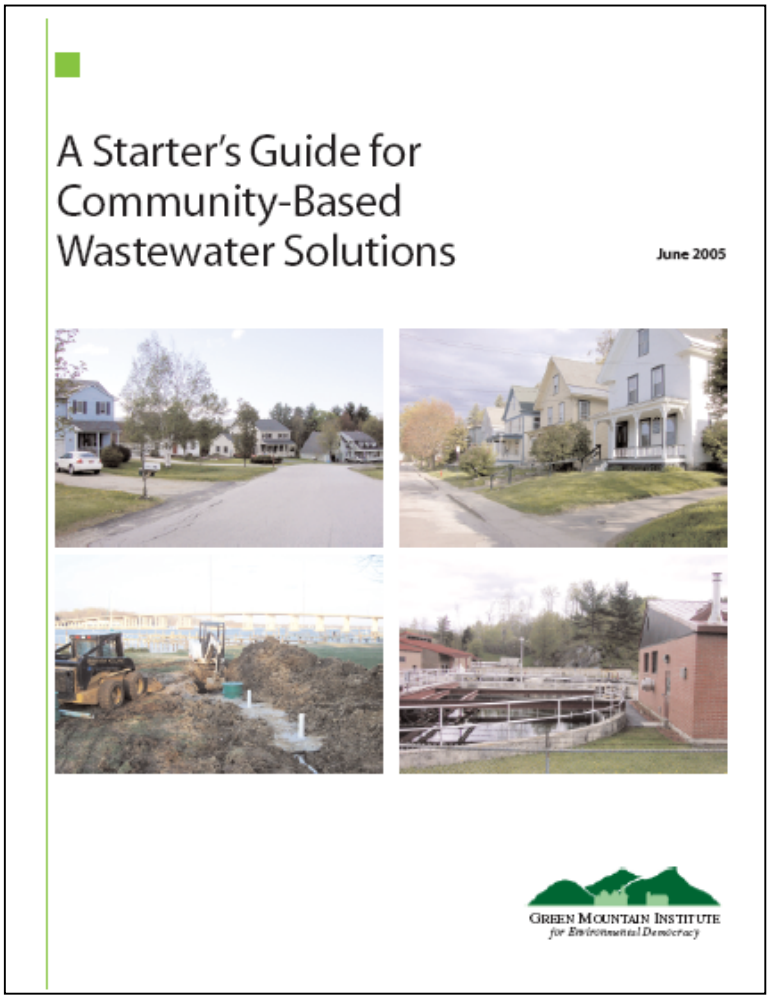
National Decentralized Water Resources Capacity Development Project



Expanding Communication in Communities Addressing Wastewater Needs

Green Mountain Institute for Environmental Democracy
Montpelier, VT

June 2005

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Submitted by Green Mountain Institute for Environmental Democracy Montpelier, VT

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Final Report, **June 2005**

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ABSTRACT

The Green Mountain Institute for Environmental Democracy and its partners, the Gund Institute for Ecological Economics and the Rocky Mountain Institute, have developed a number of products that small communities can use to improve participation in wastewater decision making. The products are compiled in a document titled: *A Starter's Guide for Community-Based Wastewater Solutions*. This guide is the result of applying some of the tools in four sample communities and a two-day discussion with representatives from national organizations that assist communities in wastewater system development.

There are two levels of support represented by the *Starter's Guide*. For communities just starting down the path of developing a solution to wastewater needs, it is important to build an awareness and interest in wastewater issues. In order to accomplish the early level of participation, communities can sponsor and participate in a number of activities that have a limited degree of content about wastewater technologies. After a nucleus of individuals in a community are interested in pursuing a solution, it is then useful to develop a project structure that includes a list of tasks that will ensure the successful design and implementation of a cost-effective solution. The *Starter's Guide* includes some exercises and examples to help community members complete a comprehensive wastewater project.

A group of community assistance providers gave their general support to the efforts outlined in the *Starter's Guide* during the two-day discussion. In addition, they identified some modifications that strengthen the *Starter's Guide* and its delivery. In the final phase of this project, three of the community assistance providers used parts of the *Starter's Guide* in developing community projects to address wastewater needs.

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1 PROJECT BACKGROUND

In 2003, the Green Mountain Institute for Environmental Democracy (GMI) reported on the status of tools available for communities interested in pursuing decentralized wastewater decisions (Jones 2003). There is no shortage of information about wastewater, septic systems, innovative technologies, or system management. There is no shortage of tools to help communities carry out needs assessments or to structure processes for decision making. There is no shortage of technical expertise in designing wastewater solutions that meet a community's needs. However, accessing the information, tools, and expertise is not simple and community members need to build their general comfort in starting a process towards designing a wastewater solution. Even more importantly, many community members do not have the motivation sufficient to seek out more information on wastewater and the steps necessary to address their local needs.

To follow up the Jones 2003 report, GMI completed a one-year project to improve the availability of information and tools for communities that are working towards a solution for their wastewater needs. There were two major focuses to this work. The first was to help interested community members build the motivation of others to participate in a community project. The second focus was to help build a project structure that identifies and describes the components of a public process that are necessary to move a community from planning to action. The primary product from GMI's work is *A Starter's Guide for Community-Based Wastewater Solutions* (Appendix A).

An important note is that the focus of this project has not been to direct communities to decentralized solutions. The review of communities that pursue decentralized solutions suggests that the decision to select decentralized solutions over central sewers is largely based on the economic advantages of decentralized solutions and in some cases, the ability to better manage future residential growth. The project team philosophy for this project has been to help communities better understand wastewater and the full range of options. In those cases where decentralized technologies are most appropriate, a strong community process will lead toward the decentralized solutions.

The project proposal identified four phases to accomplish building greater support for community projects. The first phase was to develop some materials that could be used in sample communities. The second phase was to work in four communities to test the materials. The third phase brought community assistance providers together to review the experience in applying the materials and consider mechanisms for improving the development and delivery of additional support to communities. The final phase was to work with community assistance providers in Pennsylvania and New York to apply the community support materials. The materials that resulted in progress from each project phase are captured in the *Starter's Guide*.

2 PHASE I –DEVELOPING MATERIALS

The Green Mountain Institute For Environmental Democracy (GMI) developed a draft *Starter's Guide* of more than 60 pages, which was in two sections. The first section (Stage One) focused on activities that interested community members could undertake to engage local stakeholders. This section included maps, fact sheets, and survey tools. The second section included activities that represent a project structure to build a better understanding of local conditions through assessment and the use of that understanding to complete exercises in outreach to both local citizens and regulators.

While part of the current *Starter's Guide,* there are some tools that are more advanced. GMI's partners at the Gund Institute for Ecological Economics developed a computer model that describes the fate of wastewater components within a watershed, including the groundwater. This tool was applied in Calvert County, Maryland to help provide an understanding of the options for reducing nitrogen contamination to the local estuary and the Chesapeake Bay. A second advanced tool was scenario-use developed by GMI's partner from the Rocky Mountain Institute and applied in Waitsfield, Vermont.

