

Section III

Recommendations for a Pollution Prevention Initiative

Chapter 6: Strategies for University Pollution Prevention

The project team found the University of Michigan primed for pollution prevention initiatives. First, from a cost-avoidance perspective, pollution prevention can, in many instances, reduce outlays by reducing inputs. This is particularly relevant to universities that have instituted cost control measures. It is unlikely that large state universities will soon receive additional financial assistance from hard-pressed government treasuries. Secondly, internal support for reduction efforts may already exist in a variety of institutional offices, departments, and administrative units. These interested people may be waiting for a catalyst able to dedicate the needed energy and time to pollution prevention. Lastly, with the increase in federal environmental legislation, it is likely that pollution prevention measures may become mandatory in the future. In light of this, universities would serve themselves well by taking a pro-active approach to this issue.

The following section, based on our experience at U-M, outlines a methodology which can be used to implement pollution prevention strategies at other institutions. It also suggests several means of increasing the probability of success in the audit and implementation phases. Before we delve into the strategy however, the issues of time management and group process merit special attention.

Time Management

Policy planning is a time-consuming process. Policy-makers and other strategists require time to understand the nature of a problem and the theoretical issues behind it, to draft policy documents, obtain feedback, and garner administrative and other support for their ideas. Because of these time constraints, we suggest that a pollution prevention group, as a set of policy

makers, identify its primary tasks and then allot sufficient time for each activity. After making an initial time-estimate, consider doubling that time to get a clearer idea of the actual time needed. Idealistic time frames are often circumvented by canceled meetings and mismatched schedules. Therefore, to assure timely completion of tasks, it may be best to overestimate time lines.

Group Process

Individuals often choose to work in groups or teams to achieve their goals. This addition of person power can lead to better decision-making and create momentum; however, it is helpful if a few initial ground rules are set so that a group's meetings can proceed smoothly and be constructive.

Meeting Format

At the outset, the group should select some form of meeting format and should produce an agenda to guide each meeting's activities. In addition, a group facilitator should be chosen for each meeting. This individual may be retained for all future meetings, or the group may choose to rotate this position on a meeting-by-meeting basis. In any event, he or she should serve the group by verifying agenda items, moving the group through the agenda, clarifying ambiguous statements, and confirming group decisions.

Meeting Minutes

We also suggest appointing a person to take the minutes of the meetings. It is surprising how quickly agreements which seemed clear at one meeting can become muddled by the time the group assembles again. Timely distribution of minutes via electronic mail or written copy will help assure a common understanding of final decisions and agreed-upon action plans.

Decision-Making

Last, but of equal importance, comes agreement on the decision-making process. Whether the group selects consensus, majority rule, or subcommittee, a stated process will ensure decisions are made in a fair and acceptable manner. All decisions should be communicated swiftly and clearly to the entire group.

Strategy for Pollution Prevention

Project Methodology

The project team advocates using the general planning process model as a template for framing pollution prevention interventions.¹ The primary components of this are:

- Collecting baseline data: Environmental audit
- Establishing goals and objectives
- Generating alternatives
- Evaluating and selecting alternatives
- Implementing projects
- Evaluating implementation

Bear in mind that completing these steps should be viewed as a non-linear and iterative process. An individual need not pass from one step to the next without looking back. As with all action research, your group may find it necessary to repeat an earlier stage. For example, while forming a set of goals for an intervention project, you may find it necessary to go back and collect more in-depth information on solid waste or energy use than was initially anticipated.

Collect Baseline Data: Environmental Audit

Getting Started

As we have documented, conducting a campus-wide audit can provide an array of quantitative and qualitative data. *Examining audits* used at a variety of schools will aid in crafting an audit template best suited to the needs of your institution and will also familiarize your group with key questions and areas of interest. Our document supplies one template of questions in Chapter 2. However, because of the many variables which can affect the data, we advise using caution when making comparisons between institutions. Variables to consider are: rural or urban location, climate, research specializations, acreage, student demographics, faculty, staff, and support systems.

¹Stokey, Edith and Richard Zeckhauser (1978) *A Primer for Policy Analysis* W. W. Norton and Co.: NY and London, pp 5-6.

