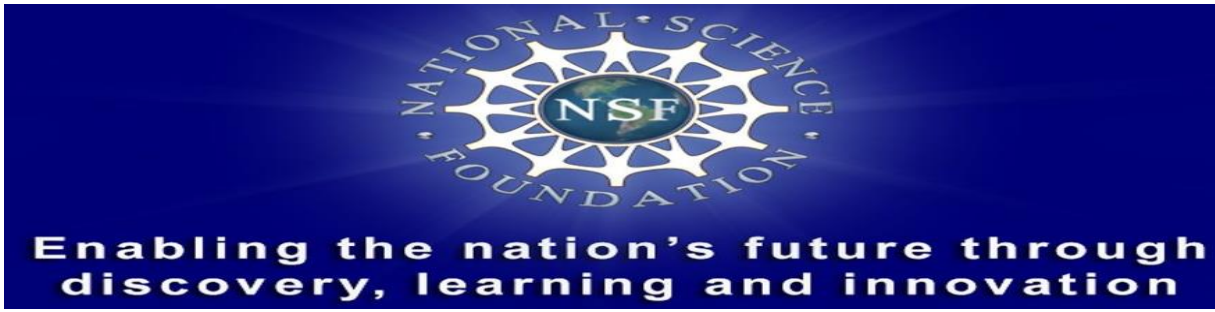


**SOUTHERN UNIVERSITY HAS PARTNERED WITH THE LOCAL,  
REGIONAL AND INTERNATIONAL RESEARCH TEAM TO DEVELOP  
RESILIENT COMMUNITIES AGAINST NATURAL DISASTERS**



**DIsaster REsilient Food Energy Water Systems (DIRE-FEWS)  
**Sustainable Regional System Research Network (SRS-RN)****

The entire planet continues to experience the impact of climate change and global warming over the years, of which Louisiana is no exception. Higher sea levels have been a major concern in Louisiana as the state is getting warmer, with rising waters threatening low-lying residents and properties with flooding. Also, the soil is drier and accompanied by an increase in annual rainfall that occurs in heavy downpours, whereas tropical storms and hurricanes are becoming more frequent and intense.

Owing to the location of the state of Louisiana along the Gulf of Mexico, its low-lying environs are particularly more prone to certain natural disasters especially, flood and hurricanes. This is due to the Gulf's warm water being an ideal spot for the formation of hurricanes each year. Naturally, the water is expected to be at least 80 degrees Fahrenheit to sustain an event of hurricane, of which the Gulf has consistently recorded 83 degrees during summer. This thereby creates a perfect condition for the occurrence of hurricanes and its associated effects.

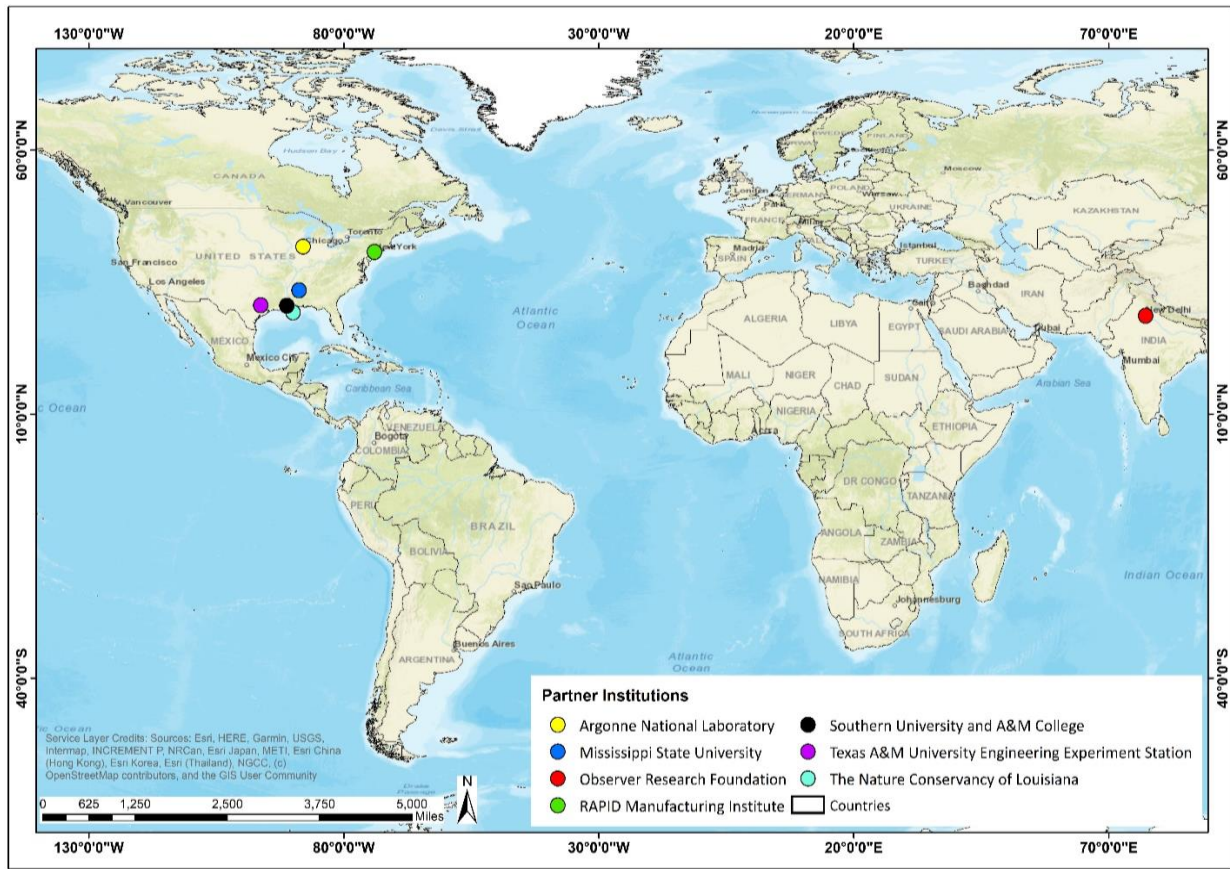
Notably, the state has experienced series of hurricanes that date as far back as hurricane Audrey (1957), hurricane Betsy (1965), hurricane Camille (1969), hurricane Andrew (1992), hurricanes Katrina and Rita (2005), hurricane Ike (2008) and the most recent hurricane Ida that occurred in 2021. For instance, the biggest and most devastating event being hurricane Katrina in 2005, submerged the entire urban communities in more than 10 feet of water resulting in approximately \$125 billion in damages and 1,570 lives claimed. Considering the degree of damage that was caused, New Orleans has still not made full recovery from this event since the

