

MARKETING FOR BEHAVIOR CHANGE AND NUTRIENT REDUCTION

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Abstract

Recent efforts in Minnesota have shown that targeted social marketing approaches result in broader implementation of behaviors that have measurable water quality benefits. We can take the lessons learned in successful water resource social marketing programs and apply them to broader audiences that will maximize the nutrient load reduction benefits.

Social marketing science teaches that the barriers to change must be addressed before behaviors will be modified. Social norms, technical expertise, time, and financial limitations are the primary barriers for changing practices for water quality improvement. Voluntary implementation on a broad scale requires effective marketing to generate interest, increase demand, and change social norms. It is apparent that broad scale implementation will be necessary to achieve higher water quality standards and minimize impacts of runoff from urban, suburban, and rural areas. As comprehensive approaches to resource management are implemented, it is becoming apparent that intensive marketing is needed to drive demand for clean water.

The Blue Thumb Program follows many social marketing strategies and helps the general public plant native gardens, raingardens and shoreline plantings. The goal of the Blue Thumb program is to address many of the barriers that currently prevent people from “planting for clean water.” The message is carefully crafted to effectively reach its target audience. The program also leverages incentives to motivate people to act.

Blue Thumb employs neighborhood parties as a strategy to change social norms. One party held in 2007 resulted in 22 raingardens. These twenty-two raingardens equates to approximately 11 pounds of Phosphorus reduction, which is directly attributed to the marketing, technical assistance, and incentives provided. Similar results were

experienced in 2008 and 2009. Accordingly, we can document that effective marketing (when connected with a holistic incentive and technical assistance program) reduces pollutant loads.

Today's presentation will discuss Social Marketing as a tool to promote LID retrofits for TMDL load reduction, review the Blue Thumb program as a model, and discuss the benefits of marketing for behavior change and load reduction on private lands. We show that effective water resource social marketing motivates and inspires landowners to implement nutrient reduction practices.

Keywords

Low impact development, LID, education, outreach, social marketing, Blue Thumb, stormwater, BMP, best management practices, water quality, total maximum daily loads, TMDL.

Introduction

Over 70 percent of land area in Minnesota is privately owned and is not directly regulated under the Federal Clean Water Act or State regulations. Accordingly, voluntary and incentive-based programs are critical component of successful load reduction implementation. Voluntary and incentive-based programs require a combination of activities to be successful: planning (guided by sound science), education, technical assistance, financial incentives, and monitoring. Education is identified as an important component of most if not all watershed management planning efforts. It is also identified as an important implementation activity in multiple state plans.

As noted in the *Minnesota's Nonpoint Source Management Program Plan* (MPCA, 2008):

Investment in education must be considered an essential and integral part of every step in the NSMPP. Education cannot be viewed as a minor component.

Further, the *Impaired Waters Research Symposium Final Report* (February, 2008) identifies a need to:

- Develop better methods and tools for engaging citizens in surface water management.
- Assess education needs for each audience and develop tools to meet these needs.

Even with this broad and high level support for water resource education, education tends to be treated as a less important practice than capital improvement projects. This lower level of significance (or respect) also results in inadequate funding. Or if

funding is dedicated, education is often the first activity to be cut when budgets become tighter.

It is easy to speculate about why education is often not recognized as a legitimate “best management practice” even though it is specified as a requirement under many voluntary and regulatory programs. Education is not a structural practice. The impacts of education are hard to measure. Another the issue may be the nature of educators themselves – as they are sometimes disconnected from the engineering and other structural implementation-based activities.

Another consideration about education is it is a very diverse range of activities that tend to build upon each other. Prior to discussing the potential to use education to promote direct load reduction activities, it is important to understand the different categories of water resource education.

Categories of Water Resource Education

General Environmental/Water Resource Education - A learning process that increases people’s knowledge and awareness about the environment and associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action. (UNESCO, Tbilisi Declaration, 1978). Education increase awareness, provides link to deeper learning opportunities, and enhances receptivity to behavior change.

Public Outreach - the process of connecting with a group of people (i.e. Woodbury residents or Spanish speaking people). Outreach does not always have a strong informational component as its primary goal is to build relationships.

Public Involvement - Obtaining public input to meet specific legal requirements - generally part of a planning or ongoing permit review process.

Public Participation – programs that involve the public in specific activities in which the government entity plans and organizes the activity and the public merely participates. Public participation can be a component of or a stepping stone to civic engagement.

