

THE INDUSTRIAL EVOLUTION
Creating a Foundation of Corporate Sustainability
A Case Study of Kafus Industries

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THESIS SUMMARY

The decline of the ecological systems that support life on this planet poses one of the most critical problems facing humanity as we enter the 21st century. Moreover, the ecological destruction caused by corporations is also one of the greatest challenges, and therefore, opportunities for the business community in the immediate future. In 1990, an author for *The Economist* wrote, “What defense has been to the world’s leaders for the past 40 years, the environment will be for the next 40.”

From the beginning of the Industrial Revolution through the 1950s, the business community denied the importance and impacts of pollution and resource extraction. The wave of social changes that occurred throughout the 1960s awoke a social consciousness in the American people and created the first major public outcry against corporate environmental abuses. As the consequences of industrial impacts on the environment became more evident, controlling pollution through end-of-pipe regulations became the dominant form of environmental management during the 1970s. The plethora of life-threatening environmental disasters that occurred during the 1980s woke up the corporate community, stimulating many companies to go beyond compliance and strive for zero impact.

From the 1990s and beyond, sustainability has become the dominant paradigm of the modern corporation. The greening of industrial operations emphasized incremental steps towards environmental responsibility such as energy efficiency and pollution prevention. Yet, it did not address the underlying issue. Sustainability, however, is about making transformational changes in the corporate vision, operations and long-term strategic plan. It is about addressing the role and responsibilities of the corporation in society, rather than simply reducing the negative impacts of their activities. Sustainability emphasizes stewardship to both the earth’s ecological systems and the communities in which it operates.

Very few corporations have taken up the mantle of sustainability. Indeed, there seems to be little incentive to embrace the challenge since lenient government regulations, a lack of public demand and minimal interest from industry leaders collectively reinforce the practice of ‘business as usual.’ Surprisingly, a small but growing number of companies are creating sustainable strategies from the ground up. One such company, Kafus Industries, has committed itself to become a global, low cost producer of superior commodity materials made from sustainable and recoverable resources.

Kafus began to create a foundation of sustainable strategies by first defining a vision which unites economy with ecology. Next, they established a strong network of managers who together are working to lead the company into the sustainable revolution. Amidst a dynamic corporate culture, Kafus is striving to transform significant environmental problems into practical economic solutions. The incentives driving them to integrate sustainable strategies include a desire to create competitive advantage and new market opportunities, implement innovative technologies, and demonstrate social responsibility, all while significantly reducing the ecological impact of industrial activity.

On the one hand, Kafus is not like any other company. Their business operations are predicated on reducing the ecological impact of industrial activity through a practical

and profit-driven manner. On the other hand, they are just like every other company in the sense that they are at the mercy of their shareholders and the ultimate bottom line. The future of Kafus Industries is presently in jeopardy due to an absence of anticipated material revenues and a much too rapid diversification of their business units. Both have been cause for shareholder concern and speculation regarding a lack of an apparent strategic focus. Nonetheless, the sustainable strategies implemented by key decision-makers within the company are evident in their vision, leadership, product designs and production processes. Indeed, Kafus has created a foundation of corporate sustainability. Yet, their ability to function as a business remains undetermined.

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This thesis has dominated my thoughts and filled my days for well over eight months. It has taught me a great deal about the dynamics of business and the concept of sustainability, changed my outlook on life and redefined my desires and goals for the future. It has been quite a journey. Along the way, I have had the support of professional associates, friends and family. Collectively, they have broadened my understanding of the subject matter, kept me on target both factually and conceptually, and provided invaluable editorial and moral support.

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INTRODUCTION

The difficulty lies, not in the new ideas,
but in escaping the old ones, which ramify,
for those brought up as most of us have been,
into every corner of our minds.

--- John Maynard Keynes

Death. Doom. Destruction. Apocalyptic prophesies often seem to be the overriding message of the well-meaning, albeit naïve, self-proclaimed college environmentalist. They have youth, energy, freedom from responsibility, and *lots* of free time on their side. Combine this with a deep-seated passion to ‘save the environment’ and a cynical attitude towards authority and you get the prototypical college environmentalist. Even though the majority produce only empty rhetoric, a growing number are creating innovative methods for channeling their talents and energy into proactive, consciousness-raising campaigns. Armed with little more than a cell phone and a laptop, recent college environmentalists have caught the entire country off-guard with a ‘civilly disobedient’ global protest against the World Trade Organization, persuaded Bill Ford, Jr. to withdraw from the Global Climate Coalition, and set up camp in the limbs of a California redwood for almost two years in a valiant attempt to stop deforestation. Each of these successful campaigns have a striking attribute – they all targeted corporations guilty of global ecological destruction.

This similarity is not surprising considering our global economy is overwhelmingly corporate. Moreover, society is morphing into a single global culture dominated by billion dollar organizations that sell society homogenized food, clothing, commodities, and services. In turn, a rapidly developing world with six billion blossoming consumers is pushing the planet’s life-sustaining ecological systems beyond their limits. To be fair, the current state of corporate dominance is not just the fault of the business community. The public sector, civil society, and individuals each shoulder a part of the blame for they are also consumers and voters. Therefore, our currently unsustainable living conditions are everybody’s problem. Yet, corporations are receiving the brunt of the criticism for two reasons. Not only do they produce the majority of the world’s pollution and waste, but their financial resources and incredible capacity for innovation make them the best – if not the only – candidates capable of implementing real solutions.

To date, corporations have received mixed reviews for their efforts to take responsibility for their actions. On the plus side, there have been substantial quantitative improvements over the last half-century. Emissions are down in the United States and the Environmental Protection Agency has created and effectively implemented several methods to reduce pollution and other forms of corporate environmental destruction. There has also been a fair amount of progressive movement towards recycled materials and green products in the marketplace, even though they represent a small, high-end niche. Most optimistically, a few forward-thinking companies have begun to earnestly integrate concepts associated with sustainable development into their strategic planning.

Unfortunately, however, the negatives outweigh the positives. The majority of the companies with well-earned reputations for environmental excellence consistently deliver mixed signals. It seems that their eco-commitment is often fleeting when the day-to-day struggle for survival reaches intense levels. For the most part, dealing with the environmental consequences of production and development are simply viewed by corporations as an oppressive burden. It is not surprising then that the concept of sustainable development hardly even registers a blip on the corporate radar screen.

Business leaders are often accused of disregarding their social and environmental responsibility for the sake of acquiring higher profits. Yet, they cannot be entirely blamed when money is the lifeblood of their organization. A company will not survive for very long if it does not ultimately take in more than what it pays out. But profit may

not be the underlying reason for the slow acceptance of corporate sustainability. With the daily pressures from shareholders, work overload, and unpredictable occurrences it is no wonder that the environment is not viewed as a pressing issue. It is too easy to push it to the back burner. But, to put it bluntly, business executives are in denial about the importance of giving immediate attention to sustainable development. In essence, all living systems upon which life depends are in steep decline, and the rate of decline increases exponentially as material prosperity accelerates. Given that they are liable for increased consumption, it is essential that corporations come to terms with sustainable development, focus their sights more accurately and start taking action.

Another reason why corporations may not be wholeheartedly embracing sustainability is because they operate in a flawed market. Over the last century, corporations have been irresistibly drawn to low costs and high profits. The focus of their responsibility has been on shareholders, investors, and any other financial institutions that help them to grow, acquire, and accumulate wealth. In consequence, they have routinely disregarded the social and environmental repercussions of their actions, an attitude reinforced by a market system created on a foundation of neoclassical economics – an overriding discipline, which adheres to the assumption that both natural and social environments have no intrinsic worth since they lack monetary value.

Given the prevailing economic framework, incentives for making a serious commitment to sustainable development seem virtually nonexistent. It should come as a surprise then the extent to which many corporations are transforming their current business practices and incorporating a vision of sustainability. Be it the power of public persuasion, the piercing foresight of a select group of CEOs, or, least likely, the apocalyptic prophecies of a few young environmentalists, there is a paradigm shift occurring in business. This thesis attempts to demonstrate that corporations can, and indeed must, take responsibility for their destructive environmental impact by implementing sustainable strategies into their operations, strategic planning, and most importantly, into their mindset concerning the function of the corporation in society. Due to limited experiences within, and observations of, the corporate world, the focus of this thesis is largely on American corporations and industry.

Specifically, this thesis consists (in addition to the summary and introduction) of six chapters. They are as follows:

- **Chapter 1** (*A history of the Corporation*) provides a brief history of the corporation in American society and its evolving social and environmental responsibility. The chapter is broken down into three parts – the rising notion of corporate accountability, beginning in the 1850s and lasting through the 1950s, the emergence of the corporate responsibility movement from the 1950s through the 1980s, and the surfacing of sustainable development during the 1990s.
- **Chapter 2** (*Shifting the Business Paradigm*) explores the concept of sustainable development as strategic issue in business. It also identifies key steps for building a foundation of corporate sustainability, in addition to describing several companies pursuing sustainability and their incentives for doing so.

- **Chapter 3** (*Analyzing Corporate Sustainability*) describes the research design of the thesis. It looks at the significance of using case studies and surveys as the methods of analysis.
- **Chapter 4** (*A Case Study of Kafus Industries*) examines in great detail how and why Kafus has implemented sustainable strategies into their strategic planning. This chapter gives a brief overview of the company, explores the current business context, and inspects specific areas in which Kafus has demonstrated their commitment.
- **Chapter 5** (*Beyond Greening: Incentives for Pursuing Sustainability*) describes the survey results collected for the purpose of pinpointing the incentives that drive key decision-makers within Kafus Industries to pursue corporate sustainability.
- **Chapter 6** (*Learning by Example*) offers guidance for pursuing sustainable strategies in light of the case study on Kafus Industries. It also concludes with the main conclusions concerning Kafus' incentives for implementing sustainable strategies.

My purpose in writing this thesis is one part descriptive, one part analytical, and one part prescriptive. Describing the history of the corporation and the issue of corporate sustainability sets the stage. They allow the reader to put the analytical section, the case study and the survey results, into the context of the current sustainable development movement and how it relates to business. Chapter 6 is prescriptive in its attempt to recommend to other companies the steps necessary for integrating sustainable strategies into strategic planning based on the critical state of the global environment, the evolving business paradigm, and especially the pioneering efforts exemplified by Kafus Industries.

CHAPTER 1

A History of the Modern Corporation

We accept the verdict of the past until the need for change
cries out loudly enough to force upon us a choice between the
comforts of further inertia and the irksomeness of action.

--- Judge Learned Hand

Much of present day thinking and action in the area of corporate sustainability is a product of the past. The history of the corporation has had a juxtaposed impact on society's present opinion about the role of the modern corporation in society. In one respect our perspective is built on a legacy of mounting public awareness and activism, as well as increasing corporate responsibility in terms of the economic, ecological, and social impacts of business. On the other hand, the corporate sustainability movement has arisen in response to a sheer rejection of traditional business principles, practices and production methods, whose negative impacts have compromised the quality - and perhaps the utter survival - of life on this planet. Indeed, the introduction of sustainable development into the business context cannot be linked to one specific event in history. Rather, it has grown out of a series of occurrences spanning almost two centuries. For this reason, it is imperative to have a brief knowledge of the path that led corporations to where they are today in order to understand their current actions and what the future may hold in store for them. Reflecting on the history of the role and responsibility of the modern corporation is necessary in order to comprehend why corporate sustainability is crucial to their future success.

The Rising Notion of Corporate Accountability

1850s-1950s: The Development of the Modern Corporation

The period of 1775-1930 was one of rapid growth, change, and industrialization in both Europe and America. In America it involved becoming a separate nation under its own rule and destiny; escape from European dominance but with the retention of many business and commercial ties; rapid industrialization and continued expansion westward; the beginning of unions; and a slow continual drift away from God and Judeo-Christian values and ethics to a more secular, pragmatic, and technocratic way of thinking and acting. This latter aspect has had a defining influence on the nature and conduct of the modern corporation.

Up until the 1930s, corporate disclosure of financial information (to say nothing of environmental or social information) was practically nonexistent. During the pre-Civil War years (1861-1865), states usually chartered corporations for specific purposes, such as the construction of a road or a canal, and for set periods of time. The corporate lifespan simply lasted as long as the project, which would distribute the profits to the shareholders and disband upon completion. During this time, every corporate charter represented a kind of social contract; corporations were granted a license to operate in return for providing a social benefit. Standard business procedures during the early 1800s consisted of setting time limits on charters, holding stockholders liable for debts incurred, and modifying the charter if the original intentions were left unfulfilled [1]. Operating as a public service provider accounts for the major difference between the original corporate bottom line and the companies of today for whom profit is the definitive motive for conducting business.

The role of the corporation in society changed dramatically at the end of the Civil War as America began to produce its own business leaders, thinkers, and practitioners. Frederick Taylor, considered by many to be the father of scientific management, and James D. Mooney, whose scalar principle is the foundation of today's highly recognized pyramidal organizational scheme, are just two examples of business leaders who greatly

influenced 19th century American industrial activity [2]. Their combined focus on a management system of maximizing efficiency and hierarchical relationships guided business practices during this time. By the 1870s, major corporations were pressuring federal and state governments to treat them in ways that allowed for uncontrolled accumulation of wealth with minimal employee or public liability [3]. In turn, this gave rise to unions who were very concerned with these procedures and felt that they were being overworked and underpaid for the sake of maximizing the company's profits.

The 1886 Supreme Court ruling which stated that a corporation was a 'natural' person subject to all protections of the Constitution further removed corporations from their financial, social, and environmental responsibilities. This ruling resulted in the reversal of hundreds of state laws protecting wages, working conditions, ownership, and tenure of U.S. corporations. Furthermore, it began a period of more than 40 years of government and corporate secrecy. Increased corporate accountability (not to mention the eventual pursuit of sustainability) would have to await the passing of several decades, one world war, and the collapse of the stock market.

