

# **SMART About Water Program Final Report**

**Submitted:  
December 18, 2009**



**A program of the National Environmental Services Center  
in partnership with the  
Rural Community Assistance Partnership  
U.S. EPA Office of Ground Water and Drinking Water  
Cooperative Agreement X6-83379301**

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Attachment 2	Training Tool Kit Content CD and Power Point Presentations	<a href="http://www.nesc.wvu.edu/smart/training/toolkit.cfm">www.nesc.wvu.edu/smart/training/toolkit.cfm</a>
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**EXECUTIVE SUMMARY FOLLOWS**

**SMART About Water Program  
Final Report  
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**A project of the National Environmental Services Center  
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## **Executive Summary**

### **Project Description:**

The National Environmental Services Center (NESC) at West Virginia University (WVU) and the Rural Community Assistance Partnership (RCAP), between December 1, 2008 and September 30, 2009, successfully executed a 22-month project of integrated training and technical assistance under the U.S. Environmental Protection Agency (EPA) cooperative agreement #X6-83379201. The goal was to encourage the voluntary development of source water and wellhead protection plans in communities whose drinking water system serves fewer than 3,300 people. The program—SMART About Water (Strategic Management and Available Resources and Technology)—emphasized wastewater contamination, the largest potential contamination threat to drinking water sources for very small water systems, as the engagement concept for the transfer of knowledge to action in source water protection (SWP) plan development in small communities. SMART capitalized on the unique strengths of the partnering organizations, recognizing that a combined set of expertise, resources, and abilities was necessary to affect a concerted national program of this type.

The program recognized that small and very small drinking water systems continue to have the fewest financial and human resources, are the most expensive per connection to operate, and account for the largest percentage of drinking water violations, especially through microbial incidents.<sup>1</sup> Through the use of an expert training design committee process, NESC developed a stakeholder assisted social marketing training strategy intended to engage small system operators and local officials in community source water and wellhead protection plan development. The underlying rationale posited that appropriate planning could reduce the risk of contamination and assist these small systems in maintaining compliance. This rationale is consistent with Sub-objective 2.1.1 of the *2006-2011 EPA Strategic Plan—Charting Our Course*, namely that by 2011, 90 percent of small community water systems will provide drinking water that meets all applicable health-based drinking water standards, including effective treatment and source water protection. Training delivery and strategy application was accomplished in two phases: in a train-the trainer workshop format to train senior regional RCAP trainers in the program and curricula and in training by these individuals of a national network of regional RCAP field/training personnel that were provided with informational and training resource tools ultimately used to conduct more than 100 community training sessions. Emphasized in the SWP plan trainings to small communities were the importance of their state's source water assessments, the need for field trainers to collaborate with state drinking water regulators, and the resource potential broad audiences and volunteer organizations presented to community SWP activities. Training and technical assistance also supported contingency planning strategies for supplying safe drinking water in the event of contamination or disruption of services. The design committee prioritized audiences and cited the importance of engaging those having technical support, advisory, or public health responsibilities for small water systems. Regional training activities and technical assistance involving source

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<sup>1</sup> EPA 816-R-99-010, *National Characteristics of Drinking Water Systems Serving Populations Under 10,000*, July 1999; EPA 816-K-03-001, *2005 Factoids*, Dec. 2006.

water or wellhead protection planning was also coordinated by RCAP field personnel with the appropriate state and local agencies.

Results of the training approach and delivery of information were assessed by attendee pre- and post-training session evaluations and evaluations completed by the trainers. Results of the attendee evaluations were analyzed statistically using the Stages of Change Model.

The program's goal of reaching 245 community water systems that serve fewer than 3,300 people was met.<sup>2</sup> Training results indicate that in these communities the use of limited resources on developing plans to address their greatest threat of potential source water contamination—failing septic and sewer systems<sup>3</sup>—was understood.

## Results

**All grant outputs specified under the SMART program were accomplished within budget and on time during the grant period** which was extended for 120 days through a negotiated onetime, no cost extension. The extension agreement allowed additional time for completion of necessary training sessions, training forum information analyses and for the allowance of a substitution of the annual national State Onsite Regulators and Captains of Industry (SORA/COI) Conference for the originally proposed web casts. To accomplish the specified outputs and attempt to address the specified outcomes, the SMART About Water program conducted 35 separate activities within four task areas using a three-pillar strategy of: 1) training, 2) technical assistance, and 3) transfer of results. Program Management (task 4) required monthly monitoring and reporting of project activities cooperatively with the USEPA project officer, Steve Ainsworth. An evaluation was also conducted for each of the other three strategic task elements. The following is a summary of the results by strategic task area.

### *Task 1: Training*

Training strategy components, audience priority, and product type preferences were developed with the participation of 49 experts in a Training Design Workshop facilitated by the Baldwin Group and held in Alexandria, VA, April 29- 30, 2008. Elected officials, licensed operators, homeowners and septic system installer/service providers were identified as key SMART audiences. Roles and responsibilities, training target outcomes, motivators, delivery format, recruitment strategies, and desired educational materials were identified for each group. This information was used to produce a training curriculum, toolbox of resources, delivery strategy, and evaluation process presented in a train-the-trainer program conducted August 4- 6, 2008 at West Virginia University, Morgantown, West Virginia. Nine RCAP master trainers were presented course materials and delivery instructions that were ultimately provided to additional trainers in the six RCAP regions. Over the course of the program, RCAP trainers conducted 123 training sessions in 42 states and Puerto Rico. More than 830 small community water systems from all 50 states and Puerto Rico were represented by over 1,836 individuals in these sessions. Through the assistance of the Association of State Drinking Water Administrators (ASDWA) all 50 state drinking water administrators and state source water protection coordinators were informed of the SMART training program. RCAP engaged the state source water protection coordinators in 49 states and Puerto Rico for the trainings, but were unsuccessful in one state, Florida. Analyses of the pre- and post-training evaluations indicated a statistically significant increase in participant knowledge on all major source water

<sup>2</sup> This number represents 1 percent of the total CWS serving populations under 3,300, as counted by EPA. Assisting this number of communities is consistent with meeting sub-objective 2.1.1. (EPA 816-K-03-001, 2005 *Factoids*, Dec. 2006).

<sup>3</sup> EPA 816-R-99-010, pp. 3-7 to 3-8.

protection planning elements evaluated. It also indicated that diverse audience recruitment to training sessions and identification and utilization of voluntary community organizations were areas of weakness.

### *Task 2: Technical Assistance*

Hands-on technical assistance to prepare wellhead and source water protection plans (SWPP) was provided by RCAP field personnel to 24 communities designated as “Trailblazers.” NESC interviewed members of these communities and compiled 18 case studies. Case study results indicated that most Trailblazers consider source water protection a priority for their community and perceive that the biggest benefit of SWPP is having quality water now and in the future. Most Trailblazers used SMART materials in their SWPP efforts and indicated that additional materials, training, and technical assistance would help them move forward with implementing SWPP. In addition to this face-to-face technical assistance provided by RCAP, NESC provided remote technical assistance via its toll-free telephone number to SMART audiences, responding to seven callers throughout the project. It was anticipated that inquiries would increase proportional to field training activity but that did not happen. Speculation suggests that trainers may have addressed questions sufficiently or that audiences contacted trainers directly with follow-up questions.

### *Task 3: Transfer of Results*

Results of the SMART About Water program have been made available through the Internet, publications, and product distribution functions of NESC and RCAP in their respective roles.

NESC developed the SMART About Water Web site and SMART content for NESC publications, coordinated targeted national media campaigns, and collected and distributed SMART products. RCAP promoted SMART content through its existing Web site and publications.

The SMART About Water Web site ([www.nesc.wvu.edu/smart](http://www.nesc.wvu.edu/smart)), which offers access to a wealth of information, products, and articles about source water protection planning and wastewater management options, as well as the SMART curriculum materials and case studies of the SMART Trailblazer communities, received more than 300,000 visitors during the project period. The site received an average of 22,000 visitors each month and an average of 8,800 SMART materials were downloaded per month. NESC’s suite of national publications—*Small Flows, On Tap*, and *Pipeline*—featured a total of 19 articles or announcements on topics such as the SMART About Water program and concept, strategies for preventing source water contamination through wastewater management, funding source water and wellhead protection programs, and using social marketing for source water protection. These publications reached nearly 100,000 subscribers, and it is estimated that 240,000 people or more were exposed to the information with each issue. NESC’s product distribution unit identified and made available 162 SMART About Water products, which provide useful information and strategies for small communities embarking on wellhead or source water protection programs. During the project performance period, 2,808 products were distributed at no cost to participating SMART audiences and at low cost to third-party assistance providers. Web use increased as a function of program activity, and there was a definite increase in requests for both electronic versions and hard copies of training materials and informational products. Information on the SMART program was provided through presentations and sponsorships of national, regional, and state meetings. Presentations were made at the American Water Works Association (AWWA) for year 2008 and 2009, the Association of State Drinking Water Administrators (ASDWA) for year 2008 and 2009, the State Onsite Regulators and Captains of Industry (SORA/COI) for 2009, Rural Water’s Tribal Source Water Collaborative Workshop-EPA Region 6 for year 2009, and the Florida Environmental Health Association (FEHA) for year 2009.

## Recommendations

A key observation about the SMART About Water program is that a national, coordinated, collaborative effort to encourage and facilitate source water and wellhead protection planning is an effective strategy for reaching many people in many small communities. The continuation of such efforts is recommended and offers the capacity to provide consistent and focused messages, information, materials, and assistance to target audiences nationwide through a full suite of services, including face-to-face technical assistance, remote technical assistance via toll-free telephone, local training programs, a centralized Web site, educational products, list serves, and magazines.

A recommendation for improvement relates to the need for better inter- and intra-institutional communications due to the national scope of the project; the large number of national, regional, state, and field staff involved; and their dispersed locations. Suggestions for improving communication include implementing clear communication channels, protocols, and a chain-of-command for better two-way communication throughout each organization, to and from the field, as well as between and among all participating organizations. Better communication flow would increase access to data and strengthen the ability to identify issues, respond to needs, and make decisions.

Another recommendation relates to SMART About Water's limited 22-month time frame and the need for a longer duration to ensure continuity and achieve the impact such a program strives to attain. It would be desirable to continue this project and projects of this type that portend change in public response and behavior. This would help address the lag between delivery of knowledge and materials and the demonstration and observation of subsequent actions. Observing and documenting subsequent actions requires follow-up assessments to validate the transfer of knowledge into action by a community. Therefore, it is recommended that projects of this type, and the support provided for them, be longer-term and continuous rather than compartmentalized and stand-alone so that communities and project partners can maintain continuity of activity, build momentum, measure success, and share and apply lessons learned to achieve even greater impact.

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## **Task Result Summaries Follow**

The SMART About Water program was conducted between December 1, 2007 and September 30, 2009. SMART addressed 35 separate activities under the 11 subtasks of the four (4) identified task areas. The following are concise description reports of all task/subtask areas. Their output and outcome summaries are supported by attachments in 28 appended sections.

