

The background of the slide is a photograph of the Arizona State University campus. In the foreground, a large, light-colored stone sign reads "ARIZONA STATE UNIVERSITY" in bold, dark letters. Behind the sign, a multi-story brick building with a grid of windows is visible. Several palm trees are scattered throughout the scene, and the sky is a clear, bright blue.

***Sustainability Science in North  
America: towards ICSS 2012***

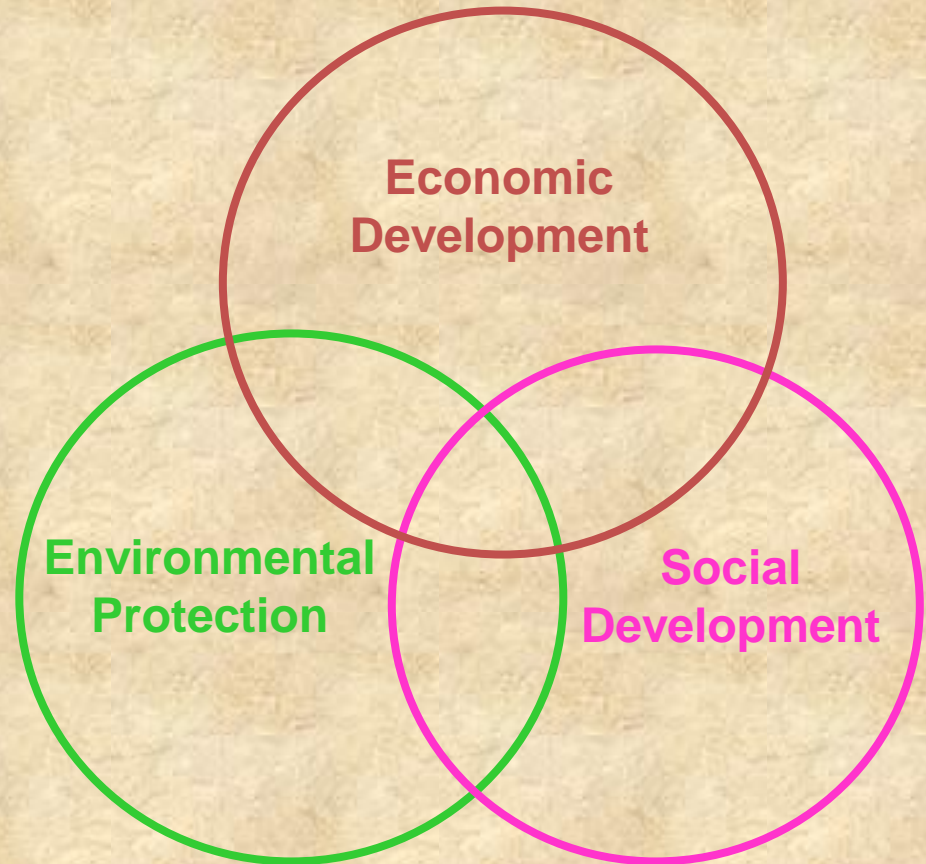
**“Knowledge to Action for  
Sustainability”**

James Buizer

Science Policy Advisor to the President,  
Arizona State University

# The Role of Science in Sustainable Development

*Sustainability Science* focuses on the dynamic interactions between nature and society, with equal attention to how social change shapes the environment and how environmental change shapes society.



# What Do Businesses and Governments think of University Scientists?

## Current Perspective

**Slow**

**Cautious**

**Ivory tower**

**Poor listeners**

**Compartmentalized**



## Desired Perspective

**Fast**

**Bold**

**Practical**

**Responsive**

**Transdisciplinary**





# Mission of Sustainability at ASU

Dedicate ourselves to:

- The creation of new knowledge and technologies
- Research-based solution options to the most salient of sustainability challenges in the region
- Teach the next generation of business, government and university leaders, and
- Reduce the environmental footprint of our university campus operations.

# Critical components of sustainable urban systems

## Biophysical

- Clean air
- Adequate water & sanitation
- Stable climate
- Renewable energy supplies
- Non-polluting mobility
- Energy-efficient urban design
- Healthy ecosystems

## Socioeconomic

- High-paying jobs
- Good educational system
- Affordable housing
- Low crime rates
- First-class public health
- Recreational options
- Innovation & creativity
- Cultural diversity

# Overarching questions

- How can sustainability of individual urban regions be achieved in the face of increasingly rapid external drivers like climate change?
- What are the relative roles of individual behavior, corporate practice and government policy in making cities sustainable?
- What new tools, technologies and policies can help promote more sustainable cities?
- What are the complex dynamic feedbacks among components of an urban system?
- What can university research contribute to sustainability?



# Specific questions

- How will urban water supplies be affected by the combined impacts of climate change, population growth and new re-use technologies?
- How to model generation, transport, deposition and health effects of air pollution in complex urban terrains under climate change?
- How to minimize health consequences of urban heat island effect? How can regulatory and economic changes promote the growth of distributed renewable energy systems within urban regions?
- How can integrated information technology, energy generation and storage and transportation networks reduce fuel consumption?

# Priority for Moving Forward


- **Mobilize the required “knowledge network(s)” to:**
  - Create a cadre of “boundary organizations” as part of the decision support system, eg. Extension
  - Engage scientists, decision-makers, consultants, trusted information brokers, educational partners
  - Partner with professional/industry associations
  - Develop demonstration projects with early adopters
  - Train new skills; Enhance communications skills



A person is holding a large number of kittens of various breeds, including tabbies, calicos, and black and white cats. The kittens are piled together in the person's arms, some looking towards the camera. The background shows a blue car and a white car.

# **Institutional Challenges**

- **Traditional Faculty Culture**
- **Engaging with the Community**
- **The Cost of Transdisciplinary Research**
- **Boundary Spanning**

The background of the slide features a photograph of an Arizona State University sign. The sign is white with the words "ARIZONA STATE UNIVERSITY" in large, dark, block letters. Behind the sign is a brick building with a grid-like facade and several palm trees under a clear blue sky. The text is overlaid on this image.

**ICSS 2012**

**Arizona State University  
Tempe, Arizona**

**February 22-24, 2012**





**Thank You Very Much**