A copy of the current draft *Starter's Guide* is supplied with this report on CD. To summarize, the following section represents some short descriptions of the different *Starter's Guide* elements.

Communication

Initially engaging local citizens in wastewater issues remains a primary consideration to start a project. The comments from reviewers of the first draft highlighted the activities that expand early outreach. In addition to the materials and exercises, community assistance providers appreciated the reminder that outreach efforts that focus on the wastewater problem are only going to attract a small portion of the overall community. The *Starter's Guide* includes a description of how other ongoing activities within a community can be an introduction to wastewater issues.

Beyond the communication efforts described in the first part of the *Starter's Guide*, experience shows that maps can be useful mechanisms to maintain the interest and engage local citizens in an overall wastewater project. Another valuable mechanism to enhance communication is the use of schools and students as the basis for educating local citizens as well as a means to gather information about local conditions. As with many other issues, the interest in wastewater by students, formed through local water quality assessments and hands-on data gathering exercises, is easily translated to a more general interest in wastewater by their parents.

An important note is that, while the Internet can be a valuable source of information on a range of topics, small communities will find it challenging to use a local website as a primary means of distributing information. The basis of this finding is that establishing a website is still not a widely available expertise within small communities, but more important, establishing the habit of accessing such a website is not a practical expectation to build for local citizens in most places.

Technical Assessments

An important starting point for this project is the recognition that effective and low cost solutions for small communities can never result from a cookie-cutter approach of system design. Therefore, a community must carry out an assessment process that characterizes the local needs and conditions that will affect the ultimate wastewater system design. Some aspects of assessment can be carried out by local citizens, such as surveys gauging local knowledge of existing systems and the identification of critical features to be included in the final design. Other aspects of assessment are more technical, such as soil mapping and the impact of wastewater on local water resources. The *Starter's Guide* emphasizes the need for community members to recognize the attributes of assessment so that information that is gathered locally can be integrated with information from outside experts. However, the actual implementation of most assessment activities is probably beyond the capacity of small community project participants. Therefore, the *Starter's Guide* directs community members to seek help from experienced community assistance providers.

Regulation

The design of alternative wastewater solutions faces a hurdle in many parts of the country from skeptical regulators. The key to recruiting regulators to support, or at least not impede, a community project is establishing early communication. The *Starter's Guide* offers some initial questions that not only help the community develop realistic expectations for system design, but also establish the early link between community and regulator, decreasing the chances that a system will be designed that does not meet the regulatory needs of the state or county. Community assistance providers did note, however, that many communities will be reluctant to initiate a dialogue with regulators because of their lack of confidence on some areas of content.

Finance

Money remains the most important factor in deciding among acceptable options for wastewater management. In many cases, the lack of available money slows or stops any progress in implementing solutions. The costs of a system are often the basis for internal friction about which path to pursue for solving a community wastewater solution. Reviewing successful cases of community implementation shows a wide range of financing options. As with regulation, it is important for community members to engage in discussions with individuals and organizations that can help with financing a project.

Case Studies

Despite the success of hundreds of communities in designing and implementing wastewater solutions, most community projects start from the same point regarding a lack of information and a lack of confidence that cost-effective solutions exist. Slowly, a library of case studies is emerging that tells the stories of how different communities have addressed their wastewater needs. Some of these cases focus on the technical aspects of implementing various technologies, and some of the cases focus on process issues. In general, community assistance providers note that the current list of case studies is not broad enough to inform many of their client communities. In general, most case studies reflect communities that have access to significant funding, either through large grants, or high-income (particularly in lakefront or oceanfront) residents.

Scenarios

One of the advanced community tools applied in this project was scenarios. For one of the test communities (Waitsfield), scenarios were constructed that describe two futures for the town; one future with the implementation of a community wastewater solution and one without (the text is included in Appendix B of the *Starter's Guide*). A discussion of these scenarios helped local officials identify the critical issues that a wastewater solution needs to address. In addition to using the results of a scenario to promote discussion, the actual construction of a scenario is a useful exercise for a community to undertake as it helps frame future discussions and begins the process of making links between wastewater decisions and long-term outcomes.

Computer Modeling

In another test community, a sophisticated computer model was used to describe the fate of wastewater under different management assumptions, with a focus on the nitrogen contamination of important estuaries and groundwater. Computer models can be mysterious black boxes, and the results are only valuable to the extent that the audience is comfortable with the application and the results. For this project, GMI worked diligently with local citizens to include their input for running the model and for interpreting the results. While still a black box, the output from this model was a useful tool for discussing different policy options and GMI was successful in fostering significant public discussion about the nitrogen issue. When presenting the results of the computer modeling application to community assistance providers, their skepticism in the potential for its broader applicability reflected the general discomfort with such complicated tools, and also highlighted some real constraints to modeling in areas with Karst geology or where there is a focus on difficult-to-model endpoints such as microbial contamination.

There is other guidance available to help communities consider their wastewater options and implement solutions. However, a conclusion from the GMI project in 2002, and complemented by the work with individual communities, is that those guides do not provide a comprehensive strategy for integrating stakeholder involvement, technical capacity, the assessment of local conditions, and the integration of regulatory, economic, and political considerations. The *Starter's Guide* has the introduction of a comprehensive project approach as its goal, with an emphasis at building stronger ties to stakeholders through initial outreach. This is an ambitious goal, and the design of the *Starter's Guide* is to allow for future enhancements by inserting a

description of additional tools, clearer fact sheets, and a greater set of links to appropriate information sources.

GMI participated in a meeting of other projects funded through the National Decentralized Water Resources Capacity Development Project (NDWRCDP) in July of 2004, and many of the participants expressed interest in the *Starter's Guide*, both to extract pieces for their own effort and also as a potential vehicle to incorporate their own newly developed products. The design of the *Starter's Guide* is intended to be flexible to encourage such additions.

3 PHASE II –FOUR COMMUNITIES FOR TESTING MATERIALS AND APPROACHES

Calvert County – Addressing Nitrogen Pollution in Solomons Harbor

Background

The Gund Institute for Ecological Economics is a project partner and had already arranged to do some work for Calvert County to help provide a better understanding of the impacts of onsite septic systems on the nitrogen flows to Solomons Harbor and the Chesapeake Bay. The National Decentralized Water Resources Community Development Project (NDWRCDP)-funded effort of the Green Mountain Institute for Environmental Democracy (GMI) played the role of working with the county to expand participation in this modeling effort. The participation of local stakeholders was important, not only because they would be the recipients of information, but because the completion of the model required some questions answered. Specifically, the model needs geographic boundaries and a detailed description of the policy options. Stakeholder participation led to inputs that provided useful constraints to the model and the stakeholders identified the kinds of outputs for the model that reflected the changing conditions in the community and their needs regarding different policies.

