

SECRETLY ENVIRONMENTALLY FRIENDLY PRODUCTS: WHAT DO THEY TELL US ABOUT INDUSTRIAL TRANSFORMATION TO SUSTAINABILITY

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ABSTRACT

Several authors have asserted the idea that industry is undergoing a process of transformation from a paradigm where business and environmental interests are adversarial to one where environmental capabilities are a source of competitive advantage. In the new paradigm, leaders in the march toward sustainable business are, or will be, also leaders in profitability. (Gladwin, et.al. 1995, Hart 1995, Hoffman 1999, Jennings & Zandbergen 1995, Hawken, et.al. 1999).

No one expects this journey to be swift or easy, and a great deal of interest has been directed to the question of discerning where we are in the process of becoming sustainable businesses and societies. In addition, policy makers and regulators are working to develop strategies for facilitating sustainability, or creating interventions (policy instruments) that will further the goal of a sustainable society.

Two of the indicators of this transformation are the products produced by industry, and the public presentation of those products. This paper will look at some evidence that what companies are **doing** may be more environmentally progressive than what they are **saying**. In other words, companies may be embracing the new paradigm by demonstrating environmental capabilities in product design and sourcing , yet continuing to present products as if environmental interests were at odds with business interests. The result of this dilemma is that sustainable features of a product are not only not apparent to consumers, but, in some cases, are actively downplayed or kept secret.

Are there legal issues, reputation issues, or traditional frameworks of thought behind this discrepancy between what companies do and how they understand and present what they do? Why do some companies not advertise the environmental features of their products? This research question will be the subject explored in this paper.

This paper reports on case studies of products, and investigates the thinking behind this discrepancy between what companies do and how they present to the public what they do. Interviews have gathered the stories of products with environmentally friendly features. In addition, the interviews focused on the public presentation of the product.

Furthermore, we explore the implications for policy makers. If recognition and publicity concerning superior environmental performance are not valued by a business as a reward for sustainable practices, what other incentives might be more effective? How can we understand this undercover environmentalism?

Key words: environmental product development, visibility, strategic identity, green marketing, environmental policy

1. INTRODUCTION

This paper considers two companies that have responded to pressure to address environmental problems created by one of their products. Both firms have successfully revamped the criticized products, and corrected their respective product's environmental problems. In both cases the new more positive and sustainable environmental features of the product remain secret. In one case, the firm wants the new feature of its product to remain "secret." In the other case, the environmental features of the product remain unrecognized by consumers in spite of efforts on the part of the firm to get the word out.

What causes this seemingly inconsistent practice? What can these cases tell us about the state of industrial and societal transformation to sustainability? And what can these cases tell us about the use of environmental regulations that rely on information disclosure? The paper that follows will add some concrete examples to current discussions of disclosure and confidentiality in both management and environmental policy arenas. The result is to refine and add enriching complexity to these conversations.

The paper will proceed as follows: First, the management and policy conversations about paradigm shift and disclosure are introduced. The cases will then briefly be described. Themes that have emerged from these cases will be presented. Finally, lessons for policy and management will be drawn.

1.1 Industrial and societal paradigm shift: What are the paradigms? What does each paradigm suggest for the product development function of the firm?

Several authors have asserted the idea that industry is undergoing a process of transformation from a paradigm where business and environmental interests are adversarial to one where environmental capabilities are a source of competitive advantage. (Gladwin, et.al. 1995, Hart 1995, Hoffman & Ventresca 1999, Jennings & Zandbergen 1995, Hawken, et.al. 1999). Theoretically, firms that conduct business from the traditional paradigm find themselves in a win-lose situation. They face trade-offs between bettering themselves economically or reducing their environmental impact. Environmental regulation is viewed as a burden and an

added cost of doing business. In this view, customers are viewed as less concerned about environmental aspects of a product than other product features, such as quality and value.

