

Case Studies of Reuse Organizations:

Urban Ore

By David Hess

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Dr. Daniel Knapp, who holds a Ph.D. in sociology from the University of Oregon, traded being a college professor to work full time on community economic development. The year was 1976. “I cashed out my retirement at 35. I didn’t quit working; I just jumped body and soul into building a more sustainable human culture for our planet. I explored horticulture and food distribution, but slowly gravitated to recycling, an industry that was then in startup mode. Work is exercise to me; I like physical work. After some surprising twists and turns, I become a landfill scavenger at Berkeley, California’s, dump. That was the beginning of Urban Ore.”

Working closely with his wife Mary Lou Van Deventer, he built a reuse and recycling company that currently grosses over \$2 million per year and employs more than thirty people. Urban Ore estimates that it keeps about 6,000 tons of discarded material from being wasted annually.

Dr. Knapp’s unusual career transition began with months of volunteering and worked up to a paid government job co-managing a recycling planning staff of about twelve based in the then new Lane County, Oregon, Office of Appropriate Technology (OAT). This first recycling job turned out to be deeply frustrating because “the solid waste people controlled all county recycling and wasting facilities. They had just spent millions of dollars on a mechanized shredding plant that was supposed to make refuse-derived fuel from mixed garbage. They sold it to the people as a recycling plant, but it didn’t produce anything recyclable in three years of trying.”

At OAT Dr. Knapp applied his extensive training in research methods and science, but to little immediate effect. “My staff and I could study the hundreds of tons of discarded resources passing through the transfer stations to landfill, and we could circulate our reports and findings,” he says, “but the waste managers made sure we couldn’t touch anything, pull anything out, sell anything, or change anything.” After performing studies at two of the county’s transfer stations, OAT staff proposed an alternative materials recovery system that was labor and skill-intensive. “That only made the waste people see us as competitors,” says Dan. “From then on we were slated for elimination.”

The breaking point came when Dr. Knapp predicted at a meeting of the elected Board of County Commissioners that the Solid Waste Division’s shredding plant would blow itself up. He based the prediction on an extensively researched report on similar plants that he and the OAT staff put together. “We had to tell them what we knew,” he says. “Several

other refuse-derived fuel plants had already exploded. Reports said the high-speed shredders made lots of sparks as they chewed through the infeed material. The sparks touched off the explosions. Explosives were hard to detect; they included flammable liquids, military ordnance, even airborne dust. In our case, the primary shredder was very close to the public unloading area, so it was urgent to warn the electeds before someone got hurt.”

At the end of OAT’s first year, there was still nothing real or lasting to show for the agency’s effort. Their proposal and business plan to establish a county enterprise based on salvaging metals for recycling and whole objects for reuse was ignored. Then the whole agency was defunded, and all but one half-time employee were ejected out into the streets looking for gainful employment.

Ironically, the garbage shredding plant blew up, as Dan predicted, in December 1980. “The explosion blew the roof and sides off the building. I read about it in the papers. By then I was 550 miles down south in Berkeley, where the City Council voted unanimously in that very same month to build a garbage-burning power plant right near where I had chosen to live.”

The Berkeley plant was called a “mass-burn incinerator”; it had none of the automated separation equipment Lane County tried to use to produce a better fuel. Instead, it just proposed to burn raw solid waste. “The plant would burn hundreds of tons of fairly clean resources that I watched get smashed and buried every day while I was scavenging out at the landfill. I thought we recyclers could eventually rescue most of that stuff, but the burner was slated to destroy it. I had successfully jumped from the frying pan into the fire.”

For a while Dr. Knapp was employed by a nonprofit subcontractor to a paving and grading company that had just taken over running the landfill. “The primary contractor outsourced the recycling to the nonprofit, but the company had too many managers and soon went out of business.” Because no subsidies were available, it was necessary immediately to organize a new salvaging entity into a legitimate and recognized business that paid all its costs, including labor, taxes, and insurance. Money had to come from current revenues generated by selling whatever the company could develop markets for. Dr. Knapp helped boost income by developing upgrading for nonferrous metals and by creating a new offsite profit center specializing in used building materials. Urban Ore began as a partnership in 1980 and reorganized as a for-profit corporation in 1981. Dr. Knapp became Urban Ore’s sole owner in 1986 following closure of Urban Ore’s Compost Farm.