**SMART About Water Program**

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**Task Result Summaries**

<b>Task Summaries- SMART About Water Program</b>			
<b>EPA Cooperative Agreement # X6-83379201 Submitted by: NESCVWU</b>		<b>Reporting Period: December 2007 through September 2009 Submitted: December 18, 2009</b>	
<b>Task 1: TRAINING Subtask 1.1: CONTENT IDENTIFICATION</b>			
<b>Status</b>	<b>1.1 Activities</b>	<b>1.1 Outcomes</b>	<b>1.1 Outputs</b>
Complete	Form Advisory Committee	Increased understanding among advisors about wants versus needs as a means for promoting change.	Advisory committee formation, workshops developed and conducted, training criteria ID'ed, existing relevant training tools ID'ed, specific audience ID'ed, recruitment strategy determined.
Complete	Develop and Conduct Workshop		
Complete	Identify Training Criteria		
Complete	Identify Existing Training Tools and Needs for New Tools		
Complete	Identify Audiences		
Complete	Determine Recruitment Strategy		
<p><b>1.1 Summary</b>  <i>Summary of all 1.1 Activities.</i> The primary goal of "Task 1: Training-1.1 Content Identification" was to form a national design committee and develop and conduct a workshop with the committee to obtain input about developing SMART About Water training. This input included identifying training criteria, identifying existing training tools and the need for new tools, and identifying target audiences and recruitment strategies for those audiences.</p> <p>The workshop planning period ran from January through April, 2008; the workshop was held April 29-30, 2008, in Alexandria, VA and was facilitated by The Baldwin Group, a registered 8a firm from Washington, DC. Forty-nine participants attended, including people with expertise in source water protection, wastewater management, technical assistance and training, local governance, water system operations and maintenance, and regulations. The two-day workshop included an introductory session explaining the SMART concept and program and several work sessions, which elicited the following input from participants: the identification of priority audiences; knowledge, skills, and abilities to be incorporated into SMART training materials being developed for the these priority audiences; strategies for recruiting and training priority audiences; audience motivators; and the identification of existing and needed tools for source water protection planning, with an emphasis on wastewater management first.</p> <p>(The top eight priority audiences identified were: elected officials, licensed operators, homeowners and landowners, watershed groups, homeowners' associations, septic professionals, special interest and civic groups, non-community water systems.)</p> <p><b>1.1 Outcomes</b>                      Workshop participants gained an increased understanding about wants versus needs as a means for promoting change, as evidenced by:</p> <ul style="list-style-type: none"> <li>the input they provided identifying motivators for the eight target audiences, which are listed in the "SMART Audience Reference Sheets" and which were provided to SMART trainers, trainees, and posted on NESCV's Web site at <a href="http://www.nesc.vwu.edu/smart/training/curriculum/section10.pdf">http://www.nesc.vwu.edu/smart/training/curriculum/section10.pdf</a>;</li> <li>participant feedback on workshop evaluations. Specifically, on a scale of 1 (strongly disagree) to 5 (strongly agree),</li> </ul>			

participants indicated the following agreement levels:

- “My understanding of social marketing has increased as a result of attending this workshop” received an average score of 4.5;
- “I now understand ‘wants’ vs. ‘needs’ as a means for motivating people to change behavior” received an average score of 3.83;
- “In my opinion, new ways to motivate [the target] audiences were identified” received an average score of 3.87.

One hundred percent of workshop participants indicated that they planned to use the information and knowledge they gained in the workshop back on the job. In addition to gaining an increased understanding about “wants” versus “needs” as a means for promoting change, the information and knowledge they gained includes the following, which indicate, average agreement scores on a scale of 1 (strongly disagree) to 5 (strongly agree):

- identification of relevant audiences for participation in the SMART training program: 4.34;
- strategies for helping SMART audiences become aware of information and resources useful for source water protection planning (SWPP): 4.23;
- effective training delivery strategies for reaching SMART audiences: 4.07;
- strategies for helping SMART audiences heighten their awareness and understanding of source water assessments as appropriate to their roles, responsibilities, and authority: 4.07;
- relevant training tools and resources for use with SMART audiences: 3.93;
- strategies for helping SMART audiences understand the connection between source water protection and wastewater treatment: 3.9;
- relevant barriers to SWPP: 3.87;
- effective recruitment strategies for attracting SMART audiences to training: 3.7;
- strategies for helping SMART audiences become aware of volunteer organizations that can assist with SWPP: 3.6;
- methods for overcoming barriers to SWPP: 3.23.

### 1.1 Observations and Recommendations for Improvement

The national design committee workshop provided an effective venue for assembling an interdisciplinary group of stakeholders, introducing the SMART About Water program to these audiences, gaining buy-in from participants, and obtaining expert advice from a variety of disciplines. In particular, workshop participants provided expert input about (1) priority audiences to target for SMART’s social marketing approach to source water protection planning, (2) strategies to use for motivating those audiences to take action, (3) skills, knowledge, and abilities for developing a targeted training approach, (4) and lessons learned and best practices regarding source water protection planning. Many of these suggestions were integrated into the SMART About Water training materials and Web site.

#### Recommendations for improvement:

- Continue to use qualified facilitators to conduct similar workshops;
- Explain SMART concept and goals of the workshop more clearly up front so that participants fully understand the purpose and expectations; provide more time early in the process for questions and answers;
- Clarify the approach of addressing wastewater problems first in a source water protection planning effort; i.e., that it is just a first step and a focal point for local efforts and does not constitute the entire focus of the SWPP;
- Spend less time on introductory speakers and more time on work sessions to obtain participant input;
- Use recognized and accepted methods for obtaining and assessing/analyzing input, i.e. methods that will hold up under analysis or scrutiny;
- Include more local level personnel; i.e., people in the target audiences (for example, local decision makers and water system operators) to be sure and obtain a full range of local perspectives.

### 1.1 Outputs

Attachment 3- SMART About Water National Design Committee Workshop Final Report

- Nat’l Workshop Agenda
- Audience Reference Information
- The Baldwin Group Workshop Report
- Workshop Participant List

Attachment 4- National Design Committee Workshop Evaluation Summaries

Attachment 5- SMART About Water Products, Volume 1 (NESC products)

Attachment 6- SMART About Water Products, Volume 2 (newly identified products)

Attachment 7- Rating Sheet Summaries for SMART products, volumes 1 and 2

# Task Summaries- SMART About Water Program

EPA Cooperative Agreement # X6-83379201

## Task 1: TRAINING Subtask 1.2: CONTENT DEVELOPMENT

Status	1.2 Activities	1.2 Outcomes	1.2 Outputs
Complete	Content Development	An increased sensitivity on the part of training designers with regard to applying social marketing concepts to curriculum design.	Literature searched against criteria, items collected/ repackaged, new materials developed as needed. Completion of training recruitment list.
Complete	Literature Review, Assessment and Reformatting		
Complete	Complete Training Recruitment List		

### 1.2 Summary

The primary activities of the content development phase, conducted from March 2008 to August 2008, were to determine specific goals, learning objectives, and topics to address in training designed for two audiences—assistance providers/trainers and SMART About Water's priority audiences—and then develop training and support materials for each audience. The training materials were used to train master RCAP trainers, who then trained their RCAP co-workers, who in turn trained SMART priority audiences in small and rural communities.

*Literature Review, Assessment and Reformatting.* The research component of content development included conducting literature reviews using SMART-related criteria, collecting and reviewing existing training materials and relevant resources and repackaging resources as appropriate, and consulting with subject matter experts. Input from these three activities was used to develop SMART training materials. In addition, relevant support materials were collected and repackaged into a Trainer's Toolkit.

*Content Development.* The curriculum was developed through a collaborative process among NESC's training developer, technical assistants, graphic designers, and publications and product distribution personnel; RCAP trainers and subject matter experts; regulatory experts from U.S. EPA Region 3 and the State of West Virginia Source Water Protection Program; and social marketing and evaluation experts. An initial meeting was held between the Great Lakes RCAP Director and NESC's Training Specialist to identify the initial training outline, learning objectives, and relevant National Design Committee Workshop recommendations; and to identify trainers/content experts who could develop components of the training and serve as trainers for the SMART Train-the-Trainer session. Subsequently, nine trainers/ content experts and two presenters were hired/ secured, provided with the training development outline and expected deliverables, and informed of the responsibilities for developing his or her session (primarily developing a lesson plan, a PowerPoint Presentation with instructor notes, and identifying relevant support materials). Phone conferences were held over a two-month period between NESC and all training developers to prepare for the train-the-trainer seminar, assess training development progress, discuss strategies for ensuring a cohesive and collaborative approach, and address questions and issues.

The main goals of the SMART curriculum were to (1) help RCAP staff members develop skills and knowledge in the SMART program's key content and outreach areas; (2) serve as a resource for RCAP staff to use, adapt, borrow from, and/ or supplement to train SMART's priority target audiences, (3) serve as a reference tool to help insure that SMART About Water information (concepts, goals, objectives, outcomes, and identified priority audiences) was readily accessible and available to those implementing the program, and (4) provide a standardized approach to SMART training delivery and technical assistance efforts across the country. The SMART training curriculum addresses five content areas and provides support materials and information for trainers, including: Power Points with instructor notes; lesson plans including learning objectives, background information, content to be taught, and suggested learning activities; pre- and post-tests; evaluation forms; reference sheets identifying priority audience motivators, and a Trainer's Toolkit with dozens of resources. All training materials were published in hard copy, and downloadable versions were posted on the NESC Web site (<http://www.nesc.wvu.edu/smart/training/index.cfm>). Curriculum contents are listed below:

- Using the SMART About Water Curriculum;
- Background Information: SMART About Water;
- SMART Evaluation Forms;
- Module 1: Introduction to the SMART About Water Program;
- Module 2: Source Water Assessments;

- Module 3: Source Water Protection Planning;
- Module 4: Protecting Source Water through Wastewater Management;
- Module 5: Social Marketing;
- Tracking and Reporting RCAP Deliverables;
- SMART Audience Reference Sheets;
- SMART Toolkit and Additional Resources List.

## 1.2 Outcomes

An increased sensitivity on the part of training designers with regard to social marketing concepts to curriculum design was achieved, as indicated by the inclusion of social marketing recommendations and strategies in the curriculum. Training developers also gained insights on approaching source water protection planning by addressing wastewater management as a first step in the process. The increased knowledge of content areas other than their own area of expertise was applicable in their training and in their work with small communities.

## 1.2 Observations and Recommendations for Improvement

*Content development process.* The teamwork approach to developing the SMART curriculum, i.e. involving content experts and trainers to develop discrete sections of the curriculum, was an effective strategy for developing training, especially in such a short time frame. The advantages of working with RCAP field staff were that they were able to apply their expertise in specific content areas (source water protection planning, wastewater management, rural and small communities) as well as their significant experience in training and working with rural and small community audiences to develop practical, targeted, useful training materials. Additionally, because the master trainers attending the SMART Train-the-Trainer event were also RCAP field staff themselves, RCAP trainers had a lot of credibility with these master trainers. The other content experts (social marketing, state and federal source water assessment experts) had a depth of knowledge and experience in their subject areas and were able to coach both the RCAP training developers and RCAP master trainers in these content areas. Disadvantages of this process were primarily related to the tight development time frame, which was less than three months. In a few topic areas, the training materials would have benefitted from additional rounds of review and edits, resulting in shorter, more targeted materials.

*SMART training materials.* Initial feedback from RCAP trainers indicates that providing a curriculum that is flexible and adaptable to local needs, and posting all the resources on the SMART About Water Web site, was a benefit to the trainers. Many of the RCAP trainers also found the SMART Toolkit to be a high quality product and a valuable resource. The primary disadvantage in preparing the materials was the time constraint and the resulting pressure, long work hours, and additional staff assistance needed to prepare and assemble the products on time.

The primary recommendations for subsequent training development are to:

- Continue to use a collaborative team of content experts/trainers to develop materials and identify resources;
- Continue to ensure that team members have credibility with the trainees and end audiences;
- Allow more time for the development and review process;
- Bring key NESC staff into the process earlier; and
- Establish clearer guidelines concerning copyrights and using copyrighted materials.