The United States exited the 19th century on a wave of rapid industrial growth. However, corporate accountability suffered in two ways during this time. First, the quick rise to prominence of a few dynamic and innovative men who were driven by self-interest to succeed in business. Secondly, an accounting system designed to meet the desires of shareholders, rather than the interests of all stakeholder groups [4]. The former reason alludes to dominant industry leaders such as Cornelius Vanderbilt, John D. Rockefeller, J.P. Morgan, and Andrew Carnegie, whose prosperous legacies would not have been possible without their cozy government ties and an absence of corporate disclosure rules. Stories abound on the monopolistic practices of these men and the shady dealings, which mark their climb to the top. Minimal laws and a lack of meaningful social legislation resulted in many of their corporate methods and tactics being deemed as unethical, immoral, and, in many cases, illegal today.

Though transparency was lacking, it became evident by the 1880s that something had to be done about the unsustainable monopolization of industries. Congress took control of the situation by creating the Interstate Commerce Commission (ICC) in 1887 and by enacting the Sherman Antitrust Act in 1890. The latter was a legislative milestone in that it contained the broad purpose of encouraging the growth of competition through the removal of specific impediments to the process, to make certain types of business combinations and efforts to monopolize unlawful, and to specify penalties for violations to the law [5].

The trust-busting activities of President Theodore Roosevelt continued through the early 1900s with the creation of the Federal Trade Commission (FTC). This landmark event was a major step towards corporate accountability because it granted the FTC legislative power to obtain information from corporations concerning unfair trade practices. These and other actions by the government to quell corporate misconduct represent a historical moment in the life of the modern corporation. On the one hand, they mark an early trend towards increased corporate responsibility. Yet, the government's inclination to regulate corporate conduct put big business in a defensive position, giving rise to a rocky relationship. This characteristic differentiates the United States from most other industrialized nations where government-business relationships tend to reflect a shared sense of public duty, rather than suspicion [6].

Government regulations to maintain commercial competitiveness and fairness were firmly established by the first quarter of the 20th century. However, it took the stock market crash of 1929 to place corporate accountability on the top of their agenda. A decline of more than 80 percent in the market value of all securities on the New York Stock Exchange from 1929-1932 convinced Congress to instate corporate accountability standards [7]. Congress took action by implementing the Securities Act of 1933 and the Exchange Act of 1934. Both were major pieces of legislation and significantly increased corporate accountability standards. The primary focus of these acts was increased financial disclosure, but they also included the first elements of social and environmental accountability. Section 14(a) of the Exchange Act states that the Securities and Exchange Commission (SEC) has the “power to promulgate proxy regulations as necessary or appropriate in the public interest or for the protection of investors [8].” According to Williams, the laws were meant to reinstate some social control over corporate behavior through public disclosure, thus allowing all stakeholders, not just shareholders, to investigate a corporation’s activities [9].

With Roosevelt in his third term and the United States entering World War II (1939-1945), the economy improved and government began to work closely with business once again. The resulting post-WWII prosperity gave way to a decade of relative economic stability and political tranquility. The “silent generation,” as they are called, depicted a decade of social conformity, when the almighty corporation was the key to a higher standard of living and the realization of the American dream. In a sense, the 1950s were the calm before the storm.

The Emergence of the Corporate Responsibility Movement

1960s: Redefining the Relationship between Business and Society

The 1960s were clearly a turning point in social history. While the legislative actions of Roosevelt’s administration marked a burst of activity in terms of corporate accountability, these efforts do not compare to the momentous changes that occurred during the 1960s. The sixties signify much more than a decade of urban riots, campus protests, and consumer boycotts. It was a watershed period when social traditions were dismantled and relationships were redefined: man and woman, individuals and institutions, majorities and minorities, business and society, and economy and ecology [10]. It was a decade of ‘movements’ - women’s rights, civil rights, environmentalism, consumerism, and anti(Vietnam)war - all of which formed the basis for yet another movement – the corporate responsibility movement.

Not much changed in terms of corporate disclosure until the mid-1960s when legal challenges and the globalization of commerce stimulated all types of stakeholders to pursue access to corporate information pertaining to their interests. The release of Rachel Carson’s book, *Silent Spring* [11] catalyzed the environmental movement. Her stinging account of the ecological impacts of pesticides such as DDT stimulated a backlash of criticism and outright denial from the major U.S. chemical corporations. *Silent Spring’s* prophetic account of the harmful effects of chemicals also stimulated a wave of public distrust for corporations in general.

Ralph Nader, one of the earliest pioneers in the corporate responsibility movement, came to the public’s attention in 1965 with his best-selling book *Unsafe at*

Any Speed. The book exposed unsafe cars such as General Motors' dangerously defective Corvair. When GM went to extraordinary lengths to discredit Nader, he sued them for invasion of privacy. GM, having admitted wrongdoing before a Senate Committee, settled the case. With the money from the settlement, and the reputation for standing up to predatory corporations, Ralph Nader launched the modern consumer movement, a precursor to the corporate sustainability movement. This stimulated a public interest movement consisting of dozens of organizations all over the country with hundreds of citizen leaders working daily for a just society. Nader's actions still reverberate through society today as his supporters, affectionately termed "Nader's Raiders," continue to push for numerous laws to combat corporate abuse, increase citizen access to government, and protect consumers, workers, taxpayers, and the environment.

The public's awakening to corporate negligence and dishonesty, in addition to the wave of action in response to it, resulted from a culmination of historical events and changes. According to Ian Wilson, strategic management consultant and author, the major reason for this sudden arousal was the fact that society was in the midst of a major historical transition [12]. The sixties were the beginning of a transformation from an industrial to a post-industrial society, an event whose magnitude is rivaled by only two other transitions in history: once when humans evolved from hunter/gatherers to settled farmers and later when society moved from an agricultural to an industrial economy. Like all major restructurings, the transition to a postindustrial society was overwhelming and regarded by many with suspicion, particularly by American industrial leaders, who had built a world-class economy on manufacturing.

This transition from an industrial to a post-industrial society also changed the character of work from 'things-oriented' to 'service-oriented.' Communications, transportation, utilities, banking, education, and wholesale and retail trade began pulling workers away from the assembly lines and sewing machines. This transition also accounted for the changing attitude towards work. Employees wanted to be regarded as *brains* rather than *hands*, specifically those individuals in a professional or managerial position. The changing concept of the role of American workers in industry is largely due to an increase in the average education level. As people became better educated they gained a larger sense of self-respect and wanted to be treated as individuals. A decreased tolerance for authoritarianism and the 'what's good for the company is good for the worker' attitude also helped to redefine the concept of work.

Further characteristics of this new society include the interaction between high and increasing levels of affluence, education and technology. These forces were by no means new to society. However, they produced a volatile reaction when combined with the change in societal values, attitudes and behaviors. The result culminated in a redefinition of the concepts of economic growth, authority, work, and company loyalty.

During the 1960s affluence doubled, which set in motion major changes in consumer spending and saving. It also changed how people viewed material goods. As income levels rose, an increased emphasis was placed on quality over quantity. This in turn changed the way society viewed the purpose and use of technology. The 'anything is permissible' mentality faded in response to a heightened awareness concerning the negative environmental impacts and social consequences resulting from the abuse of technology. At another level there was the beginning of an ethical movement that asked the question, 'Does *can* imply *may*?' In effect, this attitude substituted a moral

imperative for a technological imperative. Society, it seemed, was raising its sights to a higher level where people could make decisions and press for change in a variety of areas from economic justice, to social equity and environmental responsibility. Together these forces resulted in the rapid decline of the corporation's public standing accompanied by an overwhelming distrust in essentially all large institutions including government. For all the upheaval and conflict that the sixties caused, the fact remains that this era gave rise to a whole new set of beliefs and values which have forever changed the role of the corporation in society.

1970s: Regulating Corporate Citizenship

The corporate responsibility movement of the sixties continued on into the seventies with increased government response. The amount of legislation passed during this decade had not been seen since the 1930s. The creation of the U.S. Environmental Protection Agency (EPA) in 1970, whose mission it is 'to protect human health and to safeguard the natural environment - air, water, and land – upon which life depends,' was the initial sign that corporations could no longer hide their heads in the sand. Grudgingly, they began to accept responsibility for their actions. Nevertheless, most corporations were just continuing to react to society's demands instead of anticipating them.

Socially and environmentally-oriented legislation followed soon after the creation of the EPA with the Clean Air Act, the Clean Water Act, and the Toxic Substance Control Act (see Table 1). Other great achievements by policymakers include the Occupational Health and Safety Act (OSHA), which pledged to save lives, prevent injuries, and protect the health of America's workers. Additionally, the Consumer Product Safety Commission was created in order to 'protect the public against unreasonable risks of injuries and deaths associated with consumer products'. However, Congress did occasionally rule in favor of the corporation. For instance, during the 1970s the Natural Resource Defense Council attempted to increase the scope of the Securities and Exchange Commission. Instead, the court reaffirmed the principle of economic "materiality" meaning that corporations were only required to disclose social information when it was directly relevant to an investor's decisions [13]." Ironically, this decision set a precedent because it revealed that environmental and social matters were of *some* importance to an investor's decisions.

In 1972, some of America's largest industry leaders took a major first step towards corporate responsibility. The Business Roundtable was founded on the belief that the business sector in a pluralistic society should have an active and effective role in the formation of public policy. Moreover, they were advocating increased cooperation with the government. Consisting of more than 100 CEOs of major corporations, the Business Roundtable created a statement on corporate responsibility that explained how far business had come and how much progress they had yet to make [14]. The formulation of The Business Roundtable was a progressive step towards corporate responsibility because it recognized that social issues permeate through all business operations. However, their primary objective was, and still is, abundantly clear – profit and the relationship with shareholders is the corporation's primary focus. Even by the late 1970s, only a handful of American companies were actually intertwining social and environmental issues into their financial framework. General Electric was one such company who related all of their business decisions to one very significant phrase:

Without a proper business response, the *societal expectations* of today, become the *political issues* of tomorrow, *the legislated requirements* of the next day, and the *litigated penalties* of the day following [15].

1980s: Going Beyond Compliance

Federal legislation in the social and environmental arena stagnated during the 1980s while deregulation and freedom from antitrust enforcement increased. Greater emphasis was placed on society controlling itself with the multitude of existing laws that were already in place. Several companies took advantage of the opportunity to innovate without government interference. Companies like Ben & Jerry's and The Body Shop created market appeal based largely on their commitment to social responsibility. Their counter-culture founders astonished the corporate community by showing that they could continue to increase profits while behaving responsibly.

At the same time, the impact of the Reagan/Bush years – in which government gave business more room to operate without interference or accountability – slightly hurt earlier corporate responsibility efforts of the 1960s-70s. During the 1980s, Congress advocated a hands-off policy, stating that what was better for business was better for society. By granting new power and freedom to business, Congress weakened several types of federal legislation. However, the EPA and OSHA continued to press for more policies.

The lull in corporate accountability and responsibility that characterizes the 1980s ironically coincides with two of the worst environmental disasters in history: the 1984 release of toxic chemicals by Union Carbide's plant in Bhopal, India, and the 1989 Exxon Valdez oil spill in Prince William Sound, Alaska. Up until the Union Carbide disaster, good corporate citizenship consisted of simply obeying the law. Meanwhile, the manufacture of products and chemicals with catastrophic implications to both human health and the environment continued unabated.

In the early hours of Dec. 3, 1984, gas leaked from a tank of methyl isocyanate (MIC) at a plant in Bhopal, India, owned and operated by Union Carbide India Limited (UCIL). Earlier environmental catastrophes such as Love Canal and Times Beach paled in comparison. The state government of Madhya Pradesh in its official documentation of deaths and injuries reported that approximately 3,800 persons died, 40 persons were left with permanent total disability, and 2,680 persons with permanent partial disability. "Bhopal was the environmental equivalent of Pearl Harbor, a violent wake-up call that shook many nations and many firms," writes Bruce Piasecki [16]. Literally overnight, it became clear to corporate executives and the general public that corporate environmental practices had to change.

Fortunately, things did begin to change. The Bhopal disaster demonstrated how much risk companies had at stake by locating their facilities in communities. The chemical industry responded by establishing Community Action Panels (CAPs) in the locales where their plants were situated. CAPs had no say in corporate decisions, but they were more than just public relation tools. They made corporate managers more sensitive to public concerns by encouraging dialogue in a non-confrontational setting [17]. Congress responded to the public's need for greater corporate responsibility as well with the enactment of SARA (Superfund Amendments and Reauthorization Act) in 1986. The act did not abolish the manufacture of toxic chemicals, however it mandated companies to publish annual emission levels of hundreds of chemicals. With the enactment of the

law, the American public found itself in a new relationship with the corporate world. This slight increase in transparency and trust marked another step towards corporate responsibility.

In 1989, *Time* magazine declared the environment the media event of the year after the supertanker Exxon Valdez ruptured, spilling 11 million gallons of crude oil in Alaska's Prince William Sound. This event raised the environmental wager once again and brought corporate responsibility to a new level. It was no longer satisfactory to obey the law; corporations had to exceed existing regulations and expand into unknown territories such as eco-efficiency, de-materialization, and product stewardship. By the end of the 1980s, the era of Beyond Compliance was in full swing [18]. However, it would take another decade before companies would begin to view environmental management as part of the profit-making framework, rather than as a financial burden.

Towards Corporate Sustainability

1990s: Sustainable Development and the Modern Corporation

The 1990s began with an unprecedented event – The Earth Summit held in Rio de Janeiro, Brazil. Sustainable development was a high priority at the 1992 conference hosted by the United Nations. Attendees included government and industry leaders, as well as over 30,000 representatives of non-governmental organizations. The phrase most often cited to describe the term ‘sustainable development’ has its roots in *Our Common Future*, the 1987 report of the World Commission on Environment and Development (commonly referred to as the ‘Brundtland report’). Through a tremendous global consultation process, *Our Common Future* laid out a vision of sustainable development that encompassed environmental, social, and economic concerns. Government attendees at the conference took the concept a step further and formally committed to develop and promote more sustainable forms of production and consumption. *Our Common Future* defines ‘sustainable development’ as development that “meets the needs of the present without compromising the ability of future generations to meet their own needs [19].”

Not surprisingly, the Earth Summit produced mixed results. On the positive end, it focused worldwide attention on sustainable development and initiated the creation of several international treaties on biological diversity, climate change, desertification, and deforestation. Since then, sustainable development has been cited in political agendas, used as an NGO-inspired rallying cry, and heard inside corporate boardrooms across the world.

