We need transformation, a wave of social, technical, and economic innovation that will touch every person, community, company, institution, and nation on the Earth.

Alan AtKisson, Cofounder, Sustainable Seattle; Coauthor, *The Natural Advantage of Nations*
WHERE INGENUITY MEETS OPPORTUNITY AND NECESSITY

The following pages contain 22 of this report’s sustainability examples categorized under the headings of Public Initiatives, Private Initiatives, and Public-Private Partnerships. Six other examples appeared earlier on pages 27, 31, and 36.

Like a picture, an example provides a vivid illustration. Featured in this report are 28 working examples of sustainability initiatives developed in both the private and public sectors. Each was selected after talking to experts, sifting through publications on sustainability, and reviewing award-winning programs. Together they demonstrate a wide variety of on-the-ground strategies for addressing sustainability at different scopes and scales including local, state, national, and international.

Many of the ideas behind these initiatives may sound familiar. What makes them different from previous efforts to increase prosperity, improve communities, or protect habitats is that they begin with the quest for balance. Each in its own way: 1) reflects an interest in making improvements for both current and future residents; 2) illustrates how a policy framework for building sustainability can be developed using things we already know; 3) exemplifies practices that can improve multiple trajectories simultaneously; and 4) responds to changing global conditions in a way that acknowledges fundamental connections among economy, environment, and society.

PUBLIC INITIATIVES

DENVER AGENCY INITIATES BROWNFIELD RENAISSANCE FOR ABANDONED AIRFIELDS

Denver Urban Renewal Authority (DURA) is unique in the Denver area for its statutory power to finance redevelopment projects with bonds backed by future tax revenue increases from the project. Working with public and private developers throughout Denver, DURA has provided over $500 million for redevelopment projects and has helped rehabilitate nearly 15,000 homes. Among the brownfield projects DURA has helped finance are two former airfields: decommissioned Lowry Air Force Base and former Stapleton Airport. The Lowry project has created $5.7 billion in gross economic benefit to Denver, according to a recent study. Conversion of Stapleton into a modern urban village has earned awards from the nonprofit development group, Urban Land Institute (ULI), and from the nonprofit housing advocacy organization, Homes for Working Families.

PHOENIX HOPE VI OFFERS NEW HOMES AND OPPORTUNITIES

Phoenix won a $35 million HOPE VI project in 2001 to replace hundreds of public housing units at the 160-acre Matthew Henson Homes site near downtown. Federal HOPE VI grants are earmarked to convert outdated public housing to townhouses or garden-style apartments that enhance a neighborhood. Grants are typically leveraged with other investments in the community. With the involvement of more than 30 public and private stakeholders the project seeks, through both new construction and renovation of some historic buildings, to improve the local economy by drawing businesses, people, and job opportunities to the neighborhood. As of spring 2006, 110 families, including 60 former residents, have moved into the area, and the community celebrated the opening of the new Matthew Henson Apartments, the Vernall Coleman Youth Center, the community park, and the Adult Living Building. An additional 611 residential units are under construction. The community revitalization project is expected to be completed by 2008.
CHICAGO SUSTAINABILITY MEANS SEEING GREEN FROM GROUND TO ROOFTOPS

Chicago has dedicated itself to becoming the most environmentally friendly city in the U.S. For the nation’s third most populous city, this means seeing green: in parks, on roofs, and along bike paths. The city’s Riverfront Improvement Fund helps property owners near Chicago River upgrade deteriorated walls along the river bank. The CitySpace Program converts abandoned properties into community gardens and parks. And a green roof grant program defrays the cost of installing green roofs – Chicago leads the nation with more than 200 green-roofed buildings, including its own historic City Hall. The city also added over 150 miles of bike trails and opened a heated bike commuter facility in Millennium Park near Lake Michigan. For these efforts, Chicago was given the 2006 City Livability Award from the U.S. Conference of Mayors; two years earlier, Bicycling magazine named Chicago one of the two best big cities for bicycling in North America.

