**SUMMARY REPORT ON HIGH PRIORITY RESEARCH AREAS (PROJECTS) FOR POTENTIAL FUNDING**

**BY**

**Members of the Research Arm/ NSF and Members of the Steering Committees**

## 1.0 Introduction & Background

The Research Arm (RA) has earlier compiled and submitted a Concept Paper on 'Research Promotion for Country's Development: The Roadmap'. The Implementation Framework proposed describes in detail the elements to be considered that includes the *priority research areas* related to market trends and supply potential. The research focus shall be on applied research and product development, with each specific area identified having an economic rationale for research and development intervention through bridging of market gaps, ensuring economic returns for all stakeholders, through environmental impact and improvement of life quality index. Most are related to the research priorities already proposed by the NSF that are linked to the national policy framework (The Vistas of Prosperity and Splendour) and Sustainable Development Goals (SDGs) as well as the National Research and Development Framework (NRDF).

## 2.0 High Priority Main Research Areas Identified

### 1) SC on Agriculture Sector for R & D

a. Alternatives to fertigation (including Nano fertilizers)
b. Organic pesticides
c. Availability of testing facilities for the agriculture products imported to the country
d. Postharvest loss minimization , packaging methods
e. Micro plastics in food (specially salt) and health risks related to micro plastics.
f. Collaborative research in identified priority crops ( big onion and chili , low country and temperate vegetables)

### 2) SC on R&D of Fisheries and Aquaculture

a. Culture Fisheries
b. Capture fisheries
c. Postharvest technology for fish and fishery products
d. Socioeconomics, marketing and governance in aquaculture and fisheries
e. Sustainable Shrimp Aquaculture and advanced aquaculture technology
f. Environment, Sustainability and Biodiversity

### 3) SC on R&D for Engineering Services and SMEs

a. Agro based industries, small rural industries and cottage industries
b. Apparel & Textile industries
c. Emerging Technologies and Knowledge Service
d. Food and Beverage industries
e. Mineral based industries
f. Pharmaceuticals & Nutraceutical industries
g. Value added rubber products & technology industries

### 4) SC on R&D of Information Technology & Services

a. Technology diffusion products derived from IT

b. Research on fintech products services required to support SMEs and sustainable agri and industrial enterprises
c. Rural revitalizing projects

**5) SC on R&D of Healthcare Innovations**

a. Biomedical engineering and biotechnology products and services
b. Quality assurance of pharmaceutical products
c. Medical software and app development
d. Import substitution of medical devices
e. AI technology driven healthcare applications

**6) SC on R&D on Cost-Efficient Energy Sources and Storage**

a. Indigenous/ Traditional Energy Resources and Technologies (Renewables, Nuclear, Fossil)
b. Energy Efficiency Improvements, Conservation & Management
c. Smart grid initiatives

**7) SC on R&D of Water**

a. Water Security of the nation (Governance & Policies; Strategies; Legislations; Institutions, Social, economic, and environmental aspects of water, Water allocation, Demand management, Stakeholder participation, Investment needs)
b. Environment and water (role of water on the sustainability of ecosystems, ecosystem services, environmental flows, wetlands, quality, and quantity-related issues, trees, forests, and water, natural infrastructure, watershed management, …)
c. Water for People (water safety, new water resources, distribution, abstraction, reuse, decision-support systems, smart technologies, wastewater treatment, purification, economic, financial, and social aspects of water supply, low-cost filters, water thrift, modifications to existing systems, …)
d. Water for Food (Improving management – use, distribution; technology promotion, user involvement, productivity, efficiency, access to the poor, reliability, demand management, paddy ecosystems, water for upland crops, groundwater use, quality degradation, climate resilience, index-based insurances, non-point pollution sources, use of space technologies, …)
e. Water for other uses (power generation, fisheries, recreation, aesthetic use, industry, transport, etc.)
f. Water quality management (status, standards, measurements, monitoring networks, equipment, awareness, …)
g. Water-related disaster risks and Public safety (forecasting, early warning, preparedness, use of satellite and other remotely sensed data, smart technologies, zoning, insurance, modeling, economics, 'building better', …)
h. Water and Health (water-born and water-based diseases, microplastics, antibiotics in water, …)
i. Other water-related

**8) SC on R&D of Environment**

a. Climate change mitigation and adaptation
b. Environment and climate change related disasters – natural and manmade

c. Ecosystem changes due to climate change and other disasters and response
d. Biodiversity and forestry
e. Pollution prevention and control
f. Environment sustainable technologies
g. Life Cycle Assessment of goods and service
h. Ecosystem approach to natural resource management
i. Waste management
j. Environmental Assessment and Strategic Environmental Assessment
k. Wetland conservation and management
l. Bioindicators
m. Mineral resources
n. Land and soil
o. Green Economy
p. Low carbon development in the areas committed in the Nationally Determined Contributions of SL to UNFCCC

**9) SC on Social Innovation**

a. Institutional change through social Innovations to improve their performance
b. Community mobilization for cocreation of an integrated and holistic ecosystem of sustainable local level economic and social development in the face of global challenges like climate change, Covid19 pandemic and economic recession
c. Grassroots innovations to tap local talent in diverse fields that can be scaled up.
d. Drawing lessons from the past to solve some of the problems faced by people today (indigenous knowledge) eg. Bethma system
e. Mobilization of unutilized or underutilized human resources, including local expertise and productive resources
f. Promoting social entrepreneurship for social and economic development at local level
g. Social innovations to find solutions to local level problems in education and health
h. Innovative ways to improve the local governance system
i. Community mobilization to solve local social issues through youth volunteering
j. Building virtual social networks for collecting and collating socio-economic data for planning local level development and welfare interventions
k. Development and utilization of virtual social networks for public education on climate change adaptation, sustainable development and waste management.
l. Community and school based initiatives to promote socially innovative thinking and action among school children and youth