The conference was a disappointment in that it did not even come close to accomplishing its mission. The momentum driving the sustainable development movement could not be sustained on a global scale due to the conflicting political and economic agendas of the attending countries. For many of the conference attendees, it was back to business as usual as soon as they left Rio and returned to their home country. According to the 1997 edition of their *State of the World* publication, the Worldwatch Institute concluded: “[O]ne lesson is clear: Although substantial progress has been made on specific environmental problems, the world has so far failed to meet the broader challenge of integrating environmental strategies into economic policy [20].” Essentially, the government and industry leaders that had initially embraced the concept of sustainability were overwhelmed with the task that they had laid out for themselves, so

they trimmed it down to a more manageable size. In consequence, they fell woefully short of meeting the challenge.

Two major issues arose for business during the Earth Summit. The first was Agenda 21, a sustainable development plan that set out guiding principles for business development. However, the plan was too broad and neglected to assign concrete actions, rendering it virtually useless.

The second rallying cry was the release of a 1992 publication entitled *Changing Course: A Global Business Perspective on Development and the Environment*. Author Stephen Schmidheiny, writing on behalf of the Business Council for Sustainable Development, called for “profound changes in the goals and assumptions that drive corporate activities, and change in the daily practices and tools used to reach them. This means a break with business as usual mentalities and conventional wisdom that sidelines human and environmental concerns [21].” Schmidheiny’s bold and brutally honest statement marked a big change in the pursuit of sustainable development, a movement that had been building for almost half a century. A Swiss billionaire industrialist, Schmidheiny did not fit the role of a corporate critic. Yet, for the first time in history, it was big business calling for change. Even more astonishing, they were blaming themselves for the current state of affairs.

The publication of *Changing Course* signified a definitive moment in the history of corporate conduct. It was the first time that business had ever publicly recognized the urgency with which traditional business practices had to be changed. It also came to the conclusion that business needed to engage in a broader range of stakeholder relationships. It argued that employees, environmentalists, and other interested parties should take part in strategic decision-making. The book also expressed a greater emphasis on pollution prevention, eco-efficiency, and full-cost accounting. More provocatively, it directly charged senior level management with prolonging the issue:

The painful truth is that the present is a relatively comfortable place for those who have reached positions of mainstream business and political leadership...This is the crux of the problem of sustainable development, and perhaps the main reason why there has been great acceptance of it in principle, but less concrete actions to put it into practice: many of those with the power to effect the necessary changes have the least motivation to alter the status quo that gave them that power [22].

Beyond the strong message the book sent to big business, *Changing Course* largely contains rhetoric. It failed to address the underlying issue that prevents business from acting as anything other than usual, namely that the current economic system may be incompatible with sustainable development. Despite its aggressive tone, *Changing Course* did not address the possibility of creating a new economic framework, one that would establish incentives for pursuing corporate sustainability rather than promote corporate self-interest. The book also fell short in that it did not address the inherent failure of our current industrial system: pollution prevention and energy efficiency are merely remediative techniques; they in themselves do not constitute sustainability. What industry needs to focus on is a ‘whole systems’ approach to business – zero emissions not incremental emissions, end use instead of end disposal, and cyclical production systems rather than linear.

The 1990s constituted the beginning of the global dialogue on corporate sustainability. It was the first decade that industry leaders finally began to realize that sustainable development is a global issue and necessitates a deep level of engagement, commitment, and creative thinking. To date, corporations have made a great deal of progress in addressing their environmental impact. However, their guiding vision remains too narrow and self-centered to make any lasting improvements. For the most part, companies have only focused on improving their internal environmental performance. While this is a necessary task, it does not remedy global environmental and ecological problems. Sustainable development is an abstract and cumbersome concept, but absolutely necessary for corporations that want to grow and replicate on a global basis. Much more effort is required if companies are to embrace corporate sustainability in its fullness, rather than accept a watered-down version.

CHAPTER 2

Shifting the Business Paradigm

Progress is not an illusion, it does happen,
but it is slow and invariably disappointing.

--- George Orwell

Sustainable development first emerged as an abstract concept in 1987 and then as the prevailing buzzword of politicians and the CEOs of large multi-national corporations during the 1990s. It has finally emerged as a major movement as we cross into the new millennium. Right now there is a huge discontinuity in the history of the modern corporation and it is creating incredible opportunities for those corporations that are paying attention. What is occurring is a paradigm shift with respect to the role of industry within society. The shift is away from an industrial model that views the environment as an externality, natural resources as free goods, and the social consequences of industrial activity as a political relations nightmare.

Academic scholars, chief industrial decision-makers, and top leaders in both governmental and non-governmental organizations are embracing a new model of industrial design that integrates social and ecological considerations with traditional economic matters. Moreover, this model gives both value and precedence to the environmental resources and ecological processes that are vital for survival. It even goes as far as to view the cyclical nature of ecological systems as a model for production processes and strategic thinking. Understanding both the ecological and social implications of industry is essential to the strategic planning and long-term success of corporations pursuing sustainability into the next millennium. Rather than being viewed as a burden, the economic viability of a corporation should be predicated on integrating ecological and social considerations into key decision-making processes.

Sustainable development increased in significance and earned a more thorough definition as we entered the 21st century. According to Ian Wilson, international management consultant, author, and authority on strategic management, sustainable development is focused on much more than the welfare of future generations. He has expanded the definition's focus on the environment to include more than its individual parts – plants, animals, and so on – and instead emphasizes the importance of maintaining the fragile ecological systems that hold it all together. He states:

The concept of sustainable development is the product of what is rapidly becoming a new ecological ethic. This is truly a new dimension in human morality. Up to now, ethical questions have focused on issues arising out of relationships between individuals or individuals and society. The ecological ethic, however, seeks to redefine the relationship between man and nature, moving from a dynamic exploitation to one of conservation and harmonization between manmade and natural systems [23].

Extending the concept of environmental responsibility to incorporate an ecological ethic is of primary importance. The planet is in the midst of an ecological crisis, which is already reaching critical limits in terms of deforestation, declining water tables, soil erosion, ozone depletion, and climate change. The challenge for industry, as well as governments and individuals, is to verify that social equity and the health of the ecological systems, which support life on this planet are compatible with economic development on a global scale.

Sustainable Development as a Central Strategic Issue

In the last few years, there has been a significant increase in the number of corporations that have taken up the mantle of sustainability. Individual companies, leading researchers, and organizations such as the World Business Council for Sustainable Development have outlined a number of ways that industry can progress towards corporate sustainability. Some of these methods are outlined in Table 2. Most people will agree that corporations are largely responsible for leading society down a path of unsustainable economic growth, a decision that has resulted in serious environmental impacts and social inequities. Yet, corporations have the most to gain from the pursuit of sustainability regardless of who is responsible. Indeed, the more we learn about sustainability, the clearer it becomes that corporations are the only organizations with the resources, the technology, the global reach, and, ultimately, the motivation to achieve it [24].

To date, the pursuit of sustainability - or the 'greening' of companies - has consisted largely of rhetoric and piecemeal efforts as opposed to being completely integrated into the overall business strategy. The majority of industry's 'sustainable' efforts have been operational or technical partly because corporate sustainability has typically been framed in terms of risk reduction or cost cutting. However, few executives realize that they are missing the big picture, even though pollution prevention programs have saved companies billions of dollars. The shift from pollution control to prevention is a good first step, but the true concept of sustainability requires companies to go further. The pioneers in this area are focusing on integrating sustainability issues into all aspects of business operations - from establishing a vision and goals to designing products and creating strategic alliances - rather than concentrating solely on cleaner production processes. Simply shifting the frame of reference allows companies to view sustainability as the catalyst for attaining competitive advantage, stimulating product innovation, and achieving *revenue growth*.

Creating a foundation of corporate sustainability requires a strong commitment to a rigorous challenge. According to Stuart Hart, a leading researcher of corporate sustainability, expanding the context in which they do business to include the entire planet forces company leaders to ask whether their business is part of the solution or part of the problem. He states: "Only when a company thinks in those terms can it begin to develop a vision of sustainability - a shaping logic that goes beyond today's internal, operational focus on greening to include a more external, strategic focus on sustainable development [25]." This type of direction is necessary for designing a foundation of sustainability.

Viewing sustainability as inseparable from future business profitability and competitiveness is a necessary precursor to establishing a foundation of corporate sustainability. Identifying the incentives that will drive strategic decisions is crucial as well. There are seven steps that are necessary for creating a foundation of corporate sustainability (see Figure 1). They are as follows:

Assessing current reality

Achieving corporate sustainability requires a fundamental change in perspective.

For much of the last century, corporations have focused internally in terms of financial, social, and environmental matters. The interests of shareholders and the maximization of

profits have forever been the overriding corporate purpose. Focusing on internal improvements is certainly necessary, however the scope of the modern corporation has changed from local, to national, to international over the last several decades. Corporations are now weaving global webs of production, commerce, culture, and finance as they continue to expand throughout the world in search of maximum profits. In consequence, their environmental and social impacts are transgressing political, cultural and geographic borders. It is vital to the corporation pursuing sustainability that they expand the context in which they do business to include the entire planet. It is not enough to recognize the environmental and social impacts occurring at the factory and in the marketplace. The sustainable corporation assesses their impact on the ecological systems that sustain life and the interpersonal relationships that keep society in balance. Thinking in terms of the “triple bottom line” – economic prosperity, environmental quality and social justice – is at the core of the sustainable corporation.

Defining a vision

Visualizing sustainability is the precursor to achieving it.

Pollution prevention, increased energy efficiency, and designing a product for increased recyclability will all move a company towards sustainability. But without a framework to guide these actions collectively, the impact of their individual efforts will dissipate. A vision of sustainability for an industry or company is an integral aspect of the overall business strategy. It answers the question, ‘What do we want to create?’ and focuses a company on a desired image of the future. A powerful vision of corporate sustainability should incite creativity and excitement from the entire company. Visions are positive, progressive, and inspirational. A clear and fully integrated vision of corporate sustainability should also shape the company’s relationship with all of its stakeholders, suppliers, customers, and policymakers. It is like a road map to the future, illustrating what portions of the company must evolve and what it will take to achieve it [26]. And like a road map, a well-defined, vision will maximize the efficiency with which a company reaches its final destination.

Focusing on whole systems

Whole systems thinking is at the root of sustainability.

Dramatically decreasing a corporation’s environmental and social impacts requires a break away from traditional linear systems. In nature, organisms, living or dead, are all part of an interconnected system of positive and negative feedback loops. Moreover, there is no such thing as waste; the concept does not exist because one organism’s byproducts are another organism’s feedstock. Whole systems thinking is a design approach and a major focus of the new industrial model, which attempts to emulate nature and assist industry in moving from linear to cyclical systems. The traditional linear, end-of-pipe system focuses solely on the production process, neglecting the use and disposal of the product. On the other hand, a cyclical system takes account of the product’s entire life cycle. A holistic, life cycle perspective is a natural consequence of focusing on the environment. Consequently, it should be reflected in the industrial production process, from raw materials extraction to end-of-life waste disposal, recycling, or re-use. Integrating a life-cycle perspective throughout the entire business framework will do more than reduce environmental impacts and effects. It will also allow companies to take a hard look at their financial, social, and environmental

responsibilities, as well as new possibilities in terms of increased production efficiency, enhanced product design, and new business opportunities. Allowing the results to permeate all aspects of strategic planning will stimulate employee innovations and generate increased value.

Creating a guiding set of beliefs and values

Corporations can initiate and build the trust that is the foundation of solid relationships with all stakeholder groups by creating a guiding set of beliefs and values.

There is definitely an ethical core at the heart of the corporate responsibility movement. Employees committed to the principles of sustainability must be able to ask themselves ‘What is the right thing to do?’ despite the effect their answer may have on the bottom line. Just as a work ethic defines an employee’s attitude and behavior, a set of corporate ethics and values can guide a company through tricky financial decisions, relationships with stakeholders, and questions of legitimacy. More importantly, a publicly stated code of ethics will aid companies in imposing greater self-discipline, subduing the desired pursuit for economic growth that may result in ecological or ethical dilemmas. A company’s guiding principles must be directed towards all stakeholder groups, since this is whom they seek to protect, consult, and respect. Above all, a code of ethics will solidify the commitment to a sustainable agenda.

Instituting measurable long-term goals

The long-term aspect of sustainability is central to the definition of sustainable development.

The concept of sustainable development may involve inherent conflicts between short-term economic objectives and long-term ecological and social goals. Instituting clear, measurable goals and objectives for the entire corporation and within each business area is essential. Corporate policies and practices that may be considered ecologically desirable, such as zero emissions and energy efficiency, may result in social inequities or be considered economically unsustainable. Therefore, it is important to examine the links between a company’s goals and objectives when defining them in order to help clarify to what extent they are truly sustainable [27]. Once defined, it is necessary to establish indicators by which the goals and objectives can be measured. When employed together with numerical targets, indicators can be used to compare current economic, social, and ecological conditions with company performance levels, to show trends over time, and to allow for comparisons between different goals and objectives [28].

Promoting continual education

Creating a foundation of corporate sustainability is a complex task that requires continual education.

Employing widespread education about sustainability and corporate responsibility is critical to the success of a sustainable business. Integrating the issue throughout all areas of a company’s operations requires more than a few specialists. It takes raising collective interest and concern about current social and ecological dilemmas facing the world and industry to increase the relevance of sustainability to business success. Extending educational efforts to go beyond employees and to encompass suppliers, customers, and dealers will further strengthen the effort and promote the sustainable agenda. Sincere interest in the effects of industrial activity on the natural world is necessary for successful

implementation of a sustainable business strategy. Most importantly, educational efforts must be followed with immediate implementation in order to maintain the momentum.

Forming strong organizational alignment

Maintaining the vision requires a supportive group effort.

Re-designing business to meet environmental and social goals is a multifaceted operation, which necessitates an integrated sustainable business strategy. Establishing a strong organizational alignment is part of the groundwork for implementing a foundation of corporate sustainability. Maintaining the vision and seeing ideas to fruition is a challenging prospect and calls for a collective effort. The infrastructure of sustainability consists of a team of key stakeholders, the Board of Directors, the President and CEO, senior management, and employees. These individuals are responsible for formulating environmental policies, strategies and goals, in addition to monitoring activities and transferring knowledge from one area of the company to another. Implementing and upholding sustainable principles in strategic planning is a daily struggle, necessitating continual support from all levels of operation.

