WASHINGTON STATE
DEPARTMENT OF
ECOLOGY

Beyond Waste Issue Paper

Education and Technical Assistance

September 2003
Publication No. 03-04-045

This report is available on the Department of Ecology's website at:

http://www.ecy.wa.gov/biblio/0304045.html

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Education and Technical Assistance

Getting "Beyond Waste"

The Department of Ecology (Ecology) has embarked on a project to update the statewide solid and hazardous waste management plans. The aim of the Beyond Waste Project is to guide Washington in a new direction away from simply managing wastes and toward preventing wastes from being generated in the first place. The vision statement for Ecology's Beyond Waste Project is, ***"We can transition to a society that views waste as an inefficient use of resources and believes that many wastes can be eliminated. Eliminating wastes will contribute to social, economic, and environmental vitality."***

This is one of eight issue papers prepared by Ecology staff to help in the development of strategic plans to move Washington in a new direction, a direction that will take us beyond waste.

Education and Technical Assistance Goal: If we develop and implement education and technical assistance activities using a community based social marketing model,* we will be effective in fostering positive behavior change. This will result in a population in which the majority are environmentally well informed, are self-motivated (as opposed to being motivated by regulations), share the overall "Beyond Waste" vision and engage in sustainable behavior.

**A community based social marketing approach involves: identifying barriers to sustainable behavior, designing a strategy that utilizes carefully chosen behavior change tools, piloting the strategy with a small segment of a community, and finally, evaluating the impact of the program once it has been implemented across a community.*

This issue paper describes and recommends education and technical assistance approaches. Recommendations are made on the best theories or models that the Hazardous Waste and Toxics Reduction (HWTR) and Solid Waste and Financial Assistance (SWFA) Programs can use in developing specific activities. Guidelines are provided for learning methods that would be the most effective and on measuring the success of education and technical assistance efforts.

This paper attempts to address the following questions using the framework of educational/learning models and theories:

- What's working in current education and technical assistance efforts?
- What can Ecology do better?
- What changes are needed in this area to move towards our vision?
- How can we get there?

Limits of this Paper

This work is limited to considering different approaches to developing and implementing education and technical assistance activities. The recommendations focus on which model or pieces of different models should be employed by staff members in developing education and technical assistance projects. No specific campaigns or activities are recommended.

The education areas include elementary schools, moderate-risk waste generators (households and small-quantity generators), colleges, consumers and state/local government. Businesses are another important audience for education activities, though the term often used when describing the education Ecology provides to businesses is *technical assistance.*

Environmental education has been defined as a learning process that increases people's knowledge and awareness about the environment and associated challenges, that develops in people the necessary skills and expertise to address environmental challenges, and that fosters in people attitudes, motivations and commitments to make informed decisions to take responsible action (UNESCO, Tbilisi Declaration, 1978).

The HWTR Program characterizes technical assistance as those activities that promote sound environmental practices. The technical assistance staff members provide information to businesses and other entities, such as public agencies, to help them to improve their methods, to apply new technologies, to comply with the *Dangerous Waste Regulations* and to conduct their activities in a manner that protects human health and the environment.

Technical assistance is provided through various methods, including site visits, meetings and training events, industry-specific assistance and publications. The essential aspect is that technical assistance staff members find effective ways to make contact with people and facilitate the exchange of information that promotes compliance and pollution prevention. Technical assistance tends to be geared to technology, engineering, and regulation interpretation.

This paper does not include any recommendations concerning public involvement, although it should be recognized that there are elements of education and technical assistance included in public involvement activities.

The focus of this paper is on the HWTR and SWFA Programs' education and technical assistance efforts, keeping in mind that there will likely be opportunities to partner with other agencies and organizations.

Assumptions

In order for the HWTR Program's education and technical assistance efforts to be effective (help us move toward the Beyond Waste Vision):

- They need to cover a wide range of audiences, but be developed differently for each type of audience to respond to their views, needs and motivators.
- There will need to be a resource commitment and financial support from management to conduct education and technical assistance efforts.
- Evaluation needs to be included as a critical element in all education and technical assistance activities.
- The elementary school audience needs to be addressed. It is a key to success.

Current Trends

Oftentimes, education and technical assistance activities are the first to get cut from the budget –this is evident in the reduction in the numbers of Environmental Education and Outreach Specialist (EEOS) positions and environmental-education activities throughout Ecology.

Right now, education and technical assistance activities in the HWTR Program are often conducted without adequate planning or evaluation. The program has some quantitative information on many activities, but most times behavior changes or the environmental benefits that result from technical assistance and education activities are not assessed. Often, the HWTR Program does what is familiar without evaluating actual barriers to environmentally protective behavior and/or what would motivate people to do the desired behavior.

