Center For Watershed and Community Health

SUSTAINABILITY AND THE FINANCIAL SECTOR

Bob Doppelt
Director
Center for Watershed and Community Health
Hatfield School of Government
Portland State University
(503) 725-8101 or (541) 744-7072

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Introduction

Major investments are being today which will determine the short and long-term economic and environmental sustainability of communities and the economy in Oregon and the Pacific Northwest -- investments in energy, transportation, agriculture, buildings, water and sewage systems, and certain types of products and technologies. Much of this capital will come from financial markets -- the equity markets, bond markets and banks – and most will be insured. As the region grapples with complex questions about if and how to maintain environmental health and quality-of-life in the face of rising population and economic growth, it is important to ask if these investments accurately reflect environmental realities?

This document outlines some of the challenges facing the region's financial community regarding its contribution to "sustainable development." Strategies and practices which reduce the pressures that economic and community development activities place on the environment in a manner which maintains or enhances economic well-being are often called sustainable development or sustainability programs.

The financial sector may have two overall roles to play in promoting sustainable development. First, it could apply principles of sustainability to its internal operations and develop policies and programs to reduce its pollution and waste. Second, it could develop products and services which encourage environmentally sustainable investments and business practices. These and other issues are discussed below.

Environmental Challenges in Oregon and the Pacific Northwest

Endangered salmon and water quality problems have recently dominated the attention of the media and public policy in the region. The attention was justified by the recently released draft Oregon State of the Environment Report (SOER), the first ever comprehensive assessment of the conditions, trends and risks to Oregon's environment. The SOER found that water quality is poor to very poor in almost every stream in Oregon, with but few exceptions. Moreover, the SOER found significant environmental problems in almost every resource examined: wetlands, estuaries, forests, rangelands, fisheries, agricultural lands, air quality etc. Further, it found that hazardous waste, toxic releases, solid waste, air and water emissions, CO2 and energy use are growing at or above the rate of population and economic growth, suggesting a continued growth in pollution and contamination in Oregon. The SOER concluded by stating

that the effects of global climate change may dwarf all of the problems as an issue of concern within 5-10 years. (Oregon Progress Board, 2000)

The conclusions of the Oregon State of the Environmental Report suggest that past and current environmental controversies such as the spotted owl, endangered salmon and the potential Portland Harbor Superfund listing may be just a warm up to problems facing Oregonians in the future.

What is Sustainable Development?

Across the globe, governments, communities and industry are responding to environmental concerns such as those described above by instituting "sustainable development" policies and programs. The term sustainable development was defined by the 1987 U.N. World Commission on Environment and Development (The so called Bruntland Commission) as: "meeting the needs of the present generation without compromising the ability of future generations to meet their own needs." Key objectives included: "reviving economic growth, but in a new form (less material and energy intensive…); meeting essential needs for jobs, food, water, energy and sanitation; conserving and enhancing the natural resource base; and merging ecological and economic considerations in decision making."

In simple terms, sustainability therefore means passing along to future generations ample stocks of environmental capital such as productive, uncontaminated topsoil, clean water, clean air, predictable climate, intact ozone layers, fertile forests, estuaries and oceans, and abundant and genetically diverse biodiversity including fish, wildlife and plant species.

To achieve this, in practical terms sustainability programs focus on:

1. *Conserving, protecting, and where needed, restoring the productivity and diversity of nature (ecological processes and structure) to levels necessary to maintain ecological health (with special focus on key areas such as riparian areas, floodplains, wetlands, native plant habitats etc).*

Why? Because ecosystem science shows that human health and prosperity depends on the ability of nature to produce a continued supply of physical goods (wood, water, fish) and ecological services (e.g. clean air and water) and on natures ability to assimilate human waste and turn them into new resources. Today, many resources and ecosystems in Oregon and the Northwest are below the levels needed to provide these goods and services in perpetuity.

2. *Reducing the use and emission into nature of toxic minerals, metals and fossil fuels and synthetic, persistent toxic materials and substances, and*

enhancing the use of renewable energy and non-toxic materials and substances in processes, goods and services.

Why? Because the first and second laws of thermodynamics show that to maintain ecological health toxic materials must not be discharged into nature faster than nature can break them down and reintegrate them into natural cycles. Today, we are emitting toxic materials and substances faster than nature can assimilate them (which causes pollution).

3. *Eliminating waste through reduction at the source and enhanced reuse, remanufacturing and recycling internally within and externally between agencies, institutions and business.*

Why? Because to meet the first two principles, materials and substances must be used as efficiently as possible to prevent the overharvest of natural resources and to reduce the discharge of waste and pollution into nature faster than nature can assimilate them.

4. *Increasing the efficiency by which natural resources and energy are extracted, processed and used.*

Why? Because to meet the first two principles materials and substances must be used as efficiently as possible to prevent the overharvest of natural resources and to reduce the discharge of waste and pollution into nature faster than nature can assimilate it.

