

MAKING A CASE FOR THE CREATION OF A CENTER FOR AGRICULTURAL SUSTAINABLE ENGINEERING (CASE)

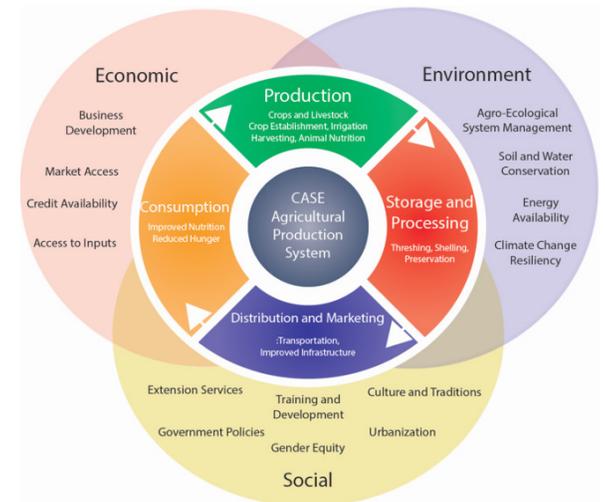
The Center for Agricultural Sustainable Engineering (CASE) based within the University of Illinois Department of Agricultural and Biological Engineering (ABE) will lead transformational research, teaching, and outreach to address local and global food security challenges coupled with environmental and socio-economic sustainability. International collaborations, especially with developing countries, will enable CASE to facilitate the exchange of ideas and the creation of opportunities for local and international tertiary capacity-building and student and faculty exchange programs. CASE will draw upon and leverage the Agricultural and Biological Engineering Research Farm as a unique hands-on living laboratory as well as other research facilities within the College of ACES and on campus.

Additionally, CASE will play upon the strength and reputation of the research conducted by the department and the college.

OPPORTUNITY:

The impact of CASE would be extensive:

- CASE will have a strong social philanthropy component. Linkages with other departments have been identified and hold great appeal and relevance. Based on these linkages, partnerships with alumni, industry, foundations and other philanthropic organizations will be developed. Relationships will also be investigated with startups (i.e., automation, data analytics, field robotics).
- CASE will raise the awareness and understanding related to sustainability both locally and internationally. It will facilitate the development, implementation, and evaluation of solutions to address key issues of sustainability such as soil and water conservation, land use management, and social and economic viability. It will allow us to utilize our valuable and unique farm assets more effectively and generate opportunities for networking among all departments of the college to be able to tackle livelihood issues around the globe.
- CASE will rely heavily on the broad expertise and knowledge resident in ABE that includes the following: engineering indoor and outdoor environments, off-road machine systems, and food and bioprocessing systems; developing and deploying renewable energy systems; researching biological systems from nanoscale to ecological. The availability of such expertise lays a strong foundation to the long-term functioning of CASE and supports its envisioned scope of activities.
- Discussions have taken place with the Departments of Crop Science and Natural Resources and Environmental Sciences (NRES) to identify potential synergies, such as with the Agroecology and Sustainable Agriculture Program in NRES and Crop Sciences plans to establish a Water and Soil Conservation Center to promote stewardship of such resources. At the campus level, strong linkages will be pursued with the Institute for Sustainability, Energy, and Environment (iSEE), the activities of which complement those envisaged for CASE.



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- Education is paramount regarding sustainability in local and global contexts. Opportunities are presented in creating and demonstrating options and solutions that can be impactful, especially in educating various stakeholders while being mindful of the uniqueness in cultural and gender roles. Such activities will also facilitate forging partnerships among stakeholders. These stakeholders will include smallholder farmers, families, government and non-government organizations, and entrepreneurs as appropriate in the local and global settings.
- The importance of emphasizing entrepreneurship is illustrated via a USAID project being undertaken in the Department of ABE that addresses mechanization with a business model in mind, but focusing strongly on sustainability. Linkages to College of ACES departments such as ACE, NRES and Crop Sciences are necessary to leverage the expertise and knowledge domains of these departments. In targeting sustainability, conservation agriculture is tied to the business aspect and to generating revenue. Policy is also an important component of CASE tied to promoting business with examples being the importation of equipment or planting alternative crops in a region.
- Adopting a transdisciplinary systems approach to address crop and animal production is critical and a niche of this effort. Thinking about the entire spectrum (i.e., Seed to Soul) and value chains is critical to sustainability. As the figure below illustrates, numerous factors influence the overall agricultural production system and the knowledge and skills required to address these factors are resident in all the College of ACES departments.

ROI of CASE:

- CASE could serve as a model and be replicated in developing countries as sustainable hubs.
- It will promote additional research opportunities and increase recruitment of both undergraduate and graduate students.
- It will help to attract new faculty, new equipment for the ABE research farm, increased research funding, and facilitate multi-disciplinary collaborations within ACES and beyond.
- It will allow us to participate more effectively in the agricultural information and technology domain targeting both research, teaching and outreach, and permit us to leverage the expertise and current activities in this domain that reside in the College of ACES.

RESOURCES REQUIRED:

To fully achieve the goal of CASE, we need the following:

- Faculty support
- Endowed Chair
- Endowed Professorship
- Programmatic Endowment
- Programmatic Current Use



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