Firms that conduct business from the new win-win paradigm theoretically would subscribe to Porter's (1995) theory of the "innovation offset." They would operate on the belief that innovations that may serve to diminish the environmental footprint of the firm may also increase the firm's efficiency and profitability. Customers, in this view, are interested in the environmental features of products, and a product's environmental friendliness may be a selling point.

In reality, however, firms are neither monolithic nor consistent. One part of a firm may be operating out of the new paradigm, while the rest is firmly entrenched in the traditional way of thinking, and hence operating, on the assumption that economic and environmental interests are adversarial.

This paper examines cases of product development, and looks at the mix of old and new paradigm behavior in these cases. Thus, we interpret the cases for answers to the question, "Where are we in the transformation to industrial sustainability?"

1.2 The use of information disclosure as an instrument of environmental policy

Policy makers and regulators are working to develop strategies for facilitating sustainability, or creating interventions (policy instruments) that will further the goal of a sustainable society. Recently, policy strategies have focused on information disclosure. Moving away from "command and control" regulations of an earlier era, environmental policy makers in the United States have been banking on the policy strategy of requiring firms to disclose information about the toxic substances that they use and release into the environment. (Cohen 2000, Hoffman 1999, Outen 2000).

Fred Krupp, head of the Environmental Defense Fund (EDF) has called the implementation of the Toxic Release Inventory (TRI) the most significant event in the history of the environmental movement since the publication of Rachel Carson's *Silent Spring* in 1962. Subsequent studies have supported the idea that disclosure of information and the resulting visibility of firm activity, creates pressure to become green (Bowen 2000).

Entrepreneurial organizations have developed services that interpret the mass of information now disclosed by firms, e.g. EDF's Scorecard. The interpreted data, presumably, has a chance for wider dissemination and use by consumers who may then exert more green pressure on firms to clean up their acts. Consumers thus are mediators of this green pressure (Outen 2000).

How do these themes of visibility, disclosure, and shifting paradigms play out in the arena of product development, product revision, and marketing? The following cases will provide illustrations and explore these issues from inside the firm.

2. MATERIALS AND METHODS

The research questions were explored through field case studies. Each case study included interviews with relevant company members. Interviews focused on the particular product's development, revision to become more environmentally friendly, and choices about public presentation of the product's environmental revision. All interviews were conducted in person at the workplace. Because of the sensitive nature of the interview material, no tape recordings were made. The researcher used ethnographic methods of writing field notes immediately after the field visits. (Lofland & Lofland, 1984; Schatzman & Strauss 1973). Written documents, such as reports posted on the firm's web site, supplemented the data contained in the field notes.

Analysis of the cases followed a "replication logic" (Yin 1989), and viewed the cases as repeated experiments. Comparisons of similarities and differences in the cases were used to develop themes that illuminate the research questions. Two cases are briefly described below: Eastman Kodak's single-use-camera and Giftco, a manufacturer of high quality gifts.

2.1 Kodak's single-use camera

The single-use camera (SUC) began with the "Fling." The idea was to have a camera that would take advantage of Kodak's high-speed film. Kodak is historically and traditionally a film company, and the "Fling" was originally conceived in this context as a vehicle for selling Kodak film. Some managers were concerned that the camera might cannibalize the film business by taking away sales that would otherwise go to film. The camera and film were conceived as a unified system that would continue to sell Kodak's primary product, high-speed film.

The SUC program has been around for over ten years, beginning in 1987-1988. At Kodak Park, the corporate headquarters, this project was considered a small side business. Starting out as a "skunk works" operation, the product developed without senior management attention. Product developers had created the design earlier, but had not gained the support to implement it.

Then Fuji entered the market with their single use camera, and according to interviewees, "We weren't ready." So Kodak first bought another company's single-use camera and put Kodak's 110 film into it. They rushed that product to market to compete with Fuji. They then they took their own design work off the shelf and developed the Fling single-use camera. Kodak's "one-time use camera" (OTUC) was sold in Europe as the "Fun Saver."

