Port of Portland
Long-Term Environmental Goals

Briefing Document

Compiled by
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Introduction

Purpose

In August 2005, the Institute for Natural Resources at Oregon State University was retained by the Port of Portland to assist in developing, adopting, and implementing measurable long-term environmental goals that reflect its environmental policy, mission, values, and sustainable business vision. The Port seeks to establish long-term goals looking 10, 15, or 20 years in the future. Ideally, the Port would like to develop metrics for the goals, although the Port recognizes that metric-development is not a part of this phase of the project.

The purpose of this briefing document is twofold: (1) to provide a general overview of key environmental issues at the global, regional, and local levels; and (2) to provide examples of long-term environmental goals that have been adopted by businesses, governments, and other organizations. This document is not meant to be comprehensive or representative of all publications assessing environmental issues at the global, regional, or local levels; nor the myriad of organizations that have established environmental goals. Rather, its intent is to serve as an abbreviated, easy-to-read background brief for Port leaders and OUS academics participating in the project as they convene to discuss potentially-adoptable long-term environmental goals for the Port of Portland.

This document is truly a compilation of other people's efforts – work and research that has been done by hundreds, if not thousands of people to understand the state of the world's environment and our place in it. Therefore, in many cases, information is presented verbatim, as rewriting well-written material would not add significant value.

Background

One of the most defining challenges of the 21st century is to achieve sustainability – an economy and a quality of life in which people and nature thrive (Northwest Environment Watch, 2002). People around the world depend on and interact with ecosystems for their way of life. Societal concerns about ecosystems, and the services they provide, reflect the recognition that a degraded environment imposes high monetary and non-monetary costs, yet we are altering ecosystems and the services they provide in unprecedented ways.

The Millennium Ecosystem Assessment (MA), a four-year international scientific assessment of the consequences of ecosystem change for human well-being, identifies fifteen ecosystem services and categorizes them as: *provision services* – fresh water, food, fiber, natural medicines; *regulatory services* – air quality, climate, water, erosion water purification and waste treatment, disease regulation, pest, pollination, and natural hazard; and, *cultural services* – spiritual and religious values, aesthetic values, recreation and tourism (MA, 2005). The MA found that two thirds of the ecosystem services it examined are being degraded or used unsustainably. This not only has serious implications for the ecosystems themselves, but it also affects the people who and businesses that use those services and contribute to ecosystem change. The MA found that business and industry will be affected in three principal ways:

1. If current trends continue, ecosystem services that are freely available today will cease to be available or become more costly in the near future. Once internalized by primary industries, additional costs that result will be passed downstream to secondary and tertiary industries and will transform the operating environment of all businesses.

2. Loss of ecosystem services will also affect the framework conditions within which businesses operate, influencing customer preferences, stockholder expectations, regulatory regimes, governmental policies, employee well-being, and the availability of finance and insurance.

3. New business opportunities will emerge as demand grows for more efficient or different ways to use ecosystem services for mitigating impacts or to track or trade services (p.2).

The impacts of ecosystem degradation will be felt in the short-term (the next 5 years) and the long term (the next 50 years). As ecosystems often change unpredictably and suddenly, it cannot be assumed that there will be ample warning of a change in the availability of key services or that past responses to changes will be successful in the future (MA, 2005). Accordingly, it is difficult to predict the future condition of an ecosystem or the availability of an ecosystem service. In short, "these uncertainties mean that past successes in ecosystem management may not apply to current or future conditions" (MA, 2005:2).

Societal concerns about degraded ecosystem services could have implications for a business' ability to operate and its reputation and brand value. Yet, every challenge creates opportunity. Many governments, NGOs, and other organizations are already taking action by establishing environmental management systems, trying to reduce operational footprints, developing new technologies, and establishing partnerships. However solutions or opportunities are sought, it is in the best interest of all to think not only about the present, but about the future by establishing long-term environmental goals.

The focus of long-term environmental or sustainability goals is not compliance; it is taking action to prevent resource degradation or achieve restoration, while taking into account economic and societal factors. Goals of this scope and magnitude can be achieved through a series of planned, incremental steps (underlying objectives) over a longer period of time. Attaining strategic goals will require well-structured management that provides consistency of purpose and direction, a continual improvement process, and teamwork across the organization.

Approach and Profile of Organizations

The first section of this briefing summarizes environmental issues and trends at the global, regional, state and local levels. These issues are included to help frame the challenges the Port of Portland faces.

The second section summarizes environmental goals adopted by other organizations. Governments, environmental organizations, and businesses are devoting considerable resources to establishing environmental management systems. Many of these efforts are reported on their websites and within other documents (i.e., annual reports, sustainability reports, environmental reports, corporate responsibility reports, etc.).

■ **Long-term goals (10 years+)**
■ **Medium-term goals (5-9 years)**
■ **Short-term goals (2-4 years)**
■ **Annual objectives, targets, initiatives**
■ **Unknown timeframe**
■ **No goal (expressed as commitment, policy, etc.)**

To find examples of the breadth of long-term environmental goals (defined here as setting goals with horizons of 10 years or more) that governments, businesses, and other organizations have established, we conducted an extensive web search. We initiated our search using key words and phrases such as “environmental goals”, “sustainability goals”, and “long-range planning”, among numerous others. Then we began searching the individual websites of various organizations for their annual reports, and specific environment and/or sustainability web pages.

Our web search of approximately 200 government agencies, organizations, and businesses revealed that many post their annual environmental activities, programs, and initiatives. Fewer post their longer-term environmental goals. This is not to say necessarily that they do not have longer-term environmental goals; rather, that through our search, we were not able to find them. We also found that the environmental goals of an organization, business, or government entity are not always captured in one document. In addition, terminology – such as goals, objectives, targets, and milestones – are used interchangeably between organizations.

For those for which we found longer-term environmental goals, their motivation for creating them was not always readily apparent. In some cases, government agencies and businesses, alike, spoke to the awareness of competitive advantage as an impetus for establishing environmental goals (annual and long-term). While in other cases, like Toyota, they clearly stated that they put environment as a management priority in order to “ensure that our products are accepted and well-received around the world and in order to realize the corporate image that it is striving to achieve — to become a leader and driving force in global regeneration by implementing the most advanced environmental technologies”.

This report highlights 20 examples for environmental goals adopted or proposed by various governments, businesses, and other organizations. In as many cases a possible, the intent was to capture their goals verbatim. Where possible we provide background about how, when, and for what reason the goals were established. Since each environmental goal of any given organization might have had different achievement horizons, and since one organization might define long-term as 10 years and another organization might define it as five years, a legend is provided at the bottom of each page of this document, to commonly define the time horizon.

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Issues and Trends
Global, Regional, and Local

Global

Key Issues

According to the Millennium Ecosystem Assessment (MA), "six major changes are having or will have profoundly negative impacts on ecosystems: water scarcity, climate change, habitat change, biodiversity loss and invasive species, overexploitation of oceans, and nutrient overloading. Individually and collectively, these changes will have an impact on business". (p.10)

Water Scarcity[1]

Potentially of greatest importance to business is water scarcity. The MA found that 5–20% of freshwater use exceeds long-term sustainable supply and is met by water transfer or unsustainable mining of groundwater. Scarcity of water supply will affect all businesses either directly or indirectly, just as increases in the price of petroleum affect the state of the global economy. Governments will be called on to allocate supplies and adjudicate water rights. Increasingly, markets and market mechanisms are being used to help achieve efficient use through prices that reflect scarcities.

Businesses will find themselves in competition with others—including other businesses—for water.

- The cost of water may result in substantial increase in the cost of business operations.
- Decisions about locating operations must address long-term water supply.
- Increasingly, businesses will need to find ways of recycling supplies.
- New technologies and modes of operation that reduce the consumption of water per unit of output and address water quality will be valuable.
- Marketing and selling water is a new business opportunity already being pursued in some places.

Climate Change[2]

Global climate change represents a profound long-term challenge for governments, business, and society at large. The onset of global warming has made the dangers ever more apparent, and the need for action all the more urgent. There is clear scientific justification for stronger action now, and over coming decades, both to avert the gravest potential consequences of climate change and to prepare for adverse effects that cannot be avoided.

Observed recent changes in climate, especially warmer regional temperatures, have already had significant impacts on biodiversity and ecosystems, including changes in species distributions, population sizes, the timing of reproduction and migration events,

and an increase in the frequency of pest and disease outbreaks.

By the end of the century, climate change may be the dominant direct driver of biodiversity loss and changes to ecosystem services globally. The scenarios developed by the Intergovernmental Panel on Climate Change project an increase in global mean surface temperature of 2.0–6.4 degrees Celsius above pre-industrial levels by 2100, increased incidence of droughts and floods, and a rise in sea levels of 9–88 cm (4–35 inches).

The balance of scientific evidence suggests that harm to biodiversity and degradation of ecosystem services will grow on a worldwide basis (although some ecosystem services in some regions could be initially enhanced) if the global mean surface temperature increases more than 2 degrees Celsius above pre-industrial levels or at rates greater than 0.2 degrees per decade. IPCC projections indicate that atmospheric carbon dioxide concentrations must eventually stabilize at or below 450 parts per million in order to contain global average temperature increases to no more than 2 degrees Celsius.

Reliable and abundant forms of energy – i.e., fossil fuels – are essential for economic development and human well-being. This toll comes in the form of impacts to ecosystems during extraction, spills and air pollution during transportation, and air pollution and greenhouse gas emissions during processing and use.

The Millennium Ecosystem Assessment identified climate change as one of the most important drivers of stress and degradation of ecosystems and ecosystem services. Climate change is directly linked to the buildup of carbon dioxide in the atmosphere from the use of fossil fuels. A critical challenge in the protection and restoration of ecosystem services is the transition to an energy future with lower carbon emissions, less air pollution, and minimal risks from the extraction and transportation of fossil fuels.

Leading companies are moving ahead of changes called for by government regulation and in some cases ahead of customer demand. This “beyond compliance” and technology-forcing approach is driven by the desire to shape future markets and policy environments to favor their individual company’s strengths, attract the best partners and employees, build brand image and customer/investor loyalty with market segments that value their leadership initiatives, and reduce the long-term costs and risks that could arise as society becomes increasingly concerned about the loss of ecosystem services. Leading companies are seeing that by being proactive, they are writing the rules of future competition to enhance their chance of long-term success.