Civic Engagement – Activities that develop the combination of knowledge, skills, values, and motivation of the public to take a leadership role in promotion of water quality goals. Civic engagement promotes a ‘grass roots’ approach to getting the public involved in contrast with “public involvement” where government seeks the public’s input.

Commercial Advertising - Commercial styled approaches to increase name recognition, build awareness, and connect on an emotional level to create receptivity to social marketing and promote civic engagement. Can be used to drive the audience

to a source for more information like a website.

Social Marketing - Targeted activities designed for a specific audience to elicit behavior change (such as land use practices that reduce pollutant loads). To be most effective, social marketing is designed to connect with broader awareness building (through education outreach, and advertising). Social marketing recognizes that initiatives are most successful at changing behavior when they are at the community level and involve direct contact with people. Social marketing is also most effective when it provides incentives and removes barriers.

Training/Workshops - Trainings on water quality and how to implement management practices. Can be designed for varying audience knowledge levels. Can be used as a technique to create receptivity to behavior change or may precipitate behavior change.

Technical Assistance - Individual assistance designed to support design, implementation, and maintenance of management practices. Also serves as one-on-one education and training (e.g. site visits with landowners). Technical assistance offerings must be paired with public education and outreach, commercial marketing, and social marketing approaches to motivate individuals to seek available assistance.

Collaborative Education Efforts and the East Metro Water Resource Education Program

As noted above, education is a requirement of multiple regulatory programs. Of particular significance are the education requirements in the Federal Clean Water Act (CWA) National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit. The MS4 program requires implementation of six minimum control measures for municipalities and other entities that exceed permit thresholds (e.g. population > 10,000). All six of these minimum control measures have an education component.

To avoid duplication of effort between neighboring communities and promote a more watershed-based approach to MS4 education, municipalities and watershed organizations in Washington County, Minnesota formed the East Metro Water Resource Education Program (EMWREP) to fund a full-time educator and develop a comprehensive water resource education and outreach program for the east metro area of St. Paul, MN. Members include seven watershed organizations, two county organizations, and seven municipalities. In addition to meeting MS4 permit requirements, the goal of EMWREP is to reduce non-point source water pollution from storm water runoff and illicit discharges by educating citizens, municipal staff and officials, developers and businesses.

Water Resources in the EMWREP Region: Bound by the St. Croix River on the east and the Mississippi River on the south, the EMWREP region contains seventy major lakes, five designated trout streams, and many ponds, marshes and wetlands.

The overall surface water quality in the EMWREP region is high, compared with parts of the metro area. Eight of the ten best lakes for water clarity in the metro area are in Washington County, and the St. Croix River is designated as a National Scenic and Recreational River. Water resources in the EMWREP region are susceptible to pollution however, especially as the population in the area continues to grow. Approximately 40% of the lakes within the EMWREP region, as well as several streams and the Mississippi and St. Croix Rivers, are listed as impaired. Some of the more common water pollution problems include excess nutrients, dissolved and suspended sediments and mercury contamination.

Very soon after forming in 2006, the EMWREP Water Resource Education Plan was prepared. The plan identified target audiences and multiple approaches to achieving program goals. One unique component of the plan is to use social marketing approaches to achieve desired behavior change and load reduction goals.

Water Resource Social Marketing as a Pollutant Load Reduction Strategy

In recent years there has been a significant effort in Minnesota to develop targeted educational approaches that result in measurable outcomes. This measurable outcome is pollutant load reductions. As social marketing is designed to change behavior, this approach was selected for development of a new education campaign in Washington County, Minnesota by the EMWREP.

Water resource social marketing describes a method of public education designed to produce environmentally beneficial behavior change. This new strategy for public education was developed in response to research indicating that the majority of regulatory and information campaigns were ineffective at changing the behavior of their target audiences. Recent efforts in Washington County, Minnesota have shown that targeted social marketing approaches do result in broader implementation of behaviors that have measurable water quality benefits.

Social marketing science teaches that the barriers to change must be addressed before behaviors will be modified. Social norms, technical expertise, time, and financial limitations are the primary barriers for changing practices for water quality improvement (EMWREP, 2008). Soil and Water Conservation Districts (SWCD) and other agencies frequently offer technical and financial assistance to promote land conservation practices. However, voluntary implementation on a broad scale requires effective advertising and marketing to generate interest, increase demand, and change social norms. It is readily apparent that broad-scale implementation will be necessary to achieve the 20%/100 Ton load reduction goal. In other words, intensive marketing is needed to drive demand for clean water.