The Fling was, indeed, a throwaway camera. Once the film was removed for development, the camera became waste. As the market began to grow, however, the product developers began to realize an underlying issue, i.e. the growing amount of waste being generated by the single-use cameras. Environmental groups also noticed the mounting waste from the single-use cameras, and gave Kodak the "Waste Maker" award. Product innovators thoughts turned to recycling, and "Low and behold, we found ourselves in the recycling business. We put teams around the business, and pulled metrics out."

The cameras were, first, redesigned for easier recycling. Then Kodak used its well-established relationships with film processors to set up an infrastructure for reclaiming the used cameras. Eventually, single-use cameras were being collected from film processors all over the world, and shipped to manufacturing locations in Rochester, New York, Chalon, France and Guadalajara, Mexico. Cameras are sorted and recycled at these facilities.

When asked about why they didn't use the term "recycled" to advertise their camera, interviewees cited legal restrictions on the use of that term and resistance from the marketing department: "Marketing has maintained that there are only so many qualities you can convey in a message on the packaging". The recycled message doesn't warrant mention at the top of the list of priorities emphasized on the package. (Information about the recycling program does appear on the back of the outer cardboard packaging, not on the label adhered to the camera.) Although 60 per cent of cameras worldwide are recycled (70 per cent in the United States), this seemingly valuable green message isn't readily apparent to the consumer. Many consumers still think of the camera as a throwaway product.

2.2 The removal of toxic ingredient, "T" at Giftco (a disguised name)

Giftco is a producer of fine, quality keepsakes. Their products are often purchased as gifts for special occasions such as weddings, anniversaries and other holidays. Their products are intended to become treasures that may stay in a family and be passed down from generation to generation.

Giftco's main manufacturing facility is located in a rural setting -- although a new development of homes and a golf course is now located across the road. Aside from this single, new development, trees and country roads surround the plant.

The idea for the revising the process for manufacturing Giftco's products came from pressure by the federal government's Occupational Safety and Health Administration (OSHA) and the Department of Environmental Protection (DEP) of the state where Giftco's manufacturing plant and headquarters is located. OSHA was concerned about the exposure of employees to toxic ingredient T. The state DEP was concerned about the disposal of sludge containing ingredient T that was leftover from the manufacturing process.

According to Giftco's management, "The writing was on the wall." If they didn't do something voluntarily, they would soon be required to remove T from the manufacturing process. In addition, competitors were introducing T-free products, and consumers now had a choice about whether they wanted T in their products.

Alternatives to ingredient T were available, but T had an advantage over the substitutes. T was "forgiving," and allowed the manufacturing process to be less than perfectly precise. Small amounts of impurities and variations in the manufacturing process did not matter when T was part of the process. Without T, greater precision and quality control was required.

Thus, in order to eliminate T, Giftco's engineers had to revise the entire manufacturing process. The process was computerized, with the result that greater quality control was

achieved. The engineers were able to gain the precision they needed to implement a new manufacturing process that eliminated T. Lagoons of T-contaminated sludge behind the plant were also cleaned up.

When the state DEP learned of Giftco's accomplishment, they were eager to tout the company's achievement with a press release and other publicity. Giftco, however, declined, preferring to keep the elimination of T from their products secret. Their stated philosophy was, "We only want our name in the newspaper when we place an advertisement."

3. RESULTS AND DISCUSSION: MANAGEMENT AND POLICY THEMES

What can we learn from these two cases of very different strategies regarding the disclosure of environmental revisions to products? The following discussion describes the management and policy themes that emerge from the comparison of these two cases. Three themes illuminate the differences: Skeletons in the Closet, Strategic Identity, and Envisioning the Double Bottom Line.