“Compared to my county experience, the freedom to actually organize a business at the landfill was exhilarating, and I made the most of it. As a former academic, I had little knowledge of business, but I found excellent advisors. I made a very good decision early on to hire an honest, independent bookkeeper and an accountant to oversee the bookkeeping and do the tax returns. Together we developed money-handling procedures with a goal of accounting for every penny of income and outgo.” He credits this stress on

regular reports and meeting all obligations with creating a firm foundation and knowledge base for the company's growth.

The landfill-based business was so popular with customers that it quickly expanded onto commercial property in West Berkeley. The off-landfill part of the company moved several times in its first years, which caused the company to develop portable sales fixtures and sales areas. Moves were fewer in later years, but there were many internal stock reorganizations as the company pursued growth aggressively. The investment in organization paid off; the facilities attracted more and more discarded materials, and sales improved dramatically.

This design capability based on hands-on practicality has been put to good use internationally. Starting in the 1990's, Urban Ore has fielded a design team to work on site planning in Australia, New Zealand, the UK, and the USA. "Travel to these places has been fascinating, and our designs have gotten more and more sophisticated," Dan says. "We're working on a Zero Waste Centre in Lowestoft, England, and an alternative design for a \$30,000,000 makeover of our current transfer station complex in Berkeley."

As Knapp has developed his philosophy, he came to see "wasting" as a manufacturing process. "Waste isn't waste until it's wasted," he says. "Discarded materials are resources, not wastes. After being discarded, they are wasted by being mixed indiscriminately." He strongly rejects the idea that recycling, reuse, and remanufacturing are "diverting" materials from landfill. "We recyclers don't divert resources from landfill, we attract them to us by friendly service and fair pricing for both the disposal service and the product. This principle is fundamental to good resource-recovery park design and operation. From his zero waste perspective, all discarding should be the beginning of a new use for the materials. To help visualize and eventually to build a discard management system handling all discards as resources, he developed a scheme of twelve master categories into which all discards could be sorted.

The categories are reusable goods, paper, metal, glass, plastics, textiles, chemicals, putrescibles, wood, ceramics, soils, and plant debris. "The twelve master categories are a teaching tool; there are lots of interesting applications. For example, each master category can be broken into many subcategories, and the more subcategories you develop, the more income potential becomes evident," says Dr. Knapp. "The list is copyrighted, but everyone is welcome to use it provided they give credit. The point of copyrighting here is to prevent people from editing and distorting the categories, then claiming they got them from me. Sometimes people in the solid waste and recycling fields have willing hearts but get confused over these concepts."

People think of Berkeley as a place where developing a business like Urban Ore would be easy, but it wasn't. "We fought for ten years to grow in the face of City initiatives to close us down in favor of the garbage burner. I was a focal point because of my early vocal opposition to the burner and the knowledge I had gained about the technology while in Oregon. I would work hard all day taking people's stuff, then attend meetings or develop position papers or legislation at night."

One of his most effective tactics was to show up at the City Council's public comment period with hazardous items he had found while scavenging at the landfill. "I remember holding up a little bottle of mercury dumped in with some dental tools and telling the councilpeople that mercury vaporizes at about 600 degrees Fahrenheit, and all of Berkeley was downwind." Some containers were old and the contents unidentifiable. Others were new but worn-out, like batteries, radioactive smoke detectors, or fluorescent light ballasts. The impression built up that the fuel source was unpredictable and getting the toxics out was impossible.