Having reviewed the available audits, your group should *clarify the scope* of the project. This will shape the depth and breadth of your audit document. Do you want a general "snapshot" of activities at your school or do you already have a specific area of interest on which you wish to focus? For a general overview, one year of data may suit your needs, but if your group is investigating a very specific field, historical data (5-10 years worth of information) would be more helpful. With such data, your group will be able to examine trends over time. Since we wanted to obtain a general overview of the waste streams, we found a one year time line sufficient. We also used a materials balance approach (examining energy and materials at their time of entering and exiting U-M) rather than the much more time-consuming life-cycle approach (tracking all materials and energy used by the U-M from cradle to grave). If your group intends to make continuous use of the audit information, you should consider updating the data periodically.

Once the questions have been formulated, your group should become familiar with the campus' administrative structure and facilities. Organizational charts, generally available in departmental offices, are one way to accomplish this. Such charts can be instrumental in *identifying contact* people. Keep in mind that if you have exhausted campus information sources, alternative sources outside of your institution may have pertinent details which can fill in gaps. These consist of organizations such as: U.S. EPA, state departments of natural resources, county, city, or local planning/government offices, local non-profit environmental organizations, national environmental clearinghouses, and trade organizations.

After identifying contacts, *draft a letter* to the key department heads informing them of the goals of the audit and the project. Include the names of group members and emphasize the importance of the department's help and cooperation with the audit. Soon after mailing the pre-contact letters, call individuals to *arrange for a meeting*. We advise that team members bring along a copy of the work proposal to verify goals and to help contacts become better acquainted with your aims. Follow-up phone calls are generally necessary because university staff have many time commitments and are unlikely to initiate contact with you.

Further comments regarding contacts with university staff and officials are located within the "Cross-Campus Connections" section.

Benefits of Audits

The benefits of audits are manifold. By providing a baseline of data for comparison with future data, they can serve as a tool for measuring reductions in waste generation. An audit may also highlight the strengths and weaknesses in your campus' current environmental management scheme. This type of comprehensive data may be unique at your university; thus, the credibility of your project is likely to increase. Likewise, the audit may aid your group in gaining support from administrators, faculty, students, and staff for the group's future initiatives. Furthermore, audits can assist in forming networks of individuals who are interested or involved in waste reduction. During the information-collection stage, our team members met several people who were instrumental in our pollution prevention projects. Hank Baier at OSEH, for example, was a key player in the Chemical Tracking Project.

Other qualitative benefits include the identification of politically sensitive areas that your group may wish to avoid at this early stage. For example, during the summer of our audit, the University Hospital was under investigation regarding its materials' handling practices. Because the Hospital was under scrutiny by the Michigan OSEH, we believed that this area would be better left for future groups' work.

Lastly, and perhaps most importantly, audits can also serve as a means of fostering public involvement. While collecting data, team members can educate staff about pollution prevention. They can also gauge the level of interest or enthusiasm for different source reduction projects.

Barriers to Audits

Two major obstacles hindered our data collection team: decentralization and scheduling difficulties. Because of the decentralized nature of large research universities, it is occasionally difficult to identify the person who holds critical information. In light of this, audit team members may have to make several phone calls before reaching the needed person. Also, as stated earlier, staff members have many other time commitments and you should therefore make your schedule flexible in order to obtain the needed information. Our suggestions on "Getting Started" and "Cross-Campus Connections" address these potential problems.

Establish Goals and Objectives

After becoming familiar with the current environmental status of your university, you are now equipped to set a series of goals and objectives for your pollution prevention project.

Advice on goal-setting may seem rather obvious. However, many projects proceed with only the vaguest of objectives—"reduce waste," or "increase recycling." Without more specific goals the group may lose direction. It will also lack a standard against which to evaluate success.

