“ASU is a New American University promoting excellence in its research and among students, faculty and staff, increasing access to its educational resources and working with communities to positively impact social and economic development ... through research and freely shared knowledge, we can create a socially, economically, and ecologically responsive society—a global community that understands the consequences of our actions and acts accordingly.”

—President Michael M. Crow
A university-wide commitment to sustainability encompasses all units at all four campuses. As the hub of Arizona State University’s sustainability initiatives, the Global Institute of Sustainability is proud to report the sustainability-related accomplishments of the university for July 2011 through June 2012.
Ann Kinzig and Charles Perrings co-authored a group paper in the journal, *Nature*, calling for action to preserve Earth’s remaining biodiversity. The group’s conclusions stem from an analysis of more than 1,000 ecological studies.

Several sustainability scientists and scholars joined 3,000 world experts to discuss climate change, geo-engineering, and international governance (in London) at the 2012 Planet Under Pressure forum.

Harvey Bryan was lead university researcher on the U.S. Department of Energy SunShot Initiative.

Kenneth Abbott, along with 30 other scientists from around the world, authored a *Science* journal article advocating the need for a roadmap to successful sustainability governance within the next decade.

Vijay Vittal led ASU’s Power Systems Engineering Research Center’s work in developing a more sustainable electric grid system.

Ann Kinzig led a study published by the journal, *Science*, that assessed the promise and pitfalls of mechanisms to pay for public ecosystem services like climate regulation and habitat provision.

Christiana Honsberg was chosen to direct an $18.5 million Engineering Research Center for Quantum Energy and Sustainable Solar Technologies.

George Basile and James C. Hershauer co-authored, along with several other sustainability experts, *The Business of Sustainability: Trends, Policies, Practices, and Stories of Success*; a book explaining how businesses can become more sustainable.

Enrique Vivoni and School of Sustainable Engineering and the Built Environment doctoral student Alexander Baish developed a sustainable water management system for Monterrey, Mexico.

At the 2012 meeting of the American Association for the Advancement of Science, Patricia Gober shared findings that show Phoenix water shortages are the result of high outdoor water use and fragmented governance, not climate change.

Kerry Smith’s research on bonds appeared in *The Economists’ Voice*. He suggested that bonds can help mitigate considerable risks of large, environmental construction processes, like drilling and fracking, and hold those responsible for the risks.

Aaron Golub’s work on retrofitting an Avondale cul-de-sac was featured on a *National Public Radio* broadcast.

Cun-Zheng Ning and engineering student Derek Caselli designed a new solar photovoltaic cell system that produces **more electricity at a lower cost**.

Netra Chhetri and the Consortium for Science, Policy, and Outcomes helped launch the **U.S. World Wide Views on Biodiversity** project in Washington, D.C.

Neal Woodbury was chosen as co-director of a four-year, **$30.7 million defense contract** for developing diagnostic technology that provides early detection of infectious disease.

Nobel Laureate Lee Hartwell led a research **collaboration between China and ASU** to advance early and predictive diagnostics for colorectal cancer.
Sustainability scientists and scholars are engaged in hundreds of research projects funded by external awards exceeding $70 million annually.

Central Arizona-Phoenix Long-Term Ecological Research (CAP LTER) work on urban heat island effects was profiled in Wired Magazine.

ASU opened the world’s largest national algae test-bed facility at its Arizona Center for Algae Technology and Innovation (AzCATI) on the Polytechnic campus.

Faculty and students engaged in sustainability research to find solutions for technical and environmental homeland security issues.

The Sustainability Consortium’s membership grew to 96 multinational companies, governmental and non-governmental organizations.

Central Arizona-Phoenix Long-Term Ecological Research (CAP LTER) was featured in the journal, Bioscience, highlighting human impacts on 35 headwater basins.

ASU’s Center for Sustainable Health was awarded a $3 million grant to expand its mission in improving health outcomes and reducing the financial and human cost of disease.

The Swette Center for Environmental Biotechnology was renamed after investors Brian and Kelly Swette.

National Science Foundation awarded ASU $3 million to launch an alternative energy doctoral program.

