding of end-user response to various decentralized wastewater system management and technology options in order to evaluate whether, and how, there might be an opportunity for decentralized wastewater system regulators, local officials, and/or new providers to facilitate the introduction of professional management and new technologies or approaches.

To assist NDWRCDP to gain a better understanding of users' attitudes and preferences toward distributed wastewater treatment systems and management options, Primen designed this research to achieve four objectives:

1. Identify customer attitudes regarding water quality and the adequacy of their current septic system, alternative wastewater solutions, and who has primary responsibility for wastewater issues.
2. Identify the contextual factors affecting customer attitudes and preferences related to water quality and wastewater issues.
3. Identify tradeoffs customers make between septic systems and connecting to sewer systems and their willingness to pay for third party septic system management.
4. Identify how different types of customers would make decisions about wastewater solutions differently.

Methodology

Primen designed this research to utilize existent market research—the Septic System Survey 2000—to address NDWRCDP’s objectives. Because the data did not address all of the DWTT and management options that NDWRCDP would want to explore, and because the sample was limited to North Carolina residents, it was not possible to address each objective in the optimum level of detail. However, by using existing data, much of the research objectives were addressed more quickly and at less expense than would be required to initiate primary market research. This approach also provided an opportunity to identify which informational gaps still need to be filled by primary research.

The Septic System Survey 2000 was conducted by North Carolina State University and includes information from 527 homeowners with septic systems. The sample area included nine rural counties in far northeastern North Carolina. The data provides insights on the respondents’ demographics; homeowners’ knowledge about, and experience with, septic systems and sewer systems; preferences for septic systems versus sewer systems; perceptions about local water quality and effects on that water quality; and openness to paying for third-party maintenance and management of septic systems. The data does not address two areas of interest to NDWRCDP: Attitudes of first-time homebuyers or those who have not previously had septic systems; and willingness to pay for specific features of advanced DWTT.

Main Findings

Despite the lack of market penetration made by advanced distributed wastewater treatment technologies and the current uncertainty about future adoption of these systems and of management and maintenance services, analysis of the Septic System Survey 2000 indicates there are future opportunities for DWTT and related services. More specifically, there appears to be an opportunity for a maintenance/management service provided by private companies and for the adoption of new distributed wastewater treatment technologies, which in part are related to a need to fill an informational gap that exists among homeowners.

The first implication of the analysis is that there is an apparent opportunity for an information campaign to bolster support for both distributed wastewater treatment technologies and a third-party maintenance/management service. Homeowners correctly perceive that septic systems cost less than the expense to connect to a sewer system, but most of them do not know how much it would cost to connect. Homeowners also have little knowledge about indicators that a septic system is malfunctioning. Out of seven indicators, homeowners on average were familiar with only two. Moreover, those indicators of potential septic system problems that homeowners cited most frequently—toilets backing up, bad smells, and slow drains—are actually poor indicators. Homeowners’ knowledge of septic systems is important in terms of their maintenance practices—the more knowledgeable they are the more apt they will be to perform such maintenance as pumping septic tanks.

The analysis also suggests that there may be a potential opportunity for a private, third-party distributed wastewater treatment system maintenance/management service. Septic systems are seen by many homeowners as permanent wastewater solutions that are expensive to replace; most

homeowners expect that they would have to pay that cost. Also, most people understand the need to perform routine maintenance such as inspections and pumping tanks, but many of these people do not have it done.

What also supports the launching of a maintenance/management service is that most of the people who prefer sewer service to septic systems do so because there are fewer worries and less on-site maintenance required; many homeowners also look for help in keeping their systems functioning. It is also likely there will be a growing need for such a service given that system age is a key driver to the occurrence of problems and that many systems are already old. The occurrence of problems, in turn, is a key driver to someone being willing to pay for a maintenance/management service and positively affects the amount they would pay.

The opportunity for such a service is somewhat tempered, however, by the amount homeowners would be willing to pay. The average amount homeowners stated they would be willing to pay for such a service—\$70 annually—may be too low to support a quality service offering.

Currently, the replacement costs of systems depend on the local range of site and soil conditions that require a range of technical solutions. Therefore, although the market has been reluctant to adopt new distributed wastewater treatment technologies, there might be an opportunity for market penetration in the future. This contention is based on the age and types of systems in use and some homeowners' preference for septic systems.

Opportunities for Future Research

Though analysis of the of Septic System Survey 2000 data is useful in addressing the NDWRCDP's research needs, there clearly is an opportunity for future research. Particularly, there is an opportunity to conduct research that is improved in its representation of the U.S. population and in content that better addresses the NDWRCDP's specific research interests. Such research promises to yield a solid understanding of the current state of the DWTT market and better enable NDWRCDP to serve that market with new services and technologies.

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 Printed on recycled paper in the United States of America.

WU-HT-02-35

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*This report is available online at www.ndwrcdp.org. This report is also available through the
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