ARIZONA CORPORATION COMMISSION ORDERS MORE RENEWABLE ENERGY FOR STATE

Clean, renewable energy sources – such as solar and wind – account for only about 1% of the total electricity generated in Arizona. Most of the rest is produced by large electric plants fueled by coal, natural gas, and nuclear energy. In 2006, however, the state’s public utility regulator, the Arizona Corporation Commission (ACC), voted for a dramatic increase in renewable energy use. The ACC’s new standard will annually raise the requirement for electricity generated by renewables until it reaches 15% in 2025. It will further require that, by 2011, 30% of that power be “distributed generation,” which means it must be produced where it is used (e.g., by rooftop solar panels) to reduce loads on transmission lines and power lost in transit. A surcharge added to customer bills will defray initially higher costs for renewables, but that expense is expected to disappear as renewables become more competitive.

WORLD BANK DEVELOPS GREEN ACCOUNTING TO LINK ECONOMY AND ENVIRONMENT

Gross domestic product (GDP) is among the most widely quoted measures of an economy. It represents the total value of all goods and services produced annually by a country. GDP does not, however, account for the value businesses and society receive from the environment. Ecosystem services such as carbon sequestration by forests, medicinal remedies, toxic waste clean-up by microorganisms, and the value of clean air have long been difficult to quantify. To rectify this oversight, the World Bank is developing two new indicators that will link environmental accounting practices to measures of the macro-economy. The “adjusted net saving indicator” attempts to calculate the true rate of savings in an economy by including measures for investment in human capital, depletion of natural resources, and damage caused by pollution. The “wealth estimate indicator” measures total national wealth as an accumulation of produced capital (machinery, equipment, structures, infrastructure), natural capital (land resources, forests, sub-soil assets), and intangible capital (human capital, institutions, governance). The World Bank has already used the latter indicator to calculate new wealth estimates for 120 countries, and in May 2007 hosted “Environmental Economics 101.” This workshop and primer was designed to help economists consider environmental assets in economic terms and create incentive policies that reward good environmental behavior while discouraging reckless use.
SCOTTSDALE’S GREEN BUILDING PROGRAM ACTS TO “LEED” BY EXAMPLE

Scottsdale, in 1998, became the first city in Arizona to encourage green building. This technique uses methods and materials designed to reduce environmental impact, energy consumption, and indoor toxins. The city’s voluntary program inspects and certifies projects based on standards for site use, energy efficiency, indoor air quality, use of building materials, solid waste, and water use. In 2005, Scottsdale issued 463 green building permits and reported that 33% of all single-family residential building permits adhered to program standards. Both are significant increases over past years. Scottsdale officials also acted to make their city first in the nation to adopt national LEED (Leadership in Energy and Environmental Design) certification for municipal facilities. The city’s first Gold certified project was the Scottsdale Senior Center at McDowell Village. SkySong, the ASU Scottsdale Innovation Center, is expected to be Arizona’s largest privately financed LEED certified project.

BRAZILIAN CITY COUNTERACTS GROWTH AND POLLUTION WITH LOW COST, HIGH POWER BUS SYSTEM

Curitiba is Brazil’s seventh largest city with 1.8 million people anchoring a metro of over 3.5 million people. Faced in the early 1970s with rapid growth, increased congestion, and air pollution, the city lacked necessary funds to build a much-needed subway system. Instead, a group of young planners, engineers, and architects at Brazil’s oldest university devised an innovative plan for an integrated bus system that was built for a fraction of the cost of a subway but with similar speed and efficiency. Central to the plan is a triple – or trinary – road system that dedicates one central lane solely for two-way express buses that move commuters at a subway-like pace and two flanking lanes for one-way speedy car traffic. Other routes use high capacity, articulated buses carrying up to 270 passengers much like a train. Specially designed transfer terminals function like subway stations, quickly boarding passengers via tube-shaped bus platforms. Buses are distinguished by color according to purpose. An estimated 75% of commuters – more than 2.3 million people per day – make use of the Curitiba transit system, which is credited with helping control traffic congestion even as the number of cars has skyrocketed.