Activities

The project team participated in several meetings with the county. The first was a kick-off that introduced more than 100 local citizens to the issues of nitrogen contamination of their local estuary. Some of the scientific foundation for the issue of nitrogen is carried out by the Chesapeake Biological Laboratory in Solomons Harbor, and Dr. Walter Boynton has been monitoring nutrients and algae growth for several years. Dr. Boynton presented some of his findings, which included the location of local nutrient hot spots. In addition to information about nitrogen impacts, Rich Piluk, from the Anne Arundel Health Department, presented some information about septic tank retrofits that are showing some evidence of success in converting nitrogen from ammonia and nitrate to free nitrogen gas. Alexey Voinov, the project partner from the Gund Institute, introduced the model that would help community members gauge the relative value of different reduction strategies. Ken Jones, project leader, facilitated the meeting, including a question and answer session that helped identify the current level of knowledge in the community on wastewater issues.

After this first meeting, the project team agreed that a fact sheet specific to the issue of nitrogen would help local citizens understand the differences between failing septic systems as traditionally considered (back-ups and surfacing) and the nitrogen release to groundwater and surface water that is a normal result of well-functioning septic tanks and soil absorption systems.

As a result of the kick-off meeting, some of the attendees agreed to participate on a public advisory committee that worked with Dave Brownlee, from the county, to develop recommendations for the county commissioners regarding strategies to reduce nitrogen contamination to the harbor and bay. This committee met four times in the next six months and served as the primary mechanism for Alexey Voinov to structure his modeling product and decide upon different reduction strategies for modeling.

Products

During a meeting in April, Alexey Voinov and Erica Gaddis, also from the Gund Institute, presented results from different scenarios run through the computer model to the Public Advisory Committee in preparation for a broader presentation to a public meeting. This April meeting helped the project partners identify the key points from the model output that help local citizens recognize the relative contributions of septic systems to the watershed nitrogen budget. A summary of the presentation is available on the Internet at http://www.uvm.edu/giee/AV/OSDS/ (click on "data and background information").

In addition to the model runs and Nitrogen Fact Sheet, Erica Gaddis created a short PowerPoint presentation that describes the chemistry of nitrogen in fairly simple terms. This presentation received a mixed reaction from the Public Advisory Committee and underwent some editing prior to a presentation to the community assistance providers meeting in Pittsburgh.

Findings

This effort was successful in engaging a small number of community members to understand a relatively sophisticated analytic tool and use the results to consider appropriate strategies for nitrogen reduction, including the management of onsite septic systems. This effort shows that it is not important for all community members to be thoroughly versed in the dynamics of nitrogen cycling – a very complex biophysical process. Rather, the involvement of some community members lends credibility to an out-of-town expert whose motivations are unknown and whose analytic tool could be a vehicle to promote a specific agenda.

The model itself provided a useful mechanism to build the capacity of interested local citizens to understand more detailed aspects of septic system design, installation, and economics. Calvert County has been successful at reducing the incidents of septic tank failure through past action, but this project helped knowledgeable citizens learn even more about what a septic system does to reduce environmental pollution.

Further Information

Dr. Alexey Voinov has a website that includes substantial background information at www.uvm.edu/giee/AV/OSDS.

Engaging the Community in South Strafford, Vermont

Background

South Strafford is a small village tucked into a river valley in east-central Vermont. The community relies on septic tank-leach field systems to treat effluent from its homes, schools, and businesses. As with much of Vermont, the soils are thin and there is a limit to the hydrologic capacity to treat wastewater. In the past, the town has been challenged to find solutions for new wastewater capacity. The Regional Planning Commission recognized the problems for the village and also the problems associated with storm water management, which often results in localized flooding.

The Regional Planning Commission contracted with Stone Environmental to assess the conditions in the village related to storm water, wastewater, and a municipal service building. GMI agreed to work with Stone Environmental to increase the participation of local citizens in reviewing the assessment and considering some solutions to address the problems.

Actions

GMI worked with Stone Environmental to structure a preliminary meeting that would gauge the interest of local citizens in the topic of wastewater and storm water and help direct the analysis so that a later presentation of results would address local needs. Presentations on storm water, wastewater, and the town garage were followed by a facilitated discussion regarding the direction for the analysis to progress. During that discussion, it became clear that the issue of wastewater was not of primary interest, even though the Regional Planning Commission considered that topic to be an important reason for carrying out analysis. Similar to other communities, Stone Environmental, GMI, and the Regional Planning Commission were faced with the challenge of engaging local residents to help them understand the potential impacts of future wastewater decisions.

South Strafford has less than 100 homes. Attendance at the meeting was a concern and GMI worked with Stone Environmental and local officials to provide refreshments that would attract more people. Other activities helped promote community participation including a survey of students about their pedestrian habits (helping to consider the storm water issue), flyers that saturated the local posting sites, and general word-of-mouth regarding the meeting.

The meeting was well attended (37 people). This meeting focused entirely on wastewater, including a presentation about the findings from the Stone Environmental analysis. GMI provided three of the draft fact sheets for the audience to take home. They were of limited interest.

Findings

The first meeting included a priority exercise that showed that wastewater was a much lower priority than were road re-design and addressing storm water.

The wastewater presentation at the second meeting dedicated to the topic appears to have been successful in accomplishing its intended purposes:

- Explaining soil absorption systems
- Showing the relationship between soil absorption systems and public health/environment
- Describing soil and site requirements
- Identifying the impact of seasonal high groundwater and storm water
- Explaining state and local regulations

Evidence of the success was in the discussion that occurred during and after the presentation, which demonstrated

- Recognition that replacing (or repairing) systems is expensive
- A building recognition that new rules may add more constraints to replacing systems
- Interest in understanding how maintenance activities (pumping, addition of pretreatment were mentioned) affect the long-term viability of individual onsite systems

Most of the focus and success was on the audience as individual homeowners. The possibility of community action to facilitate better homeowner wastewater solutions did not generate much positive interest. Rather, there were questions about

- Who would pay for any of the community-sponsored activities?
- How can a community effort evaluate the proper operation of homeowner systems? (The latter question was partially addressed with responses about surveys and a well-testing program)

The final discussion topic was the possibility to consider future options by keeping open some possible places for cluster use. The reaction to this was a mild positive understanding, but no real volunteers for moving it forward. One of the options that was raised was to consider a community well as a way to reduce the pressure for onsite restrictions.

Not necessarily related to the discussion of community options, but representing an overarching interest, was the discussion of how people can consider the management of their own systems

- Can pumping schedules be changed to optimize the function of the tanks? (It appears that some people get their tanks pumped too often, meaning that they are spending more money than necessary – a possibility for cost savings)

- Are there any technologies that can prolong the life of a system? (Especially if there is some fear that the system may fail in the near future.)
- When is it worth $5,000 – $8,000 for a pretreatment system to prolong the life of a $5,000 system? Some of the installers in the crowd were skeptical of the alternative systems because of high cost.

Conclusions Regarding Community Engagement

Promoting the benefits of subsidized testing (for example, use of the Sludge Judge) is attractive to some members of the community.

