Building Partnerships - The Ohio Materials Exchange

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ABSTRACT

This paper discusses a method by which individuals working in government, private business, not-for-profit and educational organizations developed a collaborative statewide program involving the exchange of materials from manufacturers, commercial business and not-for-profit organizations in Ohio.

Introduction

As this century comes to a close, landfills are being opened, closed and mined for resources; commercial businesses and manufacturers are under pressure to be responsible both environmentally and economically. The timing is right for individuals and organizations to start listening to each other and working cooperatively for a greater good. In 1996, an ad hoc group of state government agencies, private business, not-for-profits and educational institutions met to discuss the potential for a materials exchange in Ohio. The Ohio Materials Exchange (OMEX) exists today from the cooperation and funding from the Ohio Environmental Education Fund (OEEF), The Association of Ohio Recyclers (AOR) in cooperation with Waste Alternatives, Inc., The Ohio Environmental Protection Agency (OhEPA) (Division of Solid and Infectious Waste Management and the Office of Pollution Prevention), The Ohio Department of Natural Resources (Division of Recycling and Litter Prevention) and the Ohio Department of Development (ODOD) (Office of Energy Efficiency OEE). In addition, private business, solid waste management districts and individual organizations who use the exchange actively help guide and market the program. The author was employed with the ODOD-OEE and a member of the planning team.

A materials exchange allows companies to trade, sell or give away unwanted materials to one another and use it as raw material for manufacturing or reuse in it existing form (Table 1.). Materials exchanges were born out of necessity in World War II but are continuing due to foresight. (EPA 1994) The exchange of raw product, rejects or waste can reduce waste and save energy. Not only do recycled materials often use less energy to produce the product, the trading may save hauling or disposal costs, that could then be diverted to purchase new, more efficient equipment. The materials available or wanted are collected into lists. These lists may take the form of catalogs, fax-back systems, Internet or computer or index cards with a rolodex and a phone. A form is filled out requesting contact information. From that point, the arrangements are made between the trading partners. Often the exchange host will attempt to find out if a successful trade has been made. All liability issues are usually assumed by the trading partners and not the exchange service. This paper includes references for further reading concerning the history and impact of local, regional and national exchanges.

Category of Materials	Available	Wanted		Available	Wanted
Acids	X	X	Glass	X	X
Alkalis			Paints & Coatings	X	
Chemicals	X	X	Miscellaneous	X	X
Solvents			Ag By-Products	X	X
Oils & Waxes	X	X	Ash & Combustion By-Products	X	X
Plastics	X	X	Durable Furniture		X
Textiles & Leather	X	X	Rubber	X	X
Paper	X	X	Refractory Material	X	X
Metals	X	X	Sand	X	X
Construction &	X	X	Services	X	
Shipping Materials	X	X	Wood	X	X
Computers & Electronics	X	X			

Table 1. Ohio Materials Exchange, Materials Available and Wanted, Dec. 1998.

The Ohio Materials Exchange was built with a diverse group of organizations and individuals. Additional information on these organizations is provided in the background section. The products listed on the exchange varies from furniture, shrink wrap and foundry sand, and serve both large and small businesses in rural and urban communities. The program was designed for continuous evaluation and accountability to the partners. The number of listings are growing and exchange outcomes are being voluntarily reported by steel, plastics, and wood product industries. There is an added value to the exchange in the way the partnership is exposing different disciplines to concepts surrounding pollution prevention, energy efficiency and best practices through these activities. The initial goal of reducing the quantity of materials going into landfills, has been expanded to include improved communication, collaboration and support from the partnerships of the Ohio Materials Exchange.

Background

Throughout Ohio there has often been an echo of "Don't throw that away" followed by "Reduce, Reuse, Recycle." Local (covering 1-10 counties), regional (covering several states) and specialty materials exchanges were either present or developing in the state of Ohio. This section will give an overview concerning some of the organizations involved in the partnership that developed the materials exchange. This includes the Governor's Pollution Prevention Award Recipients; David Heinlen and the Orphan Chemical Recycling Program, Bowling Green State University (Ohio EPA 1995), Mahoning County's Industrial Waste Minimization Project (Ohio EPA 1997), and the three government agencies previously identified. Many individuals representing a wide range of organizations attended meetings, provided responses to surveys, written criticism and valuable input to the process.