3.1 Skeletons in the closet

Giftco explains their preference to not publicize the removal of T from their products through two reasons: The first reason deals with the fact that their products are enduring and customers typically own them for a long period of time. Managers expressed concern that customers who still own the products containing ingredient T would be upset. These customers may not even be aware that their products contain T. A public announcement that all Giftco products are now T-free, might arouse consumer distrust and concern that the products they own may not be safe. One skeleton that may come out of the closet is the fact that Giftco has been making products with T for many years.

A second skeleton has to do with the T-contaminated sludge lagoons in back of the plant. Although present for many years and in the process of being eliminated, these lagoons had never been the subject of negative journalistic reporting. Drawing attention to Giftco's history of using T at the plant might, similarly, bring unwelcomed attention to this facility's undesirable, local environmental impacts. Giftco had enjoyed a certain lack of scrutiny in their rural location, away from homes and neighbors. Giftco's management felt that they had a lot to lose and little to gain from an announcement that they were going T-free.

Kodak also had skeletons in their closet and ghosts from the past. Their facility at Kodak Park in Rochester, New York had been the subject of a great deal of scrutiny by the local community for its use of toxic chemicals and contamination of ground water (Kodak web site, 2000). Unlike Giftco, however, these skeletons had long been out of the closet. The Company web site now contains extensive information about the current status of the historical contamination and clean up efforts.

More to the point, however, was the fact that the environmental criticism of the original product was also highly visible. Indeed, the original disposable camera has been the recipient

of a "Waste Maker" award by environmental groups (Field, 2000). The disposable camera had become a symbol of the throwaway culture -- an environmental anathema. Kodak had nothing to lose and much to gain by public announcements of the environmental revisions to their product and the new recycling program. In their instance, disclosing the good news would not lead to a disclosure of bad news, since the bad news was already out.

3.2. Strategic identity

The strategic identity of each firm framed their reactions to the criticism of their products. Managers at Giftco viewed their mission as one of making heirlooms and keepsakes, i.e. products that would be treasured for a long time. Their products are frequently bought as gifts for life's special moments, e.g. weddings, anniversaries, christenings or as hostess gifts for dear friends, which are all happy occasions. Giftco's products are reminders of these pleasant events, and they very much identify with being in the business of commemorating life's significant and pleasant events.

A Giftco store is attached to the manufacturing plant. Inside, a couple preparing for marriage shops for their new life together with arms around each other. A woman sits at a table taking calls from customers about their orders. She is polite and caring. She is serving as a consultant to whatever significant event the caller is anticipating. She understands the urgency and importance of her work. A sign at the cash register announces a discount at the golf club's restaurant across the street when presenting a receipt from the Giftco store. Thus the customer is invited to make shopping for Giftco products a pleasant event by first shopping at Giftco and then going out for lunch.

Giftco has a reputation and identity of being customer-oriented. Their policy is to address any problems with their products immediately. Quality customer service is a part of their strategic identity. Any flaw in a product is grounds for immediate recall or replacement. Extensive packaging protects the products, which are fragile, from breakage during shipping. One failed product was a gift that was intended for use as a server for cold liquids. Some customers, however, put hot liquids into the product which caused damage. These items were discontinued, and customers who had bought the products were compensated.

To acknowledge any environmental issues would create a stark contrast to the image of Giftco described above. For a company whose products are a part of life's happy occasions, negative environmental issues are anathema. The contrast between the serene beauty and happy images of the product displays at the factory store, and the image of the lagoons of T-tainted sludge behind the manufacturing plant is stark. Thus the exposure of environmental issues threatens to dismantle the carefully crafted strategic identity of the firm.

At Kodak strategic identity also interacts with the environmental issues, but is more easily integrated. The Kodak mindset is of a quality photographic film and equipment company. A Kodak manager used the analogy of Intel's use of labels on computers that announce "Intel inside." The idea was that Kodak film inside a camera was an assurance of quality that customers understood. "Our strength is in the film".

