



Maximizing Yield Through Integration (MYTI): Science & Math Education in the Context of a Disposing Society.

University of Puerto Rico, Río Piedras Campus

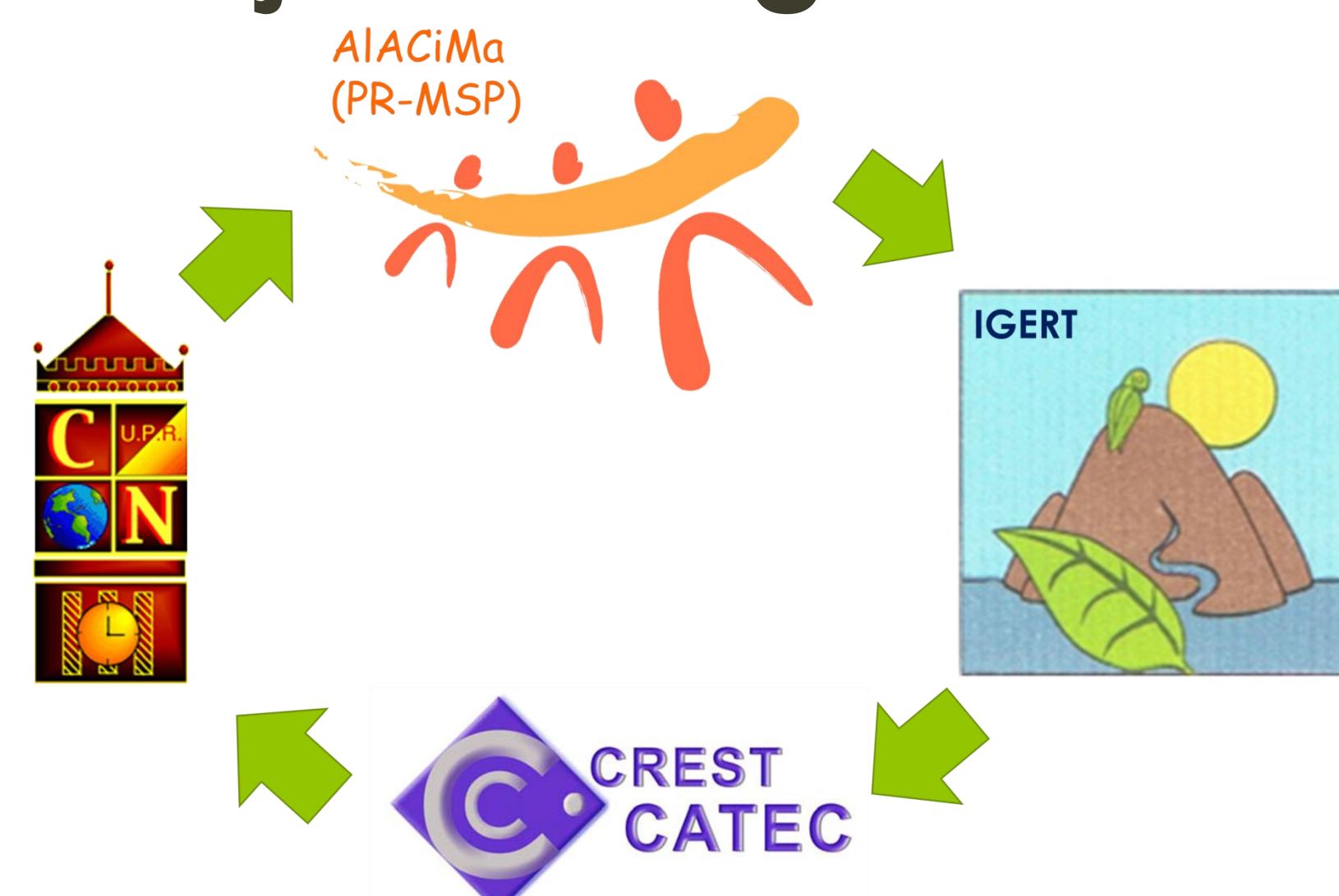
Ana R. Guadalupe (PI), Brad R. Weiner, Michelle Borrero, Rafael A. Rios, Elvira Cuevas (Co-PI's)