Incentives for Pursuing Sustainability

Building a foundation for corporate sustainability is an enormous task for most managers. The corporate challenges of the 21st century include increasing natural resource constraints, public pressure to address corporate accountability and responsibility, the competitiveness of the global economy, and regulatory burdens. In addition, technological advancements, the information revolution, massive corporate mergers, and structural adjustments from vertical to horizontal integration are constantly redefining the corporate playing field. Business is perpetually reaffirming its role in society and must quickly evolve to address changes in the marketplace and in the economy. Certainly addressing the strategic issues of sustainable development while conducting business in a rapidly changing economy seems a bit overwhelming.

However, many corporations have anticipated the emergence of these challenges and behaved proactively in response to them. Yet, for the most part, their numbers are few and their influence has been small. So, what drives corporations to go beyond compliance and venture into uncharted territory? Several reasons for embracing sustainability – and the companies motivated by them - are outlined below. While none can be said to have reached the end-point of corporate sustainability, all have found that by addressing the challenge of sustainable industrial practices they have found innovative solutions, new opportunities for revenue generation, and better relationships with stakeholders. Incentives for pursuing sustainable industrial practices and the companies that have successfully implemented them are outlined here.

Preventing pollution and the 3M Company

3M's Pollution Prevention Pays (3P) program is an innovative approach to stopping pollution at the source, in both products and production process, rather than removing it after it has been created. While the idea itself was not new when 3P was started in 1975, 3M is the first company to apply pollution prevention mechanisms on a company-wide basis and measure the results. Since its inception, 3P has prevented 771,000 tons of pollutants and saved \$810 million.

The 3P program was established because it is more environmentally effective, technologically sound and economically viable than traditional remediation pollution controls. Its objective is to eliminate pollution at the source through product reformulation, process modification, equipment redesign, and the recycling and reuse of waste materials. 3M has been recognized around the world for its environmental and engineering achievements and the 3P program has been duplicated by a number of companies.

The program's administration consists of a coordinating committee representing 3M's engineering, manufacturing and laboratory organizations, as well as representatives from the environmental and health safety departments. All 3M employees are encouraged to participate in the 3P program. In fact, 3M's technical employees have conceived and implemented 4,651 pollution solutions under the 3P program. At 3M, the 3P approach has led to myriad innovations including the elimination of ozone-depleting chlorofluorocarbons from performance chemicals designed for the electronics industry. Ranked second place this year for its environmental performance among the 50 largest chemical manufacturers shows that despite short-term costs, pollution prevention pays.

Anticipating market demand and Volvo

To the car-buying market, the name Volvo is synonymous with both safety and a commitment to high quality. More recently, it has acquired associations with environmental excellence. A major signal that Volvo is actively working to achieve corporate sustainability is their willingness to move away from dematerialization and instead move towards becoming solution providers rather than simply product suppliers [30]. Although the company is still committed to providing transportation equipment, it is laying the groundwork for an alternate business design as a provider of transportation systems technology products and services, thus removing the focus from manufacturing.

A major success occurred in 1974 when Volvo created a mass transit bus line in collaboration with the Brazilian city of Curitiba at a fraction of the construction time and cost required by rival light rail or subway systems. This unsubsidized system has proven its effectiveness; fuel consumption per capita is 30% less than other Brazilian cities (even though Curitiba has the highest rate of car ownership) and traffic has declined by 30% since 1974, while population has doubled.

Volvo is well positioned to take advantage of emerging business opportunities. Driven by the global need for more sustainable alternative transportation systems, Volvo has developed a variety of new programs. These programs include: supplying natural gas and biogas buses; providing rapid transit design services; addressing concerns about air pollution levels and emissions in emerging markets; integrating environmental management systems into production facilities; and providing transport and logistic information services.

The success of Volvo's experience in assisting Curitiba and other cities' design transportation systems led to the 1998 establishment of Volvo Mobility Systems (VMS). This new company goes beyond environmental compliance by promising to: work with and supply the development of environmentally sensitive mobility solutions, develop alternative power sources and fuels, actively develop sustainable transport systems, and leverage information technology to support transport. Volvo managers have made it abundantly clear that they are determined to go beyond compliance and exceed expectations. One manager actually commented that market demand has progressed

more slowly than he expected. 'We still have the vision,' he said, 'but are less sure of the speed. It depends on what happens. If there is an environmental catastrophe, *market demands can change in a day!*' By anticipating future market demand for sustainable transport systems, Volvo is able to stay ahead of both the demand curve and the competition.

Stimulating technological innovations and Sony

Sony is one of the world's leading companies in the development, design, manufacturing, and sale of electronic equipment and devices. The company has consistently been a powerhouse of innovation and new product development. Confident in their position as number one, Sony was taken aback when in the early 1990s a consumer report journal rated the environmental performance of their European television set as poorer than the competition. This event sparked Sony's 'Eco TV' project. Now in its second generation of production, Sony has succeeded in developing an 'environmentally conscious' TV for the European market that eliminates hazardous materials and eases disassembly for recycling. Moreover, assembly time was also reduced, due to minimization of parts (it has only nine screws), and the TV is packaged in a cardboard made of low-density paper, thus further reducing the product's environmental impact. Contrary to the traditional belief that environmental improvements are expensive, the Eco TV not only dramatically reduces negative environmental impacts, but also has lower material costs, is cheaper to produce, and offers retained value through end-of-life recycling [31].

Achieving environmental improvements through technological innovations is the primary focus of Sony's Center for Environmental Technologies where engineers recently developed a breakthrough technology that enables the recycling of polystyrene. Sony has systematically moved beyond the traditional production-oriented industrial model and has proactively moved towards a practice of harmonizing environmental developments with technological innovations. The idea of building economic wealth in conjunction with preserving the environment is a strong motivator for Sony's managers. In the words of Sieglinde Hahn, Manager, Sony Environmental Center Europe:

Sometimes hidden benefits turn out if you decide to go for an issue, although in the beginning it probably didn't look like it would be economically viable. That is exactly the area where environment can open new business opportunities. But of course you can only define these areas if you stop seeing environment as a burden for a company and start to approach the topic more proactively [32].

Achieving competitive advantage and The Body Shop

Famous for creating an entire skin and hair care market based on natural products, The Body Shop believes that 'the more they listen to their stakeholders and the more they involve them in decision-making, the better their business will run. Entrepreneur Anita Roddick founded the company in 1976 when she identified a market niche for naturally-based products with minimal packaging. Since then, The Body Shop rapidly evolved from one small shop in Brighton on the South Coast of England, with only around 25 hand-mixed products on sale, to a worldwide network of shops. Franchising allowed for rapid growth and international expansion as hundreds of entrepreneurs worldwide bought into Roddick's vision. The Body Shop's approach to ethical business operates on three levels:

- 1) Compliance: opening up to defined standards of human rights, social welfare and worker safety, environmental protection and, where relevant, wider ethical issues like animal protection;
- 2) Disclosure: only through public disclosure can a real process of dialogue and discussion with stakeholders be achieved and the right direction charted for the future; and
- 3) Campaigning: to play an active part in agitating and campaigning for positive change in the way the business world works, with the ultimate aim of making a positive impact on the world at large.

The Body Shop has experienced financial success through their exemplary demonstration of corporate sustainability. Worldwide retail sales - total takings through all shops - were £604.4m in financial year 1997/98, an increase in five percent from 1996/97. The Company's turnover was up eight percent in 1997/98 to £293.1 million. It is estimated that in 1997/98 The Body Shop sold a product every 0.4 seconds with over 86 million customers visiting stores worldwide to sample the current range of over 400 products and accessories. Clearly, The Body Shop's environmental and social agenda gives them the advantage over the competition in more ways than one.

Positioning for the new (restorative) economy and Interface Flooring Systems

With operations on four continents, American-based Interface Flooring Systems is one of the world's largest carpet manufacturers. Led by visionary founder and CEO, Ray Anderson is guiding his company on a quest to build the world's first sustainable enterprise; first by reaching sustainability in their practices [returning to the Earth what is taken], and then by becoming truly restorative, by returning more than they take. This is a revolutionary concept considering that industry largely continues to operate under the premise of a highly unsustainable 'take-make-waste' industrial system.

Anderson hired what he deems the 'EcoDream Team' to advise Interface on becoming a sustainable and then a restorative enterprise when he realized the complexity of the task on which he was about to embark. The team consists of nine of the world's leading thinkers on global ecology, including environmentalists, energy consultants, a social activist, architects, and even a cultural anthropologist. Next, Anderson committed a quarter of the company's research and development arm, the Interface Research Corporation (IRC), to pure research since achieving his goals would require advanced technologies. IRC also serves as a clearinghouse for ideas that emerge throughout the company's business units, helping the units to examine every step of their manufacturing process, from extracting raw materials to shipping finished goods.

Interface's first major effort towards change was to reduce waste in everyday operations. To establish a baseline, the company documented and analyzed all of its material flows through the QUEST Zero Waste Initiative program. The zero waste effort takes three forms: recycling internal wastes, modifying products to use less material, and altering processes to use fewer resources and less energy. Even though most American-based industries do not rely heavily on recycling efforts, Interface has instigated a massive educational effort to change the fundamental ways people view materials and the manufacture of goods. Interface's ultimate vision is to create completely benign and

renewable products that don't depend on petrochemicals. They are currently developing a completely recyclable carpet that company officials perceive to be the key player in Interface's effort to become sustainable.

Anderson believes that a new industrial order is evolving, one that will change the entire face of commerce and where environmentally conscious companies will gain competitive advantage. He predicts that in the next century companies will be forced to go beyond performance specifications because customers will demand a product which will "...install, maintain, and restore itself, and then disappear into its next reincarnation when no longer functional [33]." Interface is determined to fulfill their mission for as long as it takes. "This concept will lead to the next industrial revolution," says Jim Harzfield, senior vice president of IRC and a chemical engineer. "There are fortunes to be made in that, just like the first [34]."

CHAPTER 3

Analyzing Corporate Sustainability

The environment is not going to be saved by environmentalists.
Environmentalists do not hold the lever of economic power.
--- Maurice Strong

Chapter 2 highlighted several companies who found competitive opportunities by behaving proactively in response to their environmental and social impacts. Their motives for doing so varied from anticipating market demand to increasing technological innovations in the design phase of a product. However, each of the companies outlined have accomplished something that all companies strive for – they distinguished themselves from the competition. They are pioneers in their respective industries and are beginning to serve as models to the competition, showing that it is possible to experience economic growth while conducting business responsibly. Furthermore, their sustainability efforts will only attract more attention and grant them higher accolades as the public starts to demand that more companies take responsibility for their impacts in the near future.

Recently, there has been an increase in research of the business community's overall understanding and general feelings towards the concept of sustainable development. Results from a multitude of recent surveys suggest that corporations should move beyond "business as usual" and begin integrating environmental and social quality missions with more traditional economic objectives. For instance, a survey commissioned by Burson-Marsteller, the world's largest communications agency, examined the attitudes and expectations on corporate responsibility from a representative sample of 100 key business leaders and decision makers in three major European economies: France, Germany, and the UK. The survey demonstrates that not only is corporate responsibility gaining importance, but that significant shifts are occurring in terms of emphasis. Some of the key trends are:

- Corporate social and environmental responsibility must be "holistically" integrated into the overall business plan;
- A company's local and global impact and performance are equally important; and
- At a minimum, a company will be evaluated on its environmental performance, but now more attention towards softer, human relations is also a high priority.

The survey also highlights the rising public expectations of what constitutes responsible business. For instance, 66 percent of business leaders "agree strongly" that corporate responsibility will be important in their assessment of companies. Likewise, 64 percent "agree strongly" that corporate responsibility will affect their own decisions and 42 percent "agree strongly" that corporate responsibility will affect share price. Robert Davies, chief executive of the Business Leader's Forum summed up the significance of the survey's results by stating:

On almost every front business is being pressed to assume responsibilities it has not always been prepared to face. Corporate Social Responsibility is on the mainstream agenda for public companies concerned about customers, employees, and communities. The case for responsible business starts with demonstrating it is possible for companies to create value for both society and shareholders. Indeed, leading companies are beginning to recognize that these are mutually enforcing objectives [35].

This survey shows that corporate responsibility is not a passive, activist-driven fad, but a sound and constant feature within the business community. The survey also provides proof that corporate responsibility is more than an NGO-inspired rallying cry, but has caught the attention of, and earned preferential treatment, from key business leaders, too.

An earlier survey commissioned in 1998 by Arthur D. Little, one of the world's premier consulting firms, found that an overwhelming majority of respondents (83 percent) believe that companies can develop real business value and economic growth from sustainable development initiatives. A large percentage of the survey respondents (over 50 percent) also noted that "building a better public image, improved social/ethical performance, and ensuring a license to operate, innovate and grow" are the most important reasons for pursuing sustainable growth. Yet, despite their belief that sustainable development initiatives can act as business drivers, respondents noted that little progress has been made towards implementing more progressive concepts of sustainability and instead were focusing on more traditional areas of energy efficiency and pollution prevention. Very few respondents reported any progress towards more proactive, transformational concepts of sustainability like industrial ecology, full cost accounting, or design for the environment.

The survey also shows that more European companies (22 percent of total European respondents) are much farther ahead in terms of integrating sustainable strategies into their business operations, as compared with a reported 13 percent of their North American counterparts. Commenting on these results, Stephen Poltorzycki, Vice President of Arthur D. Little states:

The concepts surrounding sustainability were first developed in Europe (and in Canada), so it is not surprising that more European companies have taken steps to integrate sustainability into business initiatives. However, we should take note that leaders can be found on both sides of the Atlantic – including companies like Interface and Monsanto in North America and, BP, Daimler-Benz and Electrolux in Europe [36].

The results from both surveys demonstrate that corporate responsibility and sustainable development are top priorities among the world's leading corporations. Not only have these concepts gone from corporate "buzzwords" to accepted strategies, they are now proving their credibility throughout the business community and the political spectrum. The implementation of sustainable business strategies into business operations will likely increase in the near future as more companies are faced with the challenge of reporting on their environmental and social impacts along with their financial performance.