As a photographic film company, their use of chemicals and pollutants to manufacture their products is common knowledge. Unlike Giftco, Kodak has a tradition of community involvement and concern. They have interacted with the community in both positive and confrontational situations. On one hand their philanthropy is renowned in their home community of Rochester, New York. On the other hand, they have faced concerned community residents about a possible brain cancer cluster in the community surrounding Kodak Park (Kodak web site, 2000).

When asked about the current level of community concerns about pollution at Kodak Park, a manager states that Kodak has tried to clean up the sins of the past, and that all of the skeletons are out on the table. He reports that they are monitoring the wells around the contaminated area and are not finding any indication of concern. At least among insiders, the Health, Safety and Environment (HSE) program at Kodak Park is known for its rigor. A manager reports, "There's an incredible level of scrutiny" of all operations. Also, unlike the film business, the facility where the single use camera was developed is geographically distinct from Kodak Park, and has not been a source of environmental concerns.

3.3 Envisioning the double bottom line

The two companies also differ in the extent to which they envision a double bottom line, wherein positive business outcomes (including increased market share, higher profits) are linked to improved environmental performance. Both firms revised and improved their manufacturing processes at the same time that they addressed environmental issues with their respective products. At Giftco, new technology was introduced to the manufacturing process, and the increased computerization improved quality control. At Kodak, automation at the single use camera manufacturing facility increased the efficiency of the manufacturing process.

However, each firm interpreted these developments differently. At Giftco, improvements to the manufacturing process were not viewed as related to the greening of the product. In other words, Giftco managers did not interpret events as evidence of a double bottom line, where what was good for the environment turned out to also be good for business.

Why weren't the two streams of thought connected at Giftco? The Health, Safety, and Environment (HSE) staff instigated the effort to eliminate T from the products and manufacturing processes. The engineering staff had already made plans for the introduction of new technology and quality control improvements. The push to eliminate T, however, provided a catalyst for these changes. When asked if they would have made these changes anyway, Giftco managers replied that they would have gotten around to it eventually. The HSE initiative to eliminate T prompted them to make these changes sooner.

The technology and quality improvements were driven by the company's emphasis on the quality and enduring nature of their products. The efforts to eliminate T, on the other hand, initiated from the pressure by outside regulatory agencies and concerns for worker health and environmental pollution from the waste stream. These two separate pressures were never seen as interrelated. The managers of Giftco continued to view these two developments in the

company as separate events. They never concluded that the environmentally oriented process improvements, coupled with quality and technology advances created a double bottom line.

In contrast, at Kodak, double bottom line thinking is more widespread through management processes. In the selection of new product concepts to develop, no new programs that are unfriendly to recycling are chosen. HSE staff is also more active in product development. In sales, they have put new incentives in place to sell more recyclable products: "They set up this incentive system from scratch. It didn't exist before this [recycling] program". In the field, they have created a training tape to teach film processors how to recycle used cameras and about the value of recycling for the environment. A Kodak manager sums up the double bottom line viewpoint: "As for the financials, it saves us money. We see recycling as a competitive advantage."

Concern for the environment is even beginning to be integrated into understandings of strategy at Kodak. Managers report that their strategy is to, "Bring photographically superior products to consumers..." They view their core competence as superior pictures through better value, and part of the value comes from the recycling program.

Why are similar events interpreted differently at these two firms? One answer may lie in the different roles that HSE staff played in the two cases. At Kodak, the same group of product developers planned and implemented the single use camera and the subsequent recycling program. Thus recycling was integrated into the product design and business plan, the way any other product feature would be. These innovators were geographically separate from the HSE staff who worked at the headquarters building. They worked from a product development perspective, focusing on creative product design rather than the regulatory requirements that take up the attention of HSE staff. The innovators welcomed the challenge of redesigning the single use camera.