PRIVATE INITIATIVES

ARIZONA’S STIRLING ENERGY SYSTEMS DEVELOPS UTILITY-SCALE SOLAR POWER FOR WORLD’S LARGEST INSTALLATION

Phoenix-based Stirling Energy Systems (SES) has developed technology to efficiently generate utility-scale electricity by using heat from the sun to drive an engine-generator device that runs quietly and produces no emissions. Prototypes of the system have been tested successfully at Sandia National Laboratories in New Mexico. Thousands of dishes must be linked together to produce grid-quantity power. The company has pending contracts with two southern California utilities to build the world’s largest solar power plants and potentially provide power to hundreds of thousands of Southern California homes. The first plant, for Southern California Edison, will be located in the Mojave desert northeast of Los Angeles and will initially produce 500 MW of electricity with possible expansion to up to 850 MW. Completion of its initial phase is expected by 2009. The second plant, for San Diego Power and Gas, will be built in the Imperial Valley and will begin with 350 MW of power with possible expansion to 900 MW.

BAXTER HEALTHCARE CORPORATION SAVES MONEY AND WASTE WITH TRIPLE BOTTOM LINE ACCOUNTING

Baxter Healthcare Corporation is a worldwide provider of pharmaceuticals and medical devices with 47,000 employees worldwide and annual sales close to $10 billion. Since 1997, the company has used a triple bottom line approach to measure success across economic, social, and environmental performance, and it follows Global Reporting Initiative guidelines to document sustainable practices. This focus has helped Baxter reduce spending on energy, packaging, and waste disposal. The company’s culture of sustainability is maintained throughout the company, from board members who review Baxter’s environmental goals down to line-level managers who must meet environmental targets as part of their individual performance objectives. It also employs a product sustainability review process that follows lifecycle costs from development through disposal. In addition to its cost savings, the company has also cut toxic air emissions by 86% per unit of production and reduced packaging materials by 19% since 1997.
INTERFACE PLANS FOR MISSION ZERO WILL ELIMINATE ENVIRONMENTAL IMPACTS

Interface is a leading global manufacturer of commercial carpet and fabrics with offices in more than 100 countries. The company sees the business world at the forefront of an emerging “second industrial revolution” in which resources have become scarce and waste products must be reused productively to increase efficiencies and competitive advantage. With this future in mind, Interface has committed to a Mission Zero plan for eliminating all negative environmental impacts from its operations by the year 2020. As of 2006, Interface had converted seven of its manufacturing sites to 100% renewable energy power and increased its overall use of renewables to 16%. Recycled content in its products increased from less than 0.5% to 20% since 1996, and total manufacturing waste was cut by 70%, thereby avoiding over $300 million in cumulative landfill costs. Interface has also reduced its greenhouse gas emissions per unit of production by 60% over its baseline, adjusted for acquisitions. At the same time, carpet products from Interface have been designated as Environmentally Preferable Products by an independent certifier. This green advantage has driven up demand and competitiveness, and helped the company grow dramatically. Interface also develops new sustainable technologies and teaches the techniques of sustainable business through a consulting branch. Clients include Wal-Mart, General Mills, and NASA. The Environmental Protection Agency recently recognized Interface for its work with LaGrange, Georgia, to convert methane gas from a city landfill into renewable energy that Interface now purchases for operations.