## 1.2 Outputs

Attachment 1- SMART Curriculum CD

Attachment 2- Training toolkit CD

Attachment 8- Curriculum Developer List

Attachment 9- Training Institute (Train-the-Trainer Information)

- Participant List
- Training Seminar Agenda

## Task Summaries- SMART About Water Program

EPA Cooperative Agreement # X6-83379201

### Task 1: TRAINING Subtask: 1.3 TRAINING DELIVERY

Status	1.3 Activities	1.3 Outcomes	1.3 Outputs
Complete	Training Institute	Heightened awareness of local officials' understanding of SWAs, knowledge about how to conduct planning and obtain community support, understanding about connection between SWP and wastewater treatment, awareness of information resources and volunteer organizations that can provide assistance; increased calls for technical assistance.	Training institutes, two web casts(replaced by SORA), co-sponsorships at national events, and up to 100 training sessions to cover 240 drinking water systems
Complete	Web Casts /SORA		
Complete	Co-sponsor Sessions at National Meetings		
Complete	Training Sessions 100, reaching 240 communities		

#### 1.3 Summary

Training delivery activities included the SMART Train-the-Trainer Seminar, co-sponsoring sessions at national meetings, and conducting training sessions at the community level with SMART priority audiences. Note that the webcasts mentioned in the original proposal were substituted with training-related activities at the 2009 State Onsite Regulators Association (SORA) conference, with EPA approval.

*Training Institute.* The SMART Train-the-Trainer Seminar was held August 4–6, 2008, in Morgantown, West Virginia. Nine master RCAP trainers were trained to implement the SMART About Water Program and use the SMART curriculum so that they could in turn train RCAP co-workers to do the same in the field. In addition to the RCAP trainees, six NESC staff attended. Trainers included four RCAP trainers, two regulators, one social marketing expert, the SMART external evaluator, and three NESC personnel. Training seminar goals were to: (1) conduct an initial face-to-face session with project participants to explain the project concept, outputs, and outcomes, (2) provide training on SMART content and implementation strategies, and (3) discuss questions, issues, and concerns. Each trainee received a hard copy of the SMART curriculum in a three-ring binder, and the Trainer's Toolkit.

*Web casts (SORA/COI).* The Web casts originally planned were replaced by training-related activities at the 2009 SORA conference. The SMART About Water program co-sponsored this training conference along with other organizations such as the National Environmental Health Association and the U.S. Department of Agriculture. Several training sessions focused on source water protection. The conference proceedings CD and support materials are included as attachments. The request and approval to substitute the webinars with the SORA/COI conference is also included in the attachments.

*Co-sponsor Sessions at National Events.* NESC and RCAP Principal Investigators presented the SMART About Water program at the Association of State Drinking Water Administrators' (ASDWA) annual conference, October 20-22, 2008, the Tribal Source Water Protection Collaborative Workshop-EPA Region 6, April 6, 2009; and the AWWA Annual Conference, June 15, 2009. Attachments of the presentations for these events are included in this report.

*Training Sessions (100 reaching 240 communities).* Training sessions were conducted in the field by RCAP master trainers who received training at the SMART Train-the-Trainer Seminar, as well as RCAP field staff who were in turn trained by these trainers. RCAP's training efforts exceeded the required 100 training sessions to cover 240 drinking water systems. RCAP field staff conducted 123 trainings and trained a total of 1,836 participants. Eight-hundred-thirty (830) drinking water systems were represented at the trainings. People from all 50 states participated in training sessions; i.e.' trainings were recorded either as being offered in or drawing participants from all 50 states. Additional information on the trainings and progress throughout the project are located in the attachments listed for this section.

#### 1.3 Outcomes

*Training Sessions (100 reaching 240 communities).* The achievement of "Subtask 1.3 Training Delivery" outcomes, including

heightened awareness of local officials' understanding of source water assessments, knowledge about how to conduct planning and obtain community support, understanding about connection between source water protection and wastewater treatment, awareness of information resources and volunteer organizations that can provide assistance are discussed in "Task 4: Program Management / Subtask 4.2 Development and Evaluation Instruments" of this report, under the "outcomes." Training sessions occurred in 49 states and Puerto Rico. States with the highest number of trainings included Missouri (7), Pennsylvania (6), followed by four (4) trainings each in the states of Alabama, Oklahoma, Wyoming and Minnesota. Other states conducted 2 or 3 trainings. Training evaluation results are compiled in a summary and included as an attachment.

The outcome "increased calls for technical assistance" was minimally met. Direct 1-800 technical assistance calls resulted in only seven SMART callers requesting technical assistance, which is a lower than expected number of source water protection planning assistance calls to NESC by community representatives that were exposed to training. See further discussion under "Task 2: Technical Assistance/Subtask 2.1, Packaged Searches".

Additional training delivery outcomes that were achieved are discussed below.

*SMART Train-the-Trainer Seminar.* Participants of the SMART Train-the-Trainer Seminar increased their understanding of the SMART About Water program, along with the topics of source water assessments, source water protection planning, wastewater treatment processes and management, developing source water protection plans by focusing on wastewater problems first, and social marketing techniques to use with SMART priority audiences. Participants also increased their awareness of information and resources available for implementing the SMART program and working with priority audiences.

*Co-sponsor Sessions at National Events.* National events were selected based on requests from other SMART partners and/or for audience demographics. Presentations at these events often resulted in invitations to attend and participate in meetings and work group sessions. These additional sessions provided opportunity to promote SWP and the SMART about Water program.

### **1.3 Observations and Recommendations for Improvement**

*SMART Train-the-Trainer Seminar.* The primary advantages of holding a face-to-face session and presenting the same initial program to all master trainers include (1) helping to ensure consistency in messages delivered and messages received; (2) providing the opportunity for questions, discussions, and clarifications among all trainers and key project principals; (3) the opportunity to gain insight and lessons learned from participants' relevant experiences; and (4) the opportunity for networking as participants planned their next steps. Participants seemed to focus more on technical materials. Delivery of the project elements seemed secondary to the community outreach mission of the field trainers.

The key lessons learned/recommendations about the train-the-trainer seminar:

- Begin at step one, do not assume that training participants arrive at the training with certain or similar levels of information or understanding about the project.
- Streamline the wastewater treatment/management component of the training.
- Build time into the training schedule--up front and as the training event unfolds, if necessary, to answer questions and solicit input from trainees.
- Ensure that the appropriate project principals and experts are available to provide answers and clarifications on issues and questions.
- After the initial training session, the organizational lead should follow-up with regular communications, reminders, and clarifications. Maintaining regular communications, providing consistent messages, answering questions, and making clarifications is key to a project like SMART, which involves many people across the country with differing levels of access to project information and materials. This was especially important because the SMART strategies to reach out to nontraditional audiences in nontraditional ways; i.e., the social marketing approach, as well as the focus on addressing wastewater problems as a first step in source water protection planning, were new approaches for many RCAP staff members. One solution could be to conduct monthly phone conferences or set up and run a private listserv where project participants are able to post questions and seek advice from project principals and co-workers. This could also serve to improve communication for all aspects of the project.
- Do not assume that organizational culture will change to meet the project goals. All field trainers should be required to report on activities in a standardized manner and contribute to informal sharing via organization policy or practice. This is often difficult.

*Co-sponsor Sessions at National Events.* Additional funding to continue to promote SWP and to reach out to smaller communities through local and regional events is recommended.

*Webinars (SORA/COI)*. The SORA/COI conference is a national venue that brings together onsite wastewater regulatory officials from nearly all 50 states. The event provides regulatory officials working with smaller communities the opportunity to exchange information and seek ways from their peers to resolve individual state regulatory issues. SORA/COI provides an excellent opportunity to promote the interrelatedness and integration of water and wastewater, and support for continuing to address this topic at SORA is recommended.

### **1.3 Outputs**

Attachment 9- Training Institute (Train the Trainer information)

- Participant List
- Training Seminar Agenda

Attachment 10- SORA/COI Information (also see Attachment 25 – Extension Agreement)

Attachment 11- Presentations (Tribal/EPA Region 6, AWWA 2009, SORA/COI 2009, ASDWA 2009)

Attachment 12- RCAP Final Report – Training Summary

# Task Summaries- SMART About Water Program

EPA Cooperative Agreement # X6-83379201

## Task 2: TECHNICAL ASSISTANCE

## Subtask 2.1: REMOTE TECHNICAL ASSISTANCE

Status	2.1 Activities	2.1 Outcomes	2.1 Outputs
Complete	Data Base Review	Heightened awareness leading to development of source water and well-head protection plans that focus on wastewater treatment.	Review databases, launch discussion list, packaged searches, web site dev. and implementation, ongoing additions to web site and site maintenance
Complete	Launch Discussion List		
Complete	Packaged Searches		
Complete	Web Site Development and Implementation		
Complete	Web Site Updating and Maintenance		

### 2.1 Summary

*Database Reviews:* Reviews were conducted during the first part of the SMART About Water project. The review of all existing NESC databases provided a core of products and resources deemed appropriate and useful to source water protection, onsite wastewater management and the related technical, managerial, and financial issues. This review resulted in 52 products accepted as relevant to SWPP.

*Launch of Discussion List:* The discussion list or SMART Listserv was used throughout the project to provide listserv users with updates and useful announcements. The Listserv has, to date, a total of 140 participants.

*Packaged Searches:* SMART customers were provided a 1-800 toll free hotline to contact NESC. Upon receiving a customer call, NESC staff would conduct an individualized search of relevant NESC databases to help answer questions and identify products. These products were then packaged and distributed for field use. The original plan to illustrate achievement of this output was to count the number of SMART callers using the 1-800 line. However, NESC has noticed a significant shift in the number of customers, including SMART customers, who are seeking information and downloading products from the NESC Web site rather than through the 1-800 number. Direct 1-800 technical assistance calls resulted in only seven SMART callers requesting technical assistance /packaged searches. Other results that contribute to the achievement of this output include the ongoing use and number of PDF downloads (products) from the Web site (see the attachment on Web Stats) and the number of products distributed through the SMART project (see attachment on products distributed).

*Web Site Development and Implementation:* The strategy behind the SMART Web site development was to provide relevant information and materials to meet the needs of SMART trainers and priority target audiences, as well as making these resources available to the general public, and to measure the use of the site every month. The site's ability to meet the needs of the audience has been favorable, as indicated by the monthly web statistics that identify the number of hits and downloads to the site. The SMART Web site is set-up to grow much larger by building on the solid foundation of resources currently provided online. This information was implemented in a timely fashion before training events and after as needed. An extensive online toolkit, many articles, products, curriculum, presentations, case studies, and other information posted online provides training and technical assistance resources that is downloaded free and shared among trainers and others.

*Web Site Updating and Maintenance:* Once the site was developed, updating and maintenance was performed regularly to keep current with new information from training sessions, events, products, articles, field work, and other relevant resources. The largest update was the "Training Resources Toolkit" (<http://www.nesc.wvu.edu/smart/training/toolkit.cfm>). This online toolkit provided hundreds of free documents (mostly in pdf form), web links, free products, and more. We saw a direct spike in traffic and downloads after it was made available.

### 2.1 Outcomes

To this date, the number of requests per month continues to climb, up more than 3,000 requests (26,175) from September 2009 to October 2009. October 2009 has been the busiest month for the SMART site yet. The average number of PDF file downloads was highest in August with 9,257; October was the second highest at 9,192. The highest number of downloaded PowerPoint files was 2,616, October 2009.