At Giftco, however, the HSE staff instigated the product's redesign under pressure from regulatory agencies. Thus the redesign efforts were regarded as another unwanted cost of doing business in a regulatory climate, despite the quality improvements in the manufacturing process and the positive environmental benefits.

4. CONCLUSION

4.1 Where are we in the transformation to sustainability?: Firms enter the new paradigm piece by piece, as in the construction of a mosaic

This paper sought to bring some understanding to two conversations in the business and environment literature:

- 1) Can positive publicity be used as a reward to encourage green activity in firms?
- 2) Where are we in the transformation from a paradigm in which business and environmental interests are adversarial to a paradigm where business and environmental interests are compatible?

Cases of product development were studied that capture these themes in the context of business activity, rather than analyzing them out of context. We looked at how these themes played out in cases where products were subjected to criticism on environmental grounds, then revised to become more green.

In conclusion, these cases suggest a model of change and transformation that proceeds piece by piece. Both Kodak and Giftco are cases of paradigm inconsistency. Both firms are old enough to have been in business before the era of environmental regulation and awareness. Therefore, both firms have histories of negative environmental impact. Giftco is a company with a pristine image as a responsible firm and a producer of fine, quality products that are cherished by its customers. Yet this company has a history of negative environmental impacts that have never been publicized. Kodak, on the other hand, has a publicized history as a polluting photochemical company. Yet Kodak has taken a leadership role in recycling and product stewardship within its industry, and has a vigorous environmental management system (Lave, et.al. 1997). Thus both of these firms straddle the two paradigms.

Both cases of secretly environmentally friendly products suggest that the process of conversion from a paradigm where business and environmental interests are adversarial to one where business and environmental interests are compatible proceeds piecemeal, as in the construction of a mosaic (Outen, 2000). There are leaders and laggards in these organizational change processes. Cells of the organization proceed simultaneously with greening their activity in isolation of each other. Eventually a mosaic of sustainable business may emerge. Diffusion models of change, suggested by previous studies of greening of product innovation, do not capture this process (Heller 1998).

At Giftco, the HSE manager acts alone. He describes himself as the "designated felon" of the firm. His job is to keep the firm compliant with environmental regulation, and he is held responsible by law and the firm for accomplishing this goal. His attention to environmental issues is not shared by other functions, e.g., corporate headquarters, product development, or customers.

The product innovators at Kodak also worked in isolation. They created the redesign of the one time use camera in a disconnected, "skunk works" operation. This initiative was not the result of contact with HSE staff. Yet the HSE staff also shares the goals of sustainability. The laggards in the Kodak system may be the marketing department which fears that the recycling message may overshadow the core competence of Kodak as a quality photographic film and equipment company. Also, the customers are laggards in this story, as many of them still think of the single use camera as a disposable product and a symbol of the throwaway, environmentally irresponsible culture - even though each package displays information about the recycling program.

Thus the secrecy of these environmentally friendly products is partly explained by the schizophrenic stage of transformation to sustainability and the mosaic nature of the change process. The extent to which the environmentally friendly activity is contained in one part of the organization, whether in a HSE Department or a team of product innovators, the whole picture is obscured. Sustainable thinking gets isolated in separate parts of the firm, and

evidence of the double bottom line is not apparent. Thus Giftco's management does not connect the manufacturing process improvements with the greening of their products. And Kodak's customers continue to think of the single-use camera as a throwaway product ten years after the recycling program began.

4.2 Dynamics of disclosure, visibility, and secrecy

The dynamics of disclosure differ in each case. At Giftco, the unspoiled image creates a force for secrecy. The firm sees that its interest is in keeping information private. They reason that the revelation of good news may also lead to revelations about the firm's negative environmental impact. Publicity is, therefore, experienced as a threat rather than as reward.

The dynamic at Kodak is reversed. Here current practices are enacted against a backdrop of historic, publicized negative environmental impacts. The drive here is to tout activities that represent responsible environmental behavior. Under these circumstances, publicity is experienced as rewarding. The "Waste Maker" award for the original throwaway camera reinforced the effort to develop the recycling system. In other words, making the bad news public, created the drive to create a good news story and to make it public as well.