It is difficult to correlate our activities with actual results, but nevertheless, it is very important to evaluate projects for a number of reasons. In their book *Fostering Sustainable Behavior*, Doug McKenzie-Mohr and William Smith discuss the following thoughts on evaluations:

- "It is important to provide the community with feedback regarding the impact that their changes in behavior have upon the environment. In other words, an element of a successful community-based social marketing strategy is providing feedback that reinforces the changes that people have made."

- "Program evaluation provides evidence of concrete results, which is most convincing to funders that a campaign is worth continued support."

- "Evaluations should focus on behavior change rather than awareness of marketing messages, because, even though it is useful to examine people's perceptions and attitudes, these are not substitutes for examining actual changes in behavior."

- "To be certain that it is your intervention that is bringing about the changes you observe, always include a control group to which nothing is done."

Lack of evaluation may be one of the reasons that education and technical assistance activities are often some of the first to go when there are budget cuts in the agency.

Another trend that is emerging in this area is the focus on outcome-based measurements. For example, currently the SWFA Program is working to implement recommendations from the Joint Legislative Action Review Committee that directed Ecology to develop a grant system based on investment principles. The question they would like answered is "what will the return be on grants?" For Coordinated Prevention Grants (CPG), returns are benefits for the environment. In the past, the assessment of a recycling project's worth was the output or actions measured by how many events occurred or the number of recycling bins provided, etc. Currently, the program is focused on outcomes – the results of actions – measured by the reactions of the public to the materials presented at the event or how many more pounds of recyclables are being dropped off at the transfer station, etc.

A powerful piece of the system is flexibility. If one approach is not working, another approach can be developed, without changing the intent, and therefore, the content of the grant. A downside to this is that education programs are difficult to measure in terms of outcome. It is difficult to determine if the activities actually result in behavior change. Behavior changes are more likely to happen over time and are not usually apparent by the next grant cycle.

There is also a movement away from Ecology doing direct education, to Ecology giving grants to local governments and non-profit organizations to conduct these activities. Up until 1995, Ecology's Waste Reduction, Recycling and Litter Control Program received funding from a .1% tax on tipping fees (the Solid Waste Management Account). This money was used to support education and outreach activities. Ecology's staff developed education materials, produced and conducted trainings for the *A-Way with Waste* K-12 curriculum, and spoke at public events. Local governments used Ecology as a clearinghouse and funding source for local education and outreach programs.

Since 1995, when the Solid Waste Management Account "sunset," Ecology's SWFA Program education efforts have been limited to providing funding for local governments and non-profits to conduct education and outreach. For the grant cycle of 2002-2003, the SWFA Program's CPG fund totaled $17.5 million. The Public Participation Grants (PPG) fund totaled $700,000, half of which funded Waste Management Priorities Implementation projects.

What's Working Well

There are a number of successful education and technical assistance activities in the HWTR Program and Ecology. Examples include the Technical Resources for Engineering Efficiency (TREE) team, single industry campaigns and the Lake Whatcom Watershed Residential Pledge Program.

- **Technical Resources for Engineering Efficiency (TREE):** The TREE team is a group of Ecology engineers with expertise in industrial processes and pollution prevention. The team works in partnership with select businesses to help them reduce waste, increase efficiency and save money. Recent TREE successes include: reducing water and wastewater use by 75% and reducing hazardous waste production by 100,000 lbs/yr at Industrial Plating, and reducing daily water consumption by 100,000 gallons and saving approximately $10,000 annually for Basin Frozen Foods.

- **Single Industry Campaigns:** Although no longer conducted in the program, Single Industry Campaigns are a good example of how evaluations can measure actual behavior change.

  Done in partnership with a selected industry, the campaigns consisted of numerous on-site visits that were short, basic and to the point, and included dissemination of easy-to-read educational materials designed specifically for the industry.

  - Shop Sweeps - 1992 to 1994: The HWTR Program conducted its first single industry campaign in partnership with 12 major automotive-related associations in the state. During the campaign, 1,700 automotive repair shops were visited. Through these on-site visits Ecology was able to make recommendations with direct benefits to the environment by, for example, ensuring that hazardous waste was managed properly and not disposed into the sewer or storm drain.

    Results:

    Based on re-visits to a random statewide sample of 5% of the 1,700 shops visited:
    82% of auto repair shops complied with at least one of the Shop Sweep recommendations.

    61% of all of the Shop Sweep recommendations had been complied with by the shops.