Although a group may have started an audit with some general ideas regarding goals, these goals may be further refined once the audit has been conducted. As with audit data, goals may be quantitative or qualitative. For example, if your group is one of the first to initiate source reduction opportunities at your institution, you may wish to choose sweeping goals, such as establishing a structure within which pollution prevention can occur. Both the Chemical Tracking and Business School Projects worked at this level. Chemical tracking endeavored to establish a system through which chemicals can be monitored and eventually shared to achieve a reduction. The Business School group coordinated efforts to institutionalize a decision-making mechanism—the "Green Team"—which can initiate pollution prevention strategies at the School. Once such goals have been set, they often generate sub goals or objectives. Having decided to form the Green Team at the Business School, we then had to find ways to increase community awareness of the project and generate support.

Once a general framework for pollution prevention has been established, smaller, project-level goals can be pursued. Quantification is important at this juncture to interpret the data and determine which waste streams are significant. Because so many variables, such as record-keeping, new demands on energy use, or a change in technology, can all affect the data, quantification is a complex undertaking. Nevertheless, you can obtain guidance in interpreting the audit figures by contacting trade associations or people on campus with expertise in given media (i.e., air, water, solid waste).

Generate Alternatives

Team members now need to generate alternative projects or programs that could potentially achieve the team's major goals. This process involves a combination of idealism and common sense. Potential interventions can

range from behavioral, administrative and operational change to design and curriculum innovations. Many methods exist for generating project options such as brainstorming, consulting experts, and survey research.

Evaluation and Selection of Alternatives

Qualitative Evaluation

Once the group has generated a list of pollution prevention opportunities, it must develop a method for selecting a particular focus (for suggestions of specific projects to consider, see Appendix XIII). Again, qualitative and quantitative analyses can be applied. Quantitative analyses have much to offer and, by highlighting benefits, impacts, and financial considerations, can assist in drawing out distinctions between options.² Such analyses are particularly useful when a group has large amounts of numerical data to interpret or has chosen to focus on a relatively small project. They are also useful in monitoring expected growth, assessing the toxicity of a waste stream, or comparing the size of one waste stream to others.

In our project, however, we found that qualitative criteria played a more influential role. Our qualitative criteria included such questions as: How replicable is this project? What will be its impact the University's image? Is it highly visible? Does administrative support exist for this project? What is the level of staff, student and faculty interest? How available is information? Does momentum already exist for a project?

As mentioned in Chapter 5, the Chemical Tracking group selected its domain through a combination of quantitative data (the size of the waste stream) and qualitative data (level of support from contacts in OSEH and the Chemistry Department, and the need and interest in chemical source reduction, as indicated by an earlier study). Conversely, your group may want to avoid a potential project if it will take five years to implement and no one within the university is willing to assume long-term responsibility for it.

Implementation of Projects

Implementation is generally considered the most difficult stage of policy planning because few projects make the transition from document to reality. While financial constraints can certainly create a barrier to project implementation, the most pervasive barrier to successful implementation is

²Stokey, Edith and Richard Zeckhauser (1978) *A Primer for Policy Analysis* W. W. Norton and Co.: NY and London. pp 5-6.

a human one. Not only must higher-level administrators support the concept and design—faculty, student, and, very importantly, staff support must also be garnered. Our discussions of “Cross-Campus Connections” and “Publicity” highlight methods for generating enthusiasm for your project thereby reducing these human constraints.

Evaluation of Implementation

The last phase in this iterative process is the group’s evaluation of the intervention’s success. This provides an opportunity to examine how source reduction works in practice as opposed to theory, and will allow you to fine-tune the process and improve upon weak areas. Depending on your choice of projects, your evaluation could add to your understanding of the sociological and behavioral interactions responsible for waste generation patterns. Alternatively, if you had instituted a recycling program with a reward system, your evaluation could shed light on the effects of economic incentives on source reduction.

Recommendations for Successful Audits and Intervention Projects

Cross-Campus Connections

Many resources already exist on campus that can facilitate pollution prevention initiatives. Once team members tap into these resources and make associations with members of the university community, conducting audits and implementing projects will be much easier. On the whole, university students are perceived as a transient population, one which enters the community for a few years and then leaves without planting any roots within the community. Consequently, it would be to your group’s advantage to impress upon your contacts that you have a stake in the future of the university and its environs. Further, during your interactions with the university community, it is critical that team members are perceived as working in cooperation with the university, not against it.