Office of Energy Efficiency

The OEE is a broad-based office that works with residential, commercial and manufacturing businesses, government buildings and the education of school children and adults. Sara Ward, Chief of the Office of Energy Efficiency states "OEE brings together diverse groups and fosters cooperation. It is important to actively reach out to other organizations and find individuals within these organizations, with a passion for promoting energy efficiency, renewable energy policies and markets. This takes time, but there is real satisfaction in the knowledge that many do care about the environment. Even if the "price" drivers aren't there to motivate change, it is ultimately the individuals that matter, in order for change to take root. We are pursing the quantification of the many economic and environmental benefits of the end of pipe/end user energy efficiency and renewable energy projects. We are trying to create a common language for comparing energy efficiency and environmental projects. We may each increase our ability to communicate the benefits of energy efficiency and ultimately increase its value in the market place."

The Office of Energy Efficiency became more involved in the pollution prevention arena through programs like NICE^3 (National Industrial Competitiveness for Energy, Environment and Economics) that combines the interest of energy efficiency and waste minimization. OEE provided some support and information for the Northeast Industrial Waste Exchange, an early regional exchange covering New England and the Mid west. These experiences were some of the background that led to interest in the concept of "Integrated Assessments" where not only the energy, but productivity and pollution prevention were addressed in a factory. In one pilot project to demonstrate the effectiveness of this approach a metal caster saved nearly $45,000 a year by redirecting foundry sand from being a waste to be hauled away to becoming land-fill cover. The dollars saved could be directed into more traditional energy efficiency projects involving controls and compressed air.

Division of Recycling and Litter Prevention

The Division of Recycling and Litter Prevention has worked closely with Solid Waste Management Districts, private business and communities in addressing the residential waste stream through training, grants and education. There is institutional memory of a type of exchange using index cards long before fax machines were available. As Tom Davis, Deputy Chief of Ohio Department of Natural Resources (ODNR), Division of Recyling and Litter Prevention phrased it "Ohio's energy, natural resource and environmental protection agencies all realized the benefit a statewide materials exchange program could provide to Ohio and its business. However, it wasn't until a public/private partnership was established that a program was actually developed and implemented."

Division of Solid and Infectious Waste Management

In 1994, US EPA published "Review of Industrial Exchanges" providing insight on potential directions in the field. This caught the attention of OhEPA staff and during 1995 there was an effort to develop a potential grant application to form an Ohio-based exchange,

complete with outreach, training, catalogs and information collection on successful exchanges. This effort garnered a wide range of support letters from public and private organizations willing to partner in the effort. While this grant effort did not proceed, it provided the framework for the exchange. Staff from OhEPA provided important tools to the process. Prior to the forming of OMEX, there was a list-serve that created an active dialogue.

Orphan Chemical Recycling Program, Bowling Green State University

The Bowling Green State University Orphan Chemical Program began in 1992 to identify and transfer usable, unwanted chemicals between universities and schools. In 1995, the program received the Governor's Awards for Outstanding Achievement in Pollution Prevention. As the materials exchange discussions unfolded the description of materials and logistical challenges were often discussed. The program director participated shared his experience in these areas. The first was how materials should be classified. Was it to be called "unopened in original container", opened but full, partially full, or near code expiration? The second was the experience this program in the transportation of materials. (Ohio EPA 1995)

Mahoning County's Industrial Waste Minimization Project

In 1995, the "Mahoning County Industrial Waste Minimization Project in a cooperative effort between Technology Development Corporation, the Mahoning County Solid Waste Management District and Youngstown State University began using interns to provide free waste minimization audits and the development of a newsletter to begin an exchange process. Both professors and students involved with the program attended training on "Integrated Manufacturing Assessments" and began communications with additional faculty as they became aware of the potential in industrial and energy improvements. As a waste audit was completed, often material would be identified that had potential use in another venue. The newsletter with regional listings has grown in circulation and interest. In 1997, the program received the Governor's Award for Outstanding Achievement in Pollution Prevention. The program has gone on in 1998 to receive grants to conduct outreach to manufacturers with integrated assessments and include community awareness in the process. (Ohio EPA 1997)

Other programs and activities

Beyond the manufacturing waste stream, there are a variety of other programs reflecting individual community needs and interest. In Central Ohio the "ReArt" program was formed to get usable waste and scrap materials into the hands of working artists and teachers. Cardboard tubes, shipping crates, paint and poster board went from being a candidate for the landfill to works of art. The program has grown, moved into its own space and now has an exhibition hall adjacent to the administrative offices showcasing the fine art to come out of the warehouse. The district has also proceeded with the "Virtual Landfill," an Internet based exchange.

