Lane County Sustainable Business and Job Project

Background on Sustainable Industrial and Job Development

Program for Watershed and Community Health Institute for a Sustainable Environment 130 Hendricks Hall 5247 University of Oregon Eugene, Oregon, 97403-5247 Phone: 744-7072 or 346-0687

> E-Mail: cwch@darkwing.uoregon.edu Website: http://cwch.uoregon.edu February 25, 2003

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Background on Sustainable Industrial and Job Development

This document provides background information on the benefits communities in Lane County and vicinity can gain in terms of job retention and growth by expanding, incubating, and recruiting businesses in "sustainable" industry sectors.

I. What is Sustainable Development?

Sustainability—the goal—and sustainable development—the activities needed to achieve that goal—have emerged as the most common terms used to describe efforts to achieve integration between economic, social, and environmental needs. The terminology has been used at the national and international levels for over a decade. First described by the U.N. World Commission on Environment and Development in its 1987 book *Our Common Future*, sustainable development was defined as "development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs." ¹

To make this definition more concrete, sustainable development--also called resource efficiency--can be thought of as policies, programs, and practices that support the achievement of the "triple bottom line" of improvements in the economy, enhanced social-welfare, and conservation of the environment. Reducing society's environmental footprint in a manner that saves money, creates jobs, and addresses social equity is the best way to ensure that the present generation can pass on ample stocks of healthy resources to future generations.

Economists have traditionally defined "capital" as the *accumulated wealth* (manufactured capital such as machines, factories and infrastructure, and financial capital) used to produce goods and services. However, the concept of sustainable development broadens that definition to include "social capital" and "natural capital." *Social capital* includes the energy, skills, and attributes of the individuals and organizations than make up a community or society. *Natural capital* includes the "stocks" and "flows" of natural resources and ecological services that sustain life on earth—and provide all of the raw materials for our economy.² All three forms of capital--social, natural, and accumulated--must be enhanced *simultaneously* if this generation is to pass on ample stocks of healthy resources to the next. Enhancing one form of capital over another--even temporarily--undermines the others and prevents communities from achieving the triple bottom line.

II. Practical Applications of Sustainable Development

The basic building block for most sustainable business and jobs development programs is to reduce waste and inefficiency in all aspects of the economic system. This approach is grounded in a simple concept that is well known in business: waste is a measure of inefficiency in the use of resources. Most businesses strive to increase their productivity by striving for zero defects, zero accidents, zero inventories, and by eliminating unneeded steps in production and administrative processes. Sustainable economic development simply takes this one step further: all forms of waste should be eliminated, including all liquid, gaseous, and solid wastes (including industrial, hazardous, and municipal). It is important to note that air emissions and water discharges are actually just molecularized waste.

Sustainable business and job development helps business, households, and government to do more with less until everything is done without producing waste. The goal is to transform materials once thought of as worthless waste into new products and services. Ample research shows that by using energy, water, and raw materials much more efficiently, designing out toxic and bioaccumulating materials and substances, and recirculating all forms of "waste" generated by our economic system into the economic system, sustainable business and job development can dramatically increase resource efficiency, reduce costs, capture competitive advantage, stimulate business innovation, grow new industries, and create jobs. Almost as a side benefit, the environment and social welfare improves.

III. Why Adopt Sustainable Development Policies and Practices?

While each business and organization has different motivations, research shows that the most common reasons for the adoption of sustainability policies and practices include:

- Reduce Costs And Improve Productivity. As outlined in Part V of this document, a growing stream of research shows that the adoption of sustainability measures reduces costs and improves efficiency and productivity. These outcomes are especially important to help companies survive in tough economic times
- Get Ahead Of Environmental Regulations. Industry in the U.S. spends about \$150 billion yearly on compliance, waste treatment, and disposal (i.e. regulatory requirements). In contrast, the entire U.S. private sector R&D budget is \$45 billion annually. Organizations that adopt sustainability measures can dramatically reduce their compliance costs. By eliminating toxics and waste, for example, many organizations have even found they can completely eliminate the need for regulation, thus saving substantial amounts of money while making them more nimble and able to respond rapidly to changing external conditions.
- Seek Strategic Competitive Advantage. Successful businesses are constantly aware of and plan for changes in market conditions and issues such as new regulations. Although many people assume that market changes and new regulations affect every company in a sector in the same way, research shows this is not the case. Companies with forward looking environmental, product development, and labor relations programs often save money and generate competitive advantage by being prepared to meet or exceed new regulations or produce goods and services for emerging markets. Those with a reactive or anti-environmental or labor focus are often negatively affected. Thus, companies adopt sustainability measures to capture competitive advantage over competitors that have not made these changes.
- Capture Emerging Markets For Sustainable Products. Following from the above, many executives are beginning to understand that consumers in the U.S. and Europe are increasingly choosing sustainably produced products and services. Even the bad years are good years for many sustainability sectors. For example, the natural foods industry grew by a healthy 19 percent in 2002, compared with the relatively flat sales of conventional foods. Some consumers will pay more for sustainable products. Others use sustainable attributes as "tie-breakers"--if quality, convenience, and costs are relatively equal, consumers will choose products that can be verified

as sustainably produced. These trends are likely to continue as concerns about pollution, food security, and other issues grow.

- Minimize Risks To Shareholders, Employees, And Communities. Just as sustainability measures can cut costs, generate competitive advantage, and increase shareholder value, environmental and social liabilities can reduce shareholder value and put a company at risk. Environmental liabilities such as exposure to climate change, hazardous wastes and emissions, and contaminated properties are bottom-line issues for companies and investors. Yet, research shows that many companies do not fully disclose these liabilities to potential investors or the Security and Exchange Commission (as required by law). Corporate directors, CEO's, and others with fiduciary responsibility for a business are becoming increasingly aware that the failure to assess, report, and proactively reduce their exposure to these liabilities places the company at risk and may even precipitate shareholder suits over breach of fiduciary duty. Similarly, local governments are becoming aware that local jobs and economic conditions are at risk when companies fail to identify and reduce their exposure to serious environmental or social liabilities.
- Generate Positive Public Image. The adoption of sustainability measures can generate a positive public image for business and government. The benefits of a positive image are numerous. For example, individuals are attracted to and make investments in communities that place a high priority on maintaining quality-of-life amenities. In addition, companies avoid civic protests and may even generate positive public relations from groups that would previously have been considered adversaries. Because it proactively adopted sustainability measures, the Collins Company, a Portland-based forest products firm with landholdings and manufacturing facilities in Klamath Falls and Lakeview, says that it has avoided the protests that have plagued other timber companies and even generated free publicity.
- Meet Personal Environmental, Social, and Public Objectives. As information about environmental and social problems grows, an increasing number of executives and employees have shown the desire to do their part to address the issues. For example, about 7.7 billion pounds of hazardous materials are released into the land, air and water in the U.S. annually. This equates to 7000 tons every minute! More and more managers and workers understand the economic, social, and environmental generated by these problems want to do their part to address the issues.

IV. The Five-Step Hierarchy of Sustainable Development

The reduction of waste and inefficiency that lies at the heart of sustainable development involves an interlinked five-step process: *Redesign*, *Replace*, *Reduce*, *Refine* and *Re-circulate*. Research increasingly shows that these steps can generate substantial cost savings and competitive advantage, create new industries and living wage jobs, and enhance social-equity. The five steps include:

• **Redesign** manufacturing processes, products, transportation systems, buildings etc. so they use environmentally safe materials and renewable energy, are produced and delivered in environmentally sound ways, and all their by-products (waste) can be reused

and recycled. Redesigning goods and services provides the greatest benefits economically and socially. However, in many cases complete redesigns are not possible. For example, housing stocks and many industrial processes will be with us for decades to come. When it is not possible to redesign products or processes, the following steps should be pursued.

- **Replace** natural toxic substances (e.g. fossil fuels) and synthetic toxic substances (bio-accumulating chemicals) and environmentally unsustainable feedstocks in existing products, processes, and buildings with non-toxic, environmentally benign alternatives.
- **Reduce** the use of raw materials, water and energy purchased or consumed by an organization by eliminating excess inputs in products, processes, and services (such as reducing the amount of packaging that accompanies feedstocks and ordering only what is needed for a production processes).
- **Refine** existing processes to get more output per unit of input by instituting measures to increase efficiencies in production and service delivery processes (such as energy and water efficiency).
- **Re-circulate** all by-products and waste materials by finding ways to use them as a raw-material input in other production processes or in other products.