Habitat Change[3]

More land was converted to cropland in the 30 years after

	1950 than in the 150 years between 1700 and 1850. Systems now cover one quarter of Earth's terrestrial surface. A further 10–20% of grassland and forestland is projected to be converted between 2000 and 2050, primarily to agriculture. The projected land conversion is concentrated in low-income countries and dryland regions. Conversely, forestland is projected to continue to increase within industrial countries.
Biodiversity Loss and Invasive Species[4]	The total number of species on the planet is declining and the distribution of species is becoming more homogeneous. Over the past few hundred years, humans have increased species' extinction rates by as much as 1,000 times over the background rates that have been more typical throughout the planet's history. Some 10–30% of mammal, bird, and amphibian species are currently threatened with extinction. Freshwater ecosystems tend to have the highest proportion of threatened species. In addition, the majority of species are seeing their populations fragmented and their population sizes and ranges decline. Genetic diversity has also declined globally, particularly with respect to cultivated species. The spread of invasive alien species and disease organisms continues to increase due to both deliberate translocations and accidental introductions related to travel and trade. Invasive species generally threaten native species and many ecosystem services.
Overexploitation of Oceans[5]	Increasing demand for seafood has been matched by increasing fishing capacity and technological advances. Reported catches from oceans increased steadily over the last century, reached a peak in the mid-1980s, then began to decline. A number of economically important fisheries, such as the Atlantic cod off Newfoundland, have collapsed abruptly under intense fishing pressure, causing significant social, economic, and ecological system disruption. Widespread collapses, over-fishing of top predators, and declining catches are all symptoms of seriously disrupted ocean ecosystems. Such systems are not able to provide the full range of services they did in the past, including the provision of food. Some businesses are already experiencing direct impacts through decreased provision of fish for food or feed, while other businesses are or may be indirectly affected by the increased frequency of outbreaks of disease or blooms of nuisance species that are symptomatic of unstable ocean systems.
Nutrient Loading[6]	Humans have doubled the flow of reactive nitrogen on the continents. Some projections suggest this may increase by roughly two thirds by 2050 and that the global flux of nitrogen to coastal ecosystems will increase by 10–20% by 2030, with most of this increase occurring in developing countries. Excessive flows of nitrogen contribute to eutrophication of freshwater and coastal

marine ecosystems and acidification of freshwater and terrestrial ecosystems, with associated harm to biodiversity. In addition, nitrogen can contribute to ground-level ozone, destruction of stratospheric ozone, and climate change—all with attendant environmental and health implications.

Businesses are facing increased governmental regulation or stakeholder pressure (from activist shareholders, civil society, or customers) as threats to important ecosystem services from these changes become more apparent.

- Leading companies are seeking advantages in addressing these issues first in an effort to build reputation and carve out markets and business opportunities.
- Insurance companies are taking new approaches to setting rates that reflect growing risks from degradation of ecosystem services.
- New technologies will be needed for extraction, use, and management of ecosystem services.
- Businesses should take integrated responses to these challenges—recognizing their interdependence and the advantage of deploying flexible strategies, such as emissions trading.

Source: Millennium Ecosystem Assessment. 2005. Ecosystems and Human Well Being: Opportunities and Challenges for Business and Industry.

[1] *p. 10*
[2] *p. 11-12*
[3] *p.12-13*
[4] *p.13*
[5] *p.13*
[6] *p.17*

Pacific Northwest

Key Issues

Climate Change[1,2]

"While natural climate variability has caused, and will continue to cause, fluctuations in Pacific Northwest climate – both seasonally and on decadal time scales. Analysis of observed 20th century conditions shows evidence of longer term trends, including region-wide warming, increased precipitation, declining snowpack, earlier spring runoff, and declining trends in summer streamflow.

In the Pacific Northwest, we depend on our snowpack for much of our region's drinking water supply, hydroelectricity, recreation, fish habitat and irrigation. Since 1950, the Cascades snowpack has been reduced by 50 percent and scientists predict that by 2050 climate change could reduce snowpack by another 50 percent."[1]

As part of the West Coast Governors' Global Warming Initiative, in November 2004, the Governors of Washington, Oregon, and California approved a series of detailed recommendations to reduce global warming pollution. The Governors concluded that global warming will have serious adverse consequences on the economy, health, and, environment of the West Coast states; that the states must act individually and regionally to reduce greenhouse gas emissions; and that the region can achieve economic benefits from lower dependence on imported fossil fuels and greater investments in clean energy technologies, the growth industries of the future.

Among others, the approved recommendations include:

- Set goals and implement strategies and incentives to increase retail energy sales from renewable resources by one percent or more annually in each state through 2015.
- Incorporate aggressive energy efficiency measures into updates of state building energy codes, with a goal of achieving at least 15 percent cumulative savings by 2015 in each state.[2]

Health[3]

Indicator: *Life expectancy at birth, in years*

Health continues to improve slowly, but enhancing economic opportunities and access to medical care (both are forms of security) would hasten progress.

Status and Trend: Eighth best in world; improving slowly.

Economy[3]

Indicator: *Composite index of unemployment rate, median income, and poverty rate, 1990 = 100*

The economy has performed poorly of late, generating troubling insecurity for many. This economic insecurity may have contributed to a slight increase in average family size (the Scorecard's population indicator), which is often a sign of worsening

Status and Trend: Strong by international standards; underperforming national averages since 1990; declined 1999–2003.

Population[3]

Indicator: *Total fertility rate, in children born per woman*

Average family size (lifetime births per woman or, more precisely, the "total fertility rate") is an excellent gauge of women's—and families'—well-being. In nations where women have more opportunities and greater equality with men, women tend to have smaller families, later in life; in particular, they have fewer teen births and markedly lower rates of unplanned pregnancies. Family size is also a gauge of the Northwest's population growth, which powerfully shapes the Northwest's environment. Births—unlike migration—account for the share of this population growth that has global as well as local implications.

Status and Trend: Close to world's best, but variable; improved since 2000, but worsened in 2004.

Sprawl[3]

Indicator: *Percentage of metropolitan-area residents in compact, transit-friendly neighborhoods*

Sprawl trends also have important security implications. Sprawl…limits transportation options, necessitating reliance on private vehicles that are dependent on vulnerable, imported fuels and crowded road space; sprawl also degrades health, worsens the air, and undermines watersheds. The sprawl indicator, while impossible to update since *Cascadia Scorecard 2004*, has mostly showed slow improvement from a disappointing record. Sprawl is Cascadia's second-worst-performing indicator.

Status and Trend: Region lags far behind Vancouver, BC; has seen slow, steady improvements since 1990.

Forests[3]

Indicator: *Annual percentage of forests clearcut in five Cascadia study areas*

Forest clearing, an indicator of broader trends in the status of Cascadia's natural heritage, poses a long-term risk to ecosystems that animate the region's cultures and on which northwesterners depend for flood control, water storage, biological diversity, and climate moderation. Indeed, ecosystems are models of systems that

	are secure in their very design: they are rich with options; they are—notwithstanding popular notions of nature's fragility—tough and resilient; and, they generate the means of their own success, converting daylight and inanimate minerals into elaborate communities of life. Safeguarding ecosystems ensures northwesterners a habitable and vibrant home. Forest clearcutting slowed dramatically in the 1990s in the limited areas covered so far by the Scorecard. It has sped up again in recent years, although no data are yet available that are more current than what appears in *Cascadia Scorecard 2004.* **Status and Trend:** Stewardship improved since 1990, but worsened since 2000.
Pollution[3]	**Indicator:** *Median concentration of toxic chemicals in breastmilk, in parts per billion (PBDEs reported here; additional chemicals forthcoming, 2005)* The Scorecard's pollution indicator shows that northwesterners hold in their bodies—and in the mother's breastmilk that feeds their newborns—toxic flame retardants called PBDEs, at 20 to 40 times the levels found in Japan and Europe. These levels are likely rising. **Status and Trend:** PBDEs among highest in world; concentrations likely rising; other toxics may be declining.
Energy [3]	**Indicator:** *Per capita use of highway fuel and non-industrial electricity, in gallons of gasoline-equivalent per week* Energy security also seems to have declined in 2004 as northwesterners somewhat increased their consumption of expensive fuels that require safeguarding at home and overseas. And the energy system itself is profoundly insecure, even in the narrow, military sense **Status and Trend:** Performance very poor; improved since 2000, but worsened in 2004.

[1] West Coast Governors' Global Warming Initiative. [online] http://www.ef.org/westcoastclimate/
[2] Climate Impacts Group. 2004. Overview of Climate Change Impacts in the Pacific Northwest. University of Washington, Seattle. [online] http://www.ef.org/westcoastclimate/D_PNW%20impacts.pdf
[3] Northwest Environment Watch. 2005. Cascadia Scorecard. [online] http://www.northwestwatch.org/scorecard/CascadiaScorecard05_mapless.pdf

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Oregon

Key Issues

The State of the Environment Report (2000) asserts that the most pressing issues for the State of Oregon involve population growth, inadequate water supplies, poor water quality, loss of wetlands, degraded riparian areas, depleted fish stocks, invasion of exotic species, loss of habitat, increased solid waste, and toxic releases.

Population Growth[1]

The quality of life made possible by a healthy environment continues to attract new people and industry to Oregon. Though population growth varies between counties, between 1990 and 2000 the average growth statewide was 20.4% with Benton County increasing 53.9% and Multnomah county 42.9% at the high end. Oregon's population is projected to increase by 34% over the next 25 years. With population growth comes greater demand for ecosystem goods and services.

Health of Aquatic Systems[1]

Water Quantity: Oregon's freshwater resources are managed for instream flows, irrigation, municipal water supplies, recreation, hydropower production, navigation, water quality, and flood control. Oregon's currently available water supply is fully or often over-allocated during the low flow summer and fall months. Water use in Oregon is governed by its prior appropriations doctrine and the rights to keep water instream for fish and wildlife are typically junior to older out-of-stream rights. Water supply issues are likely to be exacerbated by warmer temperatures and increased winter precipitation associated with global climate change.