The Community Resource Bank in Cincinnati, Ohio recycles computers, office furniture and supplies for sale to local not-for-profit organizations at a reduced cost. This program works in partnership with local computer user groups for computer refurbishing. Computers are being upgraded and replaced very frequently, so the available computers at times may be less than one year old. Also in Cincinnati, the Hamilton County Environmental Services in Southwest Ohio received a grant from the Ohio Department of Natural Resources to begin "The Interchange - a Marketplace for Business Waste" in 1996.

Private sector companies were also very active in the process and brought expertise to the table. Waste Alternatives had experience in operating a materials exchange for Indiana and ECO Educators worked with national organizations and schools in education projects.

During the same time period, five state agencies working in the energy and environment fields had been "comparing notes" on what programs and services were being offered and how they could work cooperatively to meet customers' needs. The five state agencies included; The Ohio Department of Development (Office of Energy Efficiency, Technology Division, Small Business Office, Coal Development Office), Ohio Department of Natural Resources (Division of Recycling and Litter Prevention), Department of Administrative Services (Energy Office), Public Utilities Commission, and The Ohio Environmental Protection Agency (Division of Solid and Infectious Waste Management and Office of Pollution Prevention). This dialogue and cross-training was helpful in the formation of the materials exchange because it afforded the opportunity to become more aware of jargon and issues facing the different agencies.

Scope

This paper discusses how individuals working in government, private business, not-for-profit and educational organizations developed a collaborative statewide program involving the exchange of materials from manufacturers, commercial business and not-for-profit organizations in Ohio.

Methodology

The beginning came from a dialogue between state agency staff, community organizations, solid waste management districts, organizations working with manufacturers and businesses. In October 1996 the "Resource Ohio Conference," a gathering of solid waste professionals, was holding a workshop on Materials Exchanges. Word was informally and quickly spread that there would be a "meeting while standing up" session after the workshop, led by Cuyahoga County Solid Waste Management and Ohio Department of Natural Resources staff.

The workshop was well attended with over 40 individuals from many areas of solid waste management. The more informal format, having individuals mill around instead of sitting at around a table and hold side conversations created a sense of discovery and excitement. Quickly, there were comments such as:

- "What do you call pallets in your exchange? Are they listed as "shipping materials" or "scrap wood?"

- "Who's using what software and can it communicate with mine? Is there a database program we can buy? How are you using word processing for the exchange listings?"
- "Why even have a statewide exchange - what business would even want my trash across the state or pay to have it hauled?"
- Internet comments ranged from "Internet is going to solve all of this," to "what is Internet?"

There were more questions than answers on this day because it was truly a community based issue. There were organizations with a vital interest and state agency staff willing to work in together. The goal was to see all communities get service and build on the experiences of the individuals and organizations in the room.
The key issues identified were:

- While each geographic area was developing independently, in the future, databases may need to "talk." However, these computerized databases were growing so quickly, soon a pallet identified as a "shipping material" in one exchange would have little hope of being matched with a need for a "wood product" in another.
- Most dialogues were taking place via funding streams or membership affiliation meaning there was a huge market for cross networking and training.
- What was the role of computers and software? What role did the private sector have in making this happen? What could be done to equalize the computer hardware situation?.

The individuals in the room that day were willing to listen to each other. They discussed openly, the need to work to the best of their abilities, need for responsiveness, to work beyond traditional ways, and maybe the most important, be sensitive to, but not allow turf issues to delay accomplishment. A registration sheet was turned into a mailing list, and a date for the first meeting was selected.

Twenty individuals from throughout Ohio attended the first meeting in the fall of 1997. One key partnership-related opportunity came in that even though many individuals had worked in the field for 5, 10, or 20 years, they often had little opportunity to get to know each other because of different funding streams, materials, audience or disciplines. Individuals took the time and opportunities to introduce themselves and others. As an example, a college providing manufacturing outreach may never have met individuals from a solid waste management district two counties away, who may have been working with the same type of manufacturer. As a result of this introduction, there was interest in future contacts and cooperative efforts. New programs had been developed in one corner of the state, with few opportunities to exchange ideas. Program information was presented and the group again eagerly asked questions.

One agenda item at this meeting came as a result of the "Resource Ohio" meeting. A group car-pooled to attend a national waste exchange meeting in Tennessee between the two meetings. This conference discussed new approaches and questions into the mix of materials exchanges. Most notably of these was a concept coming out of Arkansas of this "scrap" volume coming from manufacturing being viewed as an asset and raw material for specific industries instead of a liability or waste.