Social Marketing Strategies

To encourage behavior change among target audiences, the EMWREP utilized a community-based social marketing strategy developed by Doug McKenzie-Mohr and

William Smith in combination with the “Seven Doors Strategy,” developed by Les Robinson. McKenzie-Mohr and Smith outline several components of a successful behavioral change campaign, which they differentiate from a traditional marketing campaign by the fact that the education and marketing occurs at a much more personal level. The social marketing strategies they recommend begin with an in-depth needs assessment, including literature review, qualitative research, and surveys, aimed at identifying needs and barriers in the target audiences. Program activities are then designed to meet audience needs by soliciting individual commitments to behavior change, creating prompts to remind individuals of desired behaviors, building community norms, delivering effective messages, providing incentives for behavior change and removing external barriers.

Robinson’s “Seven Doors” model provides another layer for the social marketing campaign, by outlining the actions needed to take a target audience from knowledge acquisition to behavior change. The seven components of his strategy, as shown below, are knowledge, desire, skills, optimism, facilitation, stimulation and reinforcement. The final outcome is a desired behavior change.



The rationale for using social marketing strategies in environmental education is that people are not always motivated to change their behavior simply because they become more knowledgeable about a particular environmental issue. Any number of barriers can prevent people from adopting model environmental behaviors, including lack of skills, money and time constraints, or simply apathy. The seven doors model allows educators to identify which elements in the behavioral change cycle are already being fulfilled, so that they can concentrate resources on the gaps.

1. Knowledge. The first step in Robinson’s social marketing campaign is to raise knowledge and awareness of an issue among the target audience. Before people are willing to change their behavior, they must be aware that there is a problem and that there is a practical alternative they can choose to correct the problem. For example, before deciding to build a raingarden in the front yard, people need to first know that storm water runoff pollutes water resources and that raingardens can limit some of that polluting runoff. It also helps to know that raingardens can benefit homeowners too, by providing an attractive landscaping component and by preventing their yards from becoming swamps.

2. Desire. The second step in the seven doors model is to create desire for change among the audience. Les Robinson describes this desire as the ability to “visualize a different, desirable, future.” Advertisers for cars often use images of beautiful women cruising along Pacific coastlines to help harness the viewers’ imaginations. In much the same way, a successful environmental education program should enable people to imagine themselves in a different future – healthier, safer or more enjoyable.
3. Skills. After developing the awareness and desire to change, an educational program must provide its audience with the skills to change. In the example of building a raingarden, people will want to know how to build a garden, where to put it and what kinds of plants to use. This can be achieved by holding workshops or demonstrations or by creating a detailed and illustrated brochure.
4. Optimism. The next step in the social marketing cycle is to create optimism that behavioral change will produce environmental change. Environmental educators often face the challenge of convincing the public that individual actions will have an impact on overwhelming problems such as global warming, deforestation or species extinction. Yet, in the case of non-point source water pollution, it is collective individual actions that cause (or hopefully solve) the problem. To create optimism, an educator can present people with data detailing exactly how much impact their action will make and enlist the participation of many people so that one individual’s actions become part of a larger change movement. One raingarden may prevent 9000 gallons of storm water from entering the local river, but ten could prevent 90,000 gallons of polluted water!
5. Facilitation. Even if people are equipped with the knowledge, desire, skills and optimism to change, they will not be able to do so if they are limited by time, money or other constraints. Besides educating the public about an issue, a social marketing campaign should help to facilitate that change. In the case of the raingardens, this might include offering cost-share grants to homeowners or providing technical assistance during construction of the gardens.
6. Stimulation. Stimulation can be either negative or positive. It is well known that people are spurred to action by crises and catastrophes such as forest fires or floods. While these events are obviously not desirable, an education campaign can tap into the collective energy they produce. After a major flood, for example, people in town may be more likely to build raingardens and stabilize shoreline property to prevent future flooding. In the absence of a crisis, a social marketing campaign can use a special event or public meeting to harness people’s community spirit.
7. Feedback and reinforcement. The final step in the seven doors strategy is to provide people with feedback and reinforcement for their behavior change. This may mean staying in contact with a resident who has recently built a raingarden to

trouble-shoot problems that arise after installation or even connecting that person with a volunteer group that organizes stream clean-ups in the area.

Each program component included in the EMWREP is designed to make use of community based social marketing strategy and the “Seven Steps” model. Additionally, each program includes a formative and summative evaluation process. Following the Logic Model (created by UW Extension), educational goals are described and evaluated as short term learning goals, medium-term behavior change goals and long-term water quality improvement goals. Programmatic (program development) goals are also included.

