

ARIZONA'S SUSTAINABLE FUTURE

The main thing history can teach us is that human actions have consequences and that certain choices, once made, cannot be undone. They foreclose the possibility of making other choices and thus they determine future events.

Gerda Lerner, Emerita Professor of History at University of Wisconsin
and World War II Refugee.

SUSTAINABILITY: A NEW ORGANIZING PRINCIPLE

Michael M. Crow, President, Arizona State University

The need for action is urgent: demand for energy and transportation is growing rapidly in many developing countries, and many developed countries are also due to renew a significant proportion of capital stock. The investments made in the next 10-20 years could lock in very high emissions for the next half-century, or present an opportunity to move the world onto a more sustainable path.

Nicholas Stern, former Chief Economist to the World Bank from "The Economics of Climate Change."

With a global population of 6.5 billion projected to increase to 8.5 billion by mid-century, we face challenges of unimaginable complexity as a species and as a society. The continuing integration of nations and economies worldwide is making us increasingly interdependent, while at the same time we all are wholly dependent on the dynamic, interactive biogeochemical cycles that make life on earth possible in the first place. Yet though the challenges that confront us are global in scale, we must address many of their impacts locally because Arizona represents a microcosm of the larger scenario.

Nevertheless, as we impinge more and more on natural systems – and as the environment of our planet falls increasingly under the domination of a single species with the capacity to modify natural systems, consume resources, and generate waste on a scale that even in the recent past would have been unimaginable – we face problems seemingly beyond our historic capacity to solve. The world's nations have fallen behind in developing the infrastructure necessary to create and maintain prosperity for all citizens, and they have not yet determined how to balance the needs of humanity with the long-term consequences of human impact on environmental systems. Similarly Arizona simultaneously benefits from and is stressed by a rapidly growing population urbanizing a fragile desert environment.

We must, therefore, realize we are at a critical juncture in the evolution of our relationship to our life system. The long-term sustainability of our state, our nation, and even our planet remains in doubt. The evidence of Hurricane Katrina brought home the notion that things really are far more complex and interconnected than we ever suspected, and that at present we seem to operate beyond our ability to plan and implement effectively, or even conceive what needs to be done in certain circumstances. Among the lessons we should have learned from the disaster on the Gulf Coast is that we must incorporate sustainability into our policies and planning because our lives depend on it.

The concept of sustainability is sometimes mistakenly equated with an exclusive focus on the environment. This report, however, demonstrates that sustainability is much more than that. Sustainability embraces environmental concerns, certainly, but its implications are far broader, spanning issues essential to economic development, healthcare, urbanization, energy, materials, agriculture, business practices, social services and government – in short, all the concerns of daily life in societies around the globe. Sustainability acknowledges the economic needs of human societies, but in its framing seeks a balance with social values, justice, and the environment.

While we must consider that being able to mount an effective response to a disaster the magnitude of Hurricane Katrina could be mere child's play compared with addressing such issues as global climate change and ecosystem collapse, we should also understand that we have more knowledge at our disposal than we realize. The descriptions of activities and prac-

tices by local, national, and international organizations that appear throughout this report show that a variety of strategies and technologies can improve the human condition, protect the environment, and make companies more profitable. For example:

- A commercial carpet company in Georgia captures methane emissions from public landfills to help convert its manufacturing plants to 100% renewable energy, thereby giving it a significant competitive advantage.
- A small community in Connecticut works with a developer to clean up a toxic abandoned industrial site and convert it to a revenue-producing center that helps create businesses, homes, jobs, and public amenities.
- An Arizona company uses a 19th-century invention to develop an emission-free engine that converts the sun's heat to utility-scale electric power.
- A Bangladeshi bank pioneers micro-lending in struggling communities to launch businesses and reduce poverty.

These are just a few examples of initiatives that, at scale, could have profound positive effects on our capacity for sustainability. Thus, we must vastly improve our ability to communicate the knowledge and ideas we already possess, so that we can readily deploy it to improve the quality of our lives, our state, and our planet.

Our universities play a unique and powerful role in ideas and information for sustainability. But neither academic research nor even the best collaborative efforts of scholars can in isolation create a sustainable future. Sustainability will require the application of enormous amounts of capital – political, intellectual, and financial – to develop the leadership, consensus, integrative science, and technology that will enable society to achieve sustainability. To advance solutions, scholars and researchers must be committed to solving real-world problems and efficiently channeling science-based solutions to state, community, and industry leaders. In turn, decision makers must become more knowledgeable about sustainability and its economic, environmental, social, cultural, and geographic implications so they can thoughtfully engage universities and other research institutions in addressing the critical issues that confront us.

As Sustainability for Arizona points out, the communities that will enjoy sustained prosperity in the 21st century will be those that create resilient local economies by making the unique strengths of their places, institutions, and people sources of competitive advantage. So too our institutions, whether in the public or private sector, must each leverage their potential.

Together, Arizona's local, regional, and state policymakers, resource managers, industry leaders, and scholars must coordinate their efforts to tackle issues associated with sustain-

Many environmentalists take it for granted that rich countries will have to cut their consumption sharply to stave off ecological disaster. There is another approach. Global public policies and market institutions can promote new technologies that raise living standards yet reduce human impact on the environment.