STEEL PARK WIND PROJECT WILL REDUCE AIR POLLUTION AND SAVE WATER

A Canadian company with Arizona connections is expected to construct the state’s first commercial-grade wind farm near Kingman. Called the Steel Park Project, this 15-megawatt (MW) installation will occupy 1,100 acres and involve a $20 million capital investment by Scottsdale-based Verde Resources Corp., a subsidiary of British Columbia-based Western Wind Energy. The project could generate enough electricity to power about 4,000 average homes. Western Wind, however, has secured leases on additional land to enable expansion of the facility to produce more than 200 MW of electricity – enough to power more than 50,000 homes. APS has agreed to purchase the facility’s initial output. Wind farms are considered appropriate for desert areas because they use only a small fraction of the water needed to operate a coal-fired power plant. Western Wind has also considered devoting a part of the energy to generate hydrogen, and University of Arizona researchers have suggested the project’s wind could be employed to desalinate brackish groundwater in the region.

Research is creating new knowledge.

Neil Armstrong, U.S. Astronaut and first human to set foot on the moon.
JOHNSON & JOHNSON NURTURES TALENT, DIVERSITY, AND FAMILIES

Johnson & Johnson has won many accolades for diversity and equality in the workplace. For over two decades, Working Mother has ranked the company among the top 100 best corporations for women with children, DiversityInc. magazine places it at number 17 on its list of “Top 50 Companies for Diversity,” and Fortune consistently rates it as one of the most admired companies in the world. Johnson & Johnson earns these rankings by surveying its workers regularly on job and life issues, then using the results to fine-tune the company’s policies. Among its family-oriented programs, the company operates daycare centers for children of employees and provides full- and part-time care and special summer programs. The company also offers new mothers three weeks of leave at full pay and at least three more weeks at partial pay. New fathers and adoptive parents also receive a one week paid leave. A global provider of health care products, Johnson & Johnson employs over 116,000 people in 57 countries and generated $50 billion in sales in 2005.

NATIVE SEEDS/SEARCH BANKS ANCIENT CROPS AND CULTURE

American Indians thrived in Arizona for many generations, supplementing their diet with crops of corn, squash, beans, and other native plants. In recent times, however, these arid-adapted crops began to disappear. Native Seeds/Search (NS/S) was founded in 1983 to fulfill a request from Tohono O’odham farmers in central Arizona to find the right seeds for cultivating traditional food. A nonprofit conservation organization, NS/S serves as a seed bank and clearinghouse of information on ancient crops, and now contains 2,000 varieties, includingamaranth, cotton, devil’s claw, and tomatillo. It also sells the foods produced from these seeds, including mesquite meal, beans, and chilies. In addition, NS/S has established a Gardeners’ Network as a way to utilize gardeners throughout the country to evaluate the seed bank’s heirloom crops.

XANTERRA PARKS & RESORTS MAKES TOURISM GREENER FOR ENVIRONMENT AND BOTTOM LINE

Xanterra Parks & Resorts is the country’s largest national and state park concessionaire. Rooted in the Fred Harvey Company legacy and serving up to 17 million customers annually, the company seeks ways to reduce environmental impact while strengthening its business. From 2000 to 2006, Xanterra increased its use of renewable energies in national parks from 0% to 6.7% and decreased solid waste by more than 17%. Greater fleet and operations efficiencies helped cut greenhouse gas and air pollutants 4.75% over five years. In 2004, the company committed to decrease its carbon-dioxide emissions by 9,300 tons within 11 years. For its 64 restaurants, Xanterra expanded its sustainable seafood policy into a “sustainable cuisine” program that boosted purchases of organic and locally produced foods by 50% in 2004 to $1.4 million. The company also built the first LEED certified housing structure in a national park. In Arizona, Xanterra’s Grand Canyon South Rim operation won the company’s Ecologix Award for best practices in 2004 for diverting 40% of its waste from landfills.
PUBLIC-PRIVATE PARTNERSHIPS

GILBERT & BENNETT WIRE MILL REDEVELOPMENT CREATES JOBS, PROTECTS HERITAGE

When the Gilbert & Bennett Wire Mill closed in 1989, the town of Redding, Connecticut (population 8,500) was left with a 55-acre contaminated industrial site in its primary commercial zone and unpaid taxes that eventually totaled over $1 million. In 2003, the community partnered with a developer and government officials to host a week-long planning session of more than 1,000 stakeholders to work out a master plan for redevelopment, environmental cleanup, and historic preservation. The result is a strategy for a mixed-use new neighborhood with 300,000 square feet of commercial space, 400 homes, and several new public buildings, including a railroad station, performing arts center, and public pool. Fifteen of the site’s historic buildings will be rehabilitated. When the project is completed, Redding estimates it will create 1,500 permanent jobs, generate nearly $5 million in tax revenue, and raise property values by $300 million. The project’s special taxing district is among the first to qualify with the U.S. Treasury as a sustainable design project for the purpose of issuing tax-exempt bonds.