There is value in identifying some of the specific steps that can allow for land with suitable soils to be maintained for future use. For example, a recommendation can be forwarded for the Select Board to communicate with Planning and Zoning the preferred sites and offer a list of approaches that can be used to keep them open, for example

- Easements
- Encouraging development that keeps the good soils available

There are some opportunities for community education, such as a press release after the report is released that includes:

- Steps for homeowners to ensure the effective operation of system
- A list of pumpers to contact
- How to get water tested for bacterial contamination

Another community education opportunity is to present some positive local stories – one paragraph for each, such as

- Warren (another community) taking a decentralized approach
- State parks using composting toilets
- State allowing new designs

(These stories can complement the section that describes the changing rules.)

Engaging the Community in Waitsfield

Background

The town of Waitsfield has been struggling with wastewater for several years. There is an effective block on future growth in the town's two villages because of the lack of available space with soil appropriate for treating septic tank effluent. The town school is unable to serve hot lunches because the septic system is inadequate to treat the necessary flow from a functioning kitchen. The town office building has had to disconnect its toilet because of a failed system.

A committee of interested citizens has been working on the issue of wastewater solutions for several years and has hired an engineering firm to scope out options. At the end of 2003, the engineer had completed a 90% facility management plan that outlined one general approach with small variations. While the wastewater committee was convinced that this solution made sense, they also recognized that the rest of the town would have to buy in, and the costs were significant.

GMI and its project partner, Rocky Mountain Institute (RMI) agreed to help work with an expanded set of community members to help them understand the impacts of different wastewater decisions. The project team proposed to use scenarios to help the community understand the different kinds of impacts that wastewater solutions could affect. As with all scenarios, the intent was not to predict the future, but to highlight the issues that are important in considering current decisions that will have impacts into the future.

Activities

GMI (Chris Paterson) and RMI (Richard Pinkham) met with Waitsfield's Water and Wastewater Task Force and several Planning Commission members in January 2004 to present and discuss the idea of using scenarios as part of the wastewater planning process. Two types of scenarios were discussed: exploratory scenarios, which are based around different outcomes for "critical uncertainties" beyond the community's control, and normative scenarios, which present positive and/or negative futures resulting from a community's decision.

The Waitsfield participants made it clear that the planning process was well along. They felt that exploratory scenarios were not useful to them at this point, but normative scenarios could help the discussions at upcoming forums. At these gatherings the Task Force, Planning Commission, and Select Board would consider whether they were in agreement regarding the proposed wastewater plan. The participants also felt that normative scenarios might be useful later in taking the plan to the community at-large.

RMI developed two normative scenarios based on discussions at this first meeting, plus information from a recently drafted town plan and other documents. One scenario reflected a largely positive outcome from building the physical and management systems under consideration, and another portrayed a largely negative result from the town voting against the plan. GMI, the town's engineering consultant, and the town manager commented on the scenarios. After some revisions, the scenarios were mailed to the forum participants in advance. The scenarios are provided as Appendix B of the *Starter's Guide*.

Findings

Discussion of the scenarios opened the first of two forums, on March 18, 2004. Twenty-two members of the three bodies attended, and four community members observed. The discussion lasted about 45 minutes and revealed that the three bodies were in agreement that the proposed wastewater plan made sense for the community and was necessary to meet the goals of the new town plan. Some participants said the scenarios presented a clear picture of the overall issues,

and thereby helped keep the discussion at a high level, rather than getting bogged-down in engineering and financial details. Others remarked that the discussion of the scenarios helped them identify additional research they needed to do before asking the general public to approve and finance the plan. For instance, town leaders will have to have clear answers for folks wondering why the plan merits the support of residents and business outside of the proposed wastewater service area.

In April, a second meeting of the Wastewater Committee, Planning Commission, and Select Board reviewed the implementation of the wastewater management proposal. At that meeting, the GMI team presented additional funding and management options that helped the group consider which variables were going to be critical in designing a finance scheme. In addition, the concerns from the February meeting were re-addressed and the tone and content of meeting attendee comments reflected their increased capacity to discuss the major issues. During this discussion (facilitated by GMI), several of the issues developed during the March scenario presentation were considered further. At the end of that meeting, the group agreed that the use of the scenarios helped them discuss the particulars of project implementation using a consistent language and set of messages.

Observations and Conclusions

RMI and GMI decided early on that generic scenarios of onsite, cluster, and centralized options would not be useful in Waitsfield, and would probably not be useful in most communities. This is because the value of scenarios is in their customization to context, which engages the reader. This decision was validated by the Waitsfield experience.

Customization is ideally done with community involvement in development of the scenarios. Time and resources did not permit taking Waitsfield through a standard scenario-building process.

The beginning of the scenario discussion at the forum was rather flat. It took a while, and a variety of questions to the group, to get a lively discussion going. The project team believes this is because: a) the group had not been through the scenario-building process, and thus was not vested in the product or "trained" in scenario thinking, and b) the scenarios as written perhaps too closely reflected the existing thinking of most forum participants.

Conclusions include: a) that the approach of having an outside expert write the scenarios is not optimal, though not without value, and b) this group would have gained additional benefit from a scenario that was contrary to its thinking. This type of scenario would have engendered discussion about why that scenario is "wrong" and produced a livelier defense of the two scenarios that were provided. In other words, in this particular case a "challenge scenario" that tested participants' beliefs, ideas, and emerging consensus could have made the consensus ultimately clearer and stronger.

An interesting observation is that what most piqued the interest of the forum participants was the idea, in the negative scenario, that a group of business owners would try to build their own cluster system with a river discharge. While there are substantial public health risks if the status

quo continues in Waitsfield, the participants were much more interested in environmental implications. Most felt a river discharge would never be allowed because of impacts on resident and tourist perceptions of local environmental quality, but a few participants took a "devil's advocate" position on this possibility, leading to a lively discussion. This contributed to the conclusion that a "challenge scenario" would have been useful.

Scenarios provide a useful but limited tool for communities in the wastewater planning process. The limitation is in their preparation. Scenario building requires either an outside expert to compose the scenarios, or intensive participation by a group of community members. The latter may also require expert facilitation to lead participants through an unfamiliar process and way of thinking. Nonetheless, scenario building could be useful to communities prepared to hire the necessary expertise and/or to experiment with the process. For other communities, the project team believes—based on the Waitsfield experience and comments at the community assistance providers workshop—that some type of less intensive effort to engage people in thinking about the future will be valuable. Thus, two references are provided in the scenario tool discussion of the *Starter's Guide* that include additional techniques for structuring discussions about the future.

Feedback from the March meeting showed that the meeting attendees (Select Board, Planning Committee, and Water and Wastewater Task Force) have specific categories of concerns to address and these concerns will be the basis of framing the different engineering options. The concerns are related to the specific level of growth that a central collection system may foster, the costs and allocation of costs to town users and non-users, and the potential to eliminate some of the community problems that currently exist due to the lack of wastewater management. Addressing these concerns will be important as the town aims to a 2005 bond vote.

The follow up to these meetings is a decision structure that includes a menu of items for the Task Force to address and forward to the Select Board. The Task Force will develop a series of recommendations for official Select Board action.