Summary

We have established a Center for Science and Mathematics Education Research (CSMER) to “maximize our yields” as we integrate research and education through the incorporation of existing NSF funded programs in the broad area of environmental sciences and science education. The CSMER provides support to conduct research on science education and establish outreach opportunities with partnering K-12 schools. The Center fosters the integration of research on science education, action-research by teachers and educational practice focus on the solid waste problem in Puerto Rico with the potential to expand to other relevant interdisciplinary issues. It also provides the infrastructure for developing cooperative teaching approaches, supporting pilot studies, support for internet resources and for research in science education, including statistics support, building survey support, and other assessment tools. MYTI will broaden the participation of underrepresented minorities by increasing the number of Hispanic teachers and faculty that are proficient in the best teaching practices in math and science education and improve the attitude of students at a critical juncture (7-12) towards STEM.

Project Design

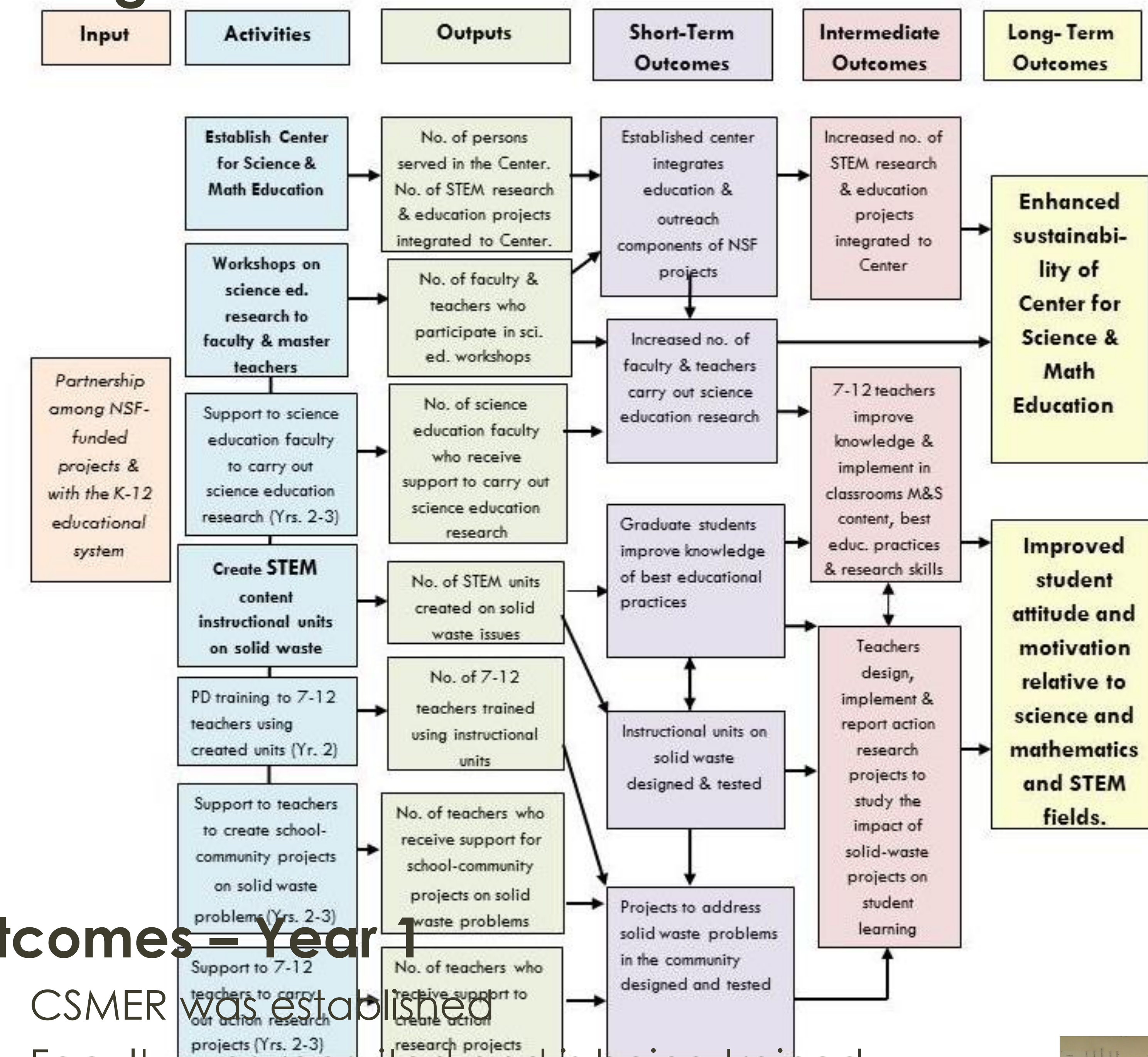


Center for Science and Math Education Research

Strategy

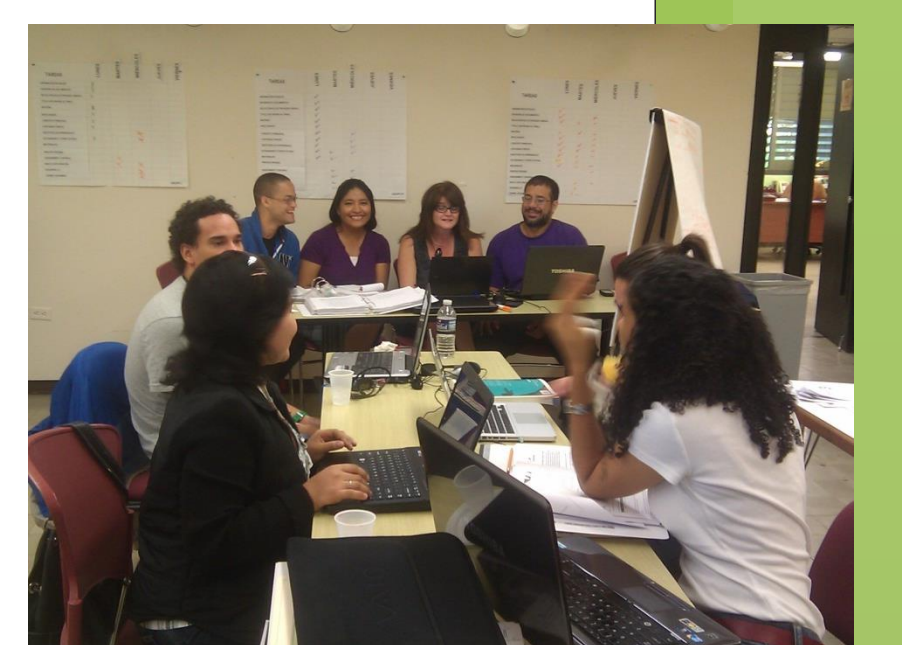


MYTI Logic Model



Outcomes – Year 1

- CSMER was established
- Faculty was recruited and is being trained to develop science education research projects
- Integrated math & science units were developed by IGERT fellows, graduate students and faculty



Unit Title	Solid Waste Management Functional Element	Science concepts	Math concepts
Introduction to Solid Waste	Generation Classification Collection Transfer & Transport Recovery	Science Processes Matter Conservation Law Mass Natural Resources	Data analysis Graphics Percent Linear Functions Conversions
The Science of Compost	Processing (Organic Waste)	Organic/ Inorganic Matter Decomposition Carbon Cycle Nitrogen Cycle	Exponential Function Variables Volume Measurements
The Impact of Solid Waste in the Quality of Water	Disposal (Landfill, Run-off, Leachate)	Water Hydrologic Cycle Water Quality Acids pH	Variables Data analysis Graphic Percent