storm displaced more than 1 million people at its peak and more than 400,000 people permanently.



*Impact of the Hurricane Ida. Photo Courtesy of Daniel Cusick and Hannah Northey, E&E News / 09/01/2021*

Based on such challenges, Southern University and Agricultural & Mechanical College has partnered with Texas A&M Engineering Experiment Station's Gas and Fuels Research Center, and a group of local, regional and international research team members which includes The Nature Conservancy of Louisiana, Texas A&M University, Mississippi State University, RAPID Manufacturing Institute, Argonne National Laboratory, as well as the Observer Research Foundation. These group of researchers aim to uphold a common goal of building community resiliency while addressing the menace of natural disasters. The team is led by Dr. Debalina Sengupta who is the Associate Director of the TEES Gas and Fuels Research Center.



More so, the membership includes noble members such as Seth Blich, the Director of Coastal and Marine Conservation at The Nature Conservancy of Louisiana who also serves as a co-principal investigator on the planning grant. Dr. Ignasi Palou-Rivera, Executive Director and Chief Technology Officer of RAPID Manufacturing Institute, is also a co-PI on the project. Other notable co-Principal Investigators include Dr. Beth Stokes, Associate Professor of Sustainable Bioproducts from Mississippi State University, Dr. Lucy Mar Camacho of Texas A&M University-Kingsville, and a team from Southern University and A&M College comprising of Principal Investigator, Dr. Damien Ejigiri, Professor and Dean of the Nelson Mandela College of Government and Social Sciences, and Dr. Yaw Twumasi, Associate Professor of Geographic Information System (GIS), remote sensing and hydrology in the Department of Urban Forestry and Natural Resources.

The first unit of planning grant offered to the research team by the National Science Foundation (NSF) for Sustainable Regional Systems Research Networks (SRS-RN) is to address the challenges pertaining to such natural destructions. As part of this goal, the research team is working to identify research questions by engaging the local communities, support groups, governmental agencies, municipal

organizations, and other relevant stakeholders during the first term of the grant. This is to prepare questions taking into consideration local knowledge, experiences and understanding of risk according to the communities, to develop tailored practical and technological solutions.

The team of researchers will work together with some of the disaster-impacted stakeholders to gather additional information through workshops, webinars, and partnerships. The data gathered will later be leveraged to demonstrate and model technologies that can be implemented for policy decisions, and to increase community resiliency and preparedness towards subsequent disaster events.

The project therefore seeks to indulge the participation of environmental protection specialists, engineers, social scientists, international policy experts, as well as extension and outreach professionals. These experts will be able to offer potential social and technological solutions in accordance with the pertinent needs of the existing communities. With an initial award of approximately \$150,000 in planning funds, this will be used to fund a year of development for an SRS-RN Track 1 grant proposal of close to \$15 million for a five (5) year duration.