**2.1 Observations and Recommendations for Improvement**

The SMART site was extremely successful in providing information to the trainers, but NESC believes that we can expand greatly on marketing the idea of source water protection by publishing online guides to even more targeted audiences. The development of an online products catalog (dynamic and database driven) would be extremely useful.

**2.1 Outputs**

Attachment 13- SMART About Water Products

- SMART About Water Products List By Quarter and Types of Customers Ordering SMART Products
- SMART Product Catalogue
- Watershed Protection from Start to Finish (Example of SMART Product)

Attachment 14- SMART Listserv

- Example of SMART Listserv Announcements
- Listserv Participants
- Invitation

Attachment 15- Web Stats

# Task Summaries- SMART About Water Program

EPA Cooperative Agreement # X6-83379201

## Task 2: TECHNICAL ASSISTANCE Subtask 2.2 FACE TO FACE TECHNICAL ASSISTANCE

Status	2.2 Activities	2.2 Outcomes	2.2 Outputs
Complete	Technical assistance to states (100 training sessions in 50 states)	Small and very small drinking water systems form new partnerships to tackle SWP, continued improvement in water quality after the period of performance of this award as a benefit from states implementing the information provided under SMART, increased knowledge and skill of operators based on tech assistance intervention. Engagement of state source water protection program coordinators.	Technical assistance to the states, Providing 100 training sessions reaching 250 water systems in 50 states. 18-30 CWS and NCWS actively engaged in planning efforts.
Complete	Trailblazer Program (18 to 24 CWS)		

### 2.2 Summary

*Technical Assistance to the States:* RCAP regional personnel conducted 123 SMART training sessions in 42 states and Puerto Rico that involved a combined audience of 1,836 participants from 830 small drinking water systems in all 50 states. Trainers were able to engage state regulatory representatives and made direct contact with the state source water protection program coordinators in every state except Florida. All state drinking water administrators and coordinators were notified of the SMART program through a partnering activity between NESC and the Association of State Drinking Water Administrators (ASDWA) that involved e-mail notification of SMART information and enlisting ASDWA membership on the SMART listserv.

*Trailblazer Program:* RCAP engaged in source water protection planning efforts in 24 “trailblazer” communities. The purpose of the trailblazer activities was to provide targeted, hands-on technical assistance in developing source water protection plans in at least 18 communities. These plans were to emphasize wastewater as the target contaminant for initiating source water protection planning, consistent with RCAP’s belief that one success inspires communities to take on larger and more complex challenges and leads to success in further development of the plans to address other contaminants.

### 2.2 Outcomes

The NESC Communications Unit developed case studies for 18 of the 24 trailblazer communities (posted on the SMART Web site at [www.nesc.wvu.edu/smart/cases.cfm](http://www.nesc.wvu.edu/smart/cases.cfm)). These case studies indicate that outcomes were partially met and that degrees of progress were noted in source water protection planning activity. It is important to note that while these case studies provide valuable information and insights into the trailblazer source water protection planning efforts, they do not represent a comprehensive, in-depth review or analyses. In other words, additional information may exist that indicates face-to-face outcomes were more fully met, but that information was neither collected nor analyzed.

Some general results from the case studies are:

- Of these 18 communities, 15 indicated that they had used SMART materials in their source water protection planning efforts.
- 16 indicated that source water protection was a priority for their community.
- The reasons cited for starting source water protection planning ranged widely (e.g., protection from an oil recycling facility, agricultural activities, requirements for a regionalization project), although most had septic system issues, consistent with the SMART focus.
- 13 indicated that additional materials, training, and technical assistance would help them move forward.

Specific case study results addressing the outcomes are presented below:

*Small and very small drinking water systems forming new partnerships to tackle protection of their water sources.*

The trailblazer case studies indicate that personnel from five drinking water systems and one manager of a water supply corporation were mentioned as being leaders of their source water protection planning (SWPP) teams. To tackle the protection of their water sources, these teams formed partnerships or collaborated with organizations and people such as mayors, board members, county government, tribal officials, local health department sanitarians, a domestic water consumers association, the state Departments of Transportation, and a neighboring community to develop a contingency plan. Several SWPP teams from New Mexico joined together in a regionalization effort to form a water alliance to help oversee wellhead protection and implementation of the source water protection plan elements.

The remaining Trailblazer case studies indicate that the types of leaders and partners that participated in source water protection planning and education efforts include neighbors of residents who have raw sewage on the ground or straight pipes, farmers, county and water sewer districts, sanitary and water board members, public and quasi governmental organizations, county government, mayors, town council members, a conservation group, watershed association, and business owners.

*Continued improvement in water quality after the period of performance of this award as a benefit from states implementing the information provided under SMART:*

The trailblazer case studies identified a number of source water protection plan (SWPP) elements or activities that will likely contribute to continued improvement in water quality after the period of performance of this award as a result of implementing the SMART program:

- SWPP identified the need for, or the community has begun working toward, building a wastewater treatment plant or developing a wastewater management plan to address failing onsite or sewer systems;
- SWPP recommended developing and enforcing local city or county ordinances such as addressing abandoned wells and wastewater connection requirements;
- SWPP recommended enforcing septic system regulations;
- SWPP recommended educating homeowners on topics such as septic systems, wastewater treatment, and recordkeeping;
- SWPP recommended educating business owners about pollution prevention;
- SWPP team developed a natural resources inventory guide and a best management practices guide and distributed them to eight towns in the watershed;
- SWPP teams from several towns in New Mexico are collaborating in a regionalization effort to form and staff an organization, funded by the state, to implement issues delineated in the wellhead protection plan; the team is also developing a land use plan in cooperation with the county; and
- Source water protection effort involves asking city and nearby districts to include source water and drinking water protection in their comprehensive planning process, and encouraging the city to integrate water and wastewater as two economic development priority areas in the city's strategic plan.

*Increased knowledge and skill of operators based on technical assistance intervention:*

Although the trailblazer case studies did not seek to measure a direct increase in the knowledge and the skill of operators based on the technical assistance intervention by RCAP, the case studies do indicate the types of activities undertaken by the source water protection teams. These activities imply the likelihood of increased knowledge and skill of the operators involved, as well as the other source water protection team members who undertook the activities. In general, the people working on the SWPP teams have had to gain an understanding of their source water assessment and the possible need to analyze and/or conduct an additional and more detailed assessment, gain an understanding of their local problems and the contaminants and other threats to local water quality, and then determine solutions. They are also learning about the steps involved in source water protection planning; dealing with regulatory agencies and local governing bodies; developing resources on topics such as septic and onsite wastewater systems and management plans, a natural resource inventory, and best management practices; and educating the public.

The final outcome, *engagement of state source water protection program coordinators*, was met for 49 of the 50 states. Trainers were able to engage state regulatory representatives and made direct contact with the state source water protection program coordinators in every state except Florida. In addition, all State Drinking Water Administrators and Coordinators were notified of the SMART program through a partnering activity between NESC and the Association of State Drinking Water Administrators.

## **2.2 Observations and Recommendations for Improvement**

Data that were collected indicate that the technical assistance and trailblazer-related outcomes were partially met and the target numbers of training sessions, systems reached, and states covered were exceeded. Regarding data collection, the partnership between RCAP and NESC was an asset to analyzing this particular subtask. NESC staff was able to provide the resources for interviewing the trailblazer communities while national RCAP provided access to trailblazer communities. The length of time of the SMART About Water project limited the ability to follow up and document improvement in water quality or other progress achieved in

the communities trained and assisted by RCAP trainers. Overall, this activity should continue and its results be more apparent by providing continuation of funding to further engage these communities, analyze their movement in the “Stages of Change Model” and report on progress.

**2.2 Outputs**

Attachment 12- RCAP Final Report – Training Summary

Attachment 16- RCAP Quarterly Reports

Attachment 17- Trailblazer Case Studies and Summary

# Task Summaries- SMART About Water Program

EPA Cooperative Agreement # X6-83379201

## Task 3: TRANSFER OF RESULTS Subtask 3.1: WEB SITE

Status	3.1 Activities	3.1 Outcomes	3.1 Outputs
Complete	Site development	Access on a 24/7 basis to information about source water and well head protection planning and available resources.	Website development and deployment, site maintenance.
Complete	Site updating and maintenance		

**3.1 Summary**

*Site Development:* This section of the program refers to the development and updating of a webpage(s) to provide continuous updates on the trailblazer communities. Due to a staff shortage at RCAP National, NESC conducted case studies of the designated trailblazers then posted these to the SMART Website.

*Site Updating and Maintenance:* Throughout the project, the SMART website has been maintained, operable, and available to those seeking information. The trailblazer community section has also been maintained; however, no updates have occurred beyond the initial information posted.

**3.1 Outcomes**

The outcome of this task was to provide a place for SMART participants to easily read about the progress being made in the trailblazer communities and to access this and all SMART information twenty-four hours a day. The case studies are available in the attachments and on the Web at [www.nesc.wvu.edu/smart/cases.cfm](http://www.nesc.wvu.edu/smart/cases.cfm) . From this respect, this outcome was achieved.

**3.1 Observations and Recommendations for Improvement**

Lack of real time information on the trailblazer communities would seem to reflect the need for a communications element that can work directly with field personnel on the reporting and transfer of results. Direct hands on technical assistance is important to planning action, however, reporting community specific information on activity proved problematic.

**3.1 Outputs**

- Attachment 17- Trailblazer Case Studies and Summary
- Attachment 15- Web Stats

# Task Summaries- SMART About Water Program

EPA Cooperative Agreement # X6-83379201

## Task 3: TRANSFER OF RESULTS Subtask 3.2: NESC AND RCAP PUBLICATIONS

Status	3.2 Activities	3.2 Outcomes	3.2 Outputs
Complete	NESC/RCAP outreach and publications	Increased prestige of local officials and operators featured in the communications, increased calls for remote and face-to-face technical assistance, increased training registrations, and heightened awareness among operators and local officials about the benefits of planning and resources available for assistance.	3 issues each Small Flows and Pipeline, features in two issues of On Tap and Rural Matters. Up to 12 articles repackaged for use in others' publications, articles on the website.
Complete	Articles in Small Flows Magazine and Pipeline		
Complete	Articles in other publications		
Complete	Website posting of articles		

### 3.2 Summary

*NESC/RCAP Outreach and Publications:* A key component of the SMART About Water program was accessing and using NESC's suite of national publications: *Small Flows* (magazine), *Pipeline* (newsletter), and *On Tap* (magazine). Both *Small Flows* (3 issues) and *Pipeline* (3 issues) were funded exclusively under the SMART grant, while selected articles were funded in *On Tap* and in RCAP's publication *Rural Matters*.

*Articles in Small Flows Magazine and Pipeline:* With more than 46,000 subscribers, *Small Flows* is a well-regarded source of wastewater news. Under the SMART grant, NESC publications staff enlarged the scope of the magazine to encompass source water protection topics, furthering the specific goal of addressing the interface between onsite wastewater management and source water protection.

Entering its 15<sup>th</sup> year, the newsletter *Pipeline* (26,000 subscribers) presents water and wastewater information to general audiences, such as homeowners. We encourage local entities to reprint this information, and the source water protection information was well received, being reprinted in dozens of locations around the country.

Funded primarily by the U.S. Department of Agriculture's Rural Development Utilities Service, *On Tap* magazine covers all aspects of the drinking water industry. Although the SMART grant specifically funded two articles related to source water protection, the magazine's staff made sure this topic was in each issue and also promoted the SMART About Water project within its pages.