During this meeting there was discussion and general acceptance that merely because there wasn't a market for a product in one end of the state, it didn't mean that there would not be a demand for it 10 counties away. There were two examples of this discussed. The first was that Central Ohio has scrap or off-spec wallcovering due to industry in the area. Southwest Ohio did not have this scrap material in abundance. This scrap has remanufacturing possibilities as spray insulation and or even artwork. So by moving a material 70 miles it becomes a feedstock instead of hauling it to a landfill. The other material was wooden pallets. While wooden pallets are often repaired and reused some pallets are beyond repair. A shift from Southwest to Northeast Ohio saw this scrap saved from the demolition land fill and being used as fuel. This was a breakthrough moment, setting the tone for the rest of the discussions. Individuals learned new information and admittedly changed their minds.

There was considerable interest in learning more about existing resources and programs. A meeting date was set and with a plan for a call to go out to gather as many groups and individuals possible working in the field from as wide a range of community size, audience, experience and technological abilities possible. As the meeting closed, tasks were divided up. Individuals took on research outside of their own skill sets and knowledge base.

A loose-knit group formed of both public and private regional exchange operators; government staff including energy, small business and technology staff; educators, not-for-profit staff and private business owners. It wasn't known to be certain or desirable at that time, but the group was less than one year away from having a collectively designed, statewide materials exchange. Over a series of four meetings, with leadership responsibilities were rotated around the group. At the close of each meeting individuals volunteered to take on tasks like research of topics or leadership of the next meeting.

Barriers and Opportunities

The following identifies and elaborates on partnership and program design issues for the group. There was a constant effort for consensus which at times meant bringing additional individuals into the process for further information to either enhance or extinguish any qualms..

Cross-training is necessary due to the diversity of stakeholders and waste streams. From cross-training, the group saw the potential for the entire waste stream. In Ohio, there are several non-profit organizations operating exchanges or stores to re-sell merchandise or materials that deal in chemicals, household products and computers. How do they fit into an industrial-focused exchange? This compatibility may come on the given day when a business usually trading in foundry sand, needs to change out their computer systems. While the business is traditionally an industrial trader, their old computers could be used by a not-for-profit agency. It was decided that the variety of potential exchanges would make the exchange more robust and community oriented. The exchange would target three levels; industrial, commercial and not-for-profit). It was also determined that individual "households" or residential customers would not be a targeted audience because there would not be enough material quantity. If individuals did seek information or outlets for materials, they would be directed to one of the local/regional resources.

Definitions and terms were going to be critical for effective communication. This was accomplished in a roundtable using overhead projection. A simple grid of the exchanges' current terminology was posted. For example "pallets," "wood products," or "shipping materials." How would it be labeled? "Fly ash" was changed to "coal combustion byproducts." Through a sometimes lively discussion, consensus on 25 categories was achieved in this meeting.

A medium and compatibility to which everyone has a timely access to information to both listings and educational information is needed by a materials exchange. While the technology savvy felt that the Internet would solve everything, a survey sent statewide to organizations working on the material exchange project had strong repercussions. Over 70 groups responded to this voluntary survey. While a significant number had computers, many were older models and/or networked systems that didn't (either through administrative decision or hardware) allow modems or Internet use. Internet use is growing considerably, but it was feared small business wouldn't have the equipment or the time to use it if made available. For current information, the telephone and fax machines were going to be the communication tool of choice concerning listings. A printed catalog would provide listings and educational reinforcement. After the first year of the Ohio Materials Exchange a cost saving measure was implemented, to have the first issue of the year contain the instructional materials with the subsequent issues being only the materials listing.

A Fear of Duplication of effort and competition for funding existed at first. But somewhere between the third and fourth meeting; there came the afore mentioned general realization that communities were producing some materials (a change from the word waste) that weren't commonly available in others. If the ability to communicate and consolidate were present, there may be need for a mechanism to alert one another and deal with the material. At one point a transparencies were distributed of the state map. Everyone got to color in their area. It then became evident, that there were still areas with opportunities but without service.

Diversity. There was a diverse range of individuals who worked on this program. While some lived in metropolitan cities, others lived and worked in rural areas. There was a wide age range from early 20s to late 60s. The age difference at times led to past historical event references and related humor being explained, but this added to the esprit de corps. The ethnic diversity led to discussions of what was being done in other countries and in turn those countries involvement with ISO 14000. There was some interesting dialogue between the environmentally trained solid waste and energy experts as the solid waste experts spoke tons of C & D (construction & demolition debris) vs. an explanation of co-generation of BTU's (British Thermal Units) by turning burned sawdust to energy.