Thus, the model that emerges from these cases is a process where publicity of positive environmental activity is experienced as rewarding *only* when it follows after the publicity of negative environmental impact. Without the visibility of negative environmental impact, the prospect of publicizing positive environmental activity is experienced as a threat. The threat is that attention will be drawn to negative aspects of the firm's environmental performance.

The policy question, then, becomes "Under what circumstances, is publicity of green activity rewarding to a firm?" The answer is, "When there has been previous publicity of negative environmental impact." This finding is consistent with research that suggests that visibility creates pressure for firms to green their activities (Bowen 2000). Companies who have experienced negative publicity of their environmental impacts are in a position of being motivated to seek publicity for more positive environmental activities. In the words of Giftco's manager, "They have nothing to lose."

REFERENCES

Bowen, Frances E. *Environmental Visibility: A Trigger of Green Response?*. Business, Strategy and the Environment, 9, 92-107, 2000.

Carson, Rachael. *Silent Spring*, Boston: Houghton Mifflin, 1962.

Cohen, Mark A. *Information as a Policy Instrument in Protecting the Environment: What Have We Learned?* Paper presented at the Business Environment Learning and Leadership (BELL) Conference, Vanderbilt University, Nashville, Tennessee U.S.A., July, 2000.

Field, Karen A. *Say Greeeeeeeen!* Design News, 68-74, May 15, 2000.

Gladwin, Thomas N., Kennelly, James J. & Krause, Tara-Shelomith. *Shifting Paradigms for Sustainable Development: Implications for Management Theory and Research*. Academy of Management Review, 20, (4), 874-907, 1995.

Hart, Stuart L. *A Natural Resource-Based View of the Firm*. Academy of Management Review, 20, (4), 986-1014, 1995.

Hawken, Paul, Lovins, Amory & Lovins, Hunter, *Natural Capitalism: Creating the Next Industrial Revolution*. Boston: Little, Brown and Company, 1999.

Heller, Trudy. *Bridging Compliance and Main Business Innovation: Managing Product and Process Development for a Sustainable Environment*. Paper presented at the 7th International Greening of Industry Conference. Rome, Italy 1998.

Hoffman, Andrew J. *Institutional Evolution and Change: Environmentalism and the U.S. Chemical Industry*. Academy of Management Journal, 42, (4), 351-371, 1999.

Hoffman, Andrew J. & Ventresca, Marc J. *The Institutional Framing of Policy Debates*. American Behavioral Scientist, 42, (8), 1368-1392, May 1999.

Jennings, Deveraux & Sandbergen, Paul A. *Ecologically Sustainable Organizations: An Institutional Approach*. Academy of Management Review, 20, (4), 1015-1052, 1995.

Kodak web site, www.Kodak.com, 2000.

Lave, Lester B, Conway-Schempf, Noelette, & Horvath, Arpad. *Eastman Kodak Case-Implementation of TQEM at Kodak Park's Utilities Division*. Washington, D.C.: Management Institute for Environment and Business, 1997.

Lofland, John & Lofland, Lyn H. *Analyzing Social Settings: A Guide to Qualitative Observation and Analysis*. Belmont, California: Wadsworth Publishing Company, 1984.

Outen Ronald B. *Designing Information Rules to Encourage Better Environmental Performance*. Washington, D.C.: World Resources Institute, 2000.

Porter, Michael E. & van der Linde, Claas. *Green and Competitive: Ending the Stalemate*. Harvard Business Review, 120-134, September-October, 1995.

Schatzman, Leonard & Strauss, Anselm L. *Field Research: Strategies for a Natural Sociology*. Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1973.

Yin, Robert K. *Case Study Research: Design and Methods*. Newbury Park: Sage Publications, 1989.