Together, *Small Flows*, *Pipeline*, and *On Tap* featured a total of 19 articles or announcements on topics such as the SMART About Water program and concept, strategies for preventing source water contamination through wastewater management, funding source water and wellhead protection programs, and using social marketing for source water protection.

The Audit Bureau of Circulation (ABC) establishes "pass-along rates" for various publications that show the expected number of people who will look at a copy of a magazine or newsletter. The nearly 100,000 subscribers to NESC publications multiplied by the ABC-established pass-along rate of 2.4, means that upwards of 240,000 people were exposed to information about source water protection and the SMART program.

*Articles in other publications:* NESC regularly encourages other publications to reprint articles from all of its publications. For the SMART program, Pipeline articles addressing source water protection information was particularly well received and reprinted in dozens of locations around the country.

*Web Posting of Articles:* In addition to these national publications, NESC also created and maintained a website especially for the SMART About Water program. In addition to posting articles that appeared in NESC's magazines and newsletters, the site featured a wealth of materials, including overview information about source water protection, electronic versions of the toolbox contents, free and low-cost products, and case studies of the project's trailblazer communities. Between May 2008 and August 2009, the site attracted more than 300,000 visitors.

### 3.2 Outcomes

NESC's publications and website played a key support role in relaying information about source water protection to technical

assistance providers, trainers, operators, local officials, and SMART's other priority audiences. The numbers cited in the above section show that many people, including local officials and operators who are well represented among NESC's readership, were exposed to information related to source water and wellhead protection, such as the benefits of planning and the resources available for assistance. Although it is too early to know definitively, the fact that, three months after the last training, more than 25,000 people each month still download SMART materials and that publications are still reprinting SMART-related articles speaks to heightened awareness about the topic.

Although NESC can report that it received seven calls for "remote technical assistance," data were not collected to assess the outcomes of "increased calls for face-to-face technical assistance," and "increased training registrations" as a result of NESC and RCAP's outreach via publications and the Web. However, NESC firmly believes the magazine and newsletter articles and Web postings prompted significant use of the SMART website rather than assistance calls.

Regarding the outcome of "increased prestige of local officials and operators featured in the communications," one of NESC's main objectives was to publish SMART-related articles documenting positive and successful source water protection activities at the local level that featured local actors and sparkplugs, including local officials and operators.

### **3.2 Observations and Recommendations for Improvement**

NESC is convinced that communities not only need but want more material about source water protection. We therefore recommend that EPA consider increased funding for a continued SMART program. Barring a full-fledged investment, EPA should consider paying for pages in NESC publications to further supply information about source water protection to local officials, technical assistance providers, watershed groups, and homeowners.

### **3.2 Outputs**

Attachment 18- Publications

- Summary of Articles
- External Requests for Reprints
- Small Flows Magazine
- Pipeline
- On Tap
- Tech Brief
- Rural Matters

Attachment 15- Web Stats

Attachment 17- Trailblazer Case Studies

# Task Summaries- SMART About Water Program

EPA Cooperative Agreement # X6-83379201

## Task 3: TRANSFER OF RESULTS Subtask 3.3: PRODUCT DISTRIBUTION

Status	3.3 Activities	3.3 Outcomes	3.3 Outputs
Complete	Product review	Increased use of information by officials and other stakeholders	Review and repackage (as needed) of NESC holdings pertinent to this project, collection and review of up to 25 new products per quarter, development and updating of online catalog and product ordering.
Complete	Collection and review of products		
Complete	Online catalog, development, and distribution of products		

### 3.3 Summary

During the first quarter of the SMART About Water Program, the National Environmental Services Center (NESC) national design committee was enlisted to review select products in NESC’s product holdings in order to compile a list of products that would be useful to communities embarking on a wellhead or source water protection program. Of the 107 products identified as potential sources of information, the design committee accepted 49 of the existing products. Following this phase, NESC began collecting and reviewing external products for evaluation as new product offerings under the SMART About Water project. New products were collected and added to the holdings through September 2009 resulting in a total of 162 SWP and wellhead protection products offered through the SMART project. One example of the products developed and/or offered by NESC during the project includes the *Watershed Protection from Start to Finish*, included in the attachments of this report. These products are listed on the SMART web page in the catalog section and a product list was printed in all *Small Flows Magazines*.

### 3.3 Outcomes

NESC processed a total of 48 order requests for 2,808 items by September 2009. SMART materials ordered and distributed at no charge to callers were valued at \$4,500. Requests for products were made by RCAP trainers for distribution to attendees at training events, by attendees calling and requesting additional materials, and by state and federal agencies who were aware of the project. A list of customer demographics is included in Attachment 13. The number of orders placed during the project indicates an increase in the use of information by officials and other stakeholders throughout the project. The increase is based on an assumption of zero SMART products distributed at the beginning of the project.

### 3.3 Observations and Recommendations for Improvement

It is recommended that if this project were to continue or if other projects similar to this one were developed, the first areas for improvement would be for the national-level organizations to have greater involvement in the local trainings. Secondly, a complete participant list, either prior to, or immediately following an event would help NESC and RCAP to offer more assistance directly to the trainers and participants. Another recommendation would be for the field organization to conduct follow-up mailings explaining what services are offered to the participants at no cost. This would increase the number of direct information requests for educational materials and increase requests for technical assistance through the NESC TA hotline. Such activity would increase the potential for communities moving to active from their knowledge base (stages of change).

### 3.3 Outputs

Attachment 13 – SMART About Water Products

- List by quarter and types of customers
- Products Catalogue
- Watershed Planning from Start to Finish ( Example of Product)

# Task Summaries- SMART About Water Program

EPA Cooperative Agreement # X6-83379201

## Task 4: PROGRAM MANAGEMENT AND EVALUATION

### SUBTASK 4.1: PROGRAM MANAGEMENT

Status	4.1 Activities	4.1 Outcomes	4.1 Outputs
Complete	Management and coordination with all players to achieve milestones	Successful completion of project, measurable results of outputs /outcomes, sharing of information with other assistance providers, attainment of EPA's 90% goal.	Coordination of meetings between NESC, RCAP, and EPA

**4.1 Summary**

*Management and Coordination:* The goal of task 4.1 was to ensure ongoing and collaborative communication between NESC, RCAP, and US EPA. To accommodate this effort, NESC produced quarterly written reports and coordinated regular meetings every four to five weeks throughout the project. The regular meetings included all the partners and occasional updates from the evaluator. NESC invited a USDA representative to attend who declined. These meetings resulted in program recommendations, summary reports, budget updates, and evaluations. Other mediums used to communicate were face-to-face visits, telephone, and e-mail.

All SMART Information was shared with trainers, trainees, and SMART communities, as well as other service providers through the SMART About Water website, in the RCAP and NESC publications, a listserv of 140 participants, and presentations at national and some local/ regional conferences. Also, co-presentations were given by the project PI's from NESC and RCAP throughout the project. Several attachments outlined under outputs in this section provide power point presentations and lists of travels that always included outreach and promotion of the SMART about Water project.

**4.1 Outcomes**

The project was completed along with the work plan outputs and outcomes. The quarterly standardized report format and final report format was developed. Within all standard reports and this final report, the outcomes and outputs are broken down into subheadings and are included for each task section. In addition to completing the outcomes and outputs of the project, the SMART partners collaborated to assist the EPA toward meeting the target in sub-objective 2.1.1 of the 2006-2011 EPA Strategic Plan – Charting Our Course: *by 2011, 90% of small community water systems will provide drinking water that meets all applicable health-based drinking water standards.* While this long-term goal is difficult to measure in terms of the SMART About Water Project, it should be noted that the project resulted in reaching 830 small community water systems throughout the nation helping to inform, as well as assist, the communities with source water protection planning. Upon completing the SMART training course, evaluations indicate that trainees have greater knowledge of SWP and SWPP.

**4.1 Observations and Recommendations for Improvement**

The scheduled meetings were vital to keeping the momentum of the SMART project going, as well as for sharing information. The meetings included the three key partners NESC, RCAP and EPA, with occasional updates from the program evaluator. Overall, the project could be improved by including regional representation from RCAP. Inclusion of regional RCAP directors or the RCAP trainers would have provided NESC and National RCAP more insight into any difficulties, training delays, or other issues of concern and would have provided a team approach to help resolve any problems.

**4.1 Outputs**

Attachment 19- Scheduled Meeting Agendas

Attachment 14- SMART Listserv

- Examples of SMART Listserv Announcements
- Listserv Participants
- Listserv Invitation

# Task Summaries- SMART About Water Program

EPA Cooperative Agreement # X6-83379201

## Task 4: PROGRAM MANAGEMENT

### Subtask 4.2 DEVELOPMENT and EVALUATION INSTRUMENTS

Status	4.2 Activities	4.2 Outcomes	4.2 Outputs
Complete	Development of evaluation instruments	Successful completion of project, measurable results of outputs /outcomes, sharing of information with other assistance providers, attainment of EPA's 90% goal.	Evaluation instrument development and assessment of program effectiveness.
Complete	Program evaluations and analysis		

#### 4.2 Summary

*Development of Evaluation Instruments.*

#### Pre- and post-training assessment instruments

Evaluation instruments to assess achievement of SMART's training delivery outcomes were developed according to the Stages-of-Changes Evaluation Model. The Stages-of-Change-Model (SCM) provides a framework for integrating theories of attitude and behavior change, as well as theories on media effects into a coherent form. This model can be useful in the designing of a communication health campaign (Slater, 1999). Prochaska, DiClemente and Norcross (1992) present the SCM model as a way for the campaign designer to integrate different theoretical perspectives. Slater argues that many effects theories complement each other because their focus of change differs from one another. For example, the Elaboration Likelihood Model (ELM) is clearly a persuasion theory that is concerned with changes in attitudes while the Theory of Reasoned Action (TRA) is more concerned with changes in behavior. Therefore, we can see that the ELM and TRA can be utilized together in an attempt to first influence people's attitudes and then their behaviors.

The SCM model posits a five-stage progression in a campaign for behavioral change. Accordingly, an effective communication campaign needs to address the needs and concerns that are unique to each one of these stages. The first stage in the model is called the Pre-Contemplation stage. Theoretically, individuals in this stage have no awareness of the need to alter their behavior and therefore have no intention of behavior modification. In the second or contemplation stage, people possess the knowledge that a problem exists and are considering action. Preparation is the third stage of the model. In what Slater (1992) has termed the transitional stage, people have the intention of taking part in the behavior, but have not yet adapted it into their repertoire. During the fourth or action stage, people have accomplished some behavior change. Finally, in the fifth stage, the maintenance stage, an individual sustains the new behavior for an undisclosed period of time.

As is obvious from the descriptions above, the SCM framework was developed with ongoing behaviors in mind, such as recovery from addictive behaviors, adopting regular exercise or healthful eating habits. However, the SCM has also illustrated its generalizability to less ritualistic behaviors as it has been applied to other contexts like organ donation, condom use, and blood donation. As such, it was determined that the SMART About Water program could utilize a SCM framework from which to view and evaluate its effectiveness.

Measurement instruments were designed to determine which stage training participants were in both before and after the SMART training intervention. This data was also used to determine the amount of change, or movement through the stages, individuals experience as a result of participating in the SMART About Water training programs. Additionally, it is also possible to determine the amount of change, or movement through the stages, individuals experience as the SMART About Water program progresses.

In accordance with the SMART About Water Program evaluation materials were designed to assess the effectiveness of the training deliveries in achieving the associated SMART outcomes (Subtask 1.3, Training Delivery). Participants in SMART training sessions were asked to provide information that corresponds to the different stages of the SCM. This information made it possible for evaluators to determine which stage respondents were in and how/if this stage changes as a result of the training.

