

Evaluation of a multinational science and engineering collaboration on the topic of sustainable biofuels and bioenergy
or

Sustainable Evaluation of Sustainability Research

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About the authors



About the Project

A Research Coordination Network on Pan American Biofuels and Bioenergy Sustainability

Funded through NSF's Science, Engineering, and Education for Sustainability (SEES) activities



National Science Foundation
WHERE DISCOVERIES BEGIN

Research Problem

“The potential impact of large-scale biofuels and bioenergy production on environmental systems and social conditions is largely unknown. Yet ... there is rapid movement toward development of biofuels and bioenergy production systems that will likely lead to dramatic changes in human and natural systems.

These changes may be beneficial or detrimental...”

Challenges (aka Opportunities)

- Diverse team
 - Disciplines
 - Engineers, physical scientists, life scientists, social scientists, policy makers, NGOs, corporations, students, professional societies
 - Languages
 - Spanish, English, Portuguese
 - Discipline-based terminology and constructs
 - Distances
 - Individuals' and groups' "culture"

Project Actions

- Develop Pan-American research network and conduct research workshops across the Americas to collect and analyze information on:
 - Land rights
 - Water/energy nexus
 - Biodiversity/ecosystems
 - Energy policy
 - Life-cycle assessment
 - Food and other systems
 - Biogeochemical cycles
 - Biomass supply transportation logistics

Project Deliverables

- Research roadmap report on sustainability of biofuels and bioenergy in the Americas
- Graduate course developed through and delivered throughout the network

Role of Evaluation

Cherry on Top?

Integral component?

<http://www.fiesta-fountains.com/ice-cream-sundae-bar>



Role of Evaluation

- Utilization-focused approach
 - Evaluation fully integrated into project from planning stages through completion

Role of Evaluation

- At the proposal stage
 - Logic model
 - Detailed plan for assessment
- At project onset
 - Timeline
 - Responsibility matrix
- Annually
 - Written report
 - Oral presentation to network members
 - Recommendations for leadership

Strategies

- Workshops
 - Pre-workshop pencil & paper survey of network participants
 - Post-workshop survey regarding the workshop
 - Semi-structured interviews with workshop participants regarding the network
- Graduate Course
 - Content area tests
 - Small group instructional diagnosis (SGID; Creed, 1997)

Conclusions / Lessons Learned

- Standard techniques can effectively be used in the evaluation of multi-national STEM education projects
- Helpful for evaluators to speak the same “language” as project leaders and participants
- Evaluation is most effective if it is valued
 - Provide useful data to leaders and participants
 - Provide data in a format that facilitates use
 - Provide tools for ongoing use