5. *Enhancing business development, economic competitiveness, job creation, fairness in the distribution of resources to meet basic human needs, public safety, health care, and education consistent with the principles above.*

Why? Because to meet all the principles above, Oregon must have health economies and communities which benefit all Oregonians. Everyone must be included in Oregon's prosperity to ensure social equity and cooperation which will lead to better support for and involvement in sustainability programs.

Achieving these goals involves looking for potential savings in:

- Energy and Material Efficient Design of new products, services and construction practices and proper redesign of existing ones.

- New Technologies that use less energy, water and raw materials.

- New Control Systems -- most factories in the world still use simple, gross scale optimization controls.

- More Sophisticated Management -- turning companies into learning organizations.

- New Production Processes -- cut off unneeded steps and materials.

- Material Savings – using less material of better quality and durability.

- Non-toxic materials and substances.

There are Numerous Tools, Processes and Instruments Available to Help Guide Private Sector and Community Sustainability Efforts. (ISO 14000, The Natural Step, sustainable forestry and agriculture, and others).

Costs and Benefits of Sustainable Practices

Traditionally, environmental investments have been viewed as simply a cost of complying with environmental regulations. As a result, they have been typically end-of-the-pipe types of investments. Add-on and clean-up technologies are applied at the "downstream" end of the economic value chain. Consequently, end-of-the-pipe controls rarely pay for themselves.

By contrast, achieving the sustainability goals stated above requires a much more expansive approach. Sustainability measures place the focus of environmental measures "upstream" in company, community and government operations - to design out environmental impacts from the start. This means looking for ways to phase-in process and product redesigns, to use naturally occurring non-toxic materials and substances and process oriented abatement technologies.

A growing stable or research shows that these activities most often pay for themselves in terms of lower costs and improved competitiveness of new product or service specifications. Hence, most sustainability investments usually result in *cost savings* to firms and organizations and even to increased productivity and market share.

For example, the recent study entitled *Saving Salmon, Saving Money: Innovative Business Leadership in the Pacific Northwest* (Goodstein, Doppelt and Sable, 1999) found that substantial cost savings can be achieved through sustainability efforts. Economic data provided to ten public agencies by businesses and organizations representing 9 industry sectors in Washington and Oregon was analyzed. Data on cost savings was

available from 137 firms, which reported a combined minimum gross savings of over $42 million from 1992-1999, with most of these savings coming in the last three years. Returns on investment averaged 4.04 years for private companies and 8.79 years for public organizations.

The study found that only about 1% of the firms in each of the nine sectors are involved with these types of activities. We therefore projected that if just one-quarter of the firms in each of the 9 sectors follow the lead of the early movers, businesses in the two states could realize savings greater than $1.1 billion while simultaneously taking significant steps to protect water quality, salmon habitat and the environment.

This information has been reinforced by a recent study by Michael Russo of the University of Oregon Lundquist School of Business. He 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 as a result. Russo 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."

Examples of Sustainability Activities Within the Private Sector

These types of findings can be observed in the many sustainability initiatives underway within the private and public sector in Oregon and the U.S.. For example, **The Collins Companies**, an 1100 employee woods product company based in Portland with facilities and land holdings in Klamath Falls and Lakeview. Collins decided to seek sustainable forest certification because it would accentuate their strengths and was consistent with their long term commitment to sound land management. They received their first forest certification in 1993 and completed the last certification in 1998. Collins has recently begun to sell products to Home Depot Inc. because of its forest certification. Collins also adopted a plan to eventually eliminate all waste at their manufacturing facilities, which helped the company save $ 1 Million dollars in the first year alone.

Viewmont Orchards in Hood River conserved energy by replacing an inefficient oil pressure heating system, and installing capacitors and control circuitry to regulate energy use which saved $55,000 per year. Water use was also reduced with a switch to micro-irrigation. The **Fred Meyer** baking Plant (Clackamas) identified and corrected water leaks and drips saving 709,000 gallons per year and saved $3,280/year as well as

1,772 therms of natural gas. **Boeing** in Portland is saving $92,000 per year in energy costs due to a 1988 retrofit when they connecting independent compressed air systems in their three main production buildings which allowed them to shut down two of the compressors during off-peak hours, saving 2.3 million kWh/yr. And cutting energy use at the plant by half. The projects cost $180,000 and paid for itself in only two years, while simultaneously extending the life of the compressors.

Lamb's Thriftway in Westslope is saving over 1.3 million KWh/year (worth about $65,000/yr) through a comprehensive package of renovations to their store which was done at the same time they were expending their floor space by 80 percent. They upgraded their refrigeration systems, store lighting, and heating and air conditioning control systems. The annual energy savings are equal to what Lamb's net income increase would be if they boosted their grocery sales by $8.7 million a year. **Wacker Siltronic** in Portland which changed from saws using single pass cooling to saws using recirculating glycol and a heat exchanger. These changes and others reduced water use by 37 million gallons per year.