The "5 R" Hierarchy of Sustainable Development

Redesign Replace Reduce Refine Recirculate

V. Socio-Economic Benefits of Sustainable Development

Private Firms Can Save Money

A growing stream of data strongly suggests that the adoption of the five actions involved with sustainability measures can be cost neutral or even generate substantial cost savings and competitive advantage.

For example, a study entitled *Saving Salmon, Saving Money: Innovative Business Leadership in the Pacific Northwest* (Goodstien, Doppelt, and Sable, 1998), assessed the costs and benefits of sustainability measures implemented by 375 organizations in the states of Oregon and Washington.³ Data on cost savings were available from 137 of the businesses, which reported a combined *minimum* gross savings of over \$42 million from 1992-1999, with most of the savings coming in the last three years.

A follow-up study entitled *It's Just Plain Good Business: The Economic and Environmental Benefits of Sustainability as Exemplified by 160 Case Examples* (Doppelt and Watson, 1999) found that 108 manufacturing, retail, and service-sector organizations in Oregon and Washington generated a total annual savings of over \$55 million through the application of energy efficiency,

renewable energy, hazardous and solid waste reduction, reuse, recycling, and other sustainability measures. Available data indicated that the projects paid for themselves in an average of less than two years.⁴

Table I

Cost Savings By Leading Private Firms

- *Portland Epson*, an electronics manufacturer, saved \$300,000 by reducing its waste to landfills by 90%.
- *Interface*, one of the world's largest producers of commercial floor covering, saved over \$200 million from 1996-2002 through its sustainability efforts.
- *SCA*, a European forest products firm, saved between \$7-8 million by reducing waste by 18 percent.
- *Hewlett Packard* in Roseville, California, reduced its waste by 95 percent and saved \$870,564 in 1998.
- ST Microelectronics, a Switzerland-based technology manufacturer, reported that its sustainability policies are projected to save \$900 million between 1994-2010. In 2000, the company saved \$38 million in energy and \$8 million in water costs.
- Many *IKEA* retail furniture outlets are saving \$5,000 per month due to waste reduction, reuse, and recycling programs and retail prices have been reduced by about 2.5-percent annually due to sustainability efforts.
- Whistler-Blackcomb Resort in British Columbia, Canada, is saving \$110,000 a year through waste reduction efforts related to its sustainability plan.
- Deutsche Telekom, the German telephone company, reduced energy consumption by DM 141 million from 1995 to 2000 while reducing CO² emissions by almost one million tons per year and saved between DM 4 and 5 million by recycling and reusing raw materials in its cabling sector.
- Dupont slashed energy use by 1/3 at its New Jersey Chamber Works facility & saved over \$17 million per year while reducing greenhouse gasses per pound of product by nearly 50%. In 2000, they saved almost \$400 million due to resource improvement efforts.
- *Baxter International*, a Deerfield, Illinois medical products maker saved \$12 million out of a net income of \$740 million in 2000, or 1.5 % of total net income, from sustainability efforts.
- *The Collins Company*, Portland-based forest products firm saved over \$1 million through a sustainability initiative at is Oregon hardboard and plywood plants.
- *Herman Miller*, a \$2 billion-per-year manufacturer of office furniture, conservatively estimates it has saved millions from energy and packaging waste reductions.
- *Scandic Hotels*-part of the Hilton chain--saved over \$1.5 million from 1996 to 2001 reducing energy, water, and waste while spending \$150,000, a ten-fold return on investment.
- *Xerox Corp* has saved \$90 million through efforts to decrease municipal, hazardous, and chemical waste and reduce water discharges by 90-percent.

Few of the organizations we examined in *Saving Salmon, Saving Money* or *It's Just Plain Good Business* had instituted comprehensive sustainability programs. Most just focus on one or two elements, such as energy efficiency or recycling, not on complete programs. The firms assessed in the study would save substantially more money had they adopted comprehensive sustainability efforts.

Further, Saving Salmon, Saving Money estimated that at best 6-percent of the firms in Oregon and Washington are actively applying sustainability measures. In the majority of sectors, the total is probably below 1-percent. The low level of involvement suggests tremendous opportunities to cost savings.