Water Quality: Generally, water quality in Oregon is categorized as poor during low flow periods by the Oregon Water Quality Index (OWQI), except in mountainous areas. Water quality is threatened by a variety of sources, especially non-point sources. Pollutants from urban areas include pesticides, fertilizers, other chemicals, runoff from roadways and parking lots, and sediments from soil erosion. Sewage overflows remain a problem, but may be significantly reduced over the next decade by infrastructure improvements in several cities. Obstructions in the natural drainage systems alter water quality and affect fish and other aquatic organisms. Overloading nature's capacity to assimilate pollution such as excessive sewage, storm water overflow, chemicals, and sedimentation all affect the health of aquatic ecosystems and may constitute human health hazards.

Coasts: Sea level rise and increased winter precipitation associated with global climate change are projected to exacerbate stresses and hazards currently facing the coastal zone, including coastal erosion, shoreline retreat, bluff landslides, and flooding.

Marine Ecosystems: Marine ecosystems are complex, exhibit great natural variability, and are difficult and expensive to study. These attributes make it hard to assess the "ecological health" of the ocean with much scientific certainty. Some indicators examined here suggest that Oregon's marine environment is in relatively good condition, while others show the ill effects of overexploitation or raise concerns about long-term cumulative impacts to ecosystem health.

Estuarine Ecosystems: The most significant historical changes in Oregon's estuaries are the diking, draining and filling of wetlands and the stabilization, dredging, and maintenance of navigation channels. Introduced species comprise a significant proportion of Oregon's estuarine flora and fauna

Freshwater Wetlands: Much of Oregon's agricultural activity and some urban development has taken place in areas that once were wetlands. An estimated 38% of Oregon's original wetlands have been lost. About 57% and 75% of original wetlands have been lost from the Willamette Valley and Klamath Basin, respectively. The Oregon Natural Heritage Program has to date identified 518 wetland plant communities in Oregon, and 151 (29%) of them are endangered. In the Willamette Valley, less than 1% of the original wet prairie exists today, and 44% of the historical wetland plant communities are considered imperiled.

Riparian Ecosystems: Oregon contains approximately 114,500 miles of rivers and Streams. Land use activities have reduced the numbers of large trees, the amount of closed-canopy forests, and the proportion of older forests in riparian areas. Along the mainstem of the upper Willamette River, there has been an 80% reduction in river channel complexity and a reduction of more than 80% of the total riparian forests since the 1850s.

Freshwater Fish Communities: Sixty-three species or recognized subspecies of native freshwater fish occur in Oregon. Currently, 14 of those species or subspecies are listed under the Endangered Species Act as threatened or endangered, and an additional 15 species are considered potentially at-risk and are listed as candidate species. Thus, 45% of Oregon's freshwater fish species have declined and are at some risk of extinction. Among the 50 states, Oregon ranks fifth in terms of the greatest number of listed fish species. More than 32 species of freshwater fish have been introduced into Oregon, and are now self-sustaining, making up approximately one-third of Oregon's freshwater fish fauna. Introduced species frequently are predators on native species, compete for food resources, and alter freshwater habitats. In 1998, introduced species were found to comprise 5% of the number of species found in the upper Willamette River, but accounted for 60%

of the observed species in the lower river near Portland.

Urban Areas[1]

Urbanization can have significant impacts on natural hydrology and hydraulics, geomorphic processes, water quality, habitat structure, native vegetation and aquatic ecosystems and watersheds. One of the most significant effects of urbanization is the conversion of native vegetation and natural landscapes to pavement and other impenetrable surfaces (driveways, sidewalks, parking lots, rooftops). Impervious surfaces prevent water from infiltrating into the soil and recharging groundwater, altering the hydrologic cycle. Urbanization can also eliminate or degrade native vegetation and riparian forests, leading to loss of biodiversity and increase use and predation by non-native species.

Urban areas are facing demands to better protect streamside habitat and enhance riparian corridors to allow fish passage along streams and rivers. A combination of healthy upland and aquatic habitats is needed to ensure healthy conditions for fish. Elevated water temperatures in many Oregon streams and rivers, including those in urban areas, will remain an important challenge — approximately 30% of assessed streams are warmer than the standard set to protect salmon.

Biodiversity[1, 3]

Oregon is home to at least 850 vertebrate species, 300 invertebrates, 1100 vascular plants, and 62 nonvascular plants, as well as over 600 plant community types. Assessing biodiversity requires knowing how particular species are distributed and whether their populations are viable. Relatively few species in Oregon are monitored sufficiently closely to enable us to know precisely their geographic range and their populations. A significant number of species or taxonomic groups are considered nationally endangered or threatened: 91 groups are listed as critically endangered, 67 listed as endangered, 77 as threatened and 403 considered as endangered or threatened in Oregon.

Impact of Climate Change[1]

A study that the Climate Impacts Group at the University of Washington published in November 1999, examines possible consequences of climate change in the Pacific Northwest by the year 2050. Computer models predict that the Northwest will become gradually warmer and wetter, with most of the precipitation increase in the winter. The average of seven models estimates that within the next 50 years temperature will increase by more than 5 degrees Fahrenheit, precipitation will increase 5%, average snow depth will decrease by 33%, and annual stream flow will decrease by 11%.

Air Quality and Toxic Releases[1]

There have been significant improvements in Oregon's air quality during the past 15 years, with decreases in measured levels in ambient air of fine particles, ozone, sulfur and nitrogen dioxides, carbon monoxide and lead. Air quality monitoring shows all areas

of the state in compliance with health-based National Ambient Air Quality Standards (NAAQS). The overall downward trends are in large part the result of reductions in wood stove use and open burning, and a higher proportion of newer and cleaner automobiles and trucks.

However, population increases and higher vehicle miles traveled per person have the potential to reverse these favorable trends unless additional emission reductions are achieved, especially in some locations where pollutants accumulate, such as in the Columbia Gorge. Additional attention is also beginning to be paid to emissions and impacts of toxic air pollutants.

Energy[2]

While the causes are complex, the demand for energy has grown and the supply of energy has not kept pace. The market is responding with higher prices. All energy resources used by Oregonians are near capacity. The interrelationship of the energy resources and the interconnection with other states make the dynamics more complex. The interconnection of energy markets means that national and international markets influence energy prices and supplies in Oregon. The relationship between states has been affirmed as California's problems have become ours. Over the past few years, there have been fundamental changes in the energy marketplace. Because regulated retail rates for electricity and natural gas are not as dynamic as the marketplace, Oregonians have not yet paid the full market price for the energy they are using.

Over the near term, the market will continue to be volatile. The interrelationship between the energy resources, the interconnection between states, and an energy supply and delivery system that has little surplus capacity mean that we are entering a period of risk and uncertainty.

For Oregon's businesses, there are difficult times ahead. For small businesses, rising energy costs and an economic downturn will make survival even more challenging, in a segment of the economy where survival is the exception. For larger businesses, the market dynamics are more complex. Rising prices, potential supply constraints, and energy purchasing choices made by those businesses may all impose costs. Those conditions combined with a downturn in the economy will affect not only those businesses, but also Oregonians who will lose or already have lost their jobs.

[1] *Oregon Progress Board. 2000. Oregon State of the Environment Report.[online] http://www.oregon.gov/DAS/OPB/soer2000index.shtml#Introduction_to_Full_Report*
[2] *Frank, Lynn, and Heissen Hassoun. 2000. Oregon Energy Outlook. Oregon Department of Energy. Salem, Oregon.*
[3] *Oregon Natural Heritage Program. 2003. Oregon Natural Heritage Plan. Department of State Lands, Salem, OR. 167 pp.*

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Willamette Valley

Key Issues

The 180-mile long, 80-mile wide Willamette River Basin includes nearly 11,000 miles of wetlands, creeks, streams and rivers, and encompasses 11,478 square miles, or 12% of the state (Sinclair, 2005). The Basin produces 31% of Oregon's timber harvests and 45% of the market value of agricultural products, and is home to 68% of the state's population. The State of the Environment Report (2000) section on the Willamette Valley ecoregion concludes:

> *Oregon's greatest environmental challenge for this century lies in the Willamette Valley. Transformation of prairies, woodlands, riparian areas, and rivers of the valley has fueled Oregon's economic growth and settlement for over 150 years. Yet this transformation has left a mark on the state's environment here and a debt to pay. Whether we can improve the ecological health of the valley, measured currently by recovery of salmon stocks, while continuing economic growth and development for homes and communities will be a stern environmental test.* (p.171)

Population Growth	By 2050 the population of the Willamette Valley is expected to increase by 1.7 million people to a total of about 4 million – the equivalent of adding 3 more cities the size of Portland or 13 the size of Eugene (Sinclair, 2005). Continued development at current and planned densities over the next 50 years will require an additional 54,000 acres (84 square miles) of land inside urban growth boundaries.
Water Consumption	Demand for water from Willamette Valley rivers—for drinking, irrigation, industry, fish and wildlife, recreation, power generation, pollution abatement, and more—is increasing dramatically. In most of the Willamette Basin, no water is available for new surface water rights and in dry years more recent water rights are not satisfied. Almost half of all water withdrawn is used for irrigation. Commercial use represents 19.5%, domestic use 15%; and industrial use 13%. Even in a normal water year some 60 miles of streams go dry in the Willamette Basin due to water withdrawals (Sinclair, 2005).
Water Quality	At least 1,400 miles of streams in the basin do not meet water quality standards. Willamette River water is declining in quality and is considered only marginally healthy for drinking, irrigation, recreation, and wildlife. This is due mainly to surface water runoff polluted by pesticides, motor oil, and other chemicals flowing into the river and its tributaries from forests, farms and urban areas. Also, some communities still discharge raw sewage into the Willamette and its tributaries during emergencies (Willamette Valley Livability Forum, 1999).
Terrestrial Ecosystems	Since 1850, 99% of the valley's original wet prairie grasslands and 72% of its bottomland hardwood forests have been lost (Willamette

	Valley Livability Forum, 1999). Since 1850, about half of all upland conifer forests and two thirds of lowland conifer forests in the Willamette Basin have been converted to non-forest uses (Sinclair, 2005). Upland portions of the Basin still are predominately forested, although forest age structure has shifted due principally to forest harvesting. The extent of older conifers (> 80 years) in the Basin has been reduced by about two-thirds (EPA 2002).
Aquatic Ecosystems	Much pre-settlement Willamette River channel complexity has been lost to ditching, damming and channeling of the river, and elimination of side channels, tributaries, sloughs and islands. This has reduced the river's ability to absorb floodwaters and destroyed important fish and wildlife habitat (Willamette Valley Livability Forum, 1999). Total channel length in 1995 was 26% less than in 1850, with almost 58% of the river's side channels disconnected from the system (Oetter et al., 2004). Upper Willamette chinook salmon and steelhead are listed as threatened under the Endangered Species Act.
Air Quality	Willamette Valley air quality has improved in recent decades, thanks to regulations and technological improvements. Yet recent gains have reached the point of diminishing returns (Willamette Valley Livability Forum, 1999).