Norm Thompson Outfitters, a premier Oregon clothing and accessory catalog retailer, is urging the catalogue industry to embrace sustainability while they apply sustainability principles to improve their product line through such using organic cottons and developing a salmon purchasing policy that supports restoration of salmon runs, equity for fishers, and consumer education. **Neil Kelly Company** is a 54-year old Oregon-based residential remodeling contractor and cabinet manufacturer. In addition to construction materials recycling efforts, they launched a cabinet line that is made of certified sustainable materials with low and non-toxic finishes and adhesives, and they have begun using "wheatboard" as a cabinet case material across all lines. A recent addition to their product offerings is Renewal by Andersen, a window line that is made from recycled material. And this June, they will open a new Neil Kelly showroom that makes use of all sorts of energy efficient and sustainable products and design ideas

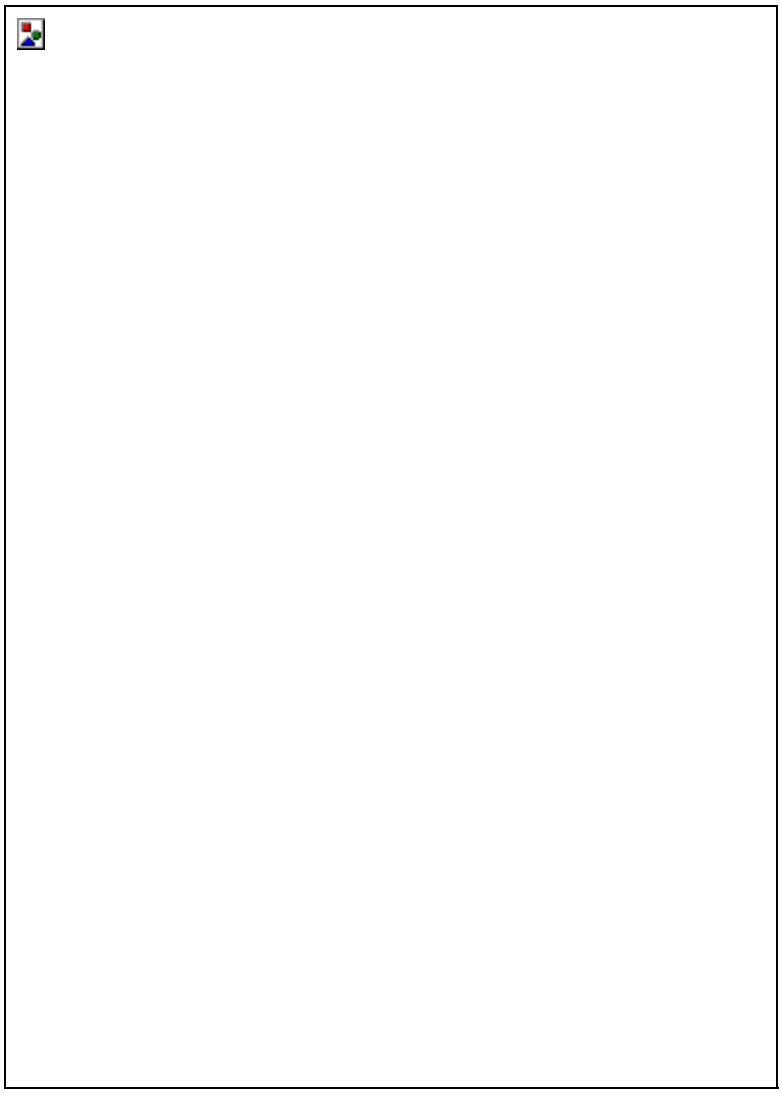
A good example of the changes that can be made in reuse and recycling is the water reuse program installed by **Graphic Sciences** in Portland. As part of an ink manufacturing process they added a cooling tower to their pigment grinding process. This allows most of the cooling water to be reused, cutting water use by 80%. The installation paid for itself in a matter of months, helping to make lower cost ink *of the same quality* using 2,500,000 less gallons of water a year. Another example of new uses of waste is the innovative demonstration project **at Portland's Columbia Boulevard Wastewater Treatment Plant** which uses biomass-derived methane gas to generate electricity. It uses the methane in a fuel cell, a generating device that produces electricity through an electro-chemical reaction, without combustion, similar to the chemistry of a battery.

Examples of Sustainability in the Public Sector

Examples of sustainability efforts within the public sector include **The Portland Sustainability Commission,** which has launched a Green Construction Initiative**. The Eugene City Council** recently adopted a resolution to investigate how sustainability could be applied to city operations. **The Eugene Water and Electric Board** is investigating sustainability and the **City of Sherwood** has developed a sustainability strategy.

The **North Carolina Department of Corrections** provides a good example of the economic and environmental benefits of public sector sustainability programs. As a result of Governor James B. Hunt, Jr., 1998 challenge to all state agencies to implement sustainability programs to reduce their environmental impacts, 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 hair from the barbershop. The Correction's Paint Plant saved $325,000 per year now by reusing steel drums 60 times instead of 6 by using plastic liners instead of scrubbing out the barrels after each use. About 200 million pieces of paper and $7 million in printing costs are now saved each year at the Correction Enterprises Duplicating Plant by sending print jobs digitally to State agencies, 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

These examples underscore that sustainability is about controlling losses (pollution and waste) and risk management.