In sum, these studies suggest that while initial investment costs may be (but are not always) required, the return on sustainability-oriented investments can often be rapid and large. This conclusion corresponds to the economic benefits documented by leading companies across the globe that have adopted sustainability measures. Table I summaries some of these cost savings.

The savings found by the firms described in Table I correlate to many other studies that strongly suggest the adoption of sustainability measures can be cost neutral or generate substantial economic benefits.

For example, in 2002 the Centre for European Economic Research and Bank Sarison completed a comprehensive study of the correlation between environmental/social performance and share value. The report found that good environmental and social performance had no significant adverse impact on companies average share performance. In addition, compared with other companies in the same sector, shares of more environmentally and socially responsible firms have *lower risk of price fluctuations* relative to the market as a whole.

The study concluded that, "When it comes to the management of sustainable investments, the generally positive influence of environmental and social performance on the share performance of companies means that the (sustainable investment universe) on which the fund management is based exhibits an equal, if not better performance than an investment universe made up of conventional stocks."

In their study, "Does it *Really* Pay to Be Green? An Empirical Study of Firm Financial Performance," Andrew King and Michael Lenox found a direct association between environmental and financial performance. The study analyzed 606 U.S. manufacturing firms over the time period 1987-1996. The authors found that lower total pollution emissions were associated with superior financial performance.⁶

A study led by Michael Russo, Professor of Management at the University of Oregon Lundquist School of Business, analyzed the economic and environmental performance of 243 Fortune 500 companies over a two-year period and found that companies with superior environmental performance had higher returns on investment compared to their competitors--even after accounting for sales growth and market position. The study was published in the *Academy of Management Journal* after a rigorous peer-review process and won a prestigious Moskowitz award. The authors concluded that, contrary to the mistaken belief that environmentally responsible practices represent costs without benefits, "When you actually crunch the numbers, it turns out that good environmental citizenship is great for the bottom line." Thus, growing evidence suggests that when sustainability measures are adopted through a wise and efficient process, they may be cost neutral or even substantially reduce costs and become a major source of competitive advantage. Companies that employ these practices are also an excellent investment.

Economic Benefits In The Public Sector

It's not just the private sector that can benefit economically from the adoption of sustainability measures. Government can also save money. For example, in 1998 the State of North Carolina initiated a pollution-prevention oriented sustainability program. The state purchased 1000 alternative fuel vehicles and began to rebuild vehicles rather than purchase new ones, saving over \$2 million annually. The Brown Creek Correctional Institution reduced its waste by 60 percent, from 28 tons to 9 tons, by composting food, shredded paper, dryer lint, and even hair from the barbershop. The Correction Enterprise saves \$325,000 per year in its Paint Plant by reusing steel drums 60 times. About 200 million pieces of paper and \$7 million in printing costs are saved each year at its Duplicating Plant by sending print jobs digitally to state agencies, also saving trees, money, time, and waste. The installation of utility-monitoring systems and review of utility contracts resulted in cost savings of \$460,434 in 1998. The National Guard is even involved, reducing hazardous waste.

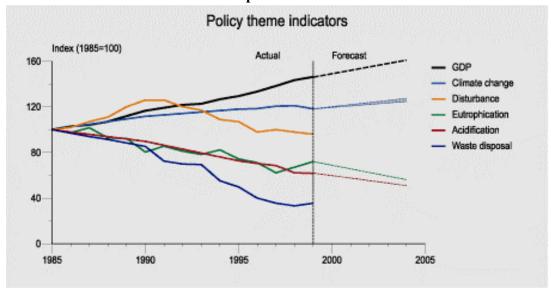
Former Oregon Governor John Kitzhaber signed an Executive Order in May 2000 that required state government agencies to adopt sustainability measures. The order also set in motion efforts to develop partnerships between state government, local communities, and the private sector to foster sustainability. One result was that within just eight months, state government saved about \$1.6 million by reducing energy use by roughly 10-percent in public buildings.⁹

Since the early 1990s the Dutch government has compared changes in Gross Domestic Product against the reductions in environmental impacts generated through their sustainability-focused National Environmental Policy Plan. The Dutch seek to grow their economy while simultaneously reducing the environmental effects of economic growth. They call this process "decoupling" economic growth from environmental impacts. Figure 1 shows the results, which indicate that along with impressive improvements in many areas of environmental quality, the economy has continued to prosper. The Dutch government concluded that:

The pressure on the environment exerted by acidification, eutrophication, desiccation and waste disposal has eased when the gross domestic product has been growing steadily."¹⁰

This indicates that even at a national scale, sustainability programs certainly does not hinder, and may benefit the economy.

