

R & D AGENDA

1. Food Production and Security

- This research platform serves the desired national development goal of increased agricultural productivity as well as the availability and accessibility of safe and nutritious food that meet people's dietary needs. Under this platform, proposals may focus on:
 - a. Improved understanding of "food ecology" by examining farming production and systems that look at factors such as land, labor, capital, culture, customs, gender roles, material resources and other biophysical, socioeconomic, and political variables that impact on the amount of crop and livestock outputs.
 - b. Technological innovations such as small-scale irrigation projects and hydrologic mapping from weather sensors, etc. to help cushion farmers from weather extremes and dwindling crop yields brought about by climate change.
 - c. Technological innovations focused on reducing production losses as well as post-harvest technological innovations that can ensure the quality, freshness and marketability of agricultural products.
 - d. Crop selection mechanisms that can help identify sources of resistance/resilience to abiotic stresses including heat, cold and drought; and
 - e. Genetic enhancements that can help crops cope in variable growing conditions.

2. Environment, Disaster Prevention, Climate Change and Energy

- This research platform is aimed at improving knowledge and understanding of the global environment and climate change, generating systems and public consciousness to conserve local environments, and developing locally appropriate technologies, systems and tools and procedures in preparation for natural disasters. Under this platform, proposals may focus on:
 - a. New energy technology and energy-saving technology;

- b. Prevention, monitoring and risk assessment of water, air and soil pollution
- c. Sustainable utilization of bio resources;
- d. Disaster prevention and mitigation measures;
- e. Environmental health management; and
- f. Planning, design and evaluation of energy systems from energy production to energy utilization, and safety countermeasures for environmental protection.

3. Smart Analytics and Engineering Innovations

- This research platform is aimed at fostering and enabling research that can help data users such as small to medium business enterprises, industry, local governments, legislators, policy makers, teachers, students, individuals and families, and other stakeholders harness the potential of data, in varying levels of complexity, in order to make informed decisions. Innovations such as smart predictive informatics tools are needed to help make sense of ever increasing configurations of data and thereby aid in day-to-day productivity as well as support macro goals of economic competitiveness. Under this platform, proposals may focus on:
 - a. Development and testing of technopreneurship programs in formal and non-formal education settings.

4. Terrestrial and Marine Economy: Biodiversity and Conservation

- This research platform is aimed at generating sustainable development strategies for activities based on the use of land and ocean resources. Under this platform, proposals may focus on:
 - a. Improved trans-disciplinary understanding and perspective of the Philippine marine environment and the interactions within this environment (marine life and genetic resources, wind farms, coastal tourism and recreation, marine security, marine transport, etc.) and how this knowledge can contribute to integrated policies and plans/schemes to conserve the environmental richness of Philippine coastal communities;

- b. Innovations that help communities manage and restore ecosystems vis-à-vis climatic fluctuations and other stressors;
- c. Economic value of terrestrial and marine biodiversity and what this means for designing and planning effective and socially acceptable conservation strategies and interventions; and
- d. Nutritional and health impact of biodiversity.

5. Health Systems

- This research platform is aimed at improving evidence-based knowledge and understanding on how to optimize health service delivery using a systems approach. It is concerned on how social factors, governance, workforce, financing systems, products and technologies, organizational structures and processes, personal behaviors and information-seeking actions affect access to health care, the quality and cost of health care, and ultimately our health and well-being. Hence, the end view is to identify the most effective ways to organize, manage, finance and deliver high quality care; reduce medical errors and improve patient safety. Under this platform, proposals may focus on:
 - a. Strategies for training, managing and supporting health care workers.
 - b. Decentralization of care from hospitals out to more rural facilities, and from clinical to non-clinical staff:
 - c. Strategies for enabling better integration of services, such as for maternal, neonatal child health and nutrition, detection and prevention of tuberculosis, HIV, malaria and other infectious diseases as well as for other chronic conditions such as hypertension and diabetes;
 - d. Improving doctor-patient communication; and
 - e. Communication risk to the public.

6. Education

- This research platform is aimed at generating innovations in undergraduate education in Science, Technology, Engineering, Agriculture-

Fisheries and Mathematics (STEAM). Under this platform, proposals may focus on:

- a. Case studies and other innovations in STEAM education;
- b. Assessment of impact on student learnings in STEAM program;
- c. Lifelong learning on STEAM: Improved understanding of how, why and when individuals learn STEAM across their lifespan in multiple settings and contexts; and
- d. Women and STEAM.