Working with University Staff

In a large university, it is likely that each department with which you are working will vary in its individual “culture.” As when traveling to a foreign country, we suggest assimilating, at least temporarily, into that culture. This demonstrates, through visual and verbal cues, a level of respect

for that culture. It also serves to avoid negative stereotyping which can undermine your group's credibility.

When preparing for meetings with university staff, it is helpful to conduct some basic research before the appointment to familiarize yourself with the department and its major responsibilities. Your team may want to send questions in advance to the people with whom you are meeting. Whether you choose this route or not, be able to succinctly and clearly state your goals, their relevance to the university, and the specific information you are seeking. Before leaving the meeting, clarify any potentially confusing information so as to avoid the need for re-scheduling. Finally, follow-up with an acknowledgement, either through a thank-you letter or by electronic mail.

Gaining familiarity with new terminology may seem, at times, like learning a foreign language. However, it is the nature of disciplines to develop "jargon" to express complex concepts. Unfortunately, this verbal shorthand can lead to misunderstandings because of the varying connotations of a word or words. As the Business School team was developing the Greening plan, members suggested a "low-impact" approach. Although this has positive connotations within environmental circles, the business community prefers "high-impact" concepts, because that term indicates that people will pay attention to a product or service and that its effects are important and far-reaching. If group members are confronted with unfamiliar vocabulary, be up front and ask for clarification immediately instead of feigning understanding. This false front can lead to problems in the future.

Finally, set out to create a collaborative problem-solving relationship with staff, rather than casting them as adversaries. Environmentalists have traditionally been painted as confrontational; however, as concern for the environment becomes more widespread, it is best to first assume that people will be on your side.

Higher Level Administrators

Support from high-level administrators such as provosts, deans, or directors will help ensure the success of any campus-wide or unit-wide project. Because these administrators often have less time to dedicate to tasks than other staff, be sure to spend your scheduled time with them efficiently. Once again, be able to concisely state your purpose and goals, and then bring people up to date on the progress of your project. Finally, if possible, try to

illustrate how your project goals converge with administrators' own interests and overall mission.

When working with top administrators, it is critical that your group process not deteriorate. Some group members may feel intimidated in the presence of university administrators and, as a result, feel uncomfortable airing their concerns. If this occurs, poorer decisions are likely to be made. In light of this, it is worthwhile to reiterate that during all meetings, group members should feel free to express their concerns regarding any and all suggestions, regardless of who espoused them.

Once your group has verbal or written support, financial support will also be necessary. Creating a line-item in a department's budget, dedicated to your project efforts, will help ensure that your efforts are taken seriously. Disbursements will undoubtedly be returned in the form of savings from waste reductions. As the cliché goes: "Put your money where your mouth is." When the University of Michigan became convinced that recycling was an effort worth pursuing, it hired a coordinator to head its recycling efforts. Similarly, money can be used to support pollution prevention initiatives.

For our two major projects, gaining verbal support has been relatively easy. Establishing internal momentum, however, has posed a greater challenge; this requires time and dedication from you as a change agent. At the Business School, we believed that the Green Team would simply form, once the Dean had agreed to our request for creating this core group. However, as a manager, a Dean coordinates such activities; he or she does not do the "leg work." Therefore, at the Business School we facilitated the development of the Green Team by providing all of the raw materials: we drafted an invitation letter, supplied a list of suggested members, drafted a charter for the team, and worked to coordinate the initial meetings. As part of internalizing change, it will be necessary to have someone within the project unit assume responsibility for tasks and generate future ideas.

Creating Networks

The nature of university institutions can be both a help and a hindrance to pollution prevention initiatives. Decentralization may conceal where to go for information, since the information is often scattered throughout many departments. On the other hand, universities contain useful resources such as experts on behavior change, community participation, design ideas, and tech-

nological innovations. Although your team may have an organizational chart of the institution, it may not reflect the flow of power, resources, and influence. This type of knowledge can be obtained over time.

One role your group can take on is to help formalize links among different departments with the university. Establishing such links can help match up needs with existing areas of pollution prevention expertise. Such networks could be created through the use of electronic mail networking or conferences, establishment of an environmental coordination office, or compilation of an annual environmental resource guide that lists the current services available on campus. Your group may be most successful if these endeavors are linked to a pre-existing and well-used organization or structure.