McCain Institute for International Leadership was established to promote character-driven leadership, as well as research and decision-making in the areas of humanitarian work, human rights and national security.

The Conservation Alliance was formed, including ASU’s CAP LTER and Ecosystem Conservation and Resilience Initiative (ECRI), to address major issues affecting metro Phoenix’s mountain preserves.

Decision Theater’s work in legal preparedness was highlighted in a Disaster Medicine and Public Health Preparedness journal article.

“The School of Sustainability always supported my academic and professional career. While I was conducting my doctoral studies, I earned my Certified Supply Chain Professional designation and took advantage of entrepreneurial opportunities. I was able to compete in global forums such as the MIT Clean Energy Prize, NASDAQ Marketplace, and the Walmart Better Living Business Plan Challenge.”

—Marco Ugarte, Doctor of Philosophy, Class of 2011, School of Sustainability
ASU’s Southwest Center for Education and the Natural Environment (SCENE) Research Experiences for High School Students program on PBS’s Arizona Horizon was discussed by engineering professor Nathan Newman and high school student Jean Juang.

University researchers from all departments gathered at the 2012 American Association for the Advancement of Science to speak about solar power, village modernization, and water security.

The Sustainability Consortium opened a European office and welcomed non-governmental organization members to its board of directors.

The Collaboratory at ASU’s College of Technology and Innovation led solar power training in Aruba.

An ASU and the University of New Mexico team was chosen to compete in the U.S. Department of Energy’s 2013 Solar Decathlon.
university-wide awards for sustainability

ASU was given a Gold rating for The Association for the Advancement of Sustainability in Higher Education's Sustainability Tracking, Assessment, and Rating System (AASHE STARS).

ASU made the Princeton Review's 2012 Green Rating Honor Roll.


ASU ranked 23 out of 118 schools for Sierra Magazine's Cool Schools.

ASU received the Solar Partner of the Year Award from the Solar Electric Power Association.

Sustainable Cities Network’s Regional Tree and Shade Summit received Valley Forward’s Environmental Excellence Merit Award.

Sustainable Cities Network was honored by ASU President Michael Crow with a 2012 President's Award for Sustainability.

Farmers Market @ the ASU Tempe campus was given a 2012 President's Award for Sustainability.

2012 Climate Leadership Award

Arizona State University was one of two doctoral-granting academic institutions to receive a Climate Leadership Award from the American College and University Presidents’ Climate Commitment and its supporting organization, Second Nature. ASU was recognized for unparalleled campus innovation and climate leadership that helps transition society to a clean, just, and sustainable future.
applying concepts

ASU released a Strategic Plan for Sustainability Practices and Operations to communicate its practices and goals in achieving campus-wide sustainability.

The Sustainability Initiatives Revolving Fund helped improve West campus’s efficiency and installed meters on almost all university buildings.

Campus sustainability certifications now include green offices and green laboratories.

Waste Management of Arizona and ASU launched Roadmap to Zero Solid Waste to eliminate 90 percent of the university’s solid waste by 2015.

During 12 campus Farmers Markets, more than 5,000 students, faculty, and staff purchased produce and locally prepared foods.

building to lead

The Weatherup Center, ASU’s basketball training facility, was awarded U.S. Green Building Council LEED Gold certification.

Out of ASU’s total building square footage, 13% is LEED-certified. To date, ASU has 18 completed LEED-certified projects comprised of 36 buildings and the Memorial Union’s second floor.

“Living in the School of Sustainability Residential Community helped me smoothly transition into college and living on my own. I met a wide variety of new friends in a friendly environment who were also studying sustainability. Having the opportunity to eat pizza with the dean in our lounge was pretty sweet, too.”

—Clayton Beyer, sophomore, Economics of Sustainability track, School of Sustainability
soaking up the sun
“As a student in the School of Sustainability, I interned for Carbon Roots International. I worked on a solar-electrification project in La Coupe, Haiti, conducting research on the demographics, daily flow, and infrastructure of the community.”

—Danielle Westrom, junior, International Development and Sustainability track, School of Sustainability

By June 2012, ASU had installed 58 solar photovoltaic projects – more than 62,000 panels – across all four of its campuses. With a generating capacity of 15.3 megawatts, this is the largest single-university installation in the country.