There are five topics that they will need to consider:

- Information dissemination
- Detailed project planning (Is there time for a 100% facility management plan?)
- Resolution of outstanding issues
- Confirmation of the decision-making process for future steps
- Agreement to the general strategy for future decisions and communication

Information Dissemination

In order for townspeople to make informed decisions on a future bond vote, there is the need to begin to feed them more information on the proposed solutions for water and wastewater. There are several pieces to this issue that revolve around the issues of content and process. The 90% report is a good starting point for the content, but the Select Board/Planning Commission/Water

and Wastewater Task Force should decide if there are particulars within that report to focus upon and develop concise messages. The group will also need to consider how best to get that information out.

Detailed Project Planning

Several of the questions and concerns raised during the April 1 meeting revolved around some continuing uncertainties about the project costs and implementation. The full facility management plan will resolve some of these questions and highlight some of the others for resolution.

Resolution of Outstanding Issues

There are some of the details that cannot or should not be left to the wastewater engineer to resolve. The allocation of costs between users and non-users, the possibility of promoting management outside of the service area, the possibility to provide relief to low-income households are just a few that were raised during the meeting. The Select Board/Planning Commission/Water and Wastewater Task Force should identify the remaining issues and a mechanism for resolution.

Confirmation of the Decision-Making Process

It is possible that the Select Board already has assumed the role to make any and all final decisions about progressing on the water and wastewater proposals. If the others that have participated in this process, to date, are unsure of that assumption, it should be considered explicitly.

Agreement to the General Strategy

There appear to be three pieces to the wastewater solution that have been discussed that could serve as major points for communicating to the public. These points may also help in future decision making.

1. The wastewater infrastructure is intended to:
    - Solve the wastewater problems for those homes, businesses, and town functions that currently have problems with their systems
    - Provide capacity for future growth
    - (Possibly) provide an option to those who would prefer to eliminate their current (functioning) systems
2. The intent of the management component of the project is to (choose among these):
    - Decrease the future threat from failing systems

- Gain information to coordinate the allocation of future capacity
- Build public support among non-users for funding the community system

3. The finance strategy includes:
   - External funding to the maximum extent
   - Tax revenues
   - User fees (both current and future)
   - Managed use fees

Engaging the Town Leaders and the Community in Colchester

Background

The town of Colchester is a large Vermont town (population 17,000) that includes several miles of Lake Champlain shoreline. Some areas of dense residential development exist on top of a high water table and the failure rate for septic systems is high. Some significant investment has already taken place to address the high water table issue. A separate part of town is on the most popular portion of the lakefront and is the location for dozens of homes. These Lakeshore Drive homes were largely constructed as seasonal vacation homes and many of them are still only used during the short summer season. However, an increasing number of homes are being used for full-time residence.

There is a public beach on Lakeshore Drive that is occasionally closed after heavy rain events due to bacterial contamination. Town citizens and municipal officials are placing a greater focus on the causes and possible solutions to address the beach closures. Several years ago, Colchester voters rejected a bond issue to invest in a sewer facility for the Lakeshore Drive area. More recently, the requirements to comply with the Stage II standards for storm water added to the need for the town to address its water quality issues, in general. Colchester organized a Water Quality Committee to describe a plan for addressing the issues of wastewater, storm water, and continuing development pressures. In July of 2003, the Water Quality Committee presented its findings to the Select Board, which approved the report and recommendations.

One of the recommendations in the report was to establish a robust public involvement strategy to help local citizens better understand issues of water quality and the possible steps to improve conditions. GMI proposed to help the town with a townwide event focusing on water quality and began to design such an event. Project partners developed a menu of activities and approached the Water Quality Committee chair and Public Works Director for guidance to move forward. At that time, the Public Works Director asked that the process be delayed until the spring of 2004 in order for the town to gather more information on possible options for treating wastewater.

In the spring of 2004, the Public Works Director was still not comfortable with expanding public involvement and the project team shifted gears.

One mechanism that is useful to help promote a better understanding of environmental conditions is to work with school children. Science curriculum benefits by focusing on natural resource issues because of the interesting complexity of ecological systems and the wealth of opportunities to observe local conditions. Therefore, GMI worked with the Colchester Middle School to develop a presentation about wastewater.

Project Products

For the school project, GMI designed and constructed a working model of a septic tank and leach field. This model served as the focus for a presentation to middle school students. Detailed descriptions of the model were included on the GMI website so that others could construct their own system. A key to this project is that the flow of water can be tracked through the septic tanks and into two different leach field conditions. In one case, a relatively large percolation distance exists between the top of the loading bed and the top of the groundwater. Water entering this system only slowly migrates through floral foam as a proxy for the soil treatment of effluent. The other case in the model uses a shorter percolation distance (and is embellished by drilling holes in the floral foam), which causes the effluent to rapidly enter the groundwater.

A series of discussion questions were successful in helping the students recognize the connection between what they flush and both the groundwater and the lake where groundwater ultimately migrates.

GMI repeated this demonstration during a meeting of Community Assistance providers and donated the model to meeting attendees from the Canaan Valley Institute. As with most presentations, the varied visual and tactile experience in using the model improved the level of engagement of observers (even the assistance providers that have extensive experience in wastewater management). The opportunities for expanding a community discussion are apparent in the application of this sort of tool.

Conclusion

Despite a comprehensive planning process developed with broad stakeholder participation, a strategy for expanding public understanding of wastewater issues is on hold and the issue of wastewater management is undecided in Colchester awaiting the next steps from the town.

GMI efforts in working with school students were insufficient to maintain the momentum generated after the release of the Water Quality Plan in the summer of 2003. GMI will remain interested to learn how the community decides to address its wastewater issues.

A Further Test of the Starter's Guide in East Montpelier, Vermont

After the Community Assistance Providers meeting and a round of reviews from the National Decentralized Water Resources Capacity Development Project (NDWRCDP) Training and Education Subcommittee, GMI prepared a revised version of the *Starter's Guide* and used it to

help the small community of East Montpelier consider its approach to wastewater management improvement.

A small committee of citizens reviewed the *Starter's Guide* and met with Ken Jones of GMI to discuss the options. The meeting focused on three topics reflecting messages picked up from the *Starter's Guide*. First, they reviewed the availability of community assistance from a local Rural Community Assistance Partnership (RCAP) office and from the Vermont Department of Environmental Conservation. Second, they considered an outreach effort to expand participation in future deliberations. Third, they agreed to review some of the activities leading to financial support in nearby communities.

4 PHASE III –REVIEWING *A STARTER'S GUIDE FOR COMMUNITY-BASED WASTEWATER SOLUTIONS*

The Green Mountain Institute for Environmental Democracy (GMI) convened 20 individuals with significant experience in community wastewater projects for a two-day meeting in Pittsburgh. The purpose of this June meeting was to get feedback on some GMI products to promote community participation in wastewater decision-making.

GMI supplied participants with a draft *Starter's Guide* prior to the meeting for their review and developed an agenda that introduced parts of the *Starter's Guide* followed by an opportunity for feedback. In some cases, meeting participants gained some hands-on experiences with exercises and an actual working model of a septic tank-leach field design. In other cases, discussion questions focused on past experiences in considering the support for community projects.