Recent Developments and Opportunities

As a result of this information and others reasons, Governor John Kitzhaber has announced he will sign an Executive Order requiring Oregon state government to become more environmentally sustainable. The Governor is also considering means to encourage and support the private sector and communities to develop sustainability programs. The Governor's actions may complement and may help guide the numerous sustainability efforts which have been initiated within the private sector and communities in Oregon.

The release of the draft Oregon State of the Environment Report and the Governor's Executive Order on sustainability therefore underscore the need for all sectors within Oregon to assess their role in promoting a more

economically and environmentally sustainable economy. The financial community is one of the key sectors will determine the future economic and environmental sustainability of the region.

Banking and Sustainable Development

The Historic Position of Banks to Environmental Concerns

(The following has been adapted from *Financing Change: The Financial Community, Eco-Efficiency and Sustainable Development*, Schmidheiny and Zorraquin, World Business Council for Sustainable Development, MIT Press, 1998).

Historically, banks and others in the financial community, with some noted exceptions, have been slow to address environmental liabilities or the opportunities presented by sustainable development. For example, none of the Northern bankers approached in 1991 to join the Business Council for Sustainable Development took up the invitation. They simply did not see pollution and environmental degradation as issues on their agenda.

Yet, a number of cases going through U.S. courts began to catch banker's attention.

Under the U.S. Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA, also known as "Superfund"), liability for cleanup is imposed on owners of contaminated sites. Companies threatened with such costs have gone to court, and tried to find others to share the costs, such as banks.

Superfund specifically exempts lenders from being classed as "owners"; but there are excepting circumstances, and several U.S. court cases have eroded this protection. Although complicated, they suggest the complexity of Superfund court battles and of banks' potential liabilities, which are caused by their either operating, owning, or participating in the management of a contaminating business or aiding and abetting in environmental violations.

A survey by the American Bankers' Association reaffirmed that interest in environmental issues is growing. The ABA found that 62.5 percent of U.S. commercial banks had rejected loan applications because of the possibility of inheriting environmental liability. And 45.8 percent of them had by then discontinued altogether financing environmentally risky sectors, such as gasoline stations and chemical plants. Although impressive, these figures could be misleading, for they mostly reflect the reactions of small state banks and small "savings and loan" operations, not necessarily the big players.

A survey of 90 international banks in all parts of the globe found that four fifths of these leading commercial and investment institutions perform some degree of environmental financial risk assessment of borrowers before lending. Fewer than half build environmental liability into their loan contract terms or monitor risks after the loan is made. But virtually all believed that the environment is going to become more important to them over the coming 15 years and will be increasingly integrated into core business activities.

Environmental Risks Faced by Lenders

The U.N. Environment Programme (UNEP) recently listed various types of environment-related risks that lenders face now or could face in the near future. These vary in severity depending on the legal regime in place:

- The collateral for a real estate or property to be acquired may be drastically reduced in value if contamination is discovered.

- Borrowers may not repay loans if they have to pay for the cleanup of a contaminated property; fines, penalties, and cleanup costs can weaken the financial performance of a borrower, including undermining the capacity to repay loans.

- In the United States, a mortgage may lose priority to legal requirements that the cleanup takes precedence over loan repayment; some federal bankruptcy proceedings have indicated a priority for cleanup costs over loan repayments, to be paid out of claims against the bankrupt estate.

- The lender might be liable for the extent of any credit extended to any debtor that has operated property containing hazardous wastes, that has generated such wastes, or that has transported wastes in an improper manner; concern remains that potential risks may be

extended to all creditors, and not just those creditors holding as collateral property that contains hazardous wastes.

- The creditor may become directly liable for cleanup costs if it forecloses on an owner of contaminated property, becomes involved in the management of the company, or becomes involved in decisions related to the disposal of toxic or hazardous wastes.

- A lender may not be able to pursue its foreclosure options on defaulted loans for fear of liability cleanup costs, thereby having no option but to "walk away" from its loan security.

- A borrower does not maintain collateral or property with an environmental risk potential in an environmentally sound manner, thereby facing direct liability for cleanup costs.

- Aside from statutory liabilities that can be imposed for toxic waste contamination, there is potential liability for personal injuries or property damages, including civil damages.

- In Oregon and the Pacific Northwest, to this list could be added the increased risks resulting from floods, draughts, fires and other threats associated with watershed and stream degradation as well as global climate change (senior climate scientists were recently introduced to leaders in the European banking and insurance industries who helped the financial experts understand the connection between their rising casualty claims from major storms and floods and climate change as well as the predictions of all reputable climate simulation models of the effects of adding more greenhouse gases to the atmosphere. The result is that these European lenders have become among the strongest supporters of climate-protection lending practices and public policies).

Initial Responses

Partly in response to the awareness of these growing liabilities, some 30 banks, working with UNEP, produced a document entitled "*Banking and the Environment: A Statement by Banks on the Environment and Sustainable Development"* just before the 1992 Earth Summit in Rio. 171

banks and financial institutions have signed the proclamation including Salomon Inc., Republic National Bank, EBI Capital Group LLP, Friends Ivory & Sime Trust Company and Community Capital Bank from the U.S. and the number of signers are increasing steadily.