### Trainer evaluation forms

The trainer evaluation form used an open-ended question format to assess trainers' observations and perceptions about (1) drawing priority audiences to the training and (2) the attendees' interest and willingness to engage in voluntary source water protection planning activities as a result of the training intervention.

### *Program Evaluations and Analysis:*

#### Pre- and post-training assessment instruments

For the first five outcomes listed under "1.3 Training Delivery," results are based on comparing participants' responses on a pre-training assessment to their post-training assessment responses. This represents a pre-test-post-test-repeated-measures design. Participants responded to a series of open-ended questions that were then coded and given a numerical value in order to conduct the analyses. All comparative analyses were paired-sample-*t*-tests. This type of analyses looks for a significant change in individuals' post-test score as compared to their pre-test score.

### Trainer evaluation forms

Trainers' comments were tallied and summarized, based on a review of 17 completed forms, which represents about 50% of the submitted forms. See a discussion of the trainer evaluation results in the "Summary of Trainer Comments" Attachment.

## **4.2 Outcomes**

**Outcome 1.3 - 1:** Heightened awareness of local officials and understanding of their state source water assessments.

Trainees answered the following question on both the pre-test and the post-test;

**How much do you currently know about your system's Source Water Assessment (e.g. a lot, a little, I helped design it, I have never seen it, etc.)?**

After coding the respondents answers on the pre-test, the average was a 3.95 ( $SD = 1.19$ ). This represents that on average, respondents indicated that they knew between "nothing" (i.e. "none", "never seen it") to "a little" about their systems SWA.

Following the training, participants' responses to this same question averaged a 4.30 ( $SD = 1.40$ ). This indicates that post training participants felt that they now knew at least "a little" to "enough" about their systems' SWA.

The results of the paired samples *t*-test (which examines whether this change from pre-test to post-test is significant) indicated that SWA knowledge did increased a significant amount ( $t(279) = 4.92, p = .001$ ). Further analysis indicates that over 31% of the sample reported learning a significant amount about their systems' SWA as a result of the training.

**Outcome 1.3 - 2:** Knowledge about how to conduct planning and obtain community support

Trainees answered the following questions on both the pre-test and the post-test:

**How much do you think you know about how to design a SWP plan?**

**How much do you think you know about strategies intended to obtain community support of a SWP plan?**

After coding the respondents' answers to the first question (knowledge about SWP) on the pre-test, the average was a 3.68 ( $SD = .88$ ). This represents that on average respondents indicated that they knew between "nothing" (i.e. "none", "never seen it") to "a little" about their systems' SWP.

Following the training, participants' responses to this same question averaged a 5.04 ( $SD = 1.29$ ). This indicates that post training participants felt that on average they now knew "enough" about their systems SWP.

The results of the paired samples *t*-test indicated that SWP knowledge did increased a significant amount ( $t(283) = 16.52, p = .001$ ). Further analysis indicates that over 68% of the sample reported learning a significant amount about their systems' SWP as a result of the training.

After coding the respondents answers to the second question (obtaining community support) on the pre-test, the average was a 3.77 ( $SD = .99$ ). This represents that on average respondents indicated that they knew between "nothing" (i.e. "none", "never seen it") to "a little" about strategies intended to obtain community support.

Following the training, participants' responses to this same question averaged a 5.05 ( $SD = 1.39$ ). This indicates that post-training participants felt that on average, they now knew "enough" about strategies intended to obtain community support.

The results of the paired samples *t*-test indicated that participants' knowledge of strategies intended to obtain community support did increase a significant amount ( $t(247) = 13.46, p = .001$ ). Further analysis indicates that over 62% of the sample reported learning a significant amount about strategies intended to obtain community support.

**Outcome 1.3 - 3:** Understanding connection between source water protection and wastewater treatment.

Trainees answered the following question on both the pre-test and the post-test:

**How strong do you believe the connection between source water protection and wastewater treatment is?**

After coding the respondents' answers to this question on the pre-test, the average was a 4.47 ( $SD = .96$ ). This represents that on average, respondents indicated that they already believed that there was "some" connection between SWP and WW treatment.

Following the training, participants' responses to this same question averaged a 4.73 ( $SD = .63$ ). This indicates that post training participants felt slightly stronger that SWP was connected to WW treatment.

The results of the paired samples *t*-test indicated that participants' rating of the connection between SWP and WW treatment increased ( $t(253) = 4.59, p = .001$ ). Further analysis indicates that only 18% of the sample reported an increase in how they view the connection between SWP and WW treatment.

**Outcome 1.3 - 4:** Awareness of information resources available to officials

Trainees answered the following question on both the pre-test and the post-test:

**How readily available are materials and/or resources to assist you in designing and/or implementing a SWP plan?**

After coding the respondents' answers to this question on the pre-test, the average was a 3.28 ( $SD = .70$ ). This represents that on average, respondents indicated that they "were not very aware" of where materials and/or resources were available.

Following the training, participants' responses to this same question averaged a 4.98 ( $SD = 1.08$ ). This indicates that post training participants felt they were "very aware" where materials and resources were available.

The results of the paired samples *t*-test indicated that participants rated that they were significantly more aware where to obtain materials and resources to assist in SWP planning after the training ( $t(245) = 20.17, p = .001$ ). Further analysis indicates that over 78% of the sample reported an increase in how available they believed materials and resources were.

**Outcome 1.3 - 5:** Awareness of volunteer organizations that can provide assistance

Trainees answered the following question on both the pre-test and the post-test:

**How readily available are volunteer organizations that can assist you in designing and /or implementing a SWP plan?**

After coding the respondents' answers to this question on the pre-test, the average was a 3.13 ( $SD = 1.14$ ). This represents that on average, respondents indicated that they believed that volunteer organizations that could assist in SWP design and implementation were "not very" available.

Following the training, participants' responses to this same question averaged a 3.85 ( $SD = 1.06$ ). This indicates that post training participants believed that there were only "some" or "not very" many volunteer organizations that could assist in SWP design and implementation.

The results of the paired samples *t*-test indicated that participants rated that they were significantly more aware where to obtain materials and resources to assist in SWP planning after the training ( $t(227) = 7.58, p = .001$ ). Further analysis indicates that over 41% of the sample reported an increase in the availability of volunteer organizations post-training.

## 4.2 Observations and Recommendations for Improvement

See discussion in this report's "Discussion of Outputs and Outcomes," and "Conclusions and Recommendations."

### 4.2 Outputs

Attachment 20- Program Evaluation and Analysis

Attachment 21- Pre, and Post Assessments and Trainers Evaluation Forms

## Task Summaries- SMART About Water Program

EPA Cooperative Agreement # X6-83379201

### Task 4: PROGRAM MANAGEMENT      Subtask 4.3 REPORTING

Status	4.3 Activities	4.3 Outcomes	4.3 Outputs
Complete	Required formal reports	Successful completion of project, measurable results of outputs /outcomes, sharing of information with other assistance providers, attainment of EPA's 90% goal.	<b>Outputs:</b> Formal reporting to EPA as required by project award, communications with EPA regarding program on a continued basis.
Complete	Coordination and communication		

**4.3 Summary**

*Required Reports:* All required quarterly reports for the SMART project were submitted to the US EPA and shared with RCAP as required. This final summary report will be submitted to the US EPA within the 90 day threshold. Furthermore, the final results of the SMART About water project will be made available to the public via the NESC website.

*Coordination and Communication:* Coordination of the grant activities was conducted by NESC except for the field trainings and the trailblazer activities, which were coordinated by RCAP. Teleconference meetings were coordinated every four-five weeks for the partners to share and provide each other with updates on the program. Communication was both formal and informal through meetings, e-mails, telephone, and face-to-face meetings. Several attachments listed below, provide details of the project communication. Information was shared with other stakeholders through the SMART Listserv, SMART website, and in presentations made by RCAP and NESC.

**4.3 Outcomes**

The project was successful in completing all associated tasks and sharing information with other assistance providers.

**4.3 Observations and Recommendations for Improvement**

Overall the meeting coordination and participation was successful and very helpful. The meetings could have used representation from the field.

**4.3 Outputs**

- Attachment 22- E-Mail and Informal Communication (Examples)
- Attachment 23- Example of Website
- Attachment 14- SMART Listserv
- Attachment 24- List of meetings and events attended (NESC)
- Attachment 12- RCAP Final Report - Training Summary (includes list of RCAP meetings and events attended)
- Attachment 11- Presentations (Tribal/EPA Region 6, AWWA 2009, SORA/COI 2009, ASDWA 2009)
- Attachment 25- Extension Request
- Attachment 26- Quarterly Reports
- Attachment 27- SMART Proposal and Agreement
- Attachment 28- Final Budget



**DISCUSSION OF  
OUTPUTS AND OUTCOMES  
FOLLOWS**

**SMART About Water Program  
Final Report  
December 18, 2009**

**A project of the National Environmental Services Center  
and the Rural Community Assistance Partnership**

## **Discussion of Outputs and Outcomes**

### **Outputs**

**All defined outputs were achieved on time and within budget -**

The Smart about Water program addressed 35 activity /outputs defined in the project work plan that were designed to contribute to achieving 11 desired outcomes under four tasks and 11 subtask categories. The preceding section, Task Result Summaries, provides details concerning the completion of the outputs listed by task and subtask. It is significant to note that the activities required by the outputs were considerable under each of the tasks and reflected the nation-wide characteristic of the project. As examples, conducting the preliminary training design workshop necessitated conferencing skills and resources to attract, support and engage a professional workgroup of 49 individuals including staff and consultants for two days to contribute to and validate the project. The training institute portion of the SMART program that conveyed the source water protection social marketing message similarly required the resources of 27 training professionals, meeting planners, educational materials designers, graphics designers, production and distribution staff as well as technical experts and trainers. Community training sessions were conducted by an RCAP field staff in 42 different states (including Hawaii and Alaska) as well as Puerto Rico. The physical logistics of implementing a project of this size reaching over 830 communities and over 1800 individuals and focusing additional service to 24 Trailblazer communities is appreciable. Product development, production, distribution and publications combined with web page development and maintenance also constituted an organized professional fulltime workforce. Considering that addressing the outputs was the major cost factor for this \$3 million, 22 month project and that a conservatively estimated 350,000 to 400,000 individuals or actions were reached or initiated; the cost benefit would seem to be very economical. The nature of the project expenditures also dispersed grant funds back into the economy, consistent with the current stimulus strategy, through salaries, purchased materials, products and services. A project of this scope could not have been implemented successfully or economically through other than established, experienced organizations having national resources and audiences and the infrastructure in place to support addressing the output requirements.

### **Outcomes**

Eleven outcomes were targeted to be addressed by the SMART strategic approach. Each anticipated outcome and its relative measure of success are discussed separately by Subtask category.

*Subtask 1.1 - Increased understanding among Training Design Workshop Advisors about wants verses needs as a means of promoting change.*

**Outcome met:** There was an 80% agreement from workshop participants, as evidenced from their workshop evaluations, that they had achieved an understanding of the concept of wants verses needs and how it relates to the concept of social marketing delivery being proposed (see Attachments 3 and 4).

Subtask 1.2 - *An increased sensitivity on the part of training designers with regard to applying social marketing concepts to curriculum design. (see Attachments 3 and 4).*

**Outcome met:** There was a high degree of understanding of the principals of social marketing as evidenced by participant evaluations. The final training curriculum that was developed with workshop participant input and concurrence demonstrated sensitivity to the elements of social marketing including audience recruitment techniques, roles and responsibilities, motivators, delivery format and desirable products and materials. Acceptance of this tailored curriculum was demonstrated by high demand for training materials particularly via the internet during the period of the field training activities.