  - Snap Shots - 1994 to 1996: The HWTR Program's second single industry campaign was done in partnership with the lithographic printing, screen-printing and photo processing industries. A total of 1,400 business visits were accomplished.

    Results:

    90% of the print shops complied, or partially complied, with at least one recommendation made by staff.

    76% of <u>all</u> recommendations were either complied with or partially complied with.

- School Sweeps - 1995 to 1997: The School Sweeps campaign was similar to a single industry campaign, but in School Sweeps staff worked on-site with the state's 34 technical and community colleges. The project focused on promoting pollution prevention techniques, fostering safe waste management, assisting schools with pollution prevention and hazardous waste regulation compliance improvements and documenting progress. Staff also developed environmental curricula, called "competencies," for a variety of specialty areas, such as woodworking and auto repair.

  Results:

  87% of all compliance-related items were corrected or in the process of being corrected by the time of the second visit one year later.

  75% of the suggested best management practices were implemented or in the process of being implemented by the time of the second visit.

  Of the almost 200 issues related to disposal practices on campuses, 159 (82%) incidences where wastes were being improperly disposed were corrected.

  Six colleges complied with and implemented 100% of the suggestions in the summary Campus Report.

  Overall, the colleges showed an average rate of 80% environmental improvement - defined as implementation of the required changes, suggested best management practices, and the determination of whether the waste was being handled properly.

- **Lake Whatcom Watershed Residential Pledge Program:** In the spring of 1999, Ecology contracted with Applied Research Northwest to evaluate the effectiveness of the Lake Whatcom Watershed Residential Pledge Program, which had been implemented the previous year. The major strategies used in the Pledge Program were to expose residents to scientific information concerning impacts on the watershed, describe alternatives to reduce negative impacts, and to invite formal commitment to reduce impacts by taking the "pledge." Taking the pledge meant residents chose to eliminate or reduce specific behaviors of their own that are known to have a negative impact on water quality. For the evaluation, three hundred homeowners residing in the Lake Whatcom Watershed were surveyed during June and July of 1999. The survey measured homeowner's recall of their behaviors during the summer prior to the launch of the Watershed Pledge Program, how much they had changed their behavior since that time, and how much exposure to the program they recalled. A sample of households who took the pledge was included in the same survey.

Findings showed a great deal of change toward desired behaviors. For example, 48% of respondents who had used fertilizer in the past reported using less fertilizer, and 49% of those who had used herbicides in the past reported using fewer herbicides. Overall,

with nine possible behaviors to change, fewer than 20% of those surveyed said they had not changed any behaviors, while 23% reported changing four or more. The rest, approximately 57%, changed one to three behaviors.

Status Quo Over Time

If we do not change our current course, Ecology's best estimate is that in five to ten years along with a population increase, the number of businesses will increase and the amount of hazardous substances used and hazardous waste generated will increase.

If education and technical assistance resources do not increase correspondingly, then we will very likely have more hazardous waste compliance problems. This was reflected in the results of the EPA Office of Enforcement and Compliance Assurance (OECA) funded project entitled "Analysis of Change in Generator Compliance Using Regulatory Compliance Indicators." [The summary report of the project (Ecology publication # 02-04-014) can be found at http://www.ecy.wa.gov/biblio/0204014]

The data gathered in the project strongly suggest that the positive effects of compliance inspections of Large Quantity Generators and Medium Quantity Generators tend to wear off over time. When there was more than five years between inspections, non-compliance with hazardous waste regulations became more pronounced and the potential for environmental impact appeared to increase.

Another tool that is critical to education and technical assistance is evaluations. Evaluations are important because they give us a better-than-anecdotal impression of our performance and progress. If nothing changes, though, we will continue to lack sufficient resources to do adequate evaluations. Ecology will lack the clarity on where we need to make improvements and adjustments. Ecology will also be unable to prove our education and technical assistance successes, which would, of course, detrimentally impact our management support and funding for these efforts.

Challenges

We are faced with barriers that inhibit progress toward our goals. These include:

- Although there is general agreement that education and technical assistance is valuable in helping the HWTR Program to meet the agency's mission, it is often not regarded as an essential function. So, when resources become scarce, education and technical assistance activities are among the first to be reduced.

- Evaluations that actually measure behavior change are expensive. However, not everyone understands that the results of a properly conducted evaluation, especially at the pilot stage, can save money in the long run. In addition, making the connections between activities and results is difficult through the evaluation process.

- Environmental education at the K-12 level is a key. However, it is difficult to get into the schools because there is so much competition for teachers' time. Also, there is a perception by some people that environmental education is just a front for environmental advocacy.