It must be acknowledged that the environment is only one of many business pressures that banks have to accommodate while they compete in an increasingly global, deregulated, and technological market. This is why--as with other players in the financial community--the banks' reaction to the environmental question has been to focus almost exclusively on reducing environmental risks in their loan portfolios.

Banks are beginning to take these risks seriously. Some leading institutions have made it clear that they will not lend to companies that ignore environmental risks. This is simply an exercise in minimizing exposure to bad debt. The European banks may be positioning themselves safely in case new laws make banks partly liable for the environmental wrongs of their borrowers.

"We would call this enlightened self-interest, as it is not in our interest to lend to a business which will be unable to repay because of environmental problems," said Hilary Thompson, head of Britain's National Westminster Bank's Environmental Management Unit. "For this reason it makes sense for lenders to integrate environmental issues into their core business rather than increase their own risks. It also makes sense to expect customers to include environmental issues in their own risk management systems. If these are well managed, the business risk decreases, as does the risk to the lender."

The bank has sent a clear message to clients and potential borrowers that they need to reduce their environmental risk or face the prospect of not getting a loan. However, National Westminster also works with customers and potential customers to help them raise their environmental standards.

If banks become too tough on companies in environmental difficulties, they could actually be encouraging environmental damage by denying capital to those businesses, especially small and medium sized enterprises (SMEs), that need to borrow the capital they require for a cleanup. It is a difficult balance to achieve. This is why banks leading in this field are spending time joining banking and financial-sector business organizations to help develop guidelines and norms.

Banks are grappling with the cost implications of trying to assess risk. This is especially important for the comparatively small loans made to SMEs, the size of which does not allow for extensive (read "costly") risk assessment.

Banks and Small Businesses

The relations between banks and SMEs deserves more discussion in the context of sustainable development. Big multinational companies are relatively few in number and tend to be improving the environmental management because of their visibility to regulators, pressure groups, and the public. SMEs, on the other hand, which form the bulk of the U.S. business community, tend not to be noticed by pressure groups or, unless their pollution is highly visible, to the public.

In 1995 the European Commission launched a scheme to help small businesses (typically under 50 employees) gain access to capital for environmental improvements. The businesses obtain the money as bank loans in the normal way, but the Commission acts as guarantor for the loans. The guarantees are given through the European Investment Fund, a partnership formed in 1994 by the European Community, the European Investment Bank, and financial institutions in member-states. The scheme was launched because so many small businesses complained that they could not get money for environmental improvements, even those demanded by law.

Searching for Opportunities

Part of the banks' search for a sensible response to environmental pressures is to find opportunities to make new business and even to create new markets. Opportunities for banks can be divided into internal (making changes in the management and administration of the bank) and external ones (developing new markets and exploiting market opportunities to boost numbers of customers and public image by being seen to be environmentally aware.)

One obvious opportunity is for banks to be more eco-efficient in their own business operations by reducing paper consumption, saving energy, and improving transport logistics. Such efficiencies reduce costs and can be used to promote a favorable public image, especially among an environmentally aware and highly desirable market sector: university students and recent graduates.

The Swiss Bank Corporation (SBC) saves about 3 million Swiss Francs ($2.5 million) yearly by optimizing the energy management of their buildings and operations, according to SBV Vice President Franz Knecht. Britain's National Westminster Bank has been particularly active in this area. It surveyed all its facilities and identified various types of environmental waste, mainly in energy, the elimination of which now saves some £ 12 million ($18.5 million) a year.

Bankers have often pointed to their traditions of a conservative approach to getting into new markets and new "products," or services. They explain this as a reason for their slowness in developing new environment-related products.

The U.S. environmental research organization Worldwatch Institute reports that "traditionally, lenders have treated innovation with skepticism--and higher interest rates--since it increases the perceived risk of a project. But recently a number of banks, often prompted by governments, have realized that by lowering utility [energy] bills, resource-efficient building designs leave owners more money to repay loans, reducing the risk of default." These banks offer cheaper mortgages and home loans for energy-efficient houses.

The Bank of Montreal, for example, offers a quarter of a point off interest rates on loans for houses that fit a certain government energy standard. Sweden also gives cheaper loans for energy-efficient homes, and in the United States, "energy-efficient mortgages" have been available for a decade through some private banks and through federal and state lending agencies.

Germany's largest bank, Deutsche Bank, has established a European environmental law data base that is available to its customers to help them bring their operations in line with existing laws. Given that small businesses need such a service, the bank sees it as a draw for new customers. The National Westminster Bank has established a computer program called PHAROS that helps customers find out which environmental regulations affect them. They also market a personal computer program that is in essence an environmental auditing package for the Spanish-speaking markets. These are some of the simpler ways in which a bank has turned a potential business liability (that is, their customer's exposure to risk) into a new banking service.