The results of the meeting were recorded within the sequence of presentation materials (via a PowerPoint presentation). In this way, meeting participants saw their comments and reacted to the wording and tone.

GMI found that this meeting was very useful to help in the development of a second draft *Starter's Guide*. In addition, GMI identified several projects that applied some of the tools in the *Starter's Guide* and will visit two of these projects later in the summer of 2005. Other meeting attendees reflected the value of the meeting and the opportunity to work closely with other experts on the topic of community participation in wastewater decision-making.

The following is a bulleted presentation of the comments received during the meeting on different parts of the *Starter's Guide* and the experience that GMI had in working with four communities applying the materials.

The italicized parts of this report are those not reported directly back to the participants during the meeting, but added after reviewing more of the meeting notes.

The underlined sections after each topic session describe the changes made to the *Starter's Guide* as the result of this discussion.

How the Guide Reflects Your Challenges

- Reinforces the role of community participation in arriving at solutions that can be implemented (in those cases where public support is critical)
- The tools to engage the public are important (Stage 1)
- The negative part of the answer is that the guide does not deal with management
- There is not a high demand for stronger community project process (even though there may be a need) (Stage 2)

Experiences With Surveys

- Recognize that there are two distinct approaches for surveys
  - As an initial effort to engage local citizens
  - As a later effort to gather information for engineering
- Start simple – "Do you have a problem? Does your neighbor?"
- Regardless of the approach, focus on the project needs – "Why are you carrying out the survey?"
- Recognize the value of a door-to-door approach
- Consider the need for confidentiality
- GMI will develop some examples of cover letters

The current draft of the *Starter's Guide* describes the need to consider the objectives in survey development and includes cover letters for use in introducing survey recipients to the overall project. The guide also differentiates the use of a survey to engage interest and to actually provide data for system design (very different objectives), and finally, GMI included some sample cover letters in the *Starter's Guide*.

Using Survey Results

- Tabulate results for engineers
- Develop a report for the public
- Health endpoints are tricky to use without fanning the flames

Reactions to the Fact Sheets

- The format needs work, think bigger font, add pictures, lose the tombstone look [Pennsylvania Department of Environmental Protection (PA DEP) formats are better]
- Number the Fact Sheets

- Some of the sheets are for technical community assistance providers
- Get them out through engineering firms

The current version of the fact sheets is reformatted, with a larger font.

Case Studies — What Do You Think?

- Let's develop more case studies for smaller communities that do not have access to lots of money
- The value of case studies is not to provide a road map for other projects (each community is unique)
- One value of case studies is the identification of lessons learned that can be the source of inspiration
- One value of cases is to promote wastewater "leadership" in contrast to "management"
- Improve access to case studies
- PA DEP is developing some management cases
- Think strategically (geographic, size, problems)
- Include costs whenever possible
- Look at the OTN website (New York State's Onsite Wastewater Treatment Training Network)
  http://www.delhi.edu/corporateservices/otn_wastewater_programs
- Is the Consortium of Institutes for Decentralized Wastewater Treatment doing more?

Getting Initial Contact With Regulators

- *This is a necessary issue within the Starter's Guide, but difficult to capture the real variety between states, counties and municipalities*

Your Experience With Communities Learning About Regulation

- The questions provided are more advanced than a community member can handle at the outset
- Learning about regulation can be a committee activity (strength in numbers)
- There is variation within states in addition to the wide variation between states
- This is one of those topics that truly benefits from community assistance providers being there to help

Your Experience With Assessment

- PA DEP has a good assessment package (Needs Assessment)

- Consider using some low-cost assistance such as Americorps[1] or college students doing engineering projects
- Beware of liability issues for community assistance providers[2]
- Consider how to address poor-quality information

Assessment and Consultants

- For NDWRCDP[3], consider establishing some low-cost engineering support
- Use some self-help to complement technical experts (such as backhoe operators)
- Also consider Value Engineering in later stages as a second opinion to evaluate the consulting engineers products (Pennsylvania has Engineering Service Program for drinking water)

Your Experience With Finance

- Discussion Around the Appropriations Path
  - Seek consistency of project goal with legislator
  - Have a full project plan
  - Understand the Congressperson/Senator triggers and processes
  - Give consideration to who should be representing the project and when (fitting the appropriation schedule and the project's needs)
- Beyond Appropriations
  - This topic needs an expert to walk each proposal through and make sure there is an integrated finance package
  - Self-help can exclude certain funding possibilities (because of the need to follow certain supplier requirements when federally funded)

Later versions of the *Starter's Guide* note the limitations in using self-help approaches.

Results From a Communication Exercise – What is Important for Your Community?

- Affecting drinking water downstream
- Birth defects, cancer, blue babies, (*today's wastewater is tomorrow's drinking water*)
- Show a physical connection (through a tour)
- *Recharging our drinking water from our wastewater* supply
- Identification of the specifics in wastewater that are bad

[1] The Training and Education subcommittee review of this report notes that Americorps cannot carry out engineering projects.
[2] The specifics of liability were not described during this meeting
[3] As this project winds down, NDWRCDP is unable to take on new projects.

- The equivalent of dumping 10 bags of fertilizer near the well
- Use some physical props
- Test some wells — compare with health department standards (at public meetings - using watershed meeting)
- Questionnaire — Willingness to drink water that may be affected by wastewater - maps, videos, newsletters
- Seek comments in surveys, and report the results

Some Ideas Related to the Discussion of Analyzing Different Technologies

- *Consider some categories for the information review such as*
  - *Cost*
  - *Reliability*
  - *Management requirements*
  - *Regulatory restrictions*
  - *Soils requirements*
  - *Possibility for future expansion (Can be a benefit or detriment)*
- *Develop a short report for each technology*
- *Consider putting those reports on a website or as a newspaper series*

As the result of this discussion, the project team developed the fact sheets that introduced the range of costs to consider when initiating discussion about different technologies.

The Use of Websites

- Most rural communities are simply not ready
- Designing a site is still different from having a site that is accessed by members of the public
- Although, kids use them.
- Consider some games

As the result of this discussion, less emphasis was put on the use of websites.

Reactions to Goals Discussion

- Work multiple goals into a single goal statement
- Add "Meet regulatory requirements"

The current version of the guide includes "responsibility to legal requirements"

Reaction to Models

- Limited application
- Other examples include runoff from construction
- Current models do not work in areas of Karst hydrogeology
- Are there models available for microbial transport?

Reaction to Scenarios

- The Waitsfield example needs support to allow for the differences between the good and the bad
- Note the need to integrate the wastewater direct impacts with the other related issues in a community

Reaction to Maps

- Add more detail on where to get information and assistance
- More emphasis on finding someone to do this for you
- In the absence of significant support, start simple, get a previously produced map, and use pins

The current version of the *Starter's Guide* includes how to gain access to readily available maps over the Internet

Reaction to Nitrogen Show

- Include interactive opportunities
- Reconsider audience and the degree of chemistry (NH3 and NO3 may be too much for many folks)

Reaction to *Starter's Guide*

- The development and implementation of any wastewater solution will take several years. Use the early time to build a strong project to ensure that the solution can be implemented.
- "Planning takes time and can save time."
- More reference to RCAP as an information source and community assistance provider.