Sources:
Sinclair, Marcia. 2005. Willamette River Basin: Challenge of Change. [online]
http://willametteexplorer.info/publications/pdf/ChallengeOfChange.pdf
Oregon Progress Board. 2000. Oregon State of the Environment Report.[online]
http://www.oregon.gov/DAS/OPB/soer2000index.shtml#Introduction_to_Full_Report
Oregon State University Extension. 2003. Looking for Oregon's Future: What is Sustainability? [online]
http://oregonfuture.oregonstate.edu/index.html
Willamette Valley Livability Forum. 1999 Choices for the Future: The Willamette Valley.
http://www.lcog.org/wvlf/pdf/choices.pdf
Oetter, D., Ashkenas, L., Gregory, S., and Minear, P. 2004. GIS Methodology for Characterizing Historical Conditions of the Willamette River Flood Plain, Oregon. Transactions in GIS 8(3): 367–383.
United States Environmental Protection Agency. 2002. Willamette Basin Alternative Futures Analysis. EPA Office of Research and Development Washington, DC. EPA 600/R-02/045(a).

Portland

Key Issues

Other key trends that affect the Portland metropolitan area include continued population growth, labor shortages (especially in skilled occupations), slowing job growth rate, emphasis on high tech employment, and housing prices that outpace income levels.

Water Quality	Overall, water quality in streams of the Portland metropolitan area ranges from poor to good (but not excellent) for conventional pollutants. In Portland streams, temperature, nitrate, and dissolved oxygen were ranked most frequently as good, while phosphorus was almost evenly split between poor and good rankings. Water quality is generally stable or improving, although comparisons of DEQ values with EPA estimates of water quality show several instances of disagreement about status and trends, especially for stream temperature and dissolved oxygen. Many of the streams and rivers in the Portland area are considered to be water quality limited with respect to temperature and dissolved oxygen.
Endangered Fish and Wildlife	The Sandy and Clackamas rivers and Johnson and Tryon creeks are among the many Portland watersheds affected by the National Marine Fisheries Service listing of lower Columbia steelhead as threatened under the Endangered Species Act. Lower Columbia River chinook salmon, chum salmon, upper Willamette River spring chinook salmon and upper Willamette steelhead are also listed as threatened under the ESA and affect the Portland metro area. Riparian corridors in the Portland Metro area have been degraded by the cumulative impacts of human activities such as building in riparian corridors and stream channelization.
Air Quality	Air quality in Oregon's urban areas meets all currently mandated levels at the state and federal levels; but conventional air pollutants such as particulates and oxides of nitrogen and sulfur are typically only fair and hazardous air pollutants are an area of rising concern. Portland has the highest risk factor in the state for hazardous air pollutants. Regional transportation plans focusing on increased public transportation, employee trip reduction, and enhanced vehicle testing may aid in mitigating these impacts, although hazardous pollutants are more likely to be related to industrial and commercial sources rather than mobile (truck and automobile) sources.
Soil and Groundwater Contamination	Contamination risks for soil and groundwater are highest in the Portland area. Over 1,000 petroleum storage tanks with past or current problems exist in the metropolitan area, and nearly one-third of the state's inventory of hazardous sites is found here. Nearly 50 sites potentially affect soil and groundwater, although the Portland

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area is also the center of much of remediation and clean-up activities.

It is important to note that the effects described above can be minimized. New infrastructure development, stormwater runoff, building design and construction, stream conservation, land use measures and non-toxic materials and substances have been developed which minimize the impacts of urbanization on naturally functioning landscapes (Oregon Progress Board, 2000:113).

Source: Oregon Progress Board. 2000. Oregon State of the Environment Report.[online] http://www.oregon.gov/DAS/OPB/soer2000index.shtml#Introduction_to_Full_Report

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Environmental Goals
Ports and Airports

Port of Brisbane

Background
Environmental objectives are defined as the environmental goals the Corporation has set through its environmental policy and through the direction set by management, legislation and interested party expectations. Environmental objectives and targets are linked to the environmental themes identified by the Corporation. Examples of objectives currently set by the Corporation include:

Water	To reduce the environmental impacts of stormwater and other surface water releases from Corporation activities, services and lessees.	■
	Investigate and adopt water conservation principles and strategies where possible.	■
Waste	Reduce natural resource consumption and manage waste in accordance with legislative requirements and the principles of cleaner production and the waste hierarchy.	■
Dredging	To ensure dredging operations, including sediment testing, material placement and dredging activities, are undertaken in an environmentally responsible manner and in accordance the legislative requirements.	■
Flora and Fauna	To minimize potential adverse impacts on the conservation values of the port environs through investigation, monitoring and managing the changes to the natural environment.	■
Environmental Compliance	To ensure the Corporation's activities and services are conducted in a manner consistent with current legislation, applicable codes and standards to ensure the highest level of environmental performance.	■
Environmental Training	To ensure Corporation staff and personnel engaged by the Corporation are appropriately trained and aware of their environmental responsibilities.	■

Source: Port of Brisbane.2005. Environmental Management System: Environmental Objectives. [online] http://www.portbris.com.au/asp/environment/ems/objectives/ accessed 26 August 2005

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Narita International Airport

Background

Eco-Airport Master Plan, which defines detailed environmental preservation activities aiming to make the airport environmentally-friendly. The plan is an airport-wide initiative, led by the Eco-Airport Planning & Developing Council, consisting of about 500 business entities operating at the airport. The plan sets targets for fiscal 2006 and targets for fiscal 2010, using fiscal 2002 as the base year.

Local Environment	**Aircraft noise**	▪ Comply with noise impact zone specifications based on noise mitigation legislation ▪ Increase the proportion of take-offs and landings by quieter (Chapter 4) aircraft*	■■ ■
	Air quality	Apply environmental standards (for SO2, CO, SPM*, NO2) based on the Basic Environmental Law	■■
	Discharged rainwater	Apply living environment quality indicators (6 indices, including pH level, BOD, ecoli concentration) and health indicators (26 indices, including heavy metals, organic chlorine compounds) in accordance with the Environmental Basic Law	■■
Global Environment	**Atmospheric pollutants**	Reduce the emission of atmospheric pollutants that occurs in one takeoff and landing cycle (from the aircraft, ground vehicles, airport facilities)	■■
	Greenhouse gases	Reduce the emissions of greenhouse gases that occur in one takeoff and landing cycle (from the aircraft, ground vehicles, airport facilities)	■■
	Energy consumption	Reduce energy consumption per airport user (airport passengers and employees) (electricity and gas)	■■
Resource Recycling	**Water**	Reduce water usage per airport user (airport passengers and employees)	■■
	Waste and recycling	▪ Raise waste recycling rates ▪ Reduce the amount of waste	■■

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		generated per airport user (airport passengers and employees)	■■
Natural Environment	**Natural environment around the airport**	Carry out environmental conservation and other activities that are appropriate for the natural environment of the region surrounding the airport	■
	Revitalize farming in the local area around the airport	▪ Rational management of land vacated by relocation and cooperation with environment projects designed to revitalize regional agriculture ▪ Implement land use initiatives that will contribute to the revitalization of the agriculture in the region in consultation with local farmers and municipal governments.	■
In-house Environmental Activities	**Greenhouse gases and energy consumption**	▪ NAA Head Office Building: Reduce greenhouse gas emissions and electricity consumption ▪ Service vehicles: Reduce atmospheric pollutant and greenhouse gas emissions	■
	Water	Reduce potable water usage in the NAA Head Office Building	■
	Waste and recycling	Increase the rate of recycling of waste generated at the NAA Head Office Building and reduce waste	■
	Green procurement	Use green procurement for specific items	■
Environmental Communications	*(See original Eco-airport Master Plan)*		■

Source: Narita Airport. 2005. Creating an Eco-Airport: The Eco-Airport Master Plan. [online] http://www.narita-airport.jp/eco/project_ecoairport/project_ecoairport_e.pdf

Port of Houston

Background

In 2003, with the assistance of Port of Houston Authority (PHA) maintenance shop personnel, the EMS core team developed a list of significant environmental aspects and impacts based on the activities conducted at PHA operational facilities and developed environmental objectives and targets (goals) for reducing the PHA's environmental footprint. These goals were presented to senior management and later adopted by the port commission for implementation.

Water Quality	Meet the TCEQ benchmark value by 2006	■
Air Quality	Reduce Air Emissions: 0.039 tons of VOCs by August 2005 Reduce NOx Emissions: 0.08 tons NOx/1,000 vessel moves by January 2005	■
Energy Efficiency	Reduce energy usage by 500,000 KwH by January 2005	■
Waste	Reduce Rag Consumption: 665 pounds by January 2005 Reduce the use of Absorbent: 300 pounds by January 2005	■

Source: Port of Houston Authority. 2003. At the Helm of Environmental Leadership. Annual Environmental Report 2003. [online] http://www.portofhouston.com/pdf/AR03/PHA-Environmental03.pdf

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Environmental Goals
Business and Industry

Wal-Mart

Background

In 2004 Wal-Mart launched a company-wide, long-term initiative. Leaders and executives from almost every branch of the company formed entrepreneurial teams focusing on areas such as packaging, real estate, energy, raw materials, and electronics waste. These teams partnered with environmental consultants, non-profit organizations, and other groups who helped them examine their business practices through the lens of restoration and sustainability. They have begun by focusing on energy effectiveness, waste reduction, and promoting environmentally preferable products. All three areas lead to their end goal of increasing the "overall value we create for our customers". Their teams are developing sets of common sense metrics that hold them accountable for the goals they are setting. They will share these metrics on their web site once they are established. They will publish a report in the Spring of 2007 detailing their innovation plans and their measurement. Wal-Mart states that ecologically responsible business practices result in significant gains for their customers, associates, and shareholders.