One of the more aggressive marketing campaigns to use the environment was conducted with great success by a previously staid and rather downmarket retail bank in Britain called the Cooperative Bank. It turned its previous losses into profits in 1992/93 by publicizing its ethical stance in an advertising campaign using graphic images of industrial pollution. The bank promised not to lend to companies it deemed to be participating in unethical practices, such as heavy pollution and arms dealing.

Mark Mansley of Delphi International has come up with a list of possible environment-related services banks could offer. In the retail sector, these include selling green/ethical investment products through their retail network, providing loans specifically for domestic energy efficiency, offering more preferential terms on loans for eco-efficient housing, and

investigating the possibilities of financing private transport packages other than the traditional car loans. (In most major cities, it is both cheaper and easier to move around through a combination of rented cars, taxis, and public transport, but financial packaging is required to make this truth obvious.)

In the business sector, Mansley notes, possible services include leasing eco-efficient technology, while linking and targeting leasing arrangements to suppliers of such technology; financing corporate energy efficiency; extending work already being done in providing small businesses with information on environmental regulations and on technological solutions to environmental problems; and providing small companies with information on systems to measure and account for environmental costs (and ensuring that lending officers understand and welcome such systems).

Ways Forward

Other significant steps that every bank can take:

- Develop company-wide Environmental Management Systems based on sustainability principles.

- Integrate environmental considerations into core business activities and do not simply add these on as "housekeeping" measures.

- Adopt and practice the principles in the "Statement by Banks on the Environment and Sustainable Development."

- Encourage customers to develop environmental risk management systems as part of broader management systems.

- Participate in the environmental debate, not from a defensive stance, but with the aim of creating new, progressive standards and also new markets with economic, environmental, and social benefits. There is also a clear and significant need for more sophisticated, empirically based risk management tools.

- **Insurers and Sustainability**

(The following has been adapted from *Financing Change: The Financial Community, Eco-Efficiency and Sustainable Development,* Schmidheiny

and Zorraquin, World Business Council for Sustainable Development, MIT Press, 1998)

The sight of insurance executives mingling with environmentalists and meteorologists at international summits might not be commonplace yet, but it is certainly becoming more prevalent. In 1995, insurers attended a meeting held in conjunction with the Berlin Summit on climate change and designed especially to address their concerns. They were there because they fear that a change in the world's climate--whether as a consequence of global warming or not--might be responsible for some of their recent large losses. Between 1987 and 1993, the world's insurers lost a record $44.2 billion from windstorm damage alone. The cost of massive brush fires in California and Australia in the nineties and unusually bad flooding in Europe in 1995 added to these climate-related losses.

"It would seem that in the face of increased likelihood of extreme climatic events caused by global warming, that it is imperative for insurers to make every effort to mitigate their exposure," concluded a report by the Lloyd's Underwriters Non-Marine Association.

The possibility of climate change, while environmental in nature, creates a set of concerns wholly different from the other environmental problems facing the industry, such as paying for asbestos-related claims and for the cleanup of other hazardous waste in the United States.

The two sets of problems should not be confused, for the cleanup issues are historical, real, and a direct consequence of legal obligations, while climate change is something that may or may not be happening now and that may or may not become a more serious problem in the future. It is interesting that the insurance industry must cope with two so very different problems: one a historical artifact of the U.S. legal system; the other a present and future global threat.

Concern about climate change (or global warming) is based on the theory that the world is getting warmer as a consequence of the release of several "greenhouse gases," one of the main ones being carbon dioxide, which is building up in the atmosphere primarily due to the burning of fossil fuels such as coal, oil, and gas. These gases trap incoming energy from the sun--the so-called greenhouse effect--a process that could increase average temperatures. This is turn could cause raised sea levels as oceans expand due to warming, and it could add to the overall energy in weather systems, increasing the frequency and ferocity of hurricanes and other storms.

Other theoretical consequences of warming include increases in certain diseases and pests, and more and longer droughts. Some possible impacts are more positive, such as warmer winters (less energy needed in heating),

longer growing seasons for crops, and more fresh water, should the warming increase rather than decrease global precipitation.

Industry, which with transport emits most of the greenhouse gases, tends to underplay the issue and call for more research, while environmental campaigners highlight the possible catastrophic consequences of warming and call for government action (such as a carbon tax) to curb emissions.

Weather is what happens locally at a given time, while climate is weather over a region over years or decades. It is difficult to prove that the climate is actually changing from previous averages--of temperature, rainfall, wind speeds, and so on. It would be more difficult to prove the cause of any such change. Yet the Intergovernmental Panel on Climate Change, basing its findings on both computer models and observations, has described itself as "certain" that increases of emissions of greenhouse gases "will enhance the greenhouse effect, resulting in an additional warming of the Earth's surface."

Legacies of Past Decisions

To return to coping with damage from past actions, the estimated bill for hazardous waste and asbestos damages and remediation in the United States is $2 trillion, based purely on the projected costs of meeting U.S. claims against general liability insurance policies written by U.S. and European insurers.