- Ecology is competing for our audiences' time and attention with the many other conflicting messages from the media and corporations.

- If the HWTR Program continues to focus on waste, we'll miss the boat. For example, approximately 70-80% of PBTs (persistent, bioaccumulative, and toxic chemicals) leave a manufacturing facility in the product, not as waste.

- Effective education and technical assistance can be people-intensive.

- There is a tendency to do things the way we've always done them.

- It is easy to make incorrect assumptions on what works, what doesn't, and what the barriers are or what benefits to expect. As a result, the education and technical assistance programs employed may not be geared to our audience's needs, attitudes and behaviors. Because of this, education and technical assistance messages may not be effectively delivered.

- Much of the education may be better done at the local level – Ecology's role may be in educating or supporting local government on how to develop and implement effective programs.

Information for this Paper

Ecology documents, contacts with local government staff, and training materials on Community Based Social Marketing were used to compile information for this paper.

Steps Toward Success

Technical Assistance

In the realm of technical assistance to business, in order to move toward our preferred future, we need to maximize our face-to-face contact with businesses. This has been and continues to be the most effective way of getting our message across and facilitating positive behavior change. We should also incorporate elements of the Community Based Social Marketing model into this in-person approach. The Community Based Social Marketing model involves identifying barriers to a sustainable behavior, designing a strategy that utilizes carefully chosen behavior change tools, piloting the strategy with a small segment of a community, and finally, evaluating the impact of the program once it has been implemented across a community.

In the short-term (one to five years), Ecology's interactions with business will continue to be focused on compliance with the *Dangerous Waste Regulations* and advice on technology-based pollution prevention. In the longer–term, Ecology will need to shift our focus to working with businesses on more sustainability-related topics. These will parallel the changes in statutes, regulations, and policies implementing the Beyond Waste Vision.

Public Education

Much of the public education on solid and hazardous waste is currently done at the local level. Ecology provides funding for a portion of these efforts through the Coordinated Prevention Grants (CPG).

A CPG revision workgroup (comprised of local government and Ecology staff) has been assembled to revise the CPG program so that it meets two sets of requirements; incorporating the Joint Legislative Action Review Committee (JLARC) expectations of an investment-based program and meeting the needs of local governments. The workgroup began meeting in August 2002 and will continue until at least January 2003. The workgroup decisions will be incorporated into CPG guidelines in early 2003. The draft guidelines will be sent to recipients for review. The formal rule change will follow the guidelines revision in 2003.

The decisions that come from the workgroup could have a profound effect on how the CPG program is conducted, or the result might be minimal changes only. In either case, since the JLARC's recommendation that environmental outcomes need to be identified for each grant-funded project now in statute, we will see a change in this aspect of the program.

These changes will potentially affect what types of projects local governments apply for and what types of projects are funded.

Ideally, there will be a connection between the projects that local governments propose and the priorities that are established through the Beyond Waste effort.

Regardless of what types of projects local governments conduct with their CPG money, there will be a need for Ecology to provide training on outcome-based project planning. Again, an excellent model to achieve this end is the Community Based Social Marketing model. Both local staff and Ecology staff should be well versed in this model and similar ones. Training should occur in the next 1 to 2 years, with additional trainings after that as needed due to changes in staffing.

In addition, in the next 1 to 2 years, Ecology should conduct a comprehensive survey of local government staff to determine what they would like Ecology's role to be in terms of support and training. One idea that has emerged from the CPG revision workgroup

is for Ecology to develop and maintain a web-based database that would track all of the waste education efforts conducted by the local governments; whether the activities are CPG-funded or not. This would allow local government staff to get ideas on successful techniques for conducting specific activities and see examples of tools (e.g., pre and post surveys, evaluation forms, etc.) that other counties have used.

K-12 Education Programs

One of the original assumptions for this paper was that the K-12 audience needs to be addressed as a key to our success. However, without a fundamental shift in priorities, both on the part of the schools and the agency, it is unlikely that we will see any statewide curricula developed. Instead, we will probably need to try to reach this age group through other organizations. For example, King County staff is working with the Scouts in their area to provide this type of education.

In Conclusion

Education and technical assistance will be needed to achieve the goals of the initiatives included in the State Hazardous Waste Plan. It is recommended that the education and technical assistance activities be developed using a Community Based Social Marketing approach. In the short-term, technical assistance and education will remain focused on compliance with the *Dangerous Waste Regulations* and pollution prevention. In the longer term, the HWTR Program will shift its focus to working with businesses and the public on more sustainability-related topics. This means surveying local agencies to determine their needs and provide training to local government and others in community based social marketing to provide the foundation for future technical assistance and education efforts.