Sustainable Energy	Reduce overall greenhouse gas emissions by 20 percent over the next eight years	■
Waste	Generate no net waste	■
Land Conservation	Truly impact-free construction and site selection is our goal and we realize there is much to learn, so in the meantime we have agreed to conserve at least one parcel of priority wildlife habitat for every parcel developed over the next 10 years.	■

Source: Wal-Mart. 2005. Environment. [online] http://walmartstores.com/GlobalWMStoresWeb/navigate.do?catg=217

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General Motors

Background

Water	In 2001, GM set a global target to reduce water use by 10% between 2000 and 2005.	■
Energy	During 2001, the Global Energy Team (GET) established a global target to reduce energy use by 10% by 2005 from a 2000 baseline.	■
Air Emissions	At GM "we are committed to reducing ambient air emissions at every stage of our manufacturing cycle."	■
Waste and Recycling	For all of GM's global manufacturing operations, they have a five-year target to reduce total waste generated by 15% from a 2000 baseline. Over the same period, they are also targeting a 15% increase in recycling rates for wastes that are currently not being recycled.	■
Greenhouse Gases	GM began to develop their global greenhouse gas goals in 2002 after they set targets to reduce global energy and water use by 10% between 2000 and 2005. In 2003, after careful analysis, they established a global CO_2 reduction target of 8% between 2000 and 2005.	■
Land-use, Biodiversity, and Cleanup	Their goal is to return their surplus properties and sites to productive use. They consult local real estate experts, business leaders and government officials, as well as the local community in determining the most suitable re-use for their former sites.	■

Source: General Motors. 2004. Corporate Responsibility Report.

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Bristol-Myers Squibb

Background

After conferring with hundreds of internal and external stakeholders, Bristol-Myers Squibb adopted comprehensive sustainability goals for 2010. These goals were developed in 2000 as stretch goals for Bristol-Myers Squibb, and they anticipate achieving all of these goals by the end of 2010, although the pace of progress will differ by goal.

Energy	Reduce energy use by 10% from 2001 baseline year.	■
Water	Reduce water use by 10% from 2001 baseline year. In countries where water resources are severely stressed, reduce water use by 20% from 2002 baseline year.	■
Greenhouse Gases	Reduce total greenhouse gas emissions (e.g., carbon dioxide and methane) by 10% from 2001 baseline year.	■
Waste	Reduce non-hazardous waste by 20% from 2002 baseline year. Reduce off-site hazardous waste disposal by 50 percent from 2001 baseline year.	■
Air Emissions	Reduce air emissions of acid gases (sulfur oxides, nitrogen oxides, and hydrogen chloride) by 10% from 2003 baseline year.	■
	Reduce off-site release to air of priority reduction chemicals by 50% from 2002 baseline year.	■
Wastewater Releases	Reduce wastewater releases of total chemical oxygen demand, suspended solids, and nitrates by 10% from 2002 baseline.	■
Endangered Species	In countries and U.S. states where our manufacturing, research and development, and distribution sites are located, Bristol-Myers Squibb will sponsor a local endangered or threatened species or will partner with an organization that protects endangered local species and their habitats.	■
Land Preservation	Conserve ecologically significant areas to offset property occupied by Bristol-Myers Squibb total operations worldwide, including manufacturing, research and development, distribution, and administrative offices. Encourage local site conservation projects. Promote employee participation in the protection of critical land areas.	■

Source: Bristol-Myers Squibb. 2005. Sustainability Goals 2010. http://www.bms.com/static/ehs/vision/data/sustai.html

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Lafarge

Background

Climate Change	Our current strategy focuses on net direct cement plant emissions. In 2001, we committed ourselves to reduce these emissions over the period 1990 to 2010. The WWF endorsed this commitment (based on our gross emissions in industrialized countries) in the framework of our partnership and in the same way welcomed us in its "Climate savers" program, with the hope that such a proactive stance would become the reference in the industry. This happened in 2002 when our main competitors committed to publishing reduction targets by 2006 in the framework of the WBCSD Cement Sustainability Initiative. In the framework of the Cement Division's Advance program, our reduction strategy is implemented worldwide, through internal transfer of technology and know-how.	■
Air Protection	As a member of the WBCSD Cement Initiative, we are committed to publish emission data and set targets by 2006. We have reported on stack dust, NOx and SO2 since 2001, and set a maximum level of 50 mg of dust per Nm3 as an objective for 2010 (in 2004, it is met by 60% of the kilns). So far, three major competitors out of the 16 members of the Initiative publish comparable emissions data and acknowledge that addition of acquired companies can in some cases contribute to the deterioration of emissions performance.	■
Resource Savings		■
Quarry Management		■
Water Consumption		■
Control of Local Nuisances		■

Source: Lafarge. 2005. Sustainable Development: Environment. [online] http://www.lafarge.com/cgi-bin/lafcom/jsp/home.do?lang=en&partenaire=http://www.lafarge.com/cgi-bin/lafcom/jsp/undefined

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Nike

Background

Nike's environmental work takes place in the context of one primary focus, which they call Sustainable Product Innovation. They apply that focus to their two long-term aspirations: eliminating waste and eliminating toxics. "Selecting goals based in the physical sciences shortens the arguments. If we move in the direction of eliminating waste and eliminating toxics, we are, objectively, moving toward sustainability. The simplicity of these goals masks their depth: Virtually all of our environmental work can be considered in the context of these two goals. "

Eliminating Wastes	Continues to support the objective of the Kyoto Treaty: reducing human created emissions that contribute to climate change ▪ voluntary agreement defining Nike's participation in the World Wildlife Fund's Climate Savers o committed to reduce the combined CO_2 emissions from owned facilities and business travel by 13% by 2005 from a 1998 baseline o voluntarily committed to a program and schedule to remove all greenhouse gases (GHGs) from our footwear	■ ■
Eliminating Toxics	**Example Goals related to cotton** The Organic Exchange's three-year goal is to obtain brand commitments for organic cotton usage that total 1% of average annual cotton production by the end of 2007. Nike's goal is for all cotton garments to contain a minimum of 5% organic cotton by 2010, equivalent to about 25% of the total current organic cotton world production.	■

Source: Nike. 2005. Environment: Strategy and Targets. Sustainable Product Innovation. [online] http://www.nike.com/nikebiz/nikebiz.jhtml;bsessionid=XNQTCEDMVQ1HYCQCGJDSF5AKAIZEQIZB?page=27&cat=strategy Last updated: April 2005.

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Toyota

Background

To ensure that its products are accepted and well-received around the world and in order to realize the corporate image that it is striving to achieve — to become a leader and driving force in global regeneration by implementing the most advanced environmental technologies — Toyota has positioned the environment as a priority management issue and seeks to become a leading company that contributes to the development of a recycling-based society through innovative environmental technologies. Within Global Vision 2010, Toyota describes what society is expected to be like from 2020 to around 2030 with the "arrival of a revitalized, recycling-based society". The Toyota Environmental Action Plan is a medium- to long-term plan that summarizes specific activities and goals in order to promote company-wide environmental preservation activities in accordance with the Toyota Earth Charter. The Fourth Toyota Environmental Action Plan describes specific action plans for the five years from FY2006 to FY2010. (See the action plan for details on all of the goals).

Energy/Global Warming	**Production and Logistics:** Reduce CO2 emissions in the production and logistics activities of each country and region **Production FY2010 Goals (for example)** Region – Worldwide, Emissions volume/sales unit, 20% reduction from FY2001	■
Recycling of Resources	**Production and Logistics:** Promote the effective use of resources to further contribute to the realization of a recycling-based society **Production FY2010 Goals (for example)** Region – Japan, Materials discarded/sales unit, 3% reduction from FY2003 **Vehicle Recycling:** Steadily implement recycling systems in Japan and Europe (Steadily implement initiatives to increase vehicle recovery rates in Japan and Europe to reach 95% by 2015 Recovery rates: Japan: equivalent to 92% in FY2010 Europe: 85% in 2006	■
Substances of Concern	**Development and Design:** Promote management and further reductions in the use of substances of concern (SOC) – Eliminate use of four SOCs (lead, mercury, cadmium and hexavalent chromium) globally	■
Atmospheric Quality	**Production and Logistics:** Implement initiatives to reduce VOC emissions	■

Source: Toyota. 2005. Environmental and Social Report. [online]
http://www.toyota.co.jp/en/environmental_rep/05/download/pdf/eco_01.pdf

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DuPont (Canada)

Background

In 2001, DuPont established operational goals in pursuit of the DuPont Sustainable Growth aim of creating shareholder and societal value while decreasing their environmental footprint along value chains. Their 2010 goals are designed to advance economic, social and environmental sustainability in a holistic and collaborative way.

Earnings Portfolio	**Triple current earnings as we lead the transformation of our value chains.** Economic prosperity will fuel our sustainable growth work - giving us the financial means to innovate, collaborate and lead others in our value chains. We will reach our financial goal by leveraging our strengths and seizing opportunities in unique market spaces that benefit all people. Our focus will be on the food protection, safety and security, and polymers processing industries where we have marketing and technological competence, and there is potential for rapid growth. Our primary metric will be the percentage of revenue derived from products and services introduced in the last five years, with a goal of 33% by 2010.	■
Environmental Footprint	Eliminate waste and develop clean technologies to deliver value to all stakeholders.	■
Non-depletables	**Derive 25% of revenue from non-depletable resources.** We will target businesses that help preserve the environment, emphasizing products and services using non-depletable resources such as soy-based polymers, recycled materials and knowledge-based offerings. Our primary metric will be the percentage of revenue derived from offerings using non-depletable resources, with a goal of 25% by 2010.	■
Dematerialization	**Increase the value of our offerings while reducing the materials used to produce them.** More energy and more raw materials to make more product is no longer acceptable. We want to increase the value we deliver to customers based on know-how and creativity. It's a shift from selling volume to delivering value. For instance, at Ford Canada, our business is based on the number of cars painted, not the volume of paint sold. Our primary metric for this pursuit will be the increase in earnings per unit of product.	■
Eco-efficiency	**Drive eco-efficiency throughout our value chains.** Our ultimate goal is zero waste, zero discharges and flat	■

	energy usage, for ourselves and our value chain partners. Our primary metrics will be the percentage reduction in energy intensity and waste intensity (with a 15% reduction goal by 2010) and the reduction in total discharges to air, water and land.	
Clean Technology	**Develop and adopt cleaner technologies and influence the technology choices of our value chain partners.** Our primary metrics will be the percentage reduction in smog emissions (with a 40% reduction goal by 2010) and the percentage increase in energy sourced from renewables (to 10% by 2010).	■

Source: DuPont Canada. 2002. 2002 Sustainable Growth Report.