Figure 1
Comparison of Economic Growth and Reduction of Environmental Impacts in The Netherlands Sustainable Development Can Generate Social Benefits



Thus, the data strongly suggests that the adoption of sustainable development measures certainly does not harm and may provide substantial competitive advantages to whole economies.

Sustainability Measures Benefit Workers and Communities

In addition to providing cost savings and competitive advantage, the evidence suggests that the application of sustainability measures benefits employees and community well-being. A report produced for the UO Program on Watershed and Community Health found that sustainable

practices in the workplace can improve the health and productivity of workers directly, by making the work site a healthier and better place to work, or indirectly, by making the larger community a healthier place to live:

Eliminating the use of toxic materials, for example, can cut the costs of handling the substances and reduce illness and lost-time from work that results from workers being

Table 2

Sample of Sustainable Industries Creating Jobs in the Pacific Northwest

- Retrofitting buildings with energy-efficiency technologies.
- Producing biofuels such as ethanol from agricultural waste.
- Redesigning urban neighborhoods to absorb and treat stormwater locally.
- Producing non-toxic aqueous cleaning processes to replace toxic solvents.
- Installing "Eco-Roofs" that naturally absorb stormwater runoff while providing increased insulation.
- Cleaning up polluted, "brownfield" sites so they can be redeveloped for commercial & other uses.
- Offering services to support products rather than just selling products, such as car-sharing businesses, floor coverings and copy equipment leasing.
- Production of environmentally certified food, forest, and fisheries products.
- Paving roads and driveways with pervious, non-toxic road materials.
- Designing, building, and operating wind-powered electricity generators.
- Producing construction materials, polymers (for plastics) and other key raw materials from plant materials (shifting to a "carbohydrate economy").
- Implementing pest-control systems that use multiple approaches or organics rather than relying solely on synthetic pesticides.
- Manufacturing products from reclaimed by-products and waste from other processes and products.
- Deconstruction of buildings to recover and reuse raw materials
- Designing and constructing "green" buildings.
- Manufacturing of photovoltaic and hydrogen fuel-cell devices.
- Designing, installing, and maintaining waterconservation systems for farms and urban landscapes.
- Remanufacturing of worn products, such as toner cartridges for copiers and appliance remanufacturing.

exposed to them. Increased health and productivity can also occur by making work sites healthier and more pleasurable places to work. Efficient lighting can help people's vision, which reduces mistakes, increases work quality, and boosts production. Optimal heating and cooling systems can increase worker comfort and output.

In two model sites, the U.S. Green Building Council estimates that paying attention to environmental quality in work-site features increased worker productivity between 6 and 16 percent. Even small productivity gains can justify an investment in sustainable techniques. For example, consider a typical, 10,000square-foot office space renting for \$20 per square foot including energy costs of \$1.80 per square foot. If 25 workers occupy the office, and each earns an average annual salary of \$50,000, the workers cost \$125 per square foot—or 70 times more than energy. In this example, a one percent increase in worker productivity would pay for the company's entire energy bill for eight months.11

Improvements in health and productivity are especially important to individuals who have health problems or have such low earnings that they cannot afford illness-related absences from work. Thus, these benefits are especially important to low-income and economically and socially distressed

rural communities and urban neighborhoods.¹²

Sustainable Production Methods Can Create New Industries and Jobs

In addition to helping workers and communities, sustainable production methods can create jobs in a wide array of industries, occupations, and locations. Table 2 lists some of the sustainable industries and production methods that already generate jobs in the Pacific Northwest. As environmental pressures grow along with the need to reduce operating costs, smart entrepreneurs will find ways to produce goods and services to meet the world's growing need for environmentally and socially responsible products. The business and job opportunities that sustainability offers are endless—restrained only by our lack of imagination and factors such as poor understanding and inadequate policies and programs.