ENVISION UTAH PLANS FOR 1 MILLION NEW RESIDENTS WITH QUALITY GROWTH STRATEGY

Envision Utah was launched in 1997 to address the prospect of 1 million additional residents in the Greater Wasatch Area by the year 2020. A partnership of civic and business leaders in the Salt Lake City area, Envision Utah gathered broad public input and support in a consensus-building effort to develop a regional plan called the Quality Growth Strategy. The resulting plan identifies several overarching goals, such as community-friendly economic development, increased transportation choices, and preservation of critical lands. It also presents 32 different strategies for implementation of goals, such as expanding workforce development and community amenities as growth occurs, creating a regional transit system, and encouraging infill. The group estimates that implementing the transit network and other proposals could reduce overall infrastructure costs by $4.5 billion compared to typical sprawl. Envision Utah continues its mission by educating government and developers about what the public wants, and then offering the training that officials and companies need to implement those goals.

TUCSON’S RIO NUEVO PROJECT PLANS TO RESTORE DOWNTOWN AS WELL AS A RIVER

Tucson voters in 1999 approved a ballot measure to use tax increment financing by diverting a portion of downtown sales tax revenue growth to fund a comprehensive revitalization plan known as the Rio Nuevo Project. Encompassing more than five square miles of downtown and generating up to $800 million in public and private investments, Rio Nuevo calls for 47 different projects and attractions to be constructed over the next 10 to 15 years, including construction of 1,200 new housing units downtown and restoration of part of the Santa Cruz River riparian area. Among anticipated economic development projects are the Presidio Museum, a Native American culture center, a joint Arizona-Sonora visitor and trade center, and a new University of Arizona Science Center. Already, several historic buildings and sites have been protected by Rio Nuevo, including archaeological ruins at Tucson’s Presidio, an 1860s adobe home, and two historic downtown landmarks – the Rialto and Fox theaters.
The typical American prepared meal contains, on average, ingredients from at least five countries outside the United States.

Rich Pirog and Andrew Benjamin, Leopold Center for Sustainable Agriculture, Iowa State University

PHALEN CORRIDOR PROJECT INTEGRATES JOBS, HOUSING, AND URBAN GREENSPACE

The Phalen Corridor redevelopment project in Minnesota is working to restore economic, environmental, and social prosperity to St. Paul’s East Side, a traditionally working class immigrant area where the loss of manufacturing has led to high unemployment rates. Composed of more than 60 partners – including 3M, Metropolitan State University, and both state and federal governments – this project has attracted more than half a billion dollars. In addition to integrating new businesses, jobs, and housing, project partners have converted a former shopping center into a wetlands area that borders new developments, constructed new bike trails connected to the city’s metro bike trail network, added recreation parks close to a proposed affordable housing development, and slated over 100 acres of brownfields for cleanup. To ease traffic congestion, partners are also developing low- and moderate-income housing within walking distance of jobs, recreation, and social services. Currently, 700 units of sustainable housing are under construction, and over 2,000 jobs have been added to the area.