Asbestos was used widely in products and buildings through the sixties, before its harmful effects on people's health began to be understood and acknowledged in many areas. Its use in the United States decreased sharply about 20 years ago, although it continues to be widely used in other parts of the world and is still imported into the United States. Companies that were sued for damages by people who had suffered ill health from the effects of asbestos (or who thought they might) looked to their liability insurers to pay. Around 200,000 asbestos-related claims have been resolved, but in 1994 a similar number were still pending. It was estimated in 1994 that new claims for occupational exposure were being filed at a rate of up to 60 a day.

The insurance claims to cover the costs of other forms of hazardous waste cleanup are mainly, but not entirely, related to the sites where hazardous waste was dumped in the United States in the decades following World War II. In the mid-seventies, the U.S. government ruled that much of this waste had been improperly stored or disposed of. A 1976 law, the Resource Conservation and Recovery Act, controlled active sites but said nothing about old and abandoned dumps. Following media revelations about the dangers of contaminated sites, notably Love Canal in New York

State, the Comprehensive Environmental Response, Compensation and Liability Act (also known as "Superfund") was introduced to clean up abandoned sites. (See chapter 5 for Superfund's effects on the banking community.) This imposed strict, retroactive, and joint and several liability on those deemed responsible for the waste (called potentially responsible parties-- PRPs).

"The insurance industry's Superfund nightmare began in 1985 when a lawyer maintained that his client's General Coverage Liability policy was in effect at the time waste was dumped and required the insurers to pay his clean-up costs. The insurers disagreed, and so began a decade of lawsuits all over the country as other PRPs pursued their cost recovery cases against their insurers," says Mike McGavick, director of the Superfund Improvement Project of the American Insurance Association.

The industry no longer writes long-tail policies, and it excludes gradual pollution from environmental impairment cover, which is both costly and difficult to get. But some in the industry feel it should be using its experience with asbestos and hazardous waste to deal with what they see as its forthcoming and rather more complex problem: climate change.

Future Risks

Climate change is a subject on which various industry figures have become quite vocal. In 1993, the president of the Reinsurance Association of America said that the insurance business was the first to be affected by climate change, and that it could "bankrupt" the $1.41-trillion industry. That same year, the world's largest reinsurer, Munich Re, called on governments to take "drastic measures" to address climate change. A second major reinsurer, Swiss Re, warned in 1994 that human activity "could accelerate global climatic change to such an extent that society may no longer be able to adapt quickly enough."

It would be wrong to characterize these and other statements on the subject as the industry shifting toward the environmental campaigners' point of view. But in a sense insurers have a natural affinity with environmentalists. Their business is about both calculating risk and limiting damage so that the amounts claimed against damage and injury are also limited. One way to do this is to make customers aware of safety and prevention practices. So "precautionary behavior" and the precautionary principle championed by the environmental community are natural extensions of core insurance industry practices. Avoiding environmental damage, preventing catastrophe before it occurs, is a goal common to insurers, climate scientists, and environmental groups.

Meanwhile, there are clear indications that the ground rules on which insurers have traditionally based their business (using historical data to calculate future risk) are coming under scrutiny. Some influential figures within the industry are questioning the validity of traditional practices and the consequent ability of insurers to remain profitable if the predicted consequences of global warming become a reality.

This sentiment is reflected in the report by the Lloyd's Underwriters Non-Marine Association, which called on insurers to manage their risks better in partnership with customers: "This requires insurers to look forwards rather than backwards in assessing risk, and insurers should actively make recommendations that mitigate risk."

Concern about the possible effects of climate change has been sufficient to lead to a U.N. treaty that obligates signatory governments to reduce their emissions of greenhouse gases, although critics say that the targets are not tight enough. The insurance industry, which of all industrial sectors is first in line to lose out financially from the impacts of warming, has often acknowledged its exposed position.

"We do indeed have a problem [in climate change] and it is far more serious than would appear at first glance," said Swiss Re report in 1994. In the foreword to the report, Rudolf Kellenberger, a member of Swiss Re's executive board, wrote: "The more quickly and radically the global climate changes, the more extreme weather patterns could cause damage which not only pose a threat to individual citizens, families and enterprises but could also jeopardize whole cities and branches of the economy and--on a global scale--entire states and social systems. In brief: damage which had better not be risked because it can no longer be handled."

This worry is repeated in a 1994 UK insurance report that warns the industry that it "has a limited breathing space in which to gather its wits, and plan in a truly long-term timeframe."

How can the insurance industry plan for a more predictable future in an increasingly unpredictable climate? Some outside the sector argue that climate change offers a great opportunity to insurers. It gives them an ideal excuse to get out of marginally profitable markets and inflate premiums in other markets.

Whatever the merit of this view, the industry is short of suggestions on how it can use its own influence to help curb the emission of greenhouse gases and thereby help to mitigate its risks. Ideas for action range from the purely practical, such as insisting on better building standards to reduce energy consumption, to the political, such as lobbying for the encouragement of such energy sources as solar or wind.