ASU installed the PowerParasol, a 5.25-acre solar panel structure that shades more than 800 parking spaces in Lot 59 at the Tempe campus. The installation brought the number of shaded parking spaces at ASU to more than 4,600.

ASU’s Polytechnic campus got its first solar installation, an 800 kWdc solar power plant constructed in partnership with SRP.

A new solar installation at Wells Fargo Arena is visible from the airplane windows of flights into Sky Harbor Airport, reminding visitors of ASU’s commitment to renewable energy.

The Walter Cronkite School of Journalism and Mass Communication installed a 77 kWdc solar array, the first solar installation on the downtown Phoenix campus.

A $27.5 million investment by The Rob and Melani Walton Fund of the Walton Family Foundation established the Rob and Melani Walton Sustainability Solutions Initiatives at the Global Institute of Sustainability.

Through eight distinct programs, the Walton Sustainability Solutions Initiatives bring together faculty, students, researchers, and global partners to identify and solve local and global sustainability challenges. The Initiatives deliver sustainability solutions, accelerate global impact, and inspire future leaders by combining real-world knowledge with innovative research.

Synergy among the eight programs gives the Rob and Melani Walton Sustainability Solutions Initiatives tremendous power to implement real and meaningful change.
Delivering Sustainability Solutions

**Sustainability Solutions Extension Service**
A consultancy that brings together custom teams to analyze and solve sustainability challenges.

**Executive Master’s for Sustainability Leadership**
A degree that equips professionals to become sustainability change leaders within their organizations.

**Center for Integrated Solutions to Climate Challenges**
A source of research-based support tools for urban decision-makers facing climate uncertainty.

Accelerating Global Impact

**Global Sustainability Studies Program**
An opportunity to study and help solve sustainability problems in a global context.

**Global Sustainability Solutions Centers**
A collaboration with global partners to define sustainability challenges, create and implement solutions.

Inspiring Future Leaders

**Walton Sustainability Fellowship Program**
A network of thought leaders solving sustainability problems through research and teaching.

**Sustainability Solutions Festival**
A showcase for creative thinkers and entrepreneurs who develop solutions to sustainability challenges.

**Next-Generation Sustainability Projects**
A system to seed, nurture, and grow the most high-impact, cutting edge ideas in sustainability.

sustainabilitysolutions.asu.edu
School of Sustainability marked its fifth year

2011 undergraduate enrollment (total 467)

- BA: 207
- BS: 260

2011 graduate enrollment (total 77)

- MA: 13
- MS: 7
- PhD: 57

2012 undergraduate graduates (total 171)

- BA: 60
- BS: 111

2012 graduate graduates (total 15)

- MA: 8
- MS: 5
- PhD: 2

alumni
The School of Sustainability established an alumni chapter with a mission to advance sustainability within and beyond Arizona State University. This 55-member chapter does this by facilitating a cohesive network of sustainability professionals; providing insight, service, and support to ASU alma mater; and through joint endeavors, to be a voice and a force for sustainability locally, nationally, and globally.

study abroad
School of Sustainability students studied in Guatemala, Australia, Switzerland, Dubai, and Thailand.
sustainability education across ASU

150 graduate-level sustainability courses and 350 undergraduate-level sustainability courses university-wide.

Partnering with the U.S. Army and the Army National Guard, the School of Sustainability created the Graduate Certificate in Sustainability Leadership to support continuing education for active duty and citizen soldiers.

ASU and the U.S. Environmental Protection Agency signed a Memorandum of Understanding to offer internships, projects, and research opportunities to students and faculty.

The American Indian Policy Institute in the College of Liberal Arts and Sciences created First Innovations, an award-winning program where students build entrepreneurial and innovation skills for American Indian sustainability.


Arnim Wiek and Aaron Golub led an ASU team that worked on a transit-oriented development project called: Reinvent Phoenix: Cultivating Equity, Engagement, Economic Development and Design Excellence with TOD.

“At the School of Sustainability, the staff genuinely wants students to succeed; they present these opportunities, like internships, that really help the students network. Real-world experience not only helps to apply the theory learned in the classroom, but also helps create relationships with people in the field.”