The significance of case studies

A wealth of information exists about corporate social and environmental responsibility, as well as sustainable business strategies. After reading through all the material, it is clear that sustainable business practices are the foundation for current and future business success. However, the entire path to corporate sustainability is not yet visible. Although many of the companies profiled in this thesis and elsewhere in the literature have already been recognized for their environmental and/or social achievements, they are not – and

most would not claim to be – anywhere near their final destination. But their stories provide useful clues to some of the competences and skills required.

Of all the analytical methods available to conduct this type of research, case studies may be the most appropriate. In his book *Case Study Research: Design and Methods* (1994), Robert K. Yin describes case studies as the “preferred strategy when ‘how’ and ‘why’ questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context [37].” Case studies of corporations pursuing sustainable business strategies are greatly needed to encourage more corporations to respond to the emergence of new competitive opportunities through sustainable strategies. In effect, they provide elements of a road map that will aid other pioneers in understanding the challenges they will face and the tools that will help them to get there. The benefits of case studies are fourfold. They include engaging the corporate community in discussions about how to resolve sustainability issues, finding ways to make progress in motivating companies to adopt strategies for sustainability, to transform corporate behavior and to take action towards sustainability in their own self-interest.

Given that the traditional primary objective of the firm is to maximize shareholder wealth, it is also important to analyze and understand what internal and external incentives drive companies to begin integrating sustainability policies and practices into their own operations and strategic planning. Of specific concern is why American companies would chose to challenge the old assumptions about business under which they have maintained a position of industrial leadership for over half a century. From the outset, there does not seem to be any reason why American companies would choose to blaze a trail through unknown territory. Regulatory constraints are in place to control pollution levels, but they do not extend as far as some European countries, which mandate laws to decrease the industrial consumption of raw materials and increase recycling. There are also very few market incentives to encourage sustainable strategies. On the contrary, the consumer typically has to pay more for a product that was manufactured in an environmentally or socially friendly manner. In addition, the pressure from competitors to integrate sustainable strategies is virtually non-existent; most companies pursuing sustainability are unique within their business sector. Therefore, a primary objective of case studies is to examine not only what is being done, but also *how* and *why* it is being accomplished.

Another reason for conducting case studies of corporations that are implementing sustainable strategies is to examine the type of company that moves beyond compliance to proactive integration. At least half of the companies who are heavily investing in sustainability initiatives are enormous multi-national corporations with millions of dollars available for research and development. Such companies include GM, Volvo, Sony, Interface, as well as other industry leaders. Indeed, besides being rich, these companies also have another common trait: they are *transforming* their business practices to integrate sustainable strategies while other aspects of their business operate under the traditional industrial practices and principles and are able to supply the large amounts of revenue necessary to start up new ‘sustainable businesses.’ Very little information exists about companies that created a foundation of sustainability from their initial beginning. Indeed, this may be due to the fact that sustainability is presently a goal afforded only to the rich. The pressures on business to remain competitive, keep costs down, satisfy

customers and create shareholder value are immense. Thus, there is a significant need for case studies about companies like The Body Shop and Ben & Jerry's who have established a sustainable framework while still acquiring the capital necessary for economic growth and development.

Goals and objectives

The following case study focuses on Kafus Industries, the world's first global producer of commodities made from sustainable alternative resources. Kafus was chosen as the case in point for a variety of reasons. Primarily, the company was founded on a vision of sustainability, which has been the guiding force of its business decisions since its inception. This characteristic is rare amongst start-up companies and it is unique within the commodities industry. From day one, the company has worked hard to maintain their vision while dealing with the pressures of typical business activities.

Kafus' global perspective is another reason why it was chosen. Many people will argue that global corporate expansion is inherently unsustainable because it homogenizes the markets in which it distributes its products or services, suppresses the cultures and communities where it locates its facilities, and destroys the livelihoods of small business owners. However, Kafus has pledged to unite their technologies with the agricultural base available in other countries, particularly in the developing world, in order to boost their economies. Their goal is to transform significant environmental problems – deforestation, desertification, soil erosion – into practical economic solutions for the long-term benefit of their customers and the planet at large.

The company's development is driven by one basic discipline: removal of speculative risk. However, proving their ability to create and fund major industrial developments while maintaining their vision is a daily struggle. This case study attempts to analyze how Kafus deals with pressure from shareholders and reacts to the trials and tribulations common to business while trying to hold on to the principles of sustainability.

A principle goal of this thesis is to identify and analyze the incentives for creating a foundation of sustainability. The information gathered and analyzed as a result of this case study should provide important insights into the dynamics of firm behavior with respect to the reasons for pursuing sustainable strategies. The aim of this case study is to encourage companies who are not currently integrating sustainability strategies into their strategic planning to be motivated by Kafus and to begin integrating both the environmental and social aspects of sustainability into company decisions and activities. Another goal of this case study is to provide start-up businesses with an understanding of the incentives for pursuing sustainability. Focusing on the incentives can help new companies determine long-term goals and objectives that will help them maintain competitiveness and success.

Method of Analysis

Several steps were necessary to create as accurate and detailed a case study as possible. Since Kafus is a fairly young company and most of its operations are still in the development stage, quantitative information concerning the economic viability of implementing sustainable strategies into their business operations was not available. Instead, the information for the case study was gathered from existing publications released by the company, press releases, and conversations with key decision makers and

additional employees. The case study is broken down into three main parts: a general overview, innovative efforts in terms of environmental and social sustainability strategies, and conclusions. The general overview focuses on the company's activities, it gives a preview of their sustainable strategies, and it places their actions in relation to the current business context. The second part of the case study outlines Kafus' exemplary practices and their comprehensive approach to sustainability. It also highlights the incentives that drove them to their present position including leadership and technology. The last part focuses on Kafus' accomplishments thus far and on their intended actions for the future.

An analysis of the incentives driving Kafus to pursue sustainability was made possible through a survey of 10 key decision-makers within the company. See Figure 2 for a copy of the survey. Objectives for conducting the survey include:

- To identify *how significantly* specific incentives impact Kafus' pursuit of sustainability;
- To determine whether the *primary influence* of each incentive comes from within the company or outside of it; and
- To reveal the *nature* of each incentive's influence on corporate sustainability, whether it stimulates a proactive decision or a reactive response.

The seventeen incentives used in the survey are often linked to firms who have differentiated themselves in their industries by incorporating sustainability into their business strategies. They include leadership, defensive strategy, and company image. The purpose of the first part of the survey was to provide an analytical perspective of the incentives driving Kafus to pursue sustainability. Survey respondents were required to rate the significance of each incentive's impact on the pursuit of sustainability on a scale of 0-4:

0=insignificant
1=weak
2=moderate
3=strong
4=most significant

Next survey respondents indicated the primary influence of each incentive by specifying either 'I' if the incentive comes from within the company or 'E' if the incentive comes from outside of the company. A Kafus executive or employee would be an example of an internal influence, whereas shareholders and investors would be examples of external influences. The third part of the survey required respondents to indicate the nature of each incentive's influence with a 'P' for pro-active or 'R' for reactive. A proactive influence is one that pushes the company, driving it towards a specific goal. Conversely, a reactive influence pulls the company along and is often indicative of a defensive strategy towards a particular decision or issue.

The second part of the survey contained several questions designed to determine why some incentives may be more significant than others. Responses were intended to

not only clarify the degree of importance that ecological and social issues have on the way Kafus functions, but would ideally allow other companies to gain some perspective on how they could implement corporate sustainability strategies into their strategic planning, as well.

Anticipated Benefits and Results

The primary benefit resulting from a case study of Kafus Industries is to produce something of value to corporate managers and key decision makers in business, students of business management, academic researchers, consultants, both governmental and non-governmental organizations, and the general public. Increasing awareness and understanding about corporate sustainability and the incentives for building a foundation of sustainable strategies is integral to the success of the entire movement. Adding new knowledge about a unique company not readily publicized in business or environmental literature is key. On a deeper level, it is anticipated that the incentives driving Kafus to pursue sustainable strategies are largely internal and proactive, given the lenient regulatory climate and the lack of competitor pressure that exists within the commodity markets. These types of results would be remarkably useful, in the sense that they could demonstrate to other companies and business leaders the type of infrastructure necessary to build a company on sustainable strategies from the ground up.

CHAPTER 4

A Case Study of Kafus Industries

Is it progress if a cannibal uses a fork?

--- Stanislaw Lec

Corporate Overview

Approximately five years ago, Kafus founder and former CEO, Ken Swaisland, set out to build a billion dollar company with a daunting mission: **to become a global, low cost producer of superior commodity materials made from sustainable and recoverable resources**. Driven by the demands of increasing population, dwindling forest reserves, saturated landfills and polluted water tables, Swaisland focused on the acquisition and development of technologies, which could change the way commodities are produced. Kafus Industries' current projects include: the world's first medium density fiberboard plant able to use 100 percent recycled urban wood waste; the production of natural fiber composites to replace fiberglass and other non-recyclable materials; the production of tree-free newsprint and other paper products; the manufacture of a fiber cement alternative to wood and metal siding; and the production of molded fiber board from pulp mill residue and other agricultural fibers. By utilizing state-of-the-art technologies to increase resource efficiency, reduce environmental impacts, and decrease manufacturing costs, Kafus is attempting to assure a more viable future for the planet.

Kafus has taken a progressive approach to challenging issues such as changing the status quo of commodity production on a global scale, as well as developing alternatives to natural resource extraction and landfill disposal. The company's stated goal is to transform significant environmental problems into practical economic solutions for the long-term benefit of the customer and the planet at large. Recently, Kafus' president Mike McCabe released a public statement in response to its shareholders who voiced concerns about the difficulties in clearly understanding Kafus' business focus, the absence of anticipated material revenues and in particular, the perception that Kafus' currently low trading values and the sudden resignation of Ken Swaisland are indicative of problems within the corporation. However, McCabe argues that this perception is inaccurate and strongly believes that all of their new developments are the direct result of a strategic development program with a solid foundation of sustainable strategies.

Last year had its series of ups and downs for Kafus. A positive reflection is the fact that approximately \$3 billion of sales contracts, closed or pending, for Kafus products were negotiated. On the other hand, the delayed start-up of the CanFibre Riverside medium density fiberboard plant caused a major reduction in anticipated revenues. Combined with significant increases in operating expenses, Kafus was forced to terminate their contract with their prime contractor and assume control of the facility. However, since gaining control of the facility, Kafus has made tremendous strides in completing the plant, proving the remarkable abilities of the plant's management and support staff. The losses that the company experienced for 1999 amounted to \$1.47 per share. Kafus' chief financial officer, Tony Valentine, shares Mr. McCabe's sentiments, who stated that the losses incurred to date are not an accurate reflection of Kafus' progress. Mr. Valentine expressed an optimistic view of the future considering Kafus' current financial situation in their 1999 Annual Report: "Kafus is truly turning the corner from development to operations. The disappointments, hardships, and reversals experienced through the past year will fade as the seeds planted by Kafus take root and this company looks to fulfill its destiny of becoming a major commercial enterprise."

This case study details Kafus' unique business strategy, the progress the company has made to date considering its short lifespan, and the role of environmental

considerations and sustainable strategies, in dealing with shareholder pressure to create revenue growth.

Corporate structure

Kafus is currently simplifying and realigning their various operating subsidiaries into specific industrial sectors. This will allow Kafus to independently finance growth and development within each business sector, as well as permit each sector to align with major strategic partners to further enhance growth and cash flow. In addition, this regrouping will create operating units that will grant Kafus the rare distinction of being the first global forest products company that does not rely on virgin timber. As such, it will create a new niche within the forest products industrial sector, as well as offer the potential to build strategic relationships with the growing group of socially responsible investors and other supporters of sustainable strategies. The regrouping is as follows:

Forest Products without Trees

- **The CanFibre Group, Ltd.** is an 85.5 percent owned subsidiary of Kafus Industries. They control exclusive worldwide rights to proprietary technology enabling the production of medium density fiberboard (MDF) made from 100 percent urban wood waste, without the use of urea formaldehyde. CanFibre's Riverside, California plant converts over 155,000 tons annually of old pallets and demolition waste into millions of square feet of ALLGREEN[®] MDF panels for furniture, cabinetry and architectural millwork. In early 2000 CanFibre commenced shipments of their AllGreen board to Home Depot for sale in up to 204 stores in their nine-state Western region. This relationship with Home Depot is expected to grow significantly over the next year with the introduction of AllGreen MDF to Home Depot stores in the Eastern United States from the second CanFibre plant nearing completion in Lackawanna, New York.

- Kafus owns 90 percent of **Kenaf Paper Manufacturing** and its Lasara, Texas newsprint project. The company is currently financing a \$205 million newsprint mill to convert kenaf, a relative of the hibiscus, into high quality newsprint and other commercial applications. Kenaf is a sustainable alternative for southern yellow pine trees, long a staple of the pulp and paper industry, because it can grow 14 feet in seven months and produce 2-3 times more fiber per acre per year. It also requires little or no pesticides to grow and fewer chemicals to process into paper.

- **Kafus Molded Fibers LLC** is a wholly owned subsidiary headquartered in Columbia, South Carolina. This division possesses patented technology, which enables the production of structural honeycomb panels made from up to 100 percent recycled and kenaf fibers, without the use of toxic resins or binders. Marketed under the trademark of **GeoCore[®]**, these honeycomb panels have the equivalent bending strength of particleboard at one-third its weight and will be used to produce packaging and pallets. The manufacturing process itself is resource efficient and environmentally benign. Because no toxic resins or binders are used, GeoCore will not off-gas during fabrication or after installation, which contributes to safer work places and living environments. Using recovered paper

waste and sustainably grown agriculturally fiber helps to preserve trees and the natural habitats that they provide.

- In April of 1998 Kafus formed a joint venture with Temple-Inland Forest Products Corporation to produce fiber cement siding and flooring products under the trade name **Fortra™ Fiber Cement**. Fortra provides builders with performance characteristics far superior to wood and other alternatives, including greater resistance to rot, fire, insects, warp and swell. In addition, Fortra Siding has the appearance of solid lumber, but is easier to install and enjoys far greater longevity. Fortra's first North American plant in Texas recently began commercial production, and is designed to produce 125 million feet of product annually.
- The Can-Fibre Group Ltd. is co-developing **Barkboard**, a practical value-added solution to the forest industry's global problem with bark disposal. The product will utilize 100 percent of waste tree bark to manufacture an AllGreen Oriented Strand Board (OSB) substitute. Barkboard represents a completely natural product, as no adhesives are required in its manufacture and it does not require any further processing to protect it from the elements. Barkboard is ideally suited for a number of applications including decking, floor underlay, core stock for exposed doors and cladding applications.