Subtask 1.3 - *Heightened awareness of local officials understanding of source water assessments (SWAs), knowledge about how to conduct planning and obtain community support, understanding the connection between source water protection and wastewater treatment, awareness of information resources, and volunteer organizations that can provide assistance and increased calls for technical assistance. (see Attachments 14, 18 and 22.).*

**Outcome partially met:** A review of the pre and post participant evaluations from the 123 RCAP conducted community training sessions indicated that of the reported 1,836 participants, 808 individual surveys were provided to the West Virginia University Department of Communication Studies for analysis. Of the 8 audiences identified by the National Design Committee, all were represented with the exception of "Special Interest /Civic Groups". The two top priority groups, Water System Operators and Elected Official, represented 50% and 5.4% of the participants, respectively. Trainer evaluations were provided for approximately half of the training sessions for which pre and post participant evaluations were submitted. Clear instructions for collecting evaluation data had been developed and provided in the training curriculum, pre and post session assessment forms were made available to all trainers in downloadable electronic versions on the SMART website and reminders to RCAP to provide training information had been made. Analyses of the evaluations available indicated that 40 local officials responded reflecting about 5% of all respondents. Knowledge of source water assessments increased significantly in all respondent audiences; from basically no knowledge prior to training to a little or sufficient understanding. 31% of the responders reported that they learned a significant amount of information about their system's SWA from the training, validating the statistical results. Similarly, statistically valid improvement in knowledge was documented in all other outcome categories. The least improvement was in the area of understanding the relationship between wastewater and source water protection where the pre-training evaluation indicated the understanding was already very strong. Only 18% of respondents indicated they learned more about the relationship. Another area where improvement was minimal was in understanding how volunteer organizations could be resources in SWP planning and implementation. In this case although the audiences were significantly more aware after the training, awareness remained low. The greatest areas of awareness improvement were in knowledge of how to conduct source water protection planning and gain community support. Between 62-68% of participants believed that after training they knew "enough" about how to develop SWP plans and engage the community. This was the core concept of the social marketing strategy and was an outcome clearly met and substantiated statically. The reservation in designating this out come as "met" is respective of the numbers of evaluations submitted, bias in operator participation numbers, incomplete or missing trainer evaluation information and inability to conduct follow-up evaluations as to the transfer of knowledge gained from training sessions into actionable items. However, the sample size was sufficient to obtain statically valid results and to make logically valid inferences.

Subtask 2.1 - *Heightened awareness leading to development of source water and well head protection plans that focus on wastewater treatment (see attachment 15).*

**Outcome partially met:** Web activity has increased in proportion to SMART training activity and information and product availability. Interest in Web based information and products, is evidenced by more than 22,000 SMART website visits and more than 8,800 downloads monthly from December 1 2007 to September 30, 2009. Packaged search and technical assistance requests were minimal at only seven during the project period. However, activity in this area seems to have been replaced by internet access to SMART materials. This possibly reflects the cultural changes

occurring in information delivery expectations. It might also be indicative of RCAP trainers to satisfactorily answer and continue to answer questions from training participants. The SMART listserv was unexpectedly underutilized. Attempts to “seed” information and initiate discussion had no positive results. Offers to expand access to RCAP field training personnel and encourage listserv use as a vehicle to post-training session information, relay consistent messaging, reinforce training strategies and share experiences were not successful. Organization culture, operation procedures, and concern for trainer expectations in a non-permanent project environment may have played a role in not utilizing this communication resource. Adding State Drinking Water Administrators and Source Water Protection Coordinators to the listserv similarly produced no result. Although Web based activity and product demands were high, indicating considerable and increased interest and awareness in SMART concepts, resultant plan development activity under this task could not be assessed. The project did not support field follow-up by RCAP personnel. However, SMART web page maintenance and availability of information and product resources continues though unsupported by EPA. An assessment of the impact of these services on local SWP planning activity by either RCAP field personnel or NESC communications staff is a recommended future project to capitalize on the considerable effort expended to date. Because of this lack of documentation the “actionable” element implied in the outcome cannot be substantiated, and for this reason the outcome is considered only partially met.

*Subtask 2.2 - Small and very small systems form new partnerships to tackle SWP, continued improvement in water quality after the period of performance of this award as a benefit from states implementing the information provided under SMART, increased knowledge and skills of operators based on tech assistance intervention ( see Attachments 14, 18 and 19).*

**Outcome partially met:** This outcome was to be the result of “trailblazer” system technical assistance provided directly to 24 communities by RCAP personnel in the 6 RCAP regions. Results of RCAP activity were obtained through interviews conducted by NESC staff with “Trailblazer” community representatives with names provided by national RCAP. Case studies for 18 communities were developed and posted on the Smart web site. Significant to note was that a wide variety of reasons accounted for a community’s interest in conducting source water protection activities, and the progress in developing plans varied widely. Most communities indicated that water quality now and future was the biggest benefit of the planning and source water protection was a priority for 16 of them. Fifteen communities had used SMART materials in their planning process and 13 indicated that additional materials, training, and technical assistance would be helpful in moving forward with the planning progress. Although continued improvement in water quality could not be measured directly, the actions being taken by the assisted communities would infer that water quality would benefit as a result. Of note were the observations that: 1) source water protection activities were usually the result of an event or situation appreciated by the community, 2) local leadership was key to sustaining activity, 3) wastewater was generally a consolidating concern, 4) personal interviews were positive in determining degree of action attributable to technical assistance, 5) diverse audiences were seen positive for sustained community involvement and 6) communication of local community activities was not spontaneous but required outside assistance. Case studies supported the validity of the SMART approach to movement toward source water protection plans and the importance of combining technical assistance activity with a communications reporting component. Because actual measurement of progress in improving water quality could not be documented this outcome was considered only partially met.

*Subtask 3.1-Access of a 24 hour basis to information to information about source water and well head protection planning and available resources (see Attachments 15, 17 and 23).*

**Outcome met:** This outcome is considered to have been met. A SMART web page was designed and still remains available to serve as an information vehicle on source water protection information and resource availability. The Trailblazer web page was not utilized by RCAP trainers to provide training session information or other real time information on Trailblazer community progress. This is attributable to the organizational culture of “doing” or prioritizing active technical assistance over reporting and information transfer. This was also demonstrated by the number of returns of training session trainer evaluations and pre and post-training assessments which were

provided for about 50% of the reported sessions. This suggests that to have effective information dissemination and reporting on a national community focused training project; an organization that has a communications philosophy such as NESC should be partnered with an organization that has a culture of active hands on technical assistance such as RCAP.

*Subtask 3.2 - Increased prestige of local officials and operators featured in the communications, increased calls for remote face-to-face technical assistance, increased training registrations and heightened awareness among operators and local officials about the benefits of planning and the resources available for assistance (see Attachments 14, 18 and 23).*

**Outcome met:** Delivery of SMART information via the publications and Website was successfully executed. Desirability of the SMART materials including published information was substantiated by the numbers of visits to the SMART website and the volume of downloaded products.

Trailblazer case studies also supported the utility of the SMART information as did trainer requests and their downloading of materials. Receipt and acceptance of the SMART publications and Web based materials is an indirect indicator of the desired outcome. Web access to materials appears to be the preferred means of gaining information. The increased activity was directly attributable to field training events and announcement of materials availability.

*Subtask 3.3 – Increased use of information by officials and other stakeholders (see Attachment 13)*

**Outcome met:** Processed orders, web downloads, interviews with trailblazer community representatives and an analysis of training participant assessments, indicated that information provided by SMART was being used constructively.

*Subtask 4.1 - Successful completion of the project, measurable results of outputs and outcomes, sharing information with other assistance providers and attainment of EPA strategic goal (see Attachments 25, 27 and 28).*

**Outcome met:** The project was successfully completed within the allocated budget and timeframe. Communication was regularly achieved. Cooperation and constructive criticism was provided by the project officer and was positive. It is suggested that improvement in information transfer from the field may have been assisted by more face-to-face meeting with both RCAP national and regional staff. Improvement in the understanding of desired deliverable information by trainers, such as clear documentation of numbers and demographic information on field activity and details of the trailblazer community projects would have been beneficial in conducting outcome analyses. Additionally, communication improvement may have encouraged a more timely submission of information from the trainers and greater participation of the information analyst allowing for a more detailed review of the data.

*Subtask 4.2- Successful completion of the project, measurable results of outputs and outcomes, sharing information with other assistance providers and attainment of EPA strategic goal (see Attachments 20 and 21).*

**Outcome partially met:** Evaluation of this program outcome was based on both statistical analysis and observation. Evaluation of results of the training activity was conducted using the Stages of Change Model to statistically document audience movement through the five changes of change associated with campaigns. Statistically verifiable results were positive for the efforts of the training sessions. This analysis and results observed by the review of the trailblazer case studies and the trainer evaluations supports the SMART approach as a valid means of imparting knowledge. However, documenting the transfer of knowledge into actionable items requires further time and study. The time needed to develop the training strategy using the National Design Committee and preparing for and conducting the NESC training institute delayed field training. Most RCAP training activity was concentrated between the spring of 2009 and August of that year. This activity later in the project cycle may have delayed the anticipated community responses to message delivery beyond the project period. The increase in interest in the SMART web site tracks the training effort and continues to increase beyond the project period. This would seem to support the belief in the Stages of Change Model that response follows positive reception of information. Continuation of program activities and follow-up analysis of action in the “trained” and Trailblazer communities would be desirable and would document the outcomes of the effort toward source water protection

planning and capitalize on the programs past investment. Community planning activity information should be collected directly by NESC communications staff in cooperation with RCAP regions as a follow-up to previous field training activities. This partnering is recommended to assure the timely and complete collection of necessary information and data.

*Subtask 4.3 - - Successful completion of the project, measurable results of outputs and outcomes, sharing information with other assistance providers and attainment of EPA strategic goal.*

**Outcome met:** All reporting and coordination requirements were met. The final report submission and its presentation per grant requirements was satisfied on December 18, 2009 with delivery of the final report and presentation of the project by the PI, Gerald Iwan to US EPA representatives at EPA Headquarters, Washington, DC.

Recommendations for continuation and improvement of the approach are provided as a proposed project in the Conclusion and Recommendation section of this report.



**CONCLUSION AND RECOMMENDATIONS FOLLOW**

**SMART About Water Program  
Final Report  
December 18, 2009**

**A project of the National Environmental Services Center  
and the Rural Community Assistance Partnership**

## **Conclusion and Recommendations**

### **Conclusion:**

Source water protection efforts have been in place at the national level formally since the adaptation of the Drinking Water State Revolving Fund (DWSRF) set aside provisions of the Safe Drinking Water Act (SDWA) Amendments of 1996. Source water protection efforts are voluntary and require public participation for success. The EPA-supported, SMART about Water program led by the National Environmental Services Center (NESC) and partnered with the Rural Community Assistance Partnership (RCAP) since December 2007, attempted social marketing to invigorate the interests of small communities in source water protection planning developed around proper wastewater management. All outputs of the program were successfully accomplished and analyses of participant response to face-to-face training were positive. Similarly, information and products were also received positively. Less clear was the audience transference of knowledge gained in the training sessions into actionable items. During the project period, the current national tone had been impacted by recession, change in administration, competing economic priorities, national security and energy concerns. This has had the potential to lower the priority of source water protection efforts, especially within small community planning. The national political climate may have accounted for observations of a lower than expected number of source water protection planning assistance calls to NESC by community representatives that were exposed to training. It may also have accounted for low SMART listserv utilization. In contrast, dissemination of training information and informational products via the Internet was very robust. If a reprioritization of source water protection effort value has occurred, it may ultimately have negative consequences of increased costs of water supply service, environmental disruption, water quality degradation, increased pollution, and erosion of the public confidence. Maintenance of the appropriate priority of drinking water quality protection is critical during this period of contracting economy when communities, particularly small and rural, must necessarily revisit their abilities to deliver essential services. The small community-directed efforts provided by the SMART about Water approach demonstrated that awareness of critical source water protection and wastewater management principals increased. This suggests a greater potential for motivated action and for achieving US EPA Strategic Plan Objective 2.1.1. Specific source water protection planning actions however, could not be attributable to training effort. Follow-up investigation to document post-training source water protection planning results were not conducted and would be desirable to assess further stages of change progress. If the awareness activities begun by the SMART program were to be continued, they would likely be beneficial to maintaining an appropriate national priority for source water protection planning and lead to further action. Education, outreach, direct technical assistance in the field, and communication were at the core of the SMART program and are the basic tools still necessary to maintain small community engagement in source water protection. Continuation of this effort, building on core strengths of partnered service providers and on the results of the previous 22 months is also recommended.