—McKenzie Ragan, junior, International Development and Sustainability track, School of Sustainability
students as change agents

Water safety in Africa
Daniel Nzengya, a Biodesign Institute researcher and doctoral student in the School of Sustainability, researched health issues and promoted sustainability education in Kenya.

Organic waste to energy
Students in the College of Technology and Innovation designed an anaerobic digester system that converts dog waste into renewable energy to fuel a lamp at one of Gilbert’s dog parks.

Solar-powered aircraft prototype
For a senior project, seven engineering undergraduates produced a solar-powered aircraft prototype and presented it to scientists and engineers from the U.S., Canada, and Germany.

Containers as clinics
G3Box, company started by four ASU students, turns unused shipping containers into portable maternity and health clinics that can be shipped to countries with high mortality rates.

Reducing negative agriculture impacts
A Human and Social Dimensions of Science and Technology student contributed to an international plan for doubling the world’s food production while reducing harmful environmental impacts.

Rainforest ecosystems
Student teachers participating in the Desert to Rainforest program traveled to Panama to study alongside kindergarten through eighth grade teachers from Panama and Phoenix.

Sustainability applied to youth
University doctoral students worked with middle school students and teachers from six schools to show them practical applications of sustainability science.

Sustainable solutions for waste energy
Two student-led companies, reNature Inc. and SmrtEn, developed ways to keep compostable waste out of the landfills and allow homeowners to remotely program their thermostats to save energy.
Local hunger solutions
Alumni and undergraduate student team FlashFlood created a mobile phone app for food providers to coordinate the collection and transportation of leftovers for community centers and people in need.

Water contamination
Team 33 Buckets, composed of biomedical engineering students, designed and built a water filtration system to be used at a Bangladesh school, providing 4,000 gallons of clean water a day.

Bamboo bicycles
The student group BooGood Bicycles engineered sustainable hand-cycles and bicycles to help disabled individuals in Africa get around easier in rugged terrain.

Reusing plastic bottles
Eric Beeler and Natasha Yenina each won a Pitchfork Award for Outstanding Sustainability Project for laying the groundwork to bring water bottle refill stations to campus.

Kids and conservation
School of Community Resources and Development graduate Jacqueline Ginter led environmental education programs as a ranger assistant at Oracle State Park in southeastern Arizona.

Battery drop-off boxes
Jared Doles, a film and media production major, used ASU’s 10,000 Solutions website to propose on-campus boxes for safe battery disposal.

“The knowledge and thought processes that I have acquired at the School of Sustainability force me to see the bigger picture and look beyond conventional boundaries. I feel the skills I have acquired will put me in a position to make an impact in any project or job that I choose to pursue in the future.”

—Amy Minowitz, master’s student
School of Sustainability
Julie Ann Wrigley endowed the **Ray Anderson Memorial Scholarship** to honor the late entrepreneur and Global Institute of Sustainability Board Member for his contributions to the field of sustainability.

**SustainabilityConnect** was launched to bring together ASU individuals and professionals to work collaboratively on sustainability issues. [https://sustainabilityconnect.asu.edu](https://sustainabilityconnect.asu.edu)

**The Southwest Center for Education and the Natural Environment** mentored eleven high school students who won awards at the Arizona Science and Engineering Fair.

**Sustainability Science for Sustainable Schools** piloted its first sustainability course at Tempe High School.

The Global Institute of Sustainability launched its **Thought Leader Series**, featuring commentaries on sustainability issues from prominent figures in sustainability both within and beyond ASU.

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Priscilla Richards Outstanding International Student Leadership Award

"The School of Sustainability allowed me to broaden my understanding of sustainability. Thanks to the School of Sustainability, I was able to apply what I learned in the classroom to the real world by doing an internship with Dell as a Sustainability Assistant."