BOSTON’S COMMUNITY GARDENS PROVIDE HEALTHY FOOD WHILE IMPROVING DISTRESSED NEIGHBORHOODS

Boston’s long tradition of community-based gardens was revived during the 1970s. Today, the Boston Community Gardens project involves 6,000 low- and moderate-income families who cultivate 175 community gardens and produce nearly $1.5 million worth of food each year. The activity not only provides city dwellers with fresh, healthful food, but it also saves the energy costs for transporting non-local foods and it brings collateral benefits to participating neighborhoods by opening up social dialogue among families, fostering neighborhood pride, and involving the gardeners in important community issues. The community gardens concept has proved particularly successful in economically distressed areas where contaminated vacant lots have been cleaned up and converted to green space. Both publicly and privately owned, individual gardens are managed by homeless shelters, rehabilitation centers, housing developments, senior centers, day care centers, and neighborhood residents. Several city departments and nonprofits work together to provide gardeners with fundraising assistance, a resource guide, and grant dollars. City-supported farmers markets also offer a venue for sale of locally grown produce.
MARATHON OIL WORKS TO BEAT THE FEVER WITH MALARIA CONTROL IN EQUATORIAL AFRICA

Marathon Oil had never before engaged in a major public health initiative, but the company began in 2002 to lead a campaign to eliminate malaria in Equatorial Guinea. This coastal country contains 40% of Marathon’s natural gas reserves, but has an extremely high malaria rate that threatened operations there. Seeing that its economic fate was linked to the nation’s health, Marathon partnered with the government of Equatorial Guinea, nonprofit Medical Care Development International, and others to develop a $12 million anti-malaria plan. Primarily focused on prevention, the program has sprayed interior walls of nearly 100,000 homes with long-lasting insecticide to kill biting mosquitoes before they can spread infection. After the first two years of malaria control, reports show a 95% drop in infected mosquitoes and a 40% drop in infected children. Meanwhile, the program has improved treatment through introduction of new combination drug therapies and continues monitoring by installing mosquito traps to check for new outbreaks of infection.

APS RESTORES FLOW TO FOSSIL CREEK FOR BENEFIT OF NATIVE FISH AND UNIQUE HABITAT

In June 2005, Arizona’s largest electric utility, APS, “undammed” central Arizona’s Fossil Creek after a century of water diversion for power generation. The utility called the decision “the right thing to do” given the choice of maintaining less than 1% of its generation or returning a unique watershed to its historic natural condition. Fossil Creek is a perennial stream near the community of Strawberry that flows from one of Arizona’s largest spring complexes at the base of the Mogollon Rim and empties into the Verde River in the Mazatzal Wilderness. Running through remote and rugged terrain, the creek remains at approximately 70 degrees Fahrenheit year round and is known for creating clear blue travertine pools. Decommissioning of APS hydroelectric operations followed a multi-year planning process that involved the utility, federal and state agencies, environmental organizations, and Northern Arizona University. Restoration involved several stages, including removal of nonhistoric buildings, eradication of exotic fish species, and construction of a fish barrier to prevent non-native recolonization. A long-term monitoring program will gauge progress of the project and provide a mechanism to resolve any concerns. The creek was recently nominated for Wild and Scenic River status, which requires Congressional approval.

TELEWORK ARIZONA REDUCES TRAFFIC AND POLLUTION, AND SERVES AS A MODEL FOR OTHERS

More than twice as many employees in Arizona work from home as commute by public transportation. Much of this is due to joint public and private efforts to encourage telework – the idea of using electronic communications to work away from the office. The state’s own program, Telework Arizona, kicked off nearly two decades ago when AT&T and the state of Arizona jointly conducted a pilot project that demonstrated work-at-home programs can reduce pollution, ease traffic congestion, increase productivity, and improve job satisfaction. Telework Arizona now assists many corporations and other governments in establishing their own telecommuting initiatives. The state program continues to improve. A recent accounting shows that more than 19% of all state government employees in Maricopa County now telecommute regularly, and program leaders estimate that state teleworker employees annually cut 5 million commuter miles, 177,000 hours of drive time, and 171,000 pounds of air pollution.

These before-and-after photographs show changes in Fossil Creek water flow due to decommissioning of an upstream diversion dam. Photo Credit: Nick Berezenko.