Currently, the primary social marketing approach used by the EMREP is known as the Blue Thumb program.

Blue Thumb as a Model for Social Marketing, Behavior Change, and Project Implementation

The Blue Thumb – Planting for Clean Water program (www.BlueThumb.org) began as an outreach program to help residents do their part to protect water resources and to help cities meet federal Clean Water Act mandates. In less than two years, the program has grown into a dynamic coalition of more than 50 partner organizations working together to raise awareness about stormwater pollution and encourage homeowners to plant native gardens, raingardens and shoreline projects to protect surface and groundwater resources.

The Blue Thumb Program follows many social marketing strategies and helps the general public plant native gardens, raingardens and shoreline plantings to improve water quality. The goal of the Blue Thumb program is to address many of the barriers that currently prevent people from “planting for clean water.” The Blue Thumb message is carefully crafted to effectively reach its target audience. The program also leverages incentives to motivate people to act. Many partners in the Blue Thumb Program offer cost-share grants for water quality projects. Many also offer free home site visits (i.e. technical assistance) to help people choose the best landscaping options.

The EMWREP is using Blue Thumb neighborhood parties as a strategy to change social norms. The program is also strategically used to target implementation of Best Management Practices (BMPs) in priority neighborhoods. As is noted below, there is a direct relationship between Blue Thumb outreach and implementation of practices. This results in documented pollutant load reductions.

Blue Thumb Outcomes

Four pilot Blue Thumb house parties were held in 2007, one of which resulted in 22 raingardens. Twenty-two raingardens equates to approximately 11 pounds of

Phosphorus reduction, which is directly attributed to the marketing, technical assistance, and incentives provided. Effective marketing reduces pollutant loads.

The following year a slightly different approach was taken. EMWREP hosted two larger raingarden design courses for homeowners in 2008. The two workshops, held in Mahtomedi and St. Paul Park, attracted 87 attendees. In addition, four Blue Thumb neighborhood parties were held in Mahtomedi, Stillwater and Woodbury, the EMWREP educator presented at several community events, and partners sponsored one of 16 Blue Thumb billboards in the metro area during April and May. Approximately 55 new retrofit projects resulted from these outreach activities.

In 2009, the following activities were held:

- 9 Blue Thumb workshops – almost 200 total participants
- Outreach at dozens of local community events
- Blue Thumb parties and homeowner association presentations for several target neighborhoods
- 80 residential retrofit projects
- Estimated load reduction of 30-40 pounds of phosphorus

Since 2006, EMWREP program partners have installed 153 projects, (55 in 2008 and 80 in 2009). This marked increase in water quality improvement projects is largely a result of Blue Thumb outreach and associated technical assistance and cost-share.

Water-quality Improvement

Data from the 2008 season were evaluated to assess load reduction benefits of the projects resulting from the Blue Thumb outreach efforts. As noted above, program partners installed 55 BMP projects at private and municipal properties.

The following pollutant load reductions were observed for targeted watersheds:

Brown's Creek Watershed:

376 pounds per year - total suspended sediments

6 pounds per year – total phosphorus

11.5 pounds per year – total nitrogen

Middle St. Croix Watershed:

224 pounds per year – total suspended sediments

2.5 pounds per year – total phosphorus

6.5 pounds per year – total nitrogen

South Washington Watershed:

290 pounds per year - total suspended sediments

4.25 pounds per year – total phosphorus

8.75 pounds per year – total nitrogen

Valley Branch Watershed:

5131 pounds per year – total suspended sediments

31 pounds per year – total phosphorus

89 pounds per year – total nitrogen

Conclusions

As TMDLs and other pollutant load reduction programs are implemented, new and more effective approaches to reduce loads from existing developed areas will be needed. The Blue Thumb program applies social marketing approaches to motivate and excite private landowners about what they can do to “plant for clean water.” Since 2006, the program has documented broad adoption of conservation practices in areas where marketing has been focused. This has resulted in significant pollutant load reductions in priority subwatersheds to meet TMDL and other water quality goals.

As with any successful surface water quality improvement program, all barriers to implementation must be addressed. By combining focused community based social marketing with technical assistance and financial incentives, pollutant loads from existing residential areas can significantly reduced. By combining these voluntary load reductions on private lands with municipal capitol improvements and operations, significant progress toward overall water quality goals can be observed.

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