UPS

Background

In October 2003, UPS issued their first Corporate Sustainability Report, *Operating in Unison*. The vision, strategy and goals detailed in the report were designed with 2007 in mind - UPS' 100th anniversary. UPS believes that their business success depends upon balancing economic, social and environmental objectives. Their business model the foundation of a culture rooted in an ownership philosophy that values long-term strategy along with diligent execution. This approach to business also is an important element of synchronizing global commerce, which UPS believes will be one of the most powerful and pervasive economic, social, and environmental forces of the 21st century.

Fuel Use and Emissions	**Ground Fleet Strategy** to actively participate in advancing the development of future generations of delivery vehicles that reduce dependence on fossil fuels and significantly reduce fuel consumption and emissions. **2007 Goal**: To decrease gallons per package to 0.1008.	■
	Air Fleet Strategy UPS Airlines strives to reduce its impact on the environment by operating efficient aircraft and aggressively managing our aircraft operations. We support the development of economically responsible solutions that reduce the effect of air operations on the environment. These solutions include not only equipment design and configuration, but aircraft operating procedures and technology. **2007 Goal**: To have 97 percent of our total aircraft fleet meet ICAO's 2006 guidelines for new aircraft.	■
Energy	We manage our facility needs to obtain the highest energy efficiencies for existing facilities, new construction and equipment replacement. We also seek to be on the forefront of developing technologies which may decrease our dependence on fossil fuels in the future. — Corporate Energy Mission Statement **2007 Goal: Pending (as per their 2004 report)** UPS continues to evaluate the collective impact of our multiple fuel and energy initiatives to determine a goal.	■
Greenhouse Gas Emissions	As new fuel efficient and alternative technologies become widely available and affordable, UPS' long-term goal is to manage total CO2 emissions produced by our operations. In the near term, our efforts are focused on reducing emissions per package.	■

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Recycling and Waste	**2007 Goals:** ▪ To ensure the consistent, responsible management of hazardous and non-hazardous wastes. ▪ To reduce the amount of hazardous waste generated by our operations through recycling and source reduction initiatives.	■
Water	The efficient use of water is essential to future commerce and quality of life. Due to its cost, there is also a direct bottom-line benefit to reducing water use. We are committed to researching and implementing conservation initiatives. We have identified the washing process as an area where we aim to reduce the amount of water we use. **2007 Goal: Pending (as per their 2004 report)** Tracking water consumption has proven to be more complicated than initially anticipated. In the U.S., we have more than 1,900 water accounts with more than 1,000 unique suppliers using 16 different units of measurement.	■
Environmental Management Systems	**Agency Environmental Inspections** **2007 Goal:** This measurement is a lagging indicator. No goal intended.	■
	Incidental Spills **2007 Goal:** Reduce spills to as close to zero as possible.	■

Source: UPS. 2005. Operating in Unison: 2004 UPS Corporate Sustainability Report. [online] http://www.sustainability.ups.com/downloads/Sustainability04.pdf

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National Metal Finishing

Background

The National Strategic Goals Program (SGP) is a voluntary program that encourages companies to go beyond environmental compliance. SGP member companies are offered incentives, resources and a means for removing regulatory and policy barriers as they work to achieve specific environmental goals. The program was started in 1998 as a unique cooperative effort between the U.S. Environmental Protection Agency and the metal finishing industry. The SGP is designed to measure progress over several years and consists of seven core environmental goals.

Water	50% Water Reduction	■
Energy	25% Energy Reduction	■
Waste	50% Reduction in Land Disposal of Hazardous Sludges and an Overall Reduction in Sludge Generation	■
Emissions	50% Reduction in Metals Emissions to Water and Air	■
Resource Use	98% Metals Utilization	■
Emissions	90% Reduction in Organic TRI Emissions	■
Environmental Health	Reduction in Human Exposure to Toxic Materials in the Facility and the Surrounding Community	■

Source: National Metal Finishing. Strategic Goals Program. [online] http://www.strategicgoals.org/coregoals.cfm

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Environmental Goals
Government

Basque

Background
The path by which the Basque Government set out to achieve sustainable development is determined by the Basque Environmental Strategy for Sustainable Development 2002-2020, which was passed in June 2002. The strategy sets five goals, corresponding objectives, and over 250 environmental undertakings set within a 2002-2006 timeframe and a 2007-2020 timeframe for all five goals. The Strategy provides a full monitoring system with 22 key indicators measured annually to show the Basque people how the different areas of the environment are progressing.

Water and Air	**Goal 1:** To ensure clean, healthy air, water, and soil *Objective 1:* Reduce emissions and discharges of hazardous substances and contaminants into the environment *Objective 2:* Improve the quality of each area of the environment	■■
Waste	**Goal 2:** Responsible management of natural resources and waste *Objective 1:* To ensure that the consumption of resources and its consequences do not exceed the capability of the environment to tolerate them and regenerate itself, and to de-link economic growth from the use of resources *Objective 2:* Cut the final or ultimate amount of waste produced by avoiding waste at source and de-linking economic growth from the production of waste *Objective 3:* Manage final waste safely and locally	■■
Biodiversity	**Goal 3:** Protection of nature and biodiversity *Objective 1:* Conserve and protect ecosystems, species, and landscapes *Objective 2:* Restore ecosystems, species, and landscape as part of the natural environment *Objective 3:* Investigate and heighten awareness of biodiversity	■■
	Goal 4: Balance between territories and mobility: a common approach *Objective 1:* Achieve sustainable use of the whole territory *Objective 2:*Achieve a level of accessibility which	■■

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	will allow sustainable development in the various types of land use and activities (residential, economic activities, and leisure) *Objective 3:* De-link economic development from the generalized increase in demand for motorized transport	
Climate Change	**Goal 5:** Limiting the effects of climate change *Objective 1:* Limit emissions into the atmosphere of greenhouse gases by 2020 *Objective 2:* Increase carbon sinks	

Sources:
Basque Government. 2002. The Basque Environmental Strategy for Sustainable Development (2002-2020) [online] http://www.ihobe.net/publicaciones/descarga/PMA-Ingl.pdf
Basque Government. 2004. Environmental Indicators 2004: Measurements of Progress.

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Background

Clean Air	Every American city and community will be free of air pollutants at levels that cause significant risk of cancer or respiratory and other health problems. The air will be clearer in many areas, and life in damaged forests and polluted waters will rebound as acid rain, ozone, and hazardous air pollutants are reduced. *Milestone 1:* By 2005, the number of cities where air quality does not meet national standards will be reduced more than 96 percent from 1995 levels, thereby making the air safer to breathe for an additional 85 million Americans in 164 metropolitan areas. *Milestone 2:* By 2005, emissions of unhealthy smog-causing volatile organic compounds will fall 68 percent per mile per car, compared to 1990 levels. *Milestone 3:* By 2005, increases in miles driven by U.S. vehicles will not interfere with attainment or maintenance of air or water quality standards, nor will increases in driving interfere with fulfillment of the U.S. commitment to reduce greenhouse gas emissions. *Milestone 4:* By 2005, all 174 categories of major industrial facilities will meet toxic air emission standards. *Milestone 5:* By 2005, sulfur dioxide emissions, a primary cause of acid rain, will be reduced by nearly 10 million tons from 1980 levels. *Milestone 6:* By 2005, annual average visibility in the eastern United States will improve 10 to 30 percent from 1995 levels.	■
Clean Waters	All of America's rivers, lakes, and coastal waters will support healthy communities of fish, plants, and other aquatic life and uses such as fishing, swimming, and drinking water supply for people. Wetlands will be protected and rehabilitated to provide wildlife habitat, reduce floods, and improve water quality. Ground waters will be cleaner for drinking and other beneficial uses. *Milestone 1:* By 2005, there will be an annual net increase of at least 100,000 acres of wetlands, thereby supporting valuable aquatic life, improving water quality, and moderating the effects of health- and	■

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	property-damaging floods and drought. *Milestone 2*: By 2005, 80 percent of the nation's surface waters will support healthy aquatic communities. *Milestone 3:* By 2005, 90 to 98 percent of the nation's fish and shellfish harvest areas will provide food safe for people and wildlife to eat. *Milestone 4*: By 2005, 95 percent of the nation's surface waters will be safe for recreation. *Milestone 5:* By 2005, the number of Americans served by community and rural water wells containing high concentrations of nitrate in ground water will be reduced. *Milestone 6:* By 2005, the annual rate of soil erosion from croplands will be reduced 20 percent from 1992 levels to a total of 948 million tons per year. *Milestone 7:* By 2005, total annual pollutant discharges from key point sources that threaten public health and aquatic ecosystems will be reduced by 3 billion pounds.	
Healthy Terrestrial Ecosystems	America will safeguard its ecosystems to promote the health and diversity of natural and human communities and to sustain America's environmental, social, and economic potential. *Milestone 1:* By 2005, the loss of ecosystem types considered critically endangered, endangered, or threatened will be eliminated. *Milestone 2*: By 2005, the populations of endangered, threatened, rare, and declining species of native terrestrial animals and plants will be stabilized or increased. *Milestone 3:* By 2005, ecosystem conditions and functions will be restored to ultimately provide adequate amounts of habitat with the necessary size, mixture, and quality to sustain native animals and plants in all regions.	■
Safe Drinking Water	Every American public water system will provide water that is consistently safe to drink. *Milestone 1:* By 2005, the population served by community water systems in violation of health-based requirements will be reduced from 19 to 5 percent. *Milestone 2:* By 2005, every person served by a public water system that draws from an inadequately protected river, lake, or reservoir will receive drinking water that is adequately filtered. *Milestone 3:* By 2005, 90 percent of the nation's river and stream miles and lake and reservoir acres designated as drinking water supplies will provide	■

