

Rejuvenation, Inc.

An Oregon Natural Step Network Case Study

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Overview

Rejuvenation, Inc. is America's largest manufacturer and leading direct marketer of period reproduction lighting. Based in Portland, Rejuvenation also sells period lighting and hardware in a retail store. Currently the company employs 200 people, two-thirds of them in the northwest Portland factory and the balance at the retail store. In 2001 Rejuvenation netted \$21 million in sales, and the company has experienced steady annual growth.

Background

Jim Kelly founded the company in 1978 as an architectural salvage shop and soon discovered that there was an unmet demand for period pieces. This market need led first to the restoration of old pieces and ultimately to the manufacturing of reproductions.

Rejuvenation has a long history of involvement in corporate responsibility programs based on the business philosophy of the owner. This involvement includes founding membership in the Oregon chapter of Business for Social Responsibility and employee "days of service" in the community. Three days are scheduled per year when employees can leave work to do a service project of their choice. Rejuvenation has also been an environmental leader in the construction and remodeling industry, addressing opportunities to reuse and recycle materials from house demolition.

Introduction to The Natural Step

Jim Kelly, Owner, and John Klosterman, Vice President of Manufacturing, were aware of and very interested in The Natural Step (TNS) framework from the time it was first introduced to Oregon businesses at a June 1997 workshop. Following that one-day workshop, Rejuvenation was among the first companies to make a commitment to implement the four system conditions and become a founding member of the Oregon Natural Step Network. Adoption of the TNS framework came naturally due to Kelly and Klosterman's deep commitment to doing better in environmental stewardship than simply staying out of trouble. As the sustainability framework emerged as a powerful force in the Portland area, they were central figures in its promotion, as well as pioneers in its implementation.

Introduction of The Natural Step Framework into the Company

Implementation of the framework at Rejuvenation was a top-down process. After Kelly, Klosterman, and senior managers made the initial commitment, they had internal discussions about how implementation might occur.

Because Rejuvenation is known for beyond-compliance environmental performance, the Oregon Department of Environmental Quality invited it to participate in a project that offered consulting services for small to medium-sized companies. The consulting services allowed Rejuvenation to initiate an ISO 14001 environmental management system process centered around The Natural Step principles. It established an environmental policy, an analysis of material inputs and outputs for the production process, and environmental metrics.

Each year Rejuvenation carries out strategic planning and develops a set of initiatives. In 1998 and 1999 sustainability was in the forefront of those initiatives.

Training

TNS principles are being systematically and strategically disseminated through the organization, starting with the core group of managers and, over time, reaching supervisors, master craftsmen, and ultimately the line employees. All Rejuvenation managers, a group of 15 to 20 individuals, received a one-hour briefing by the Oregon Network initially and then attended a full-day introductory workshop offered by the Network.

In the first two years the company focused on training those on the manufacturing side because that is where the greatest environmental impacts occur. In the third year training was extended to the retail side. Training of line employees represents a fundamental challenge for Rejuvenation. Its manufacturing workforce represents a substantial diversity of culture and language, making effective communication of the scientific and environmental principles difficult. The company has begun to explore the potential for development of multi-lingual TNS literature and training materials.

Setting Priorities

Aspects Analysis. The four system conditions provided the basis for Rejuvenation's analysis of environmental impacts. The company developed a detailed system for "Aspects Analysis," which in ISO 14001 terminology means the things a company does that have an impact on the environment. The Aspects Analysis lists 42 activities and gives each a score in six categories: Extraction, Persistency, Toxicity, Biodiversity, Efficiency, and Social Equity. It also considers the frequency of each activity. Scores for each category and frequency are then totaled for each activities' aspect score. The score allows the company to prioritize which activities it should address first.

The company took the eight highest-rated activities and set targets for improvement. The process for setting improvement targets included analyzing legal, technological, financial, business, and customer considerations. Based on the targets, Rejuvenation defined indicators of progress and designed an improvement program for each. The program identifies who is responsible for getting it done, what resources are allocated, and a timeline. Each year management evaluates progress and sets new targets. Vice President of Manufacturing John Klosterman is very pleased about how well the EMS has worked.

About a year after the manufacturing EMS was in place, the retail side of the business followed a similar process, developing flow charts for every department and documenting inputs and outputs. “We learned so much,” said Brooks Nelson, Facilities Manager, “Just finding redundancies in the system paid for the exercise, aside from the environmental objectives.” An aspects analysis was done, using the format developed by the manufacturing side, and each department focused on the activities with the highest aspects scores for possible improvement projects. Examples of activities with high impacts were product selection, transportation (customers and suppliers), and paper.

Results

Manufacturing processes. The system conditions thus provide the rationale for several changes that have been adopted or planned. These include more environmentally benign processes for metal cleaning, lacquering, antiquing, polishing, plating, and painting. For example, when metal lighting fixtures are buffed, toxic dust is produced. State environmental regulations prescribe that the company handle this waste stream in a safe and environmentally responsible manner, but the system conditions call for a higher standard. Thus, Rejuvenation invested over \$10,000 in new buffing technologies that will reduce the generation of lead-bearing dust.