RCAP is included several times as a place to go for community assistance in the current *Starter's Guide*.

5 PHASE IV –PASSING THE BATON TO COMMUNITY ASSISTANCE PROVIDERS

The Green Mountain Institute for Environmental Democracy (GMI) is working with two community assistance providers to implement some of the tools described in the *Starter's Guide*.

In Titusville, PA (the northwestern part of the state), the Rural Community Assistance Partnership (RCAP) hosted a forum for municipal officials on the options for addressing wastewater. The meeting brought together more than 100 representatives of municipal government to consider technical, financial, regulatory, and process issues associated with managing wastewater systems. Ken Jones, of GMI, provided a report on the use of the *Starter's Guide* and participated on a panel that discussed several issues raised by meeting participants. Consistent with findings throughout this project, most municipal officials expressed their greatest interest in any solutions to the financial hardships associated with wastewater infrastructure improvements and the role of the regulators in participating in the solution-development process. The idea of a full-blown project to engage stakeholders, complete assessments of local physical, economic, and political characteristics was not appealing, but even in this single event, participants gained some recognition of the importance. Most of the interest in the *Starter's Guide* was reflected by the RCAP staff and state agency officials. Their experience in working with small communities helped them recognize that a comprehensive approach to outreach and comprehensive project design will facilitate their future success.

Ken Jones facilitated a second meeting in Andover, NY that was organized by RCAP Solutions. This small town has used some of the materials within the *Starter's Guide* to help build their capacity to better understand the full range of challenges that they face in addressing their wastewater problem. As the result of this meeting, the committee that is taking the lead in addressing the wastewater problem is going to seek assistance to get a stronger technical feasibility assessment for maintaining most of the existing onsite systems and replacing just those systems that are failing. In order to keep currently adequate systems functioning and to build support for a full community solution, the committee is looking into a mixed solution that includes management of all systems as an integral part. The sophistication of their response to current conditions is evidence of their thoughtful consideration of a comprehensive project approach. The use of the *Starter's Guide* helped them consider the potential use of assessment information integrated with regulatory requirements and an economic analysis.

The committee has discussed a future step for this project to construct some scenarios that will help them make project decisions and communicate with stakeholders.

The Canaan Valley Institute is using the model septic tank leach field to promote understanding of wastewater issues in some of their West Virginia projects. The results of these applications will help them better understand the potential role of early citizen involvement in the development of wastewater projects.

6 FINDINGS AND CONCLUSIONS

A General Theory of Motivation and Participation

Wastewater projects suffer from the twin tendencies of people to be motivated by a set of long-term goals, but act on the short term towards those things that they control. The goals for effective wastewater management include human health, economic prosperity, property rights, and a general responsibility to the natural environment. The actions to accomplish effective wastewater solutions require meetings, data gathering, technical review, project financing, regulatory relations, and communication. In most cases, the gap between what is desired in accomplishing wastewater management and what is necessary to get there is too large for the general public to bridge. The inability to bridge that gap is a primary factor in locally-driven wastewater projects that languish.

A well-planned and executed project requires some connection between program activities and long-term goals. For wastewater, the goals are met through the effective treatment of water from homes and businesses at a cost that is affordable. This outcome is accomplished through the implementation of one of many wastewater strategies that can include onsite, cluster, or centralized technologies. Designing and implementing those strategies requires an understanding of local conditions and a decision process that ensures that the treatment solution meets the goals of the community. Finally, the implementation of a solution requires some day-to-day operations—first for completing the design and construction of a system, and over the long run for actually managing the systems.

All phases of a project require attention; from a clear description of the goals, through the identification of strategies, decision making, and project management. Working with a community that does not have wastewater as a high priority requires building participation through a combination of discussions about community outcomes, and the more detailed action steps of technology identification, design work, and management.

The work that The Green Mountain Institute for Environmental Democracy (GMI) pursued in this project focused on the beginning of this sequence and identified activities that would help communities understand the motivations that would engage community members. At the same time, individuals interested in seeing a complete project through to completion require a long-range view that recognizes the importance for completing all of the steps of technology choice, system design, and management.

Building Interest

The implementation of effective wastewater treatment is not a primary interest for home or business owners or for the officials that must also keep track of municipal services such as education, roads, police, and fire. Despite this lack of interest, there can be compelling reasons to pay attention to wastewater. The first section of the *Starter's Guide* helps interested community members enlist a greater foundation of support for considering local wastewater issues.

In most communities, there is not a compelling case to be made that wastewater is critical to meeting the goals of health or economic prosperity. Therefore, any event to display or discuss information about wastewater should be considered with other marketable attractions. For example, meetings that are taking place around other topics such as town planning, local conservation, economic development, or public health may allow an opportunity to introduce the issue of wastewater. In addition to pre-existing meetings, wastewater advocates can consider the use of food and music as a draw to attract the initial interest of local citizens.

Once vaguely interested citizens are present at an event, providing a stimulating environment to capture their attention can be aided through the use of physical models of septic tanks and leach fields, or through interactive exercises such as surveys and games. For those people that express an interest in continuing on the learning curve about wastewater and future projects in the community, the initial project leaders should be prepared to offer them opportunities to participate in some action steps such as door-to-door surveying or water-quality monitoring in addition to keeping the new recruits on the mailing lists for future planning and outreach meetings.

The content of the early message regarding local wastewater conditions is only critical to the extent that it provides a direct connection to pending home and business owner decisions. For example, if the initial motivation to act on wastewater is a government agency order for action, the local residents may need to know some of the potential outcomes with and without action. Also, any evidence of significant impact from current, poorly performing systems such as drinking water contamination or beach closures can be the sort of precipitating information that gets people interested. However, in many cases, a community may not have access to the detailed description of wastewater contamination and its impacts—gathering such information may be an important, later step for a community project.

This sequence of event-information-discussion can be complemented with more one-way communication tools such as newspaper articles and the Internet. However, these one-way communication tools are rarely sufficient to build momentum and participation in a community starting down the path of solving its wastewater problems.

Building a Community Project

One advantage to human nature is that not all of our actions are dictated by **a direct link** to long-term goals. The world is too complicated and multi-faceted to always rely on such connections. A review of several case studies shows that the goals of human health, economic prosperity, or a responsibility to the environment may not be compelling for local citizens, and

moving along the project path to identify particular strategies does take place even without those strong connections.

In the absence of those connections, projects build momentum by focusing on the next steps towards action. Completing more detailed assessments of local conditions and beginning the process to choose among technologies provides project participants some concrete tasks to pursue while getting closer to the real decisions that local citizens will have to make. The second part of the *Starter's Guide* focuses on the activities necessary to ensure that a community project can progress towards the implementation of a wastewater solution. The challenge in community process is not in finding information about what projects need to include. There are many guides identifying the steps of assessment, outreach, regulatory considerations, and finance. The more important challenge is to construct a framework that makes carrying out each activity easier. An observation in working with projects and reviewing past efforts is that one or more of the important tasks in a community project are left un-done, not out of ignorance, but out of a lack of interest and experience in taking on each piece. The *Starter's Guide* lays out a set of activities for helping project participants to identify the necessary steps and to build a project road map to at least describe a path for ensuring each activity's completion. However, work with community assistance providers is still ongoing to find more mechanisms for convincing local project participants the value in community process and the confidence to take on each task.