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	water that is safe to use after conventional treatment. *Milestone 4:* By 2005, 60 percent of the population served by community water systems will receive their water from systems with source water protection programs in place.	
Safe Food	The foods Americans consume will continue to be safe for all people to eat. *(for milestones, refer to original document)*	■
Safe Homes, Schools and Workplaces	All Americans will live, learn, and work in safe and healthy environments. *(for milestones, refer to original document)*	■
Toxic-free Communities	By relying on pollution prevention, reuse, and recycling in the way we produce and consume materials, all Americans will live in communities free of toxic impacts. *Milestone 1:* By 2005, industrial facilities will reduce by 25 percent (from 1992 levels) the quantities of the toxic chemicals in waste streams that are released, disposed of, treated, or combusted for energy recovery. Half of this reduction will be achieved through pollution prevention practices. *Milestone 2:* By 2005, more than 99 percent of new chemicals approved since 1995 will have been used safely and will not require additional controls. *Milestone 3:* By 2005, the number of existing high-production-volume chemicals shown to be used safely will nearly triple. *Milestone 4:* By 2005, municipal solid waste will be recovered for recycling or composting at a rate of 35 percent. Municipal solid waste generation will be reduced to the 1990 level of 4.3 pounds per person per day, with the amount of waste combusted or landfilled decreasing to 2.8 pounds per person per day. *Milestone 5:* By 2005, the presence of the most persistent, bioaccumulative, and toxic constituents in hazardous waste will be reduced by 50 percent from 1991 levels.	■
Preventing Accidental Releases	Accidental releases of substances that endanger our communities and the natural environment will be reduced to as near zero as possible. Those which do occur will cause only negligible harm to people, animals, and plants. *Milestone 1:* By 2005, there will be 25 percent fewer accidental releases of oil, chemicals, and radioactive substances than in 1993.	■

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	Milestone 2: By 2005, there will be a 50 percent increase over 1993 levels in the number of industrial facilities in high-risk areas that have either eliminated hazardous substance inventories or reduced them to minimum levels.	
Safe Waste Management	Wastes produced by every person, business, and unit of government in America will be stored, treated, and disposed of in ways that prevent harm to people and other living things. *Milestone 1:* By 2005, chlorinated dioxin/furan emissions from waste-burning facilities will be reduced 98 percent from 1994 levels. *Milestone 2*: By 2005, emissions of mercury and other harmful pollutants from waste-burning facilities will be reduced by at least 80 percent from 1994 levels. *Milestone 3:* By 2005, the annual number of confirmed releases from underground storage tanks will be 80 percent lower than in 1994. *Milestone 4:* By 2005, wellhead protection areas and vulnerable ground waters will no longer receive industrial wastewater discharges from septic systems. *Milestone 5:* By 2005, 10 percent of the amount of spent nuclear fuel, high-level waste, and transuranic radioactive waste currently stored across the nation will be disposed of in accordance with EPA disposal standards.	■
Restoration of Contaminated Sites	Places in America currently contaminated by hazardous or radioactive materials will not endanger public health and the natural environment and will be restored to uses desired by surrounding communities. *(for milestones, refer to original document)*	■
Reducing Global and Transboundary Environmental Risks	The United States and other nations will eliminate significant risks to human health and ecosystems arising from climate change, stratospheric ozone depletion, and other environmental problems of concern at the transboundary and global level. *Milestone 1:* By 2005 and beyond, U.S. greenhouse gas emissions will be reduced to levels consistent with international commitments agreed upon under the Framework Convention on Climate Change, building on initial efforts under the Climate Change Action Plan. *Milestone 2:* By 2005, ozone concentrations in the stratosphere will have stopped declining and will have slowly begun the process of recovery. *Milestone 3:* By 2005, atmospheric concentrations of	■

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	the ozone-depleting substances CFC-11 and CFC-12 will peak at no more than 332.4 and 572.3 parts per trillion, respectively. *Milestone 4:* Through 2005, with the exception of HCFCs and very limited "essential uses," there will be no U.S. production of ozone-depleting substances. *Milestone 5:* By 2005, cooperative efforts between the U.S. and other countries will restrict the net loss of coral ecosystems to no more than 20 percent of the world's current reef area. *Milestone 6:* By 2005, the United States and other countries will reduce the risks to human health and the environment associated with aldrin, chlordane, dieldrin, DDT, endrin, heptachlor, toxaphene, hexachlorobenzene, mirex, PCBs, and chlorinated dioxins and furans. *Milestone 7:* By 2005, global air emissions of mercury will be reduced, in part through a 50 percent reduction from 1990 levels in the United States. *Milestone 8:* By 2005, with U.S. leadership and cooperation many nations will have phased out the use of lead in gasoline, and worldwide use of lead in gasoline will be below 1993 levels. *Milestone 9:* By 2005, all seven non-attainment areas along the United States/ Mexico border area will have met ambient air quality health standards for particulate matter, sulfur dioxide, carbon monoxide, and ozone during the preceding 4 years. *Milestone 10*: By 2005, the United States and Canada will reduce sulfur dioxide and nitrogen oxide emissions that cause acid rain. U.S. sulfur dioxide emissions will be reduced by nearly 10 million tons and nitrogen oxide emissions by more than 2 million tons from 1980 levels. *Milestone 11:* By 2005, existing sources of high-level radioactivity in northwest Russia with the potential for near-term release into the arctic environment will be reduced by 25 percent.	
Empowering People with Information and Education and Expanding Their Right to Know	Americans will be empowered to make informed environmental decisions and participate in setting local and national priorities.	■

Source: EPA. 1996. Environmental Goals for America: With Milestones for 2005. Draft for Full Government Review. U.S. Environmental Protection Agency, Washington, D.C.

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Comments by the Subcommittee of the Executive Committee of the Science Advisory Board

"The milestones are reasonable surrogates for the environmental improvements desired by society, and they are defined by quantitative information that can be measured with reasonable accuracy (or at least precision)…

The major concern is that the goals and milestones may be overly ambitious with respect to the availability of resources and technologies required to reach them, and because they call for a level of Federal interagency, state, and stakeholder involvement and cooperation that is well beyond what has previously occurred for environmental protection…

…The subcommittee considered the draft Goals document to be quite successful, and well-suited to its intended task. However, it felt that some goals and milestones lacked sufficient specificity to be judged as to their attainability by the year 2005. To better address cross-cutting issues it recommended that EPA consider a meta-structure for the report, with three main sections within the Goals document: i) environmental goals relating to human health; ii) environmental goals relating to ecological health; and iii) environmental goals relating to quality of life issues…"

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Fort Bragg

Background

Motivated by the issuing of Executive Order 13148, "Greening the Government through Leadership in Environmental Management," in April 2000, federal agencies have been moving forward implementing environmental management systems. At a Fort Bragg sustainability workshop in April 2001, 10 unique, long-term environmental goals were set. Dealing with issue areas most critical to successful completion of Fort Bragg's mission, these goals are the foundation of their sustainability program.

Water	Reduce the amount of water taken from the Little River by 70% by 2025, from current withdrawals of 8.5 million gallons/day	■
	All water discharged from Fort Bragg will meet or exceed North Carolina state High Quality Water (HQW) standard by 2025	■
Waste Reduction	Landfill waste to be aggressively reduce toward 0 by 2025	■
Sustainable Design	Meet minimum platinum SPiRiT standard for all construction by 2020 program, and renovate 25% of all existing structures to at least a bronze standard by 2020	■
Land Use	Adopt compatible land use laws/regulations with local communities by 2005	■
Energy Conservation	To reduce energy use in accordance with Executive Order 13123. Specifically, to reduce energy use by 30 percent by FY2005 and 35 percent by FY2010.	■
Air Quality/Transportation	Develop and implement an effective regional commuting program by 2025	■
	Reduce the use of both gasoline and diesel in non-tactical vehicles by 70% by 2015 and 99% by 2025	■
Sustainability Education & Training	Develop an integrated environmental education program for Fort Bragg, its surrounding communities and interested parties	■
Environmentally Preferred Purchasing	Work towards 100% Environmentally Preferred Purchase by 2025 for all purchases, including government purchase card, contract and military requisition.	■

Source: U.S. Army Fort Bragg. 2005. Sustainable Fort Bragg: Bringing All Our Resources to Bear, to Sustain the Mission. [online] http://www.bragg.army.mil/sustainability/

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Fort Lewis

Background

Fort Lewis – also motivated by Executive Order 13148 – has sustainability initiatives that include 25-year sustainability goals developed with input from regional stakeholders. These installations also developed intermediate, five-year objectives to support each of the sustainability goals. Goals were established in February 2002.

Air Emissions	Reduce traffic congestion and air emissions by 85% by 2025	■
	Reduce air pollutants from training without a reduction in training activity	■
	Reduce stationary source air emissions by 85% by 2025	■
Energy	Sustain all activities on post using renewable energy sources and generate all electricity on post by 2025	■
Sustainable Design	All facilities adhere to the LEED™ Platinum standard for sustainable facilities by 2025	■
Waste	Cycle all material use to achieve ZERO net waste by 2025	■
Land use	Attain healthy, resilient Fort Lewis and regional lands that support training, ecosystem, cultural and economic values by 2025	■
Species	Recover all listed and candidate federal species in South Puget Sound Region	■
Water	Zero discharge of wastewaters to Puget Sound by 2025	■
	Reduce Fort Lewis potable water consumption by 75% by 2025	■
	Fort Lewis contributes no pollutants to groundwater and has remediated all contaminated groundwater by 2025	■
	Develop an effective regional aquifer and watershed management program by 2012—COMPLETED	■

Source: U.S. Army Fort Lewis. Sustainable Fort Lewis: April 2004-April 2005 Progress Report. [online] http://www.lewis.army.mil/publicworks/

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City of Seattle

Background

The Environmental Action Agenda presents the City's goals for protecting environmental quality, promoting environmental justice, and improving quality-of-life in Seattle for current and future generations. The agenda creates a framework for integrated City environmental action, robust tracking and reporting, coherent communication on environmental issues and links environmental stewardship, economic development and social equity. The Environmental Action Agenda establishes four integrating themes for environmental action:

Environmental Action Agenda

Lean Green City Government

City government will lead by example with practices that save money and improve the health of the people and the environment.