"I didn't work alone in any of this. Urban Ore joined forces with the other recycling businesses, principally Ecology Center and Community Conservation Center. Public opinion began to change, but the best the anti-burn coalition could manage was to change four votes out of nine on the Council. The 5-4 split in the council vote followed a deeper political rift between pro-rent-control council members, who were anti-incinerator, and anti-rent-control members, who were pro-incinerator. This made everything a lot more emotional. It was clear that both sides had hardened up and there would be no more defections."

A new strategy was needed to win. The coalition turned to the California ballot initiative process. A group of activists got together, wrote an ordinance declaring a five-year moratorium on building the incinerator, and got enough signatures of registered voters to put it on the 1982 ballot. Our campaign slogan was "Give Recycling a Chance." Mary Lou Van Deventer staged a press event where we released black balloons from the burn plant site to demonstrate where the emissions would go." A councilperson who was there said "That's going over my house!"

The ballot measure passed handily with over 60% of the vote. The incinerator was shelved, at least for awhile. As expected, the change created the conditions for Urban Ore and the other recycling businesses to grow very rapidly. "We all got much bigger. We hired more people, occupied more real estate, moved more resources to market. The whole time of this rapid growth we were having to fight the city's efforts to shut us down, usually by trying to give our businesses to our competition or by hitting us with lawsuits. But we survived and grew anyway, thanks to our suppliers and buyers, who liked our services and what we were producing."

By 1983 Urban Ore included not only the reuse business that exists today but also a compost operation handling about 14,000 tons per year. The compost operation charged suppliers at the rate of \$2/cubic yard of clean compostable plant debris, and it provided friendly service and pleasant facilities just ahead of the landfill. It cost \$4/cubic yard to dump the same load at the landfill a quarter-mile down the road. Given its competitive edge, the compost facility soon pulled in about 80% of the available supply. This was a very large and quick reduction in landfill burial.

"Urban Ore's Compost Farm was zero-waste theory in action. Starting with the twelve master categories, zero-waste theory builds a whole collection of industries based on

charging for the service of disposal in addition to selling products. Our Compost Farm service was legal disposal, just like the landfill. We charged half what the landfill charged and got nearly all of the supply in a matter of months. It was breathtaking, and best of all, it was real.”

In 1985 the coalition went to the voters again for an extension of the moratorium on incineration and a reaffirmation of a Council-passed goal of 50% recycling. The 1976 plan had allowed recycling to be defined to include incineration. The new initiative (Measure G) closed this invitation to wasting by defining recycling as materials recovery, not materials destruction. The still-active pro-incineration group ran a counter-initiative (Measure H) that looked ecologically friendly but would have opened the door to incineration. The campaign coalition campaign slogan—“G is good; H is a hoax”—worked, and Measure G won, again with over 60% of the votes. Similar events occurred in many other communities across the country during the late 1980s. Measure G killed incineration as an issue in Berkeley. In 1989, the California state legislature caught up with the Berkeley initiatives when it passed AB 939, which mandated 25% waste “diversion” from landfills by 1995 and 50% by 2000.

In 1986 Urban Ore suffered a setback when the city closed its Compost Farm and developed plans to convert the seven-acre site into a grassy park. Interestingly, the Sierra Club and Audubon Society allied with the pro-burn and solid waste management groups to oppose continued use of the former landfill for composting, because they wanted to turn the land into a park. Dr. Knapp adds, “I thought the two uses could be quite compatible. What I wanted was an Ecopark, with an educational message that we are reusing the surface of this abominable old landfill to stop landfilling organics and turning them into methane. This happens in all landfills, even at our newest dumps at the headwaters of various creeks in our surrounding hills. This argument went nowhere.” The outcome was that the city shifted its composting to a facility about 75 miles away, and Urban Ore’s business refocused on its reuse enterprise.

“This was a bitter defeat that flew in the face of common sense,” says Dan. “Now Berkeley burns expensive refined diesel fuel to haul our compostables 75 miles out into the San Joaquin Valley. We burn refined carbon to haul unrefined carbon away where it can be composted and we don’t have to look at it. It’s an energy sink, completely unsustainable.”