Call to Action. Figuratively speaking, by the fourth meeting, the group had their "carts full" and were ready to move towards getting a statewide exchange underway. It was now a tradition within the group to list tasks at hand and divide it up for quick resolution. The Association of Ohio Recyclers was interested in administering the project. The regional exchanges saw a mechanism they could forward "hard to place" items. The Department of Natural Resources had a fax-back system with some room to hold the new exchange. The Ohio EPA could develop and publish the catalog. The ODOD-Energy Office could provide funding to provide training, outreach and evaluation. The final piece needed was successful gap funding. A proposal went to the Ohio Environmental Education Fund (OEEF).

Results

In August 1997, the Association of Ohio Recyclers (AOR) proposed to the Ohio Environmental Education Fund to "facilitate the creation and coordination of a statewide Materials Exchange program" with a focus on preparing a database of materials listings (both wanted and available materials) and distribution of these listings throughout the state. (OEEF 1997) In the fall of 1997, with a grant in place, the Ohio Materials Exchange, operated by Waste Alternatives, based in Mt.Vernon, Ohio, had come to fruition within 12 months of the first gathering. The first issue was published March of 1998. (List of exchanges is after references) It included a feature story on a regional exchange, instruction on how to access the fax-back service and how to request further information on the listed materials. To date the program has had the continued support and interest of the individuals and organizations who built it. The success of the program can be measured in the following ways:

- 691 tons of materials successfully exchanged as of January 25, 1999. This information was collected through follow up with 80% of listers.
- 416 listings of materials wanted or available are currently posted.
- Continuation funding was secured through 1999.
- Along with over 20 presentations throughout Ohio, in June 1998, the project manager was invited to participate in a panel at the "Industrial Waste Exchange and Reuse, and Transportable Incineration" Conference in Taipei, Taiwan. (Waste Alternatives 1998)

Conclusions

Throughout the country, materials exchanges operate in cyberspace and on index cards, and deal in scrap and rejects, informal and formal systems. Government, for-profit and non-profit business are all being pressured to "do more with less." There will be constant pressure to identify funding for the continuation of programs like the Ohio Materials Exchange. As this is attempted, it will be everyone's responsibility to enhance the opportunities that arise and seek out "best practices" to improve and operate their organizations in a most efficient manner.

When approaching broad needs, there will be more success if individuals; set the tone and expected pace early on, attempt to proceed with a diverse range of organizations, are willing to both listen, take and accept leadership, and are tenacious enough to see an activity through. Perceived barriers like the logistics of choosing and notifying people of meeting dates, added to keeping track of who's working on what phase of the project, can be overcome. This is accomplished by the constant forward thrust by individuals who can make it to meetings, combined with the continued involvement of those who aren't able to make attend, maintaining critical momentum.

While largely unspoken, many who worked on building the Ohio Materials Exchange realized there was a need to overcome issues like geography, varying sizes of communities, perceptions surrounding regulations, lack of knowledge, technology and funding. The power and motivation came from using trust, wit and diversity to build a program that would be stitched strong from the ground up with a sustainable fabric to last into the future.

References

[EPA] United States Environmental Protection Agency. 1994. Solid Waste and Energy Response(5305) EPA-530-K-94-003. *Review of Industrial Waste Exchanges.*

Ohio EPA. 1995. Governor's Pollution Prevention Award Recipient: David Heinlen and the Orphan Chemical Recycling Program, Bowling Green State University.

Ohio EPA. 1995. Governor's Pollution Prevention Award Recipient: Mahoning County's Industrial Waste Minimization Project. Fact Sheet #41

OEEF 1997. Ohio Environmental Education Fund. General Grant Program Application for The Association of Ohio Recyclers. Application date July 14, 1997

Speese, John. "Waste Alternatives Memo directed to survey respondents of the Ohio Materials Exchange Survey." Duplicated. Distributed to participants February 21, 1997.

Waste Alternatives, Inc. 1998. *Participant Report for Industrial Waste Exchange and Reuse and Transportable Incineration Workshop* June 17 and 18, 1998; Taipei, Taiwan. Diane Shew.

Materials Exchange and Reuse Programs listed in current OMEX catalog

Center for Environmental Science, Technology and Policy, Cleveland State University, Harlan Merwin, Cleveland, Ohio, Phone 216/ 687-9306, Email h.merwin@mail.asic.csuohio.edu, Web http://www.cestp.csuohio.edu/orphan/orphan.html.

Coal Combustion Products (CCP), Pilot Program - Ohio State University Tarunjit S. Butalia Columbus, Ohio Phone: 614/ 688-3408 Email butalia.1@osu.edu Web: http://cccpohio.eng.ohio-state.edu/ccpohio/

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