Some insurers are receptive to the idea of selective investments. They say there are sufficient resources available to create a fund that would be big enough to send a signal to the markets and small enough not to upset the regulators or threaten the prudence of the industry's investment strategies.

The Lloyd's report suggests another strategy, pointing out that the interests of insurers are different from those of the carbon club, but noting that the club has enough power to prevent government from protecting insurers: "It is thus probable that the insurance industry is going to have to take some initiatives either by itself, or along with the banking industry…. The insurance industry has over a trillion dollars invested, and even a small shift could send a message which could be important and initiate a gathering momentum…. An obvious and perhaps necessary approach is for the industry to sponsor a team to assist in these processes, to monitor and assist developing technologies and to represent the industry's concerns whenever appropriate, for there is little doubt that the influence of insurers and their ultimate benefit is dependent upon a continuous presence being felt."

As stated in the banking section of this document, senior climate scientists were recently introduced to leaders in the European banking and insurance industries who helped the financial experts understand the connection between their rising casualty claims from major storms and floods and climate change as well as the predictions of all reputable climate simulation models of the effects of adding more greenhouse gases to the atmosphere. The result is that these European lenders have become among the strongest supporters of climate-protection lending practices and public policies.

Using Insurance and Finance to Control Risk

On a more practical level, the insurance industry has been developing products that are designed to help industry reduce its potential liabilities from environmental damages. However, in simply consulting and negotiating with potential clients about environment-related insurance, the insurers can help companies improve policies and practices. Part of their influence stems from the fact that insurance companies usually have more practical knowledge of risk than the company seeking insurance. So more and more insurance companies are going into the risk consultancy business.

The new products offered range from traditional policies (very specific and with many exclusions) to hybrids that combine insurance with financial tools. In certain circumstances, some products can be used as a vehicle to finance cleanups.

Insurance companies are becoming more careful in checking potential clients' own efforts to reduce their environmental risks. They require that the companies be able to demonstrate the efficiency of their environmental management systems. But no matter how good their management, companies in inherently risky sectors can only reduce, not eliminate, their risks. Insurers are useful in helping to manage the risk that remains.

There are two types of environmental coverage: pure risk transfer, as typified by third-party pollution liability, and a combination program that uses both self-finance risk management techniques and risk transfer. Risk transfer policies typically cover third-party bodily injury and property damage claims.

Combination programs can be designed to cover both first- and third-party claims through the use of financial techniques that allow the corporation to set aside and use its own funds against a potential risk. These highly flexible programs, which are tailored to the specific needs of a company and will not be described in any detail here, are true hybrids of insurance and structured finance. Either style of coverage--or a combination--can be integrated into an environmental management system.

More specifically, the insurance industry offers five different types of coverage. Each addresses a specific risk--no single product covers all environmental risks. The policies are commonly available in the United States, with similar products on offer internationally.

- *Directors' and officers' coverage* covers losses from claims brought against directors and officers of a company as a result of a pollution incident. This type of policy differs from the others in that it excludes bodily injury and property damages but covers potential losses to the company caused by the way management responded to an incident. It covers all subsidiaries and sites that fall under the authority of the directors and officers; most environmental policies are specific to a particular site.

- *Third-party pollution legal liability,* also called environmental impairment liability cover or pollution legal liability coverage, covers claims made by third parties (such as a neighbor) for bodily injury and damages to property caused by pollution coming from an insured site. Policies also usually cover the third party's bodily injury and property damage, including the insured's legal defense fees.

- *Contractors' pollution liability cover* is similar to environmental impairment liability and covers contractors for claims arising from pollution caused when working on sites belonging to others.

- *Compulsory own-site cleanup* or *environmental remediation insurance* is designed to protect buyers of commercial property from the cost of cleaning up pollution they did not know about. The policy is only issued once the site has been investigated. It covers the possibility that something might have been missed.

- *Professional indemnity coverage,* also known as errors and omissions coverage, is designed for professionals performing environmental services and covers them for claims made against any negligent acts and errors that result in pollution or loss of use.

All these policies are underwritten on what is called "claims-made" rather than the more traditional occurrence policy used for general liability. This is because environmental problems, such as a leaking underground oil tank, can take many years to be discovered. Claims-made policies limit the time period of the insurer's risk.

Ways Forward

The U.S. insurance industry, or at least big parts of it, is demonstrating that it is aware of the environmental threats to its future. It is working on a practical level to improve products that help others to reduce their exposure to environmental risk. By developing a statement on the environment and sustainable development, the industry is showing that it understands the need to be politically active on the world stage. It needs to seek other ways of showing its real concern with environmental risks.

Given its painful experience with asbestos and hazardous waste cleanup, it would be surprising if the industry ignored what some of its members see as signs of climate change and thus of increasing property damage. But it is still unclear whether insurers have either the unity or the political will to work together or to encourage others in the financial community to work for structural changes that will reduce the risk of global warming.

It would appear that the very least the industry should do is use its power with its clients to help them understand and protect themselves against environmental risk, through management techniques as well as through insurance. The industry can also organize itself to lobby and influence

policy as effectively as some of the other, currently better organized sectors of business and industry.