—Hyejung Lim, senior, Society and Sustainability track, School of Sustainability
School of Sustainability students established the nation's first sustainability honor society. As a network of sustainability scholars, the honor society envisions a future where sustainable practices are a reality in a global society. Basing their vision on three pillars of sustainability—economic, environmental, and societal—members further sustainable economic development, advance social justice, and foster environmental stewardship.
sharing knowledge

ASU Chief Research Strategist Ann Kinzig presents about sustainable wealth at the Arizona Science Center
through collaboration and education

The Global Institute of Sustainability sponsored more than 30 lectures, presentations, and panel discussions, including a Phoenix mayoral debate on sustainability. Featured speakers included Phoenix Mayor Greg Stanton, Tempe Mayor Mark Mitchell, and Mesa Mayor Scott Smith. Author Gary Nabhan, Wrigley Lecturers William McDonough, Frank Sesno, Robin Morris Collin, Gernot Wagner and visiting scientists Carlo Jaeger and Wally Broecker were also featured.

With NBC Learns, the National Science Foundation, and Discover magazine, ASU hosted a Changing Planet town hall panel discussion on climate change and sustainable water supplies.

In partnership with the EPA and American Public Media’s Public Insight Network, the Global Institute of Sustainability presented an American Innovation for Sustainability forum in Washington, D.C., to highlight environmental innovations.

Representatives from each of Arizona’s state universities gathered at the event, Climate Change in Arizona: Current Knowledge and Future Collaborations among the State Universities, hosted by the Global Institute of Sustainability.

ASU hosted the third International Conference on Sustainability Science, aimed at using science to solve sustainability issues.

The Global Institute of Sustainability, in partnership with the Council of Educational Facility Planners International, formed a one-day symposium, What’s Next for Sustainable Schools and Communities?

ASU was the meeting grounds for 16 colleges participating in the Southwest Regional Collaborative Symposium of the American College and University Presidents’ Climate Commitment.

The School of Sustainability was a sponsor of the multi-disciplinary, boundary-breaking event: Emerge, uniting artists, engineers, scientists, storytellers, and designers to rethink the future of humans and the environment.
Seventy articles published in the following scholarly journals:

- Advances in Water Resources
- Biogeosciences
- Chinese Journal of Applied Ecology
- Climate Research
- Current Opinion in Environmental Sustainability
- Ecohydrology
- Ecological Applications
- Ecological Economics
- Ecological Indicators
- Ecology
- Ecology and Society
- Economics of Innovation and New Technology
- Environmental Communication
- Experimental Economics
- Forest Ecology and Management
- Frontiers in Ecology and the Environment
- Geographical Journal
- Global Environmental Change
- Human Ecology
- International Journal of Sustainable Transportation
- Journal of Arid Environments
- Journal of Biogeography
- Journal of Environmental Economics and Management
- Landscape and Urban Planning
- Landscape Ecology
- PLoS ONE
- Population and Environment
- Review of Economics and Statistics
- Science
- Science and Engineering Ethics
- Sustainability
- Sustainability Science
- Water Resources Management

new School of Sustainability faculty

David Manuel-Navarrete

Dr. Manuel-Navarrete’s research investigates climate change governance, socio-ecological inequality, and knowledge systems within agriculture. He explores how the boundaries produced by tourism regulate the access of diverse social groups to ecosystem services in coastal regions.

Sonja Klinsky

Dr. Klinsky’s work analyzes how climate change policy is developed and perceived in both domestic and international arenas. Dr. Klinsky is engaged in research that explores public opinion about complex sustainability policy issues.

Michael Schoon

Dr. Schoon conducts research on cross-border collaborations among landowners, governmental agencies, and nation-states. He analyzes those collaborations that cover environmental issues like biodiversity conservation, water sharing, and fire management.
As an older and more seasoned student just retiring from a military career, I felt some trepidation returning to college. At the School of Sustainability, I found the students and faculty to be of such diversity of age, gender, education, ethnicity, and nationality that classroom discussions where engaging and enlightening!

—Felicia French, doctoral student
School of Sustainability
Printing 500 of these brochures used 645 pounds of paper made with 100% recycled fiber and 100% post-consumer waste, processed chlorine free, and manufactured with electricity that is offset with Green-e® certified renewable energy certificates. By using this paper, we saved the following resources:

**ENVIRONMENTAL SAVINGS**

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Calculations based on research by Environmental Defense Fund and other members of the Paper Task Force.