While community assistance providers agree that initial engagement materials can help their communities, the experience in utilizing general project framework materials to ensure a longer-term project success is less appealing. There is little question that community-directed efforts require some basic elements such as assessment information, a decision making framework, access to technical support, communication with regulators, and a financing strategy. However, many communities fail to follow through on the development of one or more of these pieces and their efforts to promote wastewater solutions fail as a result.

GMI is not interpreting this as a reason to give up on the design and implementation of project structure, but rather as a challenge to consider stronger strategies for driving home the importance of these issues in community projects. The current menu of case studies often shows the very long time necessary to accomplish an adequate solution to wastewater problems. An emphasis in the presentation of these case studies on the need for this time commitment and the possibility that a well structured project may make this time more productive would be a good avenue to pursue.

Regulators could possibly provide additional encouragement to ensure that community projects involve working closely with stakeholders, participating actively in assessment activities, and developing a clear decision making framework, before progressing to detailed design solutions and negotiations with regulators. Organizations providing finance support may want to consider these requirements as well including clear communication with regulators.

Another, more general finding should come as no surprise to those who have witnessed progress in community wastewater decision making. The economic implications of wastewater solutions remain the most important consideration for community members involved in the decision process. Regulators may have additional issues with system reliability and the need for

management, but community members only address these concerns to the extent that the regulators require them.

In some communities, the impacts of wastewater solution choices on future development are a factor that is important for consideration beyond the simple dollar costs for the wastewater solution. In these cases, the current availability of developable lots with soil conditions appropriate for new housing or commercial activity restricts the possibility for that growth. Considering the impacts of wastewater solutions on future growth adds a complicating factor for these communities, especially when there is a lack of consensus on the future direction of the community to grow.

An important note is that this project did not place a particular emphasis on promoting decentralized solutions as compared to central sewer options. The economics of this choice provide significant incentive to focus on decentralized solutions, and it is regulators and professional wastewater engineers with limited experience in decentralized systems that tend to favor the central solutions.

The Importance of Community Assistance Providers

One of the important conclusions in GMI's 2003 report (Jones 2003) is the role that community assistance providers play in working with individual communities struggling with their wastewater issues. No community that GMI is aware of has carried out a project that identifies the technical solutions, gains citizen support for moving forward, and leads to an implemented solution for wastewater treatment without the assistance of someone with significant experience in community wastewater solutions. In some cases, the experience is hired from an engineering consultant. In other cases, assistance organizations such as the Rural Communities Assistance Corporations (with various names across the country) or non-profit rural development agencies have staff that can work closely with interested community members.

As a result of this observation, GMI worked closely with community assistance providers in reviewing the content of a draft *Starter's Guide* and continues to explore opportunities of integrating the approach within the *Starter's Guide* with ongoing activities to support rural communities. Their review has led to significant changes in the content and delivery of the *Starter's Guide*.

The Current Status of Support for Community Projects

There is extensive information available for communities interested in pursuing wastewater solutions (for example, see the National Small Flows Clearinghouse Publications Guide). However, the GMI 2003 report notes that this information is difficult to access and not organized in a way that allows for a comprehensive approach to developing a community project (Jones 2003). The *Starter's Guide* is a beginning effort to consolidate existing information and provide a project-planning framework. However, the *Starter's Guide* is just the beginning and will benefit from extensive expansion — not by adding more pages, but by linking to more of the detailed assistance that is available from other organizations on specific pieces of the wastewater solution.

The *Starter's Guide* is also intended to be supplemented by the hands-on assistance of experts that have experience in wastewater solution design and implementation. While GMI is working with community assistance providers to fine tune the *Starter's Guide*, there is also the need to consider a more systematic mechanism for communities to identify support, both from individuals with experience in wastewater and for the sorts of locally implemented activities that are necessary to build local support for the eventual solution to wastewater needs.

Conclusion

Assistance providers that reviewed the *Starter's Guide* acknowledged the value of an emphasis on the first step in engaging community members for designing and implementing wastewater solutions. The community assistance providers also acknowledged the value of a more systematic approach for completing a project process that does not leave out a valuable activity. Simple outreach with a minimal focus on wastewater is appealing and may help local projects improve attention to their projects at the outset, but keeping a focus on project process will be a continuing challenge in order to translate early attention to long-term participatory support.

The importance of developing a broad and general understanding of wastewater issues in order for a community to move forward has been reinforced in GMI's experience in Phase Two communities and in Phase Three discussions with community assistance providers. In order to build this general awareness, it is important to consider delivery mechanisms that do not place a preliminary emphasis on wastewater. Wastewater is not a priority for rural community members and initiating the discussion about the topic requires creativity and taking advantage of coalescing with other communication opportunities. Food and music help prompt initial participation, and engaging citizens during these initial events benefits from creativity and a sincere interest in developing dialogue rather than one-way communications.

Finally, the role of the community assistance provider in helping communities address their wastewater needs cannot be understated. None of the tools that GMI produced for this project provide a sufficient basis for community members to independently design and implement a wastewater decision. The future application of GMI tools and others will rely on the comfort of assistance providers including non-profit organizations, for profit wastewater engineers, and government agencies in using and promoting them.

The community assistance providers recommended a checklist of activities that community projects should consider and as a conclusion to this report, this list is included for consideration.

- ☐ Establish wastewater goals for the community
- ☐ Develop a communication strategy
- ☐ Build personal links to regulators
- ☐ Carry out an assessment of local conditions
- ☐ Identify a mentor or community assistance provider

- ☐ Understand the technical requirements for a project
- ☐ Consider finance options early and often
- ☐ Build a project road map and include an assignment of responsibilities
- ☐ **Remember the need to manage** any long-term wastewater solutions

7 REFERENCES

Jones, K. 2003. *A Status of Tools and Support for Community Decentralized Wastewater Solutions*. Project No. WU-HT-02-13. Prepared for the National Decentralized Water Resources Capacity Development Project, Washington University, St. Louis, MO, by the Green Mountain Institute for Environmental Democracy, Montpelier, VT.

8 ACRONYMS AND ABBREVIATIONS

GMI	Green Mountain Institute for Environmental Democracy
NDWRCDP	National Decentralized Water Resources Capacity Development Project
OTN	New York State Onsite Training Network
PA DEP	Pennsylvania Department of Environmental Protection
RCAP	Rural Community Assistance Partnership
RMI	Rocky Mountain Institute
US EPA	United States Environmental Protection Agency

A APPENDIX

A Starter's Guide for Community-Based Wastewater Solutions is available electronically on the CD and online at www.ndwrcdp.org. The guide comes in two parts:

- Guide
- Fact Sheets

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