Kafus Bio-Composites

There is a strong linkage between Kafus Bio-Composites and the concept of sustainability. Over the past three or so decades, composite materials came in two basic types: non-reinforced plastics and glass fiber reinforced, with very little in between. Since plastics are mostly petroleum based they increase U.S. dependency on destructive oil drilling. Glass fiber reinforced composites (fiberglass) use various styrene resins and are difficult if not impossible to recycle. Styrene also produces harmful air emissions, which employees are exposed to during manufacturing. Bio-Composites, on the other hand, is a unique sustainable product that replaces styrene-based glass fiber composites with natural fibers such as kenaf and hemp. Kafus Bio-Composites displaces 50 to 70 percent of the plastic currently used to make automotive trim parts with sustainable, low impact fibers. Equally important, their products are easily recycled. They can recycle factory scrap produced in their customer's manufacturing facilities as well as recycle the trim part at the end of the car's useful life.

In 1999, Kafus commenced construction and successfully began the operation of their bio-composite plant in Elkhart, Indiana. Marketed under the trademark of Flexform™, Kafus has already shipped products to major manufacturers such as Findley Industries for the Saturn program, Johnson Controls and Ford's Visteon Division. The company fully expects to have Flexform natural fiber composites utilized in over 1.5 million cars in the United States in model year 2000. Kafus Bio-Composites is now poised to triple production and introduce its first plant in Europe during 2001.

In summary, Kafus Bio-Composites produces a lower cost, higher performance and lighter weight material when compared with conventional composites. The production of their natural fiber composites is virtually emission free and also eliminates toxic adhesives typically used to attach the fabric, leather or vinyl to the door panel or

headliner parts. Lighter weight parts improve fuel efficiency, therefore reducing oil consumption.

Sustainable Fiber Group

All of the Kafus subsidiaries are dependent on the acquisition and long-term supply of sustainable agricultural fibers. This includes a broad spectrum of materials from the 300,000 tons of waste wood required as raw material at both the Riverside and Lackawanna CanFibre facilities, to the 25,000 acres of kenaf required to feed the pending newsprint mill in Texas, to the anticipated requirements for the supply of bark to feed the proposed AllGreen OSB development in Canada, as well as ongoing requirements for hemp and other natural fibers to fuel the bio-composite plant in Indiana and other future ventures.

Kafus is in the midst of forming a sustainable fiber business unit in order to better serve their current and long-term future requirements for fiber. This will include existing growing operations in Texas and Italy and the current procurement for CanFibre and Bio-Composites. Kafus expects this company will become an active trader in alternative fiber, serving industry requirements beyond their own needs.

World Eco Trade

The Kafus subsidiary, World Eco Trade Ltd. is currently being developed to operate the world's first sustainability-driven global information and trading platform. It will service a wide range of industrial and purchasing sectors and be accessible to qualified global manufacturers and service providers as well as retail and wholesale suppliers of eco-products.

The current market for environmental products in the U.S. is estimated to be over US\$200 billion a year. According to a recent United Nation's study, the environmental market currently accounts for 2.7 percent of the world's GDP and is growing at an annual rate of 9 percent. World Eco Trade will not only optimize Kafus' own product sales through this proposed global platform, but more importantly, will be able to create a highly profitable global business venture for a currently unfulfilled market demand.

In addition to these business units, Kafus has developed a joint venture with the London-based Coach House Group, which is responsible for the development and implementation of Kafus business ventures throughout Europe, Africa, and the Middle East. The **Kafus International Development Group**'s business strategy is based on the migration of proven manufacturing technologies that are replicable on a global basis. Kafus International is in a position – very genuinely – to take into other countries, particularly in the developing world, the opportunity to enhance their economies. Essentially, Kafus looks to take what is an import deficit on another country's balance sheet and transform it into an asset. For example, India is ideally suited for planting kenaf because their climate is both hot and dry and the landscape is devoid of trees. Uniting their agricultural base with the range of Kafus' sustainable technologies would help to generate local jobs, create agricultural opportunities where there were none before, and generate ancillary businesses. Through their international development group Kafus has the ability to make a difference as well as the ability to make money. Current international activity includes the world's largest kenaf-based industrial development in Spain and "offset" opportunities in the Middle East and South Africa.

Business Context

Wood plays a part in more activities of the modern economy than does any other commodity. There is hardly any industry that does not use wood or wood products somewhere in their manufacturing and marketing processes. However, logging represents the single most important threat to the world's remaining ancient forests. Additional effects of the wood products industry on the world's timber supply can be found in Table 3. In 1996 alone, global trade in wood products amounted to total exports of more than 3.82 billion cubic meters of wood and wood products. In addition, international trade in wood and wood products amounts to more than \$100 billion in generated revenue each year.

According to the United Nation's Food and Agriculture Organization (FAO), future demand for forests products is increasing significantly. Yet, the estimated area logged in ancient forests from Canada to Camaroon is at least 7.2 million hectares per year. It comes as no surprise then that there is a growing consumer and investment concern over the damaging effects of ancient forest exploitation. Research in the United States shows that consumers do not want to buy – or invest in – ancient forest destruction and are prepared to pay more for environmentally certified wood products. Several companies like Nike, 3M, Kinko's, and Levi's have already committed to stop buying wood products made from ancient forests.

There is a growing global market for independently certified wood products. According to a recent Greenpeace publication, both analysts and representatives of the forest products industry are warning that independent environmental certification is increasingly becoming a requirement to access key markets [38]. Kafus alone cannot reverse the destructive impact of the forest product industry's deforestation practices. However, they are setting a precedent within the industry by creating quality competitive products without the cutting down trees.

Kafus is in a tremendous position to meet growing demands for certified wood, now and in the future. The CanFibre Group is leading the way with AllGreen MDF, North America's first medium density fiberboard to wear the Green Cross Logo from Scientific Certification Systems for its 100 percent recycled wood fiber content and its zero incremental formaldehyde emissions. Kafus will emerge as a leader in their business sector because of their ability to acquire solid environmental technologies, as well as anticipate market demand and tightening environmental regulations. Each Kafus subsidiary is committed to being a leader in the growing movement toward sustainable industrial products.

Vision of sustainable commodity production

Ken Swaisland founded Kafus Industries on a vision of finding opportunities within the environmentally friendly and sustainable resource industries that would not only be good for the environment, but would actually make money, a result many recycling and environmental technologies have failed to produce in the past. He knew that the environmental motivation would only take the company so far, and that it would fail without sound business principles to back it up. Yet, Mr. Swaisland truly believed that he could create a company with sustainable strategies as its foundation and make it a success. He constantly reinforced to his Board of Directors that Kafus would be a leader in the environmental revolution. Furthermore, he emphasized the importance of

maintaining the vision in every aspect of the company – from production processes, to technological investments and strategic alliances. A question for the future is whether Kafus can focus on the vision while continuing to meet shareholder demands in the short-term, achieve revenue growth in the long-term and maintain competitive advantage in the marketplace.

Integrated Strategy

It is clear that Kafus is on the road to a truly integrated sustainable business strategy. Sustainability is the foundation of the corporation; it is embedded into the core image and brand of the company, design of products and services, choices regarding business opportunities and strategic alliances, and so on. Kafus' global development strategy does not rely on the manufacturing of "green" products, but rather on solid, market driven business expertise backed by the following disciplines:

- *Kafus facilities are designed to be the low cost producers of superior commodity materials, having performance specifications, which meet or exceed competitive products.* For instance, the CanFibre facility receives their waste wood at virtually no cost compared to their competitors who rely on harvested timber. They also use a patented technology to create board in a much more efficient and quicker manner than typical MDF technologies. However, the real benefit of this technology is that CanFibre does not compete in the standard board market alone. They can also produce premium quality boards, which are moisture resistant and fire retardant, much more inexpensively and efficiently than their competitors while making sizable profit margins. Essentially, Kafus is able to pass on the additional savings to their customers, in addition to competitive quality and all the great features.
- *There will be no market reliance on the environmental or "green" features of Kafus products. They must be equal to or superior to similar products made from conventional raw materials.* Focusing on the quality and economic viability of a product instead of relying on its environmental criteria was a lesson that the Kafus management team learned early during the company's development. David Saltman, Vice President of the Kafus Marketing and Product Development Group, states that the company does not rely on environmental features to sell their products: "So essentially, Kafus has to produce materials that are much better in terms of structure, performance, and cost than competitive materials made from non-sustainable resources. If Kafus is equal to the competition *and* environmentally responsible, we win the contract."
- *Project funding is contingent on limiting both manufacturing and market risks via strategic partnerships, non-recourse loans, guaranteed performance contracts, supply contracts and purchase agreements.* Through all of their strategic decisions, Kafus is attempting to prove that they can find balance between ecology and the bottom line. Every development that they do is based on mitigating speculative risk. They are focused on increasing shareholder value by building a strong asset base, coupled with the real potential of exponential growth in earnings. Kafus believes that highly leveraged, non-recourse project financing ultimately creates far greater long-term value for shareholders by removing the

requirements to use venture capital, which tends to stimulate unsustainable rates of growth.

- *Once developed, projects must be able to be replicated on a global basis. Exponential, not incremental, growth is the goal of the Kafus management team.* Kafus is constantly looking for strategic and financial partners overseas where their technologies can be appropriately applied. Their programs and technologies can increase export revenues for developing countries and provide job creation for local labor. By localizing production and distribution, communities export less capital while depleting fewer resources. Creating their products on a local level increases Kafus' accountability, responsibility, and ultimately reinforces their commitment to sustainability.

Environmental Certification and Programs

The Forest Stewardship Council

The Forest Stewardship Council – U.S. recently awarded the CanFibre Group Ltd.'s new AllGreen medium density fiberboard (MDF) panel product as compatible with the FSC's program for responsible forest products. Because CanFibre produces AllGreen MDF from 100 percent recycled wood waste without the use of formaldehyde emitting resins, it qualifies as a "neutral" core material under the FSC's guidelines. Hank Cauley, Executive Director of the FSC-U.S. remarked on the occasion of the CanFibre announcement, "...CanFibre's product is a model of environmental stewardship for industry to follow: its use of entirely recycled and reclaimed wood reduces harvesting pressure on forests while simultaneously reducing tonnage placed in landfills. Its status as a neutral core in our program will make the mainstream manufacturing of panel products that use FSC endorsed veneer a certainty. This is an important step forward for advancing the cause of responsible forestry."

Committed to quality and environmental integrity

The CanFibre Riverside plant is built within the Los Angeles County Air Quality Management District, which boasts some of the toughest environmental regulations in the country. The company has made a commitment to manufacture their products utilizing the best available control technologies in the industry including: operating under a zero discharge water permit; significantly reducing the use of energy and volatile organic compounds by running the steam injection press on very short cycle times; reintroducing manufacturing waste back into the system or selling it instead of dumping it into a landfill; exceeding California's strict air quality regulations by emitting exhaust from the plant that is cleaner than the outside air; and implementing environmental purchasing procedures within its own facility.

Environmental certification

CanFibre Riverside hopes to be the first panelboard plant in North America to be registered in compliance with internationally recognized ISO 9002 quality standards and ISO 14001 environmental standards. In the future, Kafus will strive for the installation of an Environmental Management System into every office and factory. Within the ISO framework, Kafus will reduce waste and increase efficiency, while enhancing the quality of their products and their working environments. A staff member will monitor the plan at every facility.

Kafus Environmental Foundation

This non-profit entity dedicated to environmental causes has a simple mandate: “To assist others in their efforts to make the world a better place to live for generations to come.” No environmental cause will be considered too small for the Foundation’s attention, so long as it is non-political, non-profit and worthy of support, particularly where such support will make a fundamental difference in the recipient’s ability to effect change or at the very least, communicate its message. Each year the Foundation will print an anniversary calendar focused on an endangered part of the environment. Proceeds will ultimately be aimed at raising money for the Foundation.

Honors and Awards

Kafus’ environmental efforts are now beginning to gain significant recognition. In May of 1999, Kafus was awarded the Rainforest Alliance Corporate Award for their commitment to the global environment. Additionally, The CanFibre Group was also honored with The Sequoia Award for environmental leadership in the North American woodworking industry.

The Importance of Education

Kafus has made a genuine effort to employ widespread education throughout its organization, dealers and supplier base. All employees, strategic partners and shareholders received a CD-ROM documentary outlining Kafus’ operations, products, and the sustainable principles implemented into each. Employees have been quite responsive considering most started working for Kafus with little or no knowledge about sustainability.

Educating strategic partners, on the other hand, has proved to be somewhat of a greater challenge. For instance, Stone and Webster, the facility contractor for both CanFibre plants, was not initially responsive to Kafus’ environmental purchasing decisions. Yet, they were eventually compelled to build the plants using the most non-toxic, environmentally-friendly materials available in order to align with the Kafus vision.

A critical factor in Kafus’ success as a commodity producer of sustainable and recovered resources is educating the customer. It is by far the most time-consuming process because it requires breaking the customer away from his or her traditional view of materials to see the advantage of sustainable substitutes. Most industries have been engineering products the same way for twenty or more years, thus it is unusual for customers to inquire if there are better ways for them to build their products. Educating customers about the importance of examining the impacts of their purchasing decisions reverberates throughout the marketplace. The real driver of sustainability will be increased public demand for sustainable industrial practices.

Organization Alignment

The Kafus global mission would remain a dream if it were not for the extraordinary dedication and focus of the company’s management, employees and professional associates. The single most vital element in Kafus’ evolution from concept to reality has been the strength and depth of their human resources and their ability to create and

support the infrastructure required to ensure corporate success. Almost all of Kafus' employees will surely agree that the company's founder, Ken Swaisland, was the chief promoter of sustainable strategies within the company. His passionate desire to create a company that could 'do well by doing good' was infectious. Managers commented frequently that they are very devoted to striving for sustainability within their own subsidiaries, and that this is a key to their success.