In 1989 a new coalition put forward a third initiative, this time for all of Alameda County. This initiative raised the cost of wasting by imposing a \$6 per ton surcharge at all three county landfills. This was enough to raise about \$8 million each year at first to fund recycling infrastructure improvements. The initiative created a new government agency, the Alameda County Source Reduction and Recycling Board, to manage the funds. The initiative passed with a 63% vote and, with the help of the Earthjustice legal team, triumphed over a court challenge. As a result, funding was made available to strengthen resource recovery, recycling, reuse, and remanufacturing throughout the county. From four to five facilities in 1980, the number grew to about 30 facilities in

2005. Some remanufacturing firms found creative and profitable new uses for materials, such as a high-end countertop material that was made from crushed porcelain and glass.

Over time the Berkeley city government became more supportive of Urban Ore, and from 1999 to 2004 it helped the company to relocate to a three-acre industrial site with a 30,000 square foot building. The move required a zoning amendment to allow materials recovery enterprises to exist there. Urban Ore is now just one of many business enterprises and nonprofit organizations in the East Bay materials recovery industry. Although most of its materials come from purchases and drop-offs, the organization also does pick-ups, and it still has scavengers on its staff who work at the City's transfer station, a job that Knapp once held. The landfill pays Urban Ore \$28.84 per ton for recovering materials from its transfer station floor. The reuse store facility is about the size of a Home Depot or Lowe's store, and it processes about \$2 million in goods per year. What Urban Ore cannot resell it deconstructs for scrap.

"If we can't recycle it, we have to pay market rate at the City's waste transfer station, which is over \$70 per ton. That's a strong incentive to find recycling markets for our unsaleable stuff. We have some very interesting and specialized markets we've developed over the years to minimize our cost of wasting." The General Store and Building Materials Exchange departments sell everything from used books and electronics to furniture, doors, toilets, tubs, and windows. On an afternoon visit in March 2005, the 55-space parking lots were full and business was brisk. "Moving was arduous, and renovating our building was expensive, but it was worth it. We're really hitting our stride now, with month-over-month records most months. It's very gratifying," says Dan.

Equity and Sustainability

The company's customers include homeowners, remodel contractors, business owners, students, collectors, and other second-hand shops. Dr. Knapp notes that he wrote a book on poverty programs, *Scouting the War on Poverty* (1971), and he points out, "I'm an old anti-poverty guy." Although Urban Ore is a for-profit enterprise, Dan notes that there is room in the field for all types of enterprises

Urban Ore is helpful to low-income people in two main ways:

- Unlike most nonprofit reuse centers, which receive donated material, Urban Ore often pays people who bring in used products. Small trash haulers are regular suppliers, motivated by both the cash and cutting the weight and volume of the load going to the landfill, which is expensive in Berkeley. Because some of the people who bring in used products have low incomes, the business puts money in their pockets. In contrast, nonprofits get material from donors that expect a tax write-off, so they appeal more to corporations and the wealthy.
- A second way that Urban Ore helps low-income people is similar to the nonprofits. Many of the employees are low-income people who are gaining training in the building

and construction industry, so their jobs with Urban Ore are sometimes a stepping stone to better work. Knapp finds that Urban Ore's model is more efficacious than any of the antipoverty programs that he studied and worked on in the 1960s.

Policy Issues and Recommendations

Based on his longstanding experience, Knapp would like to see local and national laws in the waste industry reformed to allow greater competition from ecologically oriented materials recovery organizations. He argues that laws protect a monopolistic situation that guarantee a 15% to 30% profit for waste companies and do not allow competition from green businesses. Fundamentally, the whole idea of "disposal" needs to change from an orientation toward landfilling and incineration to a zero-waste model that defines disposal as selling and giving away materials to recyclers, reuse organizations, and remanufacturing enterprises. In order for the change to happen, he argues that the "Soviet-style" waste industry needs to be reregulated, so that small, ecologically oriented organizations (both nonprofit and for-profit) can compete by offering lower fees to residents and businesses for their waste products.

Web site:

<http://urbanore.citysearch.com/>

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