VI. The Public and Private Sectors and Investors Are Increasingly Embracing Sustainable Development

Hundreds of public and private sustainable development efforts have emerged across the globe since the Bruntland Commission first proposed the term and focus. A growing number of nations in Europe, such as the Netherlands, Denmark, and Sweden, the European Union, and many other countries have prioritized sustainable development in law and in practice.

Sustainable development efforts are also growing in the U.S. The states of North Carolina, New Jersey, and Minnesota have initiated sustainability programs.

Locally, the *governor's of Oregon and Washington* have signed Executive Order's initiating sustainability efforts within state government. Much of former Oregon Governor Kitzhaber's EO was enacted into law during the 2001 state legislative session.

Eleven Oregon rural and urban local governments are pursuing or deciding how to engage in sustainable development through the *Local Government Sustainability Network*, a joint project between the UO Program in Watershed and Community Health and the *League of Oregon Cities*. *The City of La Grande* (and maybe Pendleton), for example, is interested in pursuing "zero waste" programs as a means to reduce landfill costs and create local jobs. *Lake Oswego* recently developed a sustainability plan for City Hall that was taken to the council for approval on February 13, 2003.

The Oregon business community is also engaging in sustainability. *The Oregon Business Association* has made sustainability one of its three main focuses. *Associated Oregon Industries* (AOI) was one of the prime sponsors of the legislation that enacted much of former Governor Kitzhaber's executive order into law in the 2001 legislative session. AOI also now has a sustainability task force.

At the national level, even the *Dow Jones* now has a Sustainability Index.

The growth of Socially Responsible Investment (SRI) also underscores the emergence of the sustainable development field. SRI is a classification of investments that integrate personal values and societal concerns with investment decisions. SRI is also known as "triple bottom line" investing because social, environmental, and financial factors are given comparable weight when reaching an investment decision. Sustainable Investment, which focuses on environmental

concerns, is a subset of Socially Responsible Investment. Companies that fit SRI criteria use the practices of energy efficiency, environmental conservation, good corporate governance, and equal opportunity policies. According to a 1999 report by the Social Investment Forum, 2.16 trillion dollars is invested in SRI in the United States, accounting for 13% of all investments. Assets of socially responsible mutual funds grew about five times faster than those of all other funds in the last thirty years. ¹³

Clearly, the terminology, public interest in, policies and practices of sustainable development are here to stay.

¹ Brundtland Commission and many others.

² Stocks of natural capital consist of productive, uncontaminated topsoil, clean water, clean air, a predictable climate, intact ozone layers, fertile forests, estuaries and oceans, and an abundant array of biological diversity including fish, wildlife, macro-organisms and plant species. Flows of natural capital consist of the ecological processes that clean the air and water, generate healthy soils and forests, and in general provide the ecological basis for the production of healthy stocks of natural capital.

Goodstein E., Doppelt E., and Sable K., Saving Salmon, Saving Money, Innovative Business Leadership in the Pacific Northwest, Center for Watershed and Community Health, Portland State University, 1999

⁴ Doppelt, Watson, PSU Center for Watershed and Community Health, 2000

⁵ Centre for European Economic Research (ZEW) and Bank Sarasin, "Share Performance and Sustainability," September, 2002.

⁶ King, M., and Lenox M., "Does it *Really* Pay to Be Green? An Empirical Study of Firm Environmental and Financial Performance." *Journal of Industrial Ecology* 5, no 1: 105-16.

⁷ Russo M., and Fouts P., *Academy of Management Journal*, "A Resource-Based Perspective on Corporate Environmental Performance and Profitability," 1997, Vol 40, No 3, 534-559.

⁸ State of North Carolina, 2001

⁹ State of Oregon Division of Administrative Services, 2001

¹⁰ RIVM, 2000

¹¹ US EPA Office of Air and Radiation. January 1997. *Introducing Your Company's Newest Profit Center*. EPA Document Number: EPA-430-R-97-004.

¹² EcoNorthwest for the Portland State University Center for Watershed and Community Health, *Sustainable Practices, Jobs, and Distressed Communities in the Pacific Northwest, December, 2001.*

¹³ ASrIA is a not-for-profit, membership association dedicated to promoting SRI in Asian central markets. Web site: www.Asria.org Social Investment Forum is a national nonprofit membership organization promoting the concept, practice and growth of socially responsible investing. Web site: www.socialinvest.org