## Recommendations:

The results of the SMART project suggest a number of areas for positive continuation. Based on observations and feedback obtained from the SMART program, areas that could be continued and expanded in a second phase have been identified. These concepts are presented as a proposed approach for future assistance activities.

Technical service providers, such as NESC and RCAP, could continue to use each association's strengths and the partnership established under the current SMART project to maintain the defined outputs and address outcomes specified in the current grant. Expanding the outreach to more small systems and continuing to make certain positive program modifications is desirable.

An organization, such as NESC, could centrally administer the continuation and provide additional resources from its four core competencies:

- Technical Assistance and Referral
- Training Development and Delivery
- Outreach, Partnering and Leveraging Resources
- Information Technology, Product Development, and Distribution

A technical assistance provider with a national workforce, such as RCAP, could provide the necessary "on-the-ground," "face-to-face" technical assistance and training directly to communities and stakeholders, and:

- Coordinate training and message delivery to its six RCAP regions
- Provide advice and delivery of technical assistance to targeted communities nationwide
- Administer contracting and delivery of field training personnel
- Effect communication of data and information from the field

Continuation should place additional focus on two particular areas:

1) Expansion of partnering and 2) improvement in program communication. Forums of service providers, potential partners, and interested parties should be convened to review the SMART experience from a regional basis. This could provide critique and recommendations from the field trainers charged with conducting the community programs. The SMART experience results, case histories and recommendation for moving the national source water protection agenda forward would be captured and communicated to a larger partnered audience in training formats and products available for distribution.

Communication logistics, organizational cultural preference, and technology would be reviewed and improvements made to facilitate message delivery, transfer of data, and program management. These two areas needing attention have been recognized in the SMART program and have similarly been perceived as general weaknesses in programs of national scope.

### 1. The SMART Approach: Phase One (2007-2009)

#### The Program

The SMART project was designed in response to EPA's need to assist system operators and local officials of small and very small drinking water systems in developing source water and wellhead protection plans based on their state's source water assessments. The act of developing a source water protection plan is voluntary, so the project incorporated social marketing practices when and where possible to help stakeholders understand the reasons for and the benefits of developing and implementing a plan. The SMART project uses a national approach to reach out to community

water systems and non-community water systems that serve fewer than 3,300 people. The intent of SMART is to help operators and state/ local officials focus their limited resources on developing plans to address source water contamination by failing septic and sewer systems, which, because of the tie to microbial incidents, EPA identifies as being their greatest threat.

The SMART approach is unique in helping communities and small water systems understand water as a holistic concept. Completing source water protection plans that focus on potential sewage contamination forges the relationship between wastewater treatment and the quality of the raw water that their drinking water systems treat and provide to consumers. Anticipated longer-term outcomes of the project are improved small / rural community water quality, public health protection and enhanced quality of life through regulatory compliance. Throughout the project period and shortly thereafter, we anticipate outcomes of raised awareness among the stakeholders about those factors that impact the quality of their source water and a bias toward action.

To accomplish these outcomes SMART developed and deployed a multi-faceted communications effort, which includes:

1. NESC trained RCAP trainers, and the RCAP trainers trained their field personnel;
2. RCAP communicated with the state Source Water Protection Coordinators to include them in SMART activities taking place in their respective states;
3. Face-to-face technical assistance was offered in 245 communities, and 24 communities were assisted in developing source water protection plans;
4. Training (100 offered) at the regional and local levels;
5. Remote technical assistance provided by telephone by technical specialists, Web access to resources, listservs, magazines and support products;
6. Public service announcements were broadcast;
7. Evaluations were completed by trainers and recipients of the training; and
8. Follow-up evaluations of the communities are planned six months after they received training and/or assistance.

## **Lessons Learned**

It was anticipated at the outset of the project that there would be a direct feedback loop to NESC from the field, which NESC would process and provide to our customers through our website and listserv. We believed that this feedback would create further interest in the SMART project and would be a source of positive reinforcement for the participating communities. Unfortunately, the feedback did not come as promptly and as uniformly as we had hoped, despite a variety of efforts. This suggests the further need for identifying mechanisms which will facilitate the ability of field personnel and trainers in rural locations to provide NESC and National RCAP with timely knowledge, results, and reports of “what’s happening on the ground” that can be shared on a wider scale. Transfer of information methodologies is critical for documenting success and for proper project tracking and promotion. Upgrading communication and Web technology for currency with audience expectations is also a potential area for review and revision. Coordination, communication and assurance of consistent message delivery are the primary areas of concern.

Demand for training, educational products and information was high and a positive indication of field activity and interest. Evaluation information also indicates trainer presence had an immediate and positive impact on audiences. Interviews conducted with trailblazers suggested that clarity of message and direction from “headquarters,” hardcopy of smart products, and the ability to be and feel “connected” were critical to field personnel.

## **2. The SMART Approach: Phase Two (2009-2011)**

### **The Strategic Goal**

Both NESC and RCAP recognize the timeless value of the continuing SMART projects in view of the green and energy efficiency movement, and the public interest in the economy and sustainability. Multiple demands and economic contraction will compete with small community ability to maintain environmental stewardship activities. It is recommended that EPA continue the SMART project approach in a second phase of operations to both recruit new communities and to work with selected phase one communities on maintaining the priority of source water protection plan development and implementation. This will help in obtaining monitoring data from the phase one communities in support of meeting EPA Strategic Plan Goal 2.1.1., improved effective treatment and source water protection in 90 percent of small community water systems by 2011. Focus on identifying, collecting and reporting specific data to document attainment of the goal should be prioritized.

### **Closing the Drinking Water/ Wastewater Loop**

Phase two of the SMART project should also expand upon drinking water and wastewater concept integration by introducing the SMART approach to onsite wastewater treatment system installers, onsite regulators and small wastewater treatment plant operators in addition to newly recruited small community drinking water plant operators and local officials. Creating partnerships with selected state onsite training centers is recommended to raise awareness among installers and regulators about the relationships between groundwater, well head protection, microbial contamination and drinking water quality. This should be accomplished through a training curriculum delivered through participating state onsite training centers with assistance from RCAP and supported with products and training materials provided by NESC. In addition, NESC suggests that its onsite training center facility be made available to state and regional stakeholders for integrated training. An expanded partners list of participants in both the drinking and wastewater areas should be developed. The onsite training centers and new partners should be added to a Web-based communications list, such as the SMART listserv, or to a blog site to facilitate communication among the phase one and phase two program participants and stakeholders.

Additionally, phase two proposes to reach out and involve the Small Public Water Systems Technology Assistance Centers (TACs) as disseminators of SMART information in their respective regions. The rationale is that if more technical assistance providers are aware and involved with SMART, they will have the ability to reinforce a basis for action at the community level. For example, phase two SMART could provide watershed groups in selected locations with information directly about the SMART project because we believe these groups would have a positive impact on the development of local source water protection plans. Trainers had difficulties in obtaining this type of audience themselves during the past project. The TAC's can be instrumental in this effort and can aid NESC and RCAP in being a local point of contact. NESC and RCAP recommend that their personnel work similarly with selected state National Rural Water Association circuit riders. The Source Water Collaborative members and the Decentralized Wastewater Technology MOU associations and USDA Technical Assistance Providers (TAPs) should also be consulted for advice and decision making regarding development and coordination of the delivery of the national source water protection message. Coordination between the USDA and EPA small community assistance programs should also be pursued. Finally, support for the State On-Site Regulators Alliance (SORA) and assistance in the administration of the SORA annual conference should also be provided.

## SMART Phase Two Project Elements

As in the initial phase of SMART, NESC and RCAP believe that a forum, such as the previous national design workshop, would be valuable. It would recap phase one and launch phase two of SMART. Value would be in capturing information and lessons learned from phase one and developing ideas related to the phase-two implementation plan strategies. The forum should be structured and focused in recognition of the areas of improvement recognized in phase one. Communication of regional differences and experiences would be an area of focus as would engaging new partners in developing a consistent and consolidated outreach effort with a reliable communications loop. This would benefit to the involved federal and state agencies, as well as service providers.

Phase two should include the following elements:

1. Development of Phase Two SMART Implementation Plan;
2. Plan and hold national design workshop-type forum;
3. Incorporate input from design workshop forum into the SMART Implementation Plan;
4. Recruit participation of selected Onsite Training Centers, TACs and watershed groups;
5. Hold a training for new assistance providers and trainers;
6. Develop and implement an improved communications mechanism to aid in timely feedback from the field and the regions, such as updated website, blog, or the use of Twitter;
7. Recruit and provide SMART trainings to new SMART communities and stakeholders;
8. Provide further technical assistance to selected phase one SMART communities to assist with implementation and expand the trailblazer network;
9. Publish magazines relevant to the SMART approach to assist stakeholders and service providers;
10. Identify new products to disseminate in support of SMART and make them available free of charge through NESC and other potential distribution points;
11. Provide field and remote technical assistance;
12. Develop an evaluation protocol and conduct evaluations of training / technical assistance interventions;
13. Hold monthly conference calls with EPA, RCAP, and others as appropriate and report progress quarterly;
14. Provide feedback on the progress of SMART via the SMART website; the listserv, blog, Twitter, the TACs, and Onsite Training Center websites and publications, EPA regional and headquarters Web and listservs, the MOU partners and the SWC partners, and others to be determined;
15. Review the “Stages of Change Strategy” for refinement and expanded application; and
16. Participate in regional and national forums and workshops to maintain the core messages and provide communications continuity.

The actual continuation should be developed respective of EPA goals, directions, and grant criteria.

### 3. SMART Phase Two Duration and Budget:

Phase two is recommended as a multiyear project. That would allow for continuity and consistency of outreach efforts and to capitalize on the currency developed within the small communities already provided with SMART services to date. Small communities already are the most economically disadvantaged and require a level of certainty of service to sustain their support, trust,

and confidence in national directions, such as source water protection. They are also more prone to current and future pollution risks, particularly under a declining economy. They are also the least likely to be able to address source water and wastewater issues without the external support and resources provided by the availability of a reliable and consistent technical assistance program.

The budget for the projected activities should be developed recognizing availability of funds, agency priorities and breadth of the program. It would be reasonable to assume that at the same level of effort previously applied to phase one, a similar slate of services and activities would be \$3.5 million for a two-year program.





## **APPENDIX SECTION FOLLOWS**

attachments available in hard copy only