

Theme: Sustainability and the Global Environment

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Research and Education: Achieving sustainability is the biggest challenge humanity has ever encountered and, by necessity, will become an increasingly urgent aspect of the human endeavor in the decades to come. Humans have caused drastic changes to the planet which are accelerating at a rate that threaten human health and security globally. In the last half century, our population size has more than doubled. Meanwhile, our per-capita use of resources has increased several-fold. Consequences of this include changing climate patterns, a global extinction crisis, the reduction of air and water quality, diminishing resources, and new emerging diseases. Addressing sustainability is complex and requires innovative solutions and integration of multiple disciplines including natural sciences, engineering and social sciences. Through innovative research and education, Rice should be at the forefront of this global challenge to find sustainable solutions that both benefit the environment and enable people to thrive.

Rice is in a good position to be a global leader in this field, with experts in energy, biodiversity, engineering, disease, Earth sciences, and human dimensions of sustainability. We also hold a student body and faculty already passionate about these issues that span across fields and departments. Our student's passion for sustainability and global health issues can be seen through the outreach they do through Rice's *Student Engineers Without Borders* Program and *Alternative Spring Break* programs. To be a future leader in this growing, high priority field, Rice must lead an initiative to bring minds together across disciplines with the goals of tackling emerging issues relating to sustainability at the local, national and global scales, and to train new generations of leading scholars in this interdisciplinary field.

Existing Strengths:

- Numerous faculty experts in this area already exist across natural sciences, engineering and social sciences.
- Synergistic with existing centers and programs (Center for the Study of Environment and Society, Baker Institute, Student Engineers without Borders, Alternative Spring Break, Environmental Studies Major, Energy and the Environment initiative)
- Our neighbors: Houston Medical Center has shown prior interest in collaborating with Rice on "Environment and Health" related initiatives. Houston Zoo and Houston Museum of Natural History are also potential partners.

Suggested Investments: To address emerging challenges in sustainability we must develop incentives to unite faculty across departments, foster interdisciplinary education, and create opportunities for campus and community engagement in sustainability. Investments that could help us reach that goal include:

- Support training and grant preparation and administration
- Support interdisciplinary educational activities and outreach activities that yield visibility for the University
- Foster international connections and collaborations through travel grants or seminar support
- Establish an Environmental Fellows or Sustainability Fellows Program through interdisciplinary post-doc fellowship positions combining independent research and teaching in the field
- Open new lines for hiring faculty across departments in the field that could bring national visibility
- Provide internal seed funding to catalyze interdisciplinary collaborations
- Create a center or institute for Sustainability and the Global Environment
- Undergraduate research grants or fellowships to encourage international experiences and hands on training in the field

Potential impact of investment at Rice: Addressing environmental sustainability is the biggest challenge ever faced by humanity and Rice should be a leader in this field both in research and education. Many of the top universities in the country already have centers or programs relating to the challenges of sustainability. While Rice University currently has both strong expertise and interest in this field, we lack a unifying effort to foster the interdisciplinary research that is necessary to find effective solutions to the complex challenges of environmental sustainability. Investment will allow Rice to compete with the top universities for the best minds in a field that will only grow as our impact as humans increases on our planet.