An investment of \$110,000 in a water-based ultrasonic cleaning system resulted in cleaner parts and potential ability to switch to water-based, clear-coating processes.

In 2001 the company contracted with Zero Waste Alliance to help it improve the metal antiquing process. The old system for capturing contaminants in the wastewater sometimes allowed excess amounts of selenium to slip through. A new closed-loop, zero-waste system binds the selenium so that it can be sent to a reprocessor for reuse and cycles the water back into the antiquing system instead of the city sewer.

Rejuvenation also invested \$250,000 in a new electrostatic spray system for lacquering. The new system reduced VOC emissions by 60 percent, is more efficient in transferring the lacquer to the product, and also produces a more durable coating. The durable coating has even reduced packaging requirements. After a year or more of experience with this process, management is poised to try water-based coatings, which are more difficult to apply but better for the environment.

Packaging. Most Rejuvenation products are manufactured on a made-to-order basis and require considerable protective, individualized packaging. Packaging that protects the product is critical. Currently the company uses primarily roll paper as dunnage and has significantly reduced plastic packaging, especially polyethylene tubes and bubble wrap. Alternative packaging materials and methods are still being explored with the hope of lowering labor costs and damage rates while improving environmental performance. Managers performed a life-cycle analysis comparing expandable plastic foam with current packaging. The economic benefit of the foam would be considerable--\$200,000 per year due primarily to lower labor costs and better product protection. However, the foam is persistent, and there are no good options for end-of-life management. Most of the packaging would end up in the landfill. Because that alternative couldn't meet system condition two, it wasn't implemented.

Energy. From a product life-cycle perspective, energy consumption during the use phase of the product is one of the greatest environmental impacts. Rejuvenation has been designing period lighting that incorporates compact fluorescent bulbs since 1992 and continues to develop new designs. It would like to conduct a more thorough product life-cycle analysis. Managers believe such an analysis would make it possible for them to work with ballast manufacturers to promote compact fluorescent lighting that is more energy efficient.

The manufacturing plant itself reduced energy consumption by 10 percent between 2001 and 2002 through a lot of little measures, such as paying attention to start up and shut down of equipment and lights, putting lighting on timers, and improving the operating efficiency of equipment.

Purchasing parts. Most of the metal parts for the lamp fixtures come from factories in China and India. Management has begun visiting these factories and asking for changes to reduce environmental impact. For example one factory in China upgraded its degreasing system, and a number of suppliers have been willing to shift from foam to paper packaging. In another case, Rejuvenation found the sites where plating was done in China so poorly run, it stopped using them.

Paper reduction. The retail side of the business focused initially on paper reduction. The goal is to eliminate all paper purchases (except toilet paper and paper towels) within ten years. Some purchasing and all purchase-order archiving is now done on-line. Receipts, which used to be 8 1/2 x11 inches, will be cut in half. To further save resources, Rejuvenation is purchasing 100 percent recycled paper. The copy paper is 30 percent post-consumer waste, and toilet paper is 20 percent post-consumer waste.

Some of these initiatives were begun, or conceived, before Rejuvenation adopted The Natural Step framework. However, TNS has provided a stronger rationale and framework for the initiatives. It has also helped unify company management behind environmental improvements that can lead the industry to more-sustainable manufacturing processes.

Current Prognosis and Lessons Learned

The Natural Step framework has been firmly incorporated into company management perspectives and is increasingly providing inspiration and guidance to long-range, strategic planning. The four system conditions have been very helpful in the rigorous analysis of the company's processes.

Substantial business benefits, financial as well as environmental, flow from taking processes apart and evaluating improvement opportunities. For example, the new aqueous ultrasonic cleaning system is paying dividends on the investment. The old system required five or six full-time operators, whereas the new system only requires two, and the parts are now cleaner and can go directly into the next process, without delay. The new lacquering process that reduced VOCs also reduced material costs by 25 percent

The company faces important challenges in fully implementing TNS framework and realizing its potential:

- Overcome the language and cultural barrier to training the workforce.
- Further develop the environmental management system so that it is more systematic and universally applied throughout the organization.
- Effectively influence suppliers so as to improve their environmental performance as well as Rejuvenation's.
- Gain the technical expertise required to make manufacturing processes truly benign. It takes time and resources, and sometimes technological advances, to meet the high standards of the system conditions. It also requires a high level of corporate commitment to take TNS from theory to practice.
- Better define system condition four. Management at Rejuvenation takes the fourth system condition of social equity seriously in its employment practices. It has made a strong commitment to fair pay.

Sources

1. Interview with John Klosterman, Vice President of Manufacturing, February 18, 2000 and October 28, 2002. Interview with Brooks Nelson, Facilities Manager, October 28, 2002.
2. "Measuring Sustainability in the Manufacturing process: Incorporating The Natural Step Principles into Rejuvenation, Inc.'s Environmental Management System" by Christopher Juniper, John Klosterman, and David Kunz, March 2000.

This case study was prepared by Wayne Rifer in April 2000 for the Oregon Natural Step Network and updated by the Network in October 2002.