Organizational alignment has been consciously built through education and communication. Most of Kafus' managers have extensive, high-level product and operations management and engineering experience, to which they have added knowledge about ecological sustainability. It is a large part of their job to make sure that they are up to date on anything that can affect the economics or the quality of the products that they are manufacturing. This especially pertains to the technical characteristics of agricultural fibers like kenaf and hemp since they are core inputs for each business unit. According to one manager, each employee from the CEO to the production staff understands and promotes the benefits of Kafus' sustainable products to the customer. "It's a real unique experience to go home from work and to be able to tell your kids that you help save the planet," exclaims a key decision-maker within Kafus.

Communication is definitely high among Kafus managers, especially since they each rely on agricultural fibers as a key input into their production processes. However, Kafus does employ an environmental compliance manager whose job it is to make sure that everyone is in compliance, ensure that the appropriate environmental certifications are implemented, as well as communicate information about sustainability throughout the company. This strong organizational alignment regarding the importance and relevance of sustainability issues to the business has strongly positioned Kafus for breakthrough progress in the future.

A Culture of Openness and Transparency

After only a few years since its creation, Kafus is already working to create a culture of openness and transparency. The candid comments of President Mike McCabe to shareholders regarding the absence of material revenue and concern about current trading values provided tremendous insight into the workings of a company that has created quite a stir in the past couple of years. McCabe's honesty will surely aid the company in coming months as they attempt to prove their ability to maintain a sustainable vision while ironing out financial difficulties. It is clear that Kafus is truly striving to be a different kind of company from the very beginning – one that is leading the journey into the new restorative economy.

Key Motivators of Sustainable Strategies

Leadership

Leadership, both in vision and in implementation, is a significant driver for pursuing sustainability within all of Kafus' business operations. The recent resignation of Kafus' original visionary and company founder may have many outsiders wondering if the company's foundation will crumble. However, this is not likely to be the case. Each product that Kafus produces, the technologies that they invest in, and one of the key marketing characteristics of their products, are based on sustainable, ecological principles. In addition, the diversification of their business units means that there are a variety of key decision-makers who must each be knowledgeable and committed to

maintaining the vision if their individual unit is to succeed. Kafus is one of a few companies pioneering the new business paradigm, therefore each employee, from the top down, is a leader in the sustainability movement.

Responsibility

Legislative requirements, market pressures, or even a long-term strategic plan have not stimulated Kafus' commitment to ecological responsibility. Rather their guiding principle has been to leave the planet for the next generation with as little ecological disruption as possible. From their reliance on sustainable and reclaimed fibers to their collaboration with local farmers, to their environmental purchasing designs for the CanFibre facilities and continued emphasis on educating customers, Kafus is leading the market with an ecological philosophy that permeates virtually all of their business operations. The following striking comments from key decision makers within Kafus represent a commitment seldom found in industry:

I continue to work for Kafus because we are making a difference and are on the leading edge of a new business paradigm.

Initially, my personal values had little influence on my decision to join Kafus. In a very short time, however, I found myself understanding the needs and benefits of sustainability followed by a strong embracing of the Kafus sustainability mission.

We must attract employees and managers to Kafus who can think outside of the box.

Beyond sustainability, Kafus is striving towards stewardship; we as business people have to assume a responsibility for and stewardship towards the earth.

Competitiveness

Kafus is focused on the future, not just the current state of market demand. They are positioning themselves for what some managers project will eventually be increased market demand from customers, constraining requirements from the industrial sector, and a key source of excitement and innovation both internally and externally. According to a manager from the CanFibre Group, the combination of sound business principles, low cost raw materials, and exceptional quality will *create* a market demand for Kafus' products. Even though Kafus has not stated a commitment to whole systems thinking in terms of design and production, they are already exploring new business opportunities with the waste residues generated from their existing facilities. Adding value to what many in the wood products industry consider waste gives Kafus an innovative advantage over the competition.

Conclusion

Kafus' mission is to create a concrete vision of sustainability: to model for society a better way of designing and producing value that is restorative, rather than damaging, to the ecological systems on which all living organisms depend for survival. Kafus does not claim to have mastered the concept of sustainability, nor would any well-meaning company at this point in the corporate sustainability movement. However, they are on the right track. By continuing to behave proactively and maintain a strong commitment to their original vision, they will get closer to their goal. Nevertheless, desire alone will

not diminish the constant challenges of business. Proven technologies, the secure acquisition of raw materials, sound business principles, and experienced and skilled personnel will also drive Kafus towards a successful future.

CHAPTER 5

Beyond Greening: Incentives for Pursuing Sustainability

If we are to achieve results never before accomplished,
we must expect methods never before attempted.

--- Sir Francis Bacon

There was a time when companies considered corporate environmental and social responsibility to be a goodwill gesture. Today, companies are implementing sustainable strategies into their programs and strategic thinking in order to prepare for the new business paradigm. “On almost every front business is being pressed to assume responsibilities it has not always been prepared to face,” said Robert Davies, chief executive of the Business Leaders Forum. “Corporate (social and environmental) responsibility is on the mainstream agenda for public companies concerned about customers, employees, and communities.” Indeed, there has been a recent surge of momentum, which has brought this issue to light within the business community. However, the changing emphasis from greening to sustainability has occurred largely among well-established corporations. Very few new companies are creating a foundation of sustainable strategies from the initial planning stage. Consequently, very little information exists concerning the incentives for pursuing corporate sustainability. Starting a business and maintaining competitiveness is enough of a challenge. So, what would drive a developing company to pursue sustainability?

Developing a Survey

A survey of ten key decision-makers from Kafus Industries was conducted in order to determine the internal and external drivers that have compelled them to integrate sustainable strategies into their operations and strategic thinking. Kafus was chosen because they are largely a developing company and have just recently moved into full-scale operation at a few of their facilities. Pursuing sustainability from the beginning differentiates Kafus from the majority of companies who are pursuing *transformational* strategies. Kafus was founded on a vision of sustainability, therefore they are not working towards it as much as they are attempting to integrate it. The company’s global scope is another reason why they were chosen as the focus of this study. They diversified their operations from the initial start-up with the intention of replicating their technologies all over the world. This characteristic could have an interesting effect on the challenge of integrating sustainable strategies if their operations are to be located in a variety of geographic locations and political and cultural climates. On the one hand, uniformity may ease the transition, while on the other hand, it may interfere with financial motives and access to the market.

The survey entitled *Beyond Greening: Kafus Industries and Corporate Sustainability* is intended to contribute to the case study of Kafus Industries by determining the top incentives for pursuing sustainability. It is hoped that the results will provide a significant contribution to the corporate sustainability debate. Existing research by the Houston Advanced Research Center’s Center for Global Studies and other bodies examines case studies of companies that have begun to pursue transformational change and the incentives driving them to achieve sustainability. This research compliments their work by investigating the incentives driving a developing company founded on a vision of sustainability to pursue these strategies. It is hoped that the results will provide other companies contemplating sustainable strategies with reasons for stretching their company’s purpose and role in society beyond the current demands of governmental regulations, consumers, and the marketplace. Ideally, it will influence them to look beyond short-term gains and realize that a dramatic paradigm shift is occurring in business and in industry. Furthermore, the survey results will demonstrate that some

companies are beginning to realize that it is possible to create value for both society and shareholders and that these can be mutually reinforcing objectives.

Ten surveys were distributed to key decision-makers within Kafus Industries. They were distributed to individuals in top-level management positions whose role within the company is crucial to Kafus' ability to maintain a focus on sustainable strategies. The survey respondents include two members of the board of directors, as well as individuals from The CanFibre Group, the Engineering and Construction Division, the Marketing and Product Development Group, Kenaf Industries of South Texas, Bio-Composites, the International Development Group, and Molded Fibers. The survey was distributed by both fax and e-mail and all identities of survey respondents will remain undisclosed. The survey received an 80 percent response rate.

Survey Results

The following list of incentives for pursuing corporate sustainability are often linked to firms who have differentiated themselves from other companies in their business sector by incorporating sustainability into their business strategies. This list was pre-determined for the three-part survey in order to ease the analysis of the results:

- Defensive strategy
- External stakeholder pressure
- Competitive advantage
- Company image
- Industry standards (eg., ISO 14000)
- Corporate culture
- Technology
- Improved access to project financing
- Reduced ecological impact
- Consumer demand
- Projected legislative trends
- Competitor pressure
- Leadership
- Current regulatory constraints
- Social responsibility
- Return on investment/profit
- New market opportunities

The first part of the survey asked respondents to rate the significance of each incentive on a scale of 0 to 4, insignificant to most significant. The following hint was provided to aid respondents in understanding the question:

Insert each incentive into this sentence before filling in the blank:

On a scale of 0-4, _____ is a reason for implementing the various concepts of sustainability into Kafus' strategic plan.

The results from the first part of the survey demonstrate that Kafus is pursuing sustainability with vigor and a strong commitment. Out of the seventeen incentives

listed, nine received an average rating between three and four – strong to most significant. The top nine incentives and their average rating are as follows:

➤ New market opportunities	3.8
➤ Leadership	3.5
➤ Competitive advantage	3.4
➤ Corporate culture	3.3
➤ Reduced ecological impact	3.3
➤ Company image	3.1
➤ Technology	3.1
➤ Industry Standards (eg., ISO 14000)	3
➤ Social responsibility	3

The additional incentives received ratings from 2.9 to 1.3. See Figure 3 for average ratings of the top incentives.

The second part of the survey asked respondents to indicate the primary influence of each incentive by specifying either ‘I’ if the incentive comes from within the company or ‘E’ if the incentive comes from outside of the company. To assist with further clarification, a Kafus executive or employee was given as an example of an internal influence while shareholders and investors were cited as examples of external influences. Nine of the seventeen incentives were influenced internally, six were external, and two incentives – reduced ecological impact and competitor pressure – each received 4 internal votes and 4 external votes. Of the top nine incentives indicated as between the strong and most significant in terms of pursuing sustainability, all but one - industry standards - were internally driven.

For the third part of the survey, participants were asked to indicate the nature of each incentive’s influence with a ‘P’ for proactive or ‘R’ for reactive. The survey explained that a proactive influence is one that pushes the company, driving it towards a specific goal. Conversely, a reactive influence pulls the company along and is often indicative of a defensive strategy towards a particular issue. The results show that the top *eleven* incentives were indicative of a proactive response, while eight of the moderate to insignificant incentives were rated as reactive. One incentive, competitor pressure, received four votes for proactive and four for reactive. See Table 4 for a complete listing of results.

Discussion

From the survey results it is evident that Kafus is truly on the right track towards fully integrating sustainable strategies into their operations and strategic thinking. A two-by-two matrix [see Figure 4] is provided to aid the in-depth examination of the survey results. The matrix is divided into four quadrants: internal/proactive, external/proactive, internal/reactive, and external/reactive. The constraints of time and other factors did not allow survey respondents to develop conclusions about the incentives that drive Kafus to pursue sustainability. However, they were given the option of contributing additional incentives not mentioned in the pre-determined list. There were no responses.

The internal/proactive quadrant contained the largest number of incentives, eight in all. Each received an overwhelming response to place them in this category. At least

seven of the eight survey respondents chose I/P for eight of the seventeen incentives. In addition, eight of the top nine incentives were included in this category. It is clear that internally driven, proactive incentives are the essential elements that ensure the viability of Kafus. The incentives included in this category are listed in descending order of significance and include:

- *New market opportunities* - a major signal that Kafus is moving towards sustainable development because they are willing to fundamentally incorporate different products, services, designs and businesses into their overall strategy.
- *Leadership* – top management leaders are devoted to achieving environmental goals, stating that this is key to their success.
- *Competitive advantage* – producing quality-competitive products is imperative, but sustainability gives them the edge.
- *Corporate culture* – this helps to determine Kafus’ willingness to pursue sustainability.
- *Reduced Ecological Impact* – integration of ecological impacts at the strategic level demonstrates genuine commitment.
- *Company image* – this helps to generate a perception of ecological excellence.
- *Technology* – Kafus has been proactive in applying technology to recycling and agriculture.
- *Social Responsibility* – ‘saving trees’ exemplifies a deep concern for future generations.
- *Return on Investment/Profit* – a central mission of all corporations, including Kafus.

The next quadrant contains incentives that are externally driven and proactive. The two incentives included in this category are industry standards and consumer demand. The E/P quadrant is distinguishable because this is where the rules of the business game are changed. Industry standards often result as a reaction to consumer demand in terms of environmental regulations. It is important that Kafus not rely on consumer demand as an incentive for pursuing sustainability because this incentive evolves with the passage of time. Creating a sustainable foundation that can withstand the changing market climate is much more progressive. However, Kafus is at least proactive in their response to industry standards like the independent certification program, ISO 14000.

Defensive strategy was the only incentive to be listed as internally driven, yet reactive in nature. The low rating for this incentive shows that it is not a primary driver of sustainable strategies within Kafus. Typically, embracing a defensive strategy means that a company is reluctant to commit to the principles of sustainability and they are only willing to take incremental steps to get there. Kafus is much more active in this respect

and has little incentive to act defensively since regulations, competition, and market demand are minimal at this point in time.

The fourth quadrant, externally driven and reactive incentives, contains four of the least significant incentives for pursuing sustainability. The first one, current regulatory constraints, is an incentive for pursuing incremental steps towards sustainability – a reactionary move that Kafus does not rely on when making strategic decisions. Projected legislative trends is the second incentive listed in this quadrant. Since this is purely speculative and liable to vary from one country to the next, this is not a key incentive. Unfortunately, Kafus does not perceive improved access to project financing to be a strong incentive for pursuing sustainability, nor one that is proactive. Investing in responsible companies is a growing movement that will be sure to grow in the future as more companies begin to embrace sustainable strategies. Finally, external stakeholder pressure is an external and reactive incentive for Kafus decision-makers. Again, this signals that Kafus is committed to sustainability on their terms, rather than submitting to external pressure.