Jeffrey D. Sachs, director of Earth Institute, Columbia University, from "The Promise of the Blue Revolution." *Scientific American*, July 2007.

ability, including the impacts of rapid growth, human health, economic well-being, ecosystem viability, and biological diversity. Arizona must make the difficult but powerful policy choices to reduce natural resource consumption, waste production, traffic congestion, air pollution, and energy use. We should embrace innovative policies that promote renewable energy, disease prevention, water conservation, affordable housing, infrastructure investment, cultural development, equitable opportunity, and an innovation economy that will deliver the knowledge and technologies we need to address contemporary and future sustainability issues. We must invest in people and institutions to put creative policies into effective practice and devise “scorecards” to track how we are doing.

ADAPT OR PERISH, NOW AS EVER, IS NATURE’S INEXORABLE IMPERATIVE.

H.G. Wells (1866-1946), author, from
“Mind at the End of Its Tether,” 1945.

Furthermore, whether in terms of new discoveries, technologies, services, or products, the results must be exportable, and in this regard Arizona is in a strong position. As Jonathan Fink, Julie A. Wrigley Director of Arizona State University’s Global Institute of Sustainability and ASU’s chief sustainability officer observes in his essay, “Figuring out how cities can expand economically while avoiding unsupportable stresses on the ecosystem and social fabric is one of the most important challenges the world faces. The region where these things are being most aggressively studied is metropolitan Phoenix.” In fact, this is precisely why ASU created the Global Institute of Sustainability and why prominent leaders, such as Julie Wrigley, are supporting its mission.

Neither the world nor Arizona is now on a trajectory that is ultimately sustainable. Thus, it is incumbent on academic, business, and government leaders to demonstrate persuasively that the advancement of social and economic interests is wholly compatible with sound environmental stewardship. Now is the time for those at the helm to commit their organizations and institutions to transforming our collective consciousness.

In order to reconcile Arizona’s historic development practices with its environmental limits – and to do so in a socially just way – our leaders must be willing to rethink and reconfigure their institutions to foster scientific and public policy solutions that can guide a conscious transition toward a more sustainable future. In this regard, Arizona leaders should start by answering some tough questions:

- How can public and private institutions best collaborate to create solutions to our most pressing environmental, economic, and social problems?
- How can we depoliticize the public decisions needed to get Arizona on a sustainable trajectory?
- How can we monitor our progress toward sustainability?
- How can we encourage and enable Arizona businesses to adopt sustainable operating and production practices without impinging on profitability?
- How can public sector services and activities become more efficient?
- How can we tap into the passion many residents’ and visitors’ already have for a sustainable Arizona?
- How can we communicate the sustainability message to positively influence the behavior of all individuals?
- How can we design or redesign efficient new developments and existing communities?

This report began with the notion that the 20th century was about “raising Arizona,” while the 21st will be about sustaining it. We are at the beginning of a long-term journey to becoming a more sustainable state. Far more than the latest trend or fleeting concern, sustainability is truly the issue of our age. As such, it demands our commitment both to step-by-step progress and to embracing bold policy ideas that will bring about rapid and efficient systemic changes.

Authors and contributors to this report have recommended numerous policy changes that fit both descriptions and together could be taken as Arizona’s first sustainability agenda. Their recommendations include:

- Expand access to 21st century education and job skills for adults
- Ensure equity and quality in Arizona’s P-20 education systems
- Develop programs for sustainability transfer just as universities have for technology transfer
- Require regional planning that integrates water use, and mobility options in existing and new communities
- Enhance dedicated funding mechanisms, such as the Heritage Fund, that are available for environmental restoration and community rehabilitation
- Update groundwater management policies throughout Arizona
- Provide incentives and information to Arizona businesses to support industrial recycling facilities and more technologies for sustainability
- Create a sustainability scorecard and use it for consistent monitoring, feedback, and planning
- Embrace sustainable goods, services, and knowledge as a focus for economic development

To make good on this sustainability agenda, Arizonans must consider and respond to some important issues: How can we encourage and help residents and visitors to make smart choices for reducing wasteful consumption, building community, and fostering sustainability? How can we make the investments that are needed now and over time to support sustainability?

A concept like sustainability has every potential to become a new principle for organizing knowledge production and application, and for reorganizing our institutions. Sustainability is a concept with as much transformative potential as justice, liberty, and equality, and we must foster its discourse and implementation both in our academic institutions and broadly across business, industry, and government. Because turning points like this are rare in the evolution of our consciousness, and the stakes are so high, we must not hesitate to take the right steps and make the necessary investments. The central question that confronts us is whether we will be able to choose wisely among alternative trajectories. This report should convince us that we are now at the stage where there is everything to win and everything to lose.

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If we don’t act, the overall costs and risks of climate change will be equivalent to losing at least 5% of global GDP each year, now and forever... In contrast, the costs of action – reducing greenhouse gas emissions to avoid the worst impacts of climate change – can be limited to around 1% of global GDP each year.”

Nicholas Stern, former Chief Economist to the World Bank from “The Economics of Climate Change.”