- Increase energy and water efficiency of City buildings and facilities
- Reduce air pollution and greenhouse gas emissions from City vehicles
- Buy more environmentally-friendly products
- Design and construct City buildings that are healthier for people and the environment, and that cost less to own and operate
- Reduce City use of pesticides (especially on golf courses)
- Produce and deliver electricity with no net emission of greenhouse gases

Healthy Urban Environments

We will improve Seattle's quality of life, protect and restore the environment, and enhance neighborhood livability.

- Create and promote clean, green, livable urban neighborhoods
- Protect and restore Seattle's urban forest
- Protect and help restore lakes, rivers, creeks, and Puget Sound
- "Green" the built environment (buildings, streets, etc.)
- Help protect and improve local and regional air quality, and combat global warming

Strong Environmental Practices

We will encourage residents, businesses and other institutions to use resources more efficiently and adopt environmentally responsible practices.

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- Increase energy and water efficiency of residential and commercial consumers
- Reduce generation of solid waste; increase rates of recycling
- Raise community awareness of environmental challenges and opportunities, and promote community engagement and action
- Increase adoption of sustainable practices by Seattle-area businesses and households
- Actively promote "best environmental practices" regionally, state-wide, and nationally
- Promote environmental equity

Smart Mobility

We will improve mobility by promoting transportation choices that make our neighborhoods safer and healthier. ■

- Create and aggressively support alternatives to personal vehicle use
- Make Seattle the most bike- and pedestrian-friendly city in the country
- Encourage use of sustainable design and construction practices for major transportation infrastructure improvements
- Reduce air pollution and fuel consumption by improving traffic flow efficiency
- Price and manage parking to support healthy business districts, public transportation, and traffic flow

Other Articulated Goals

Climate Change

"We urge the federal government and state governments to enact policies and programs to meet or beat the target of reducing global warming pollution levels to 7 percent below 1990 levels by 2012." [1] (*The emissions reduction target for the U.S. had it ratified the Kyoto Protocol.*) ■

Sustainable Forests: Seattle banned commercial logging in the Cedar River Watershed and is committed to restoring 2,500 acres of urban forests by 2024.[2] ■

Recycling: Our goal of achieving a 60% recycling rate by 2008 avoids thousands of tons of greenhouse gas emissions by reducing the need for materials and energy. [2] ■

Air Quality

For Earth Day 2003, the Mayor and Council set a long term goal of having a 100% clean and green fleet, which means using clean fuels and vehicles that are the most fuel ■

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	efficient, low emission vehicles available that meet the various business needs of the City.	
Pesticide Reduction	The two main goals of the program are (1) to eliminate the use of the most potentially hazardous herbicides and insecticides and (2) to achieve a 30 percent reduction in overall pesticide use.	■
Sustainable Purchasing	The City's goal is to bring together policies, communication tools, process improvements, standards, and reporting mechanisms to help align purchasing practices with City values and incorporate these into a Sustainable Purchasing Program.	■

[1] *City of Seattle. Office of Sustainability and Environment Homepage. [online] http://www.seattle.gov/environment/. Last Updated: 11/16/05*
[2] *City of Seattle. 2005. Mayors Climate Protection Agreement. [online] http://www.seattle.gov/mayor/climate/PDF/Resolution_FinalLanguage_06-13-05.pdf*
[3] *City of Seattle. Seattle and Climate Change: A Global City Acting Locally. [online] http://www.seattle.gov/environment/Documents/climatechange_revised0050315B.pdf*

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Oregon Benchmarks

Background

Oregon Benchmarks measure progress towards Oregon's strategic vision, *Oregon Shines*. Benchmarks are organized into seven categories: economy, education, civic engagement, social support, public safety, community development, and environment. These measures help to provide the long-term perspective in solving economic, social, and environmental problems. In addition, Oregon Benchmarks are used for a broad array of policymaking and budget-related activities. Oregon state agencies are required to link their key performance measures to them. County governments and community organizations use benchmarks to help gauge their progress.

Air Quality	Percent of time that the air is healthy to breathe for all Oregonians **Target 2005:** 100% **Target 2010:** 100%	■■
Carbon Dioxide Emissions	Carbon dioxide emissions as a percentage of 1990 emissions (1990=100%) **Target 2005:** 106% **Target 2010:** 106%	■■
Wetlands	Number of wetland acres gained or lost in any given year: a. freshwater; b. estuarine **Target 2005:** 0 **Target 2010:** 0	■■
Stream Water Quality	Percent of monitored stream sites with: a. significantly increasing trends in water quality; b. significantly decreasing trends in water quality; c. water quality in good to excellent condition **Target 2005:** 75% **Target 2010:** 75%	■■
In-stream Flow Rights	Percent of key streams meeting minimum flow rights: a. 9 or more months a year; b. 12 months a year **Target 2005:** 60% **Target 2010:** 65%	■■
Agricultural Lands	Percent of Oregon agricultural land in 1982 not converted to urban or rural development: a. cropland; b. other ag land **Target 2005:** 97.6% (cropland), 98.7% (other) **Target 2010:** 97.1% (cropland), 98.4% (other)	■■
Forest Land	Percent of Oregon's non-federal forest land in 1974 still preserved for forest use **Target 2005:** n/a **Target 2010:** 97.4%	■
Timber Harvest	Actual timber harvest as a % of potential harvest levels under current plans & policies: a. public lands; b. private lands **Target 2005:** 90-110% **Target 2010:** n/a]	■

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Municipal Waste Disposal	Pounds of municipal solid waste landfilled or incinerated per capita **Target 2005:** 1.575 lbs. **Target 2010:** 1.495 lbs.	■■
Hazardous Waste Cleanup	Percent of identified Oregon hazardous substance sites cleaned up or being cleaned up: a. tank sites; b. other hazardous substances **Target 2005:** 80% **Target 2010:** 95%	■■
Freshwater Species	Percent of monitored freshwater species not at risk: (state, fed listing): a. salmonids; b. other fish; c. other organisms (amphibs, molluscs) **Target 2005:** no target set **Target 2010:** no target set	■
Marine Species	Percent of monitored marine species not at risk: (state, fed listing): a. fish; b. shellfish; c. other (mammals only - plant data N/A) **Target 2005:** no target set **Target 2010:** no target set	■
Terrestrial Species	Percent of monitored terrestrial species not at risk: (state, fed listing): a. plants; b. vertebrates; c. invertebrates **Target 2005:** no target set **Target 2010:** no target set	■
Protected Species	Species populations that are protected in dedicated conservation areas: a. species found in streams or rivers; b. other Overall: Percent of all at-risk species protected in dedicated conservation areas **Target 2005:** 35% **Target 2010:** 38%	■■
Invasive Species	Number of most threatening invasive species not successfully excluded or contained since 2000 **Target 2005**=5 or less within the next five years	■
State Park Acreage	Acres of state-owned parks per 1,000 Oregonians **Target 2005:** 35 acres **Target 2010:** 35 acres	■■

Source: Oregon Department of Administrative Services. 2005. Oregon Benchmarks – 2005 Report. [online] http://egov.oregon.gov/DAS/OPB/2005report/obm_list.shtml

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City of Portland

Background

A key element of the *Portland Watershed Management Plan* (PWMP) is a clear understanding of the goals and objectives to improve watershed function. The *Framework for Integrated Management of Watershed Health* describes how the City of Portland intends to achieve and maintain healthy conditions and ecological functions in its urban watersheds—specifically, the areas draining into the lower Willamette River, the Columbia Slough, the parts of the Columbia River that are within the City's jurisdiction, Johnson Creek, Fanno Creek, Tryon Creek, and Balch Creek, and other tributaries. Several factors spurred the development of the Framework: City council resolutions (i.e., resolution 35715 and 35978), the river renaissance vision, regulatory requirements (CWA, SDWA, ESA, and CERCLA), regional sub-basin planning and salmon recovery efforts, economic health, and citizen interest.

Hydrology	Move toward normative flow conditions to protect and improve watershed and stream health, channel functions, and public health and safety.	■
Physical Habitat	Protect, enhance and restore aquatic and terrestrial habitat conditions to support key ecological functions and improved productivity, diversity, capacity and distribution of native fish and wildlife populations and biological communities.	■
Water Quality	Protect and improve surface water and groundwater quality to protect public health and support native fish and wildlife populations and biological communities.	■
Biological Communities	Protect, enhance, manage and restore native aquatic and terrestrial species and biological communities to improve and maintain biodiversity in Portland's watersheds.	■
Climate Change	Promote a sustainable future by reducing total Multnomah County emissions of greenhouse gases by 10 percent from 1990 levels by 2010.	■
Solid Waste and Recycling	Accepted by the Portland City Council, Resolution No. 36059, on March 13, 2002, Portland's goal is to recover 60% of the city's general solid waste stream by 2005.	■

Sources:
City of Portland. 2005. Portland Watershed Management Plan.[online]
http://www.portlandonline.com/shared/cfm/image.cfm?id=96453
City of Portland and Multnomah County.2001. Local Action Plan on Global Warming. [online]
http://www.sustainableportland.org/Portland%20Global%20Warming%20Plan.pdf
Office of Sustainable Development. . City of Portland, Solid Waste and Recycling Division. [online]
http://www.sustainableportland.org/sw_2002_plan_Final.pdf

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Multnomah County

Background

Indicator Species	Increase the number of salmon and great blue heron	■
Public Transportation	Increase the percentage of people who commute to and from work using public transportation	■
Air Quality	Increase the number of days per year the community meets ambient air quality standards	■
Global Climate Change	Decrease the carbon dioxide emissions as a percentage of 1990 emissions to 8.1 million metric tons of CO2 by 2010	■
Water Quality	Increase the in-stream water quality of streams monitored by Multnomah County	■
Water Consumption	Decrease annual water usage per capita	■
Energy Use	Decrease the number of energy units used per capita	■
Solid Waste and Recycling	Decrease the pounds of solid waste land-filled per capita per year	■

Source: Multnomah County Auditor's Office 2005. Environmental Benchmarks. [online] http://www.portlandonline.com/auditor/index.cfm?c=27367

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