It is evident from the survey results that internally driven incentives largely determine why Kafus has decided to pursue sustainability. Two of the most important, corporate culture and leadership, are critical because it is difficult to create an effective leader. Also, sustainability requires employee support throughout the corporation, and Kafus certainly has support from their various units. The relatively small size of Kafus Industries may be a reason why the majority of the incentives were rated as I/P. Smaller companies seem to be more sensitive to internal drivers while larger companies respond quicker to external stimulation.

The top nine incentives rated as significant reasons for pursuing sustainable strategies necessitate increased emphasis for they have several characteristics which distinguish them from the rest of the group. Primarily, they are mostly all indicative of transformational rather than incremental strategies. This means that they are committed to developing new sustainable products and services rather than rationalizing the present way that commodities are produced. It also shows that top management is firmly committed to redefining the capabilities of the modern corporation.

Secondly, the top incentives are also proactive. They demonstrate that Kafus is determined to position itself to earn competitive benefits by making a strategic choice for sustainability rather than merely responding to regulatory or public relations pressures. Thirdly, it is indisputable that the incentives highlight the emphasis that Kafus places on innovation. Kafus is a company devoted to incorporating sustainability into new technologies, products, processes, and approaches while improving their market position.

Moreover, they place a great deal of importance on the acquisition of environmental technologies, which enhances their ability to innovate and compete. Lastly, the top nine incentives are indicative of Kafus' commitment to replicate on a global scale. Market opportunities change from one country to another and Kafus can respond to this if their technologies are transferable. It also aids them in upholding their commitment to reduce the ecological impact of the forest products sector if they implement industry standards like ISO 14000, which are inherently global in application. Kafus is truly guided by a capable management team with a strong grasp on what it takes to pursue sustainability. The question is not whether they know how to get there, but if they have the financial resources to facilitate the process.

CHAPTER 6
Learning by Doing

There is nothing more difficult to carry out
nor more doubtful of success,
nor dangerous to handle,
than to initiate a new order of things.
--- Niccolo Machiavelli

You can't solve a problem at the level at which it was created, Albert Einstein is reputed to have said. Applied to the dilemma of ecological destruction, it means that corporations are not going to significantly decrease their environmental impacts through pollution control and energy efficiency. In other words, corporations cannot retrofit their way out of their share of the responsibility; linear, non-holistic approaches will no longer suffice. Transformational changes in the corporate vision, operations and long-term strategic planning are required. What this thesis proposes is that by implementing sustainable strategies into long-term strategic planning, corporations will have a fighting chance to sustain their current rate of growth and development without wreaking havoc on the ecological systems that support life on this planet.

This proposal is not intended to sound simplistic. Indeed, it requires a great deal of commitment, forethought, and education to do it correctly. Unfortunately, a blueprint does not exist in order to guide corporate executives through the implementation process. As the issue of corporate sustainability grows in significance over the next decade, models and tools will emerge, enabling individual corporations and the global industrial system to operate much more sustainably. In the meantime, case studies of companies pursuing sustainable strategies can serve as helpful substitutes.

The case study of Kafus Industries is different compared to the majority of case studies on sustainable companies found throughout the literature. What largely sets them apart is their desire to develop a company whose entire reason for operation is based on sustainable strategies. Moreover, they are a young company, which means they have not yet established a foothold in the marketplace. Most companies who are presently transforming their business strategies to incorporate sustainable principles and concepts have already established a solid reputation and are competitive within their specific industrial sector. Kafus, on the other hand, struggles with the daily dilemmas facing virtually all developmental companies, specifically delays in facility construction and operation, inconsistent product quality, conflicting management agendas, and ultimately, financial strains. In light of this, their efforts to unite economy and ecology should be commended.

Kafus has taken a progressive approach to challenging issues such as changing the status quo of commodity production on a global scale, as well as developing alternatives to natural resource extraction and landfill disposal. Coupling this strong desire to enhance environmental performance with a fiscally conservative strategy that emphasizes the removal of speculative risk is what makes Kafus seem well positioned for success. Motivated by a desire to create new market opportunities, Kafus is in a tremendous position to meet growing demands for certified wood products, now and in the future.

Their successes to date are interspersed throughout the company. Not only are all of their core inputs environmentally responsible alternatives to virgin wood, but the technologies involved in the production processes create end products that are still considered sustainable alternatives to the competition. Receiving a stamp of approval from the Forest Stewardship Council is a rare honor among wood products companies. Indeed, Kafus' efforts have not gone unnoticed. In recent years they have received both the prestigious Rainforest Alliance Award for their commitment to the global environment and the Sequoia Award for CanFibre's environmental leadership in the North American woodworking industry.

The depth of Kafus' commitment to sustainable development is further exemplified by their CanFibre Riverside facility. Not only did the subsidiary voluntarily choose to locate within the LA County Air Quality Management District, which boasts some of the toughest environmental regulations in the country, but they also constructed their facility using environmental purchasing procedures. The latter required a thorough effort to convince the contractor, who will hopefully continue to explore environmentally responsible alternatives as a result of Kafus' persistence. CanFibre Riverside is working diligently to become the first ISO 14001 certified panelboard plant in North America. This effort will surely lead to ISO 14001 certification at all Kafus facilities in the future.

Establishing a culture of openness and transparency at such an early stage in development is rare in the business community. The honest comments of President Mike McCabe regarding recent shareholder concerns have set a precedent for the handling of future difficulties. It will also enable Kafus to work proactively with stakeholders to build the relationship, understanding and motivation necessary to share their comments and concerns.

It is clear that Kafus is on the way to a truly integrated sustainable business strategy. The principles of sustainability are embedded into the core image and brand of the company, the design of products and services, as well as strategic decisions involving new business opportunities and the acquisition of new technologies. Not having to rely on the "green" marketing characteristic, but rather on solid, market driven business expertise, is a key element of Kafus' global development strategy.

From the survey results, it is evident that Kafus has already aligned key decision-makers in the understanding and acceptance of sustainable strategies. An overwhelming response indicated that the top incentives for pursuing sustainability were indicative of transformational strategies, in addition to being internally driven and proactive in nature. This speaks volumes concerning the depth to which sustainability has been ingrained in the strategic thinking and planning of individuals in key management positions. Clearly these incentives - which include new market opportunities, leadership, competitive advantage, and corporate culture - are essential elements that will ensure the viability of the company. The prevailing acceptance of these top incentives indicates that sustainability is more than a marketing ploy or a half-hearted attempt to differentiate Kafus from the competition. It is also crucial that survey participants indicated internally driven incentives as being the overriding drivers of sustainability because external incentives are subject to change on a moment's notice. In turn, they often force companies to adjust to the new framework, a potentially time consuming and therefore costly endeavor.

Based on the case study and the survey results, I strongly believe that Kafus exemplifies several of the various ways that developmental corporations can go about integrating sustainable strategies into their strategic planning. However, a strong commitment to transformational and innovative incentives does not mean that Kafus will succeed as a sustainable company. The recent resignation of Ken Swaisland, the founder and largest shareholder, implies that there is a dispute over the company's purpose and/or the implementation of their strategic plan. It is not entirely clear if the loss of his leadership will have a detrimental effect on the company's ability to maintain its vision.

Furthermore, the rapid diversification of Kafus' business units is a likely explanation for the lack of generated material revenue. Most companies first consider

diversification when they are generating financial resources *in excess* of those necessary to maintain a competitive advantage in their original, or core, business. Yet, the lack of *any* revenue generated by Kafus, much less in excess, raises serious questions about the company's strategic focus. In actuality, a large number of academic studies support the conclusion that *extensive* diversification tends to depress rather than improve company profitability [39]. An unanswered question remains: will a lack of coordination required to realize value from a diversification strategy be the ultimate downfall for Kafus?

If it is not a contributor to their financial strains, the diversified approach taken by Kafus could eventually strengthen them in the long run. The best way to visualize this strategy is to compare the company to a wagon wheel. The spokes of the wheel represent each of Kafus' individual business units. They are connected internally at the hub, which signifies the core of each business unit's operations, the sustainable fibers on which they each depend. This is their common link, their lifeblood, in a sense. The outer rim of the wheel embodies the corporate-level management team, including the international development group. It supports the spokes, or business units, by providing them with a solid framework and the financial resources they need to grow and develop. Like the hub, it serves as a connection between each unit of operation, facilitating communication, education and new ideas.

The Kafus wheel needs some work, for it is a bit out of true. The present hub is not large enough to support the spokes. What is needed is an urgent investment in large quantities of sustainable fibers in order to garner more support for the wheel. Moreover, the rim contains cracks and is in need of maintenance. Filling in the spaces with financial resources, as well as additional educational and communication tools, will help to create a wheel that can withstand future bumps in the road.

Further recommendations for Kafus include implementing whole systems thinking into the production design. This principle of corporate sustainability is already somewhat implemented in Kafus' development strategy. CanFibre, for instance, represents the scavenger in the life cycle of wood products. Recycling waste wood at the end of its useful life is a key step in whole systems thinking. Yet, Kafus has the ability to press ahead and devise methods for recycling or reusing their own products at the end of their useful life.

Without a doubt there is an ethical core at the heart of Kafus' mission. Indeed, the company refuses to invest in technologies or products that are not in line with their vision. Therefore, it would not be much of a stretch for Kafus to create a guiding set of beliefs and values for the sole purpose of re-emphasizing their commitment to ecological and social responsibility.

Even though Kafus has a deeply integrated business strategy, they have not publicly stated their long-term goals, nor have they implemented indicators to measure their success, besides ISO 14001. Establishing a set of goals would help Kafus to clarify to what extent they truly are sustainable.

Lastly, Kafus would benefit greatly if they promoted continual education about sustainable strategies. This could take the form of a newsletter addressing recent issues such as industrial ecology and product takeback models, conferences concerning the dynamics of uniting ecology with economy, or even forming an advisory board composed of experts on sustainability. Each tactic would emphasize the message to the company that sustainability is a fundamental principle within Kafus Industries.

The rate at which corporations are growing, both vertically and horizontally, shows no sign of slowing down. Clearly this unsustainable rate of growth cannot be maintained in light of industry's impact on the planet's ecological systems. If one thing is certain as we cross over into the new millennium, it is how little we actually know. It remains to be seen if corporations have the power to stimulate a sustainable revolution, or how powerful their impact might actually be. Yet, it does them no good to wait and observe what happens if they do not attempt to create any sort of change. At present, not much is at stake if a company attempts to integrate sustainable strategies. Indeed, they have the freedom to do it at their leisure and to any extent imaginable. Behaving proactively now poses far less of a risk than waiting until market or government forces compel companies to adjust to the changing business paradigm.

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TABLE 1

MAJOR ENVIRONMENTAL LEGISLATION

1966	-----	The Freedom of Information Act (FOIA)
1969	-----	National Environmental Policy Act (NEPA)
1970	-----	The Clean Air Act (CAA)
	-----	The Occupational Safety and Health Act (OSHA)
1972	-----	Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)
1973	-----	The Endangered Species Act (ESA)
1974	-----	The Safe Drinking Water Act (SDWA)
1976	-----	The Resource Conservation and Recovery Act (RCRA)
	-----	The Toxic Substances Control Act (TSCA)
1977	-----	The Clean Water Act (CWA)
1980	-----	Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund)
1986	-----	The Emergency Planning & Community Right-To-Know Act (EPCRA)
	-----	The Superfund Amendments and Reauthorization Act (SARA)
1990	-----	The Oil Pollution Act (OPA)
	-----	The Pollution Prevention Act (PPA)
1996	-----	Food Quality Protection Act (FQPA)
1999	-----	Chemical Safety Information, Site Security and Fuels Regulatory Relief Act

TABLE 2

STRATEGIC INDUSTRY RESPONSES TO SUSTAINABILITY

Waste elimination and reduction: zero waste

Reduction of toxic dispersion: zero emissions

Enhanced resource productivity

Clean production: processes, technologies, products

Increased energy efficiency

Closed loops: re-use, remanufacturing, recycling

Design for X: design for recyclability, disassembly, environment added to design for manufacturability and assembly, serviceability, repairability

Extended product durability, functionality, flexibility

Dematerialization: shift from product to service or information

Product stewardship: taking environmental and social corporate reporting, and performance measurement

Ethical production: human rights, workplace conditions and practices, safety, living wages

Taken from Rowledge, LR et. al., *Mapping the Journey: Case Studies in Strategies and Action toward Sustainable Development*.

TABLE 3

THE EFFECTS OF HARVESTING TIMBER

Nearly half of the forests that once covered the Earth are gone

Between 1980 and 1995, at least 200 million hectares of forest were lost – an area larger than Mexico

In industrial countries, where most of the world's commercial wood is produced, timber harvest is the primary cause of forest degradation

The virgin wood fiber used to make paper accounts for close to 18 percent of the world's total annual wood harvest

When forests disappear we lose more than just timber – the top 150 nonwood forest products traded internationally are worth more than \$11 billion a year

Flooding in China's Yangtze watershed – which has lost 85 percent of its forests to logging and agriculture – resulted in thousands of deaths, dislocated hundreds of millions of people, inundated tens of millions of hectares of cropland and cost tens of billions of dollars

Paper and paperboard account for nearly 40 percent of the municipal solid waste generated in the U.S.

About 10 percent of the world's industrial wood is used by the U.S. construction industry, and most of that goes into home building

In 1993, 618 million cubic meters of wood went to making paper

The average U.S. household receives 553 pieces of junk mail each year, a figure that is expected to triple by 2010

Adapted from the Greenpeace website

TABLE 4

INFLUENCE AND NATURE OF EACH INCENTIVE

	INTERNAL	EXTERNAL	PROACTIVE	REACTIVE
INCENTIVES	INFLUENCE	INFLUENCE	NATURE	NATURE
Defensive Strategy	6	2	3	5
External Stakeholder Pressure	3	5	3	5
Competitive Advantage	7	1	8	0
Company Image	8	0	8	0
Industry Standards	2	6	5	3
Corporate Culture	7	1	7	1
Technology	8	0	8	0
Improved Access to Project Financing	3	5	3	5
Reduced Environmental Impact	5	4	8	0
Consumer Demand	2	6	6	2
Projected Legislative Trends	2	6	2	6
Competitor Pressure	4	4	4	4
Leadership	8	0	7	1
Current Regulatory Constraints	2	6	3	5
Social Responsibility	7	1	7	1
Return on Investment/Profit	8	0	7	1
New Market Opportunities	8	0	7	1