Our demonstration project groups chose to network with two such sets of experts. Prior to completing the project, the Chemical Tracking group facilitated a meeting between OSEH and the Department of Research Development Administration. The purpose of this meeting was two-fold: to gain administrative support for the continuation of their project and to strategize funding for the establishment of a tracking system at U-M. Further, this group brought together key individuals from the Chemistry Department, Chemical Engineering, and OSEH to determine the needs of individual departments and thus ensure that the final product would serve all future users' requirements.

Likewise, the Business School group was able to link U-M's Utilities Department to the Business School's Administrative Manager. As a consequence, the Administrative Manager can now consult this unit of the University during periods of renovation. This will save the School money in two ways. The Utilities Department can make suggestions for increased efficiency and energy cost-avoidance, and may also fund the capital cost of some technical improvements if the payback period is five years or less.

Publicity

Bringing attention to your project may have many positive results. As with audits, publicity can plant the seeds of interest regarding pollution prevention, and can shape people's views concerning associated environmental issues. Introducing the subject of pollution prevention into the university forum may help stimulate related research agendas. It also allows for the sharing of ideas between disciplines, in contrast to the standard academic compartmentalization and segregation. Publicity of your project can also serve

as a catalyst and resource for other groups working on similar issues. Below we outline a few suggestions for contacting and working with the media and for giving presentations. Remember to strike a careful balance between time spent making progress on the project and time allotted to describing the project to others.

Media Contacts

Newspaper articles are a useful medium for gaining visibility in the University community and for informing others of your work. However, a few precautions should be taken in order to avoid media problems, particularly when disseminating information while your project is still evolving. If you choose to have information published before your project has been completed, we suggest that you submit information to the reporter in writing. In this way, material can be seen in its context and misinterpretations can be reduced. Along these lines, if your group has access to computer mail, you may choose to use this medium for communicating to others about your project. Your group may also want to consider appointing a "public relations specialist" through whom all publicity would be channeled. Two team members from the Business School project wrote an article which was printed on the front page of the *Monroe Street Journal*, the Business School's weekly newspaper. The *Journal* has a weekly circulation of 3,000 individuals—students, staff, faculty, executive education attendees, employees of various corporations, and other U.S. business schools. They all had the opportunity to become aware of the Business School project.

Despite all preventative measures, problems with the media occasionally arise. In our case, an article about our project in the University's student, *The Michigan Daily*, newspaper misrepresented the intentions of our team and also cast several of our key contact people in an unflattering light. The article served to perpetuate the stereotype of "self-righteous environmentalists" fighting against the "big, bad institution." This was not the characterization we wanted or intended to portray and it could have damaged our good working relationship with our contacts. In the future, we hope that the media choose to relinquish such blanket stereotypes. Nonetheless, after an event such as this, it is necessary to take swift action. To remedy a problem such as this, quickly draft a corrective letter to the editor and call any relevant

staff members to clarify the situation. It is important to prevent bad press from becoming a barrier to a well-intentioned project.

Presentations

Various forums exist for presenting an overview of your project: classes, business association meetings, professional organization conferences, focus groups, and others. These, unlike printed material, provide direct contact with a concerned and active audience. Thus, the opportunity to exchange ideas is heightened with the chance for one-on-one interaction.

At our first presentation, at the University's "Recycling and U" conference, we outlined our plans to conduct a university-wide audit and then implement pollution prevention strategies aimed at problematic waste streams. After the presentation, team members received overwhelmingly positive feedback and helpful advice from University staff. One particular contact, Jeffrey Hacala, played an influential role in leading our group to pursue chemical tracking at U-M. During the winter semester, the Business School group took the opportunity to present to the School's "Corporate Environmental Strategy" class. This forum piqued student interest; afterward, several signed up to join the nascent "Green Team."

It bears mentioning that you should be aware of your audience's interests during these presentations. Tailor your comments to their concerns and demonstrate how your project can address these. (For a list of presentations given by our Project Group, see Appendix XIV.)