

YOUNG INNOVATORS' PROGRAM (YIP) 2019-22

THEMES – DEFINITION GUIDE

This section defines selected Thematic Focus Areas chosen for the second edition of the Young Innovators Program (YIP), i.e. YIP 2019-22. Only Ideas / Innovations / Social Impact Projects or Research Projects relevant to the mentioned themes and areas will be considered for the YIP 2019 Challenges. Only the Ideas / Innovations pertaining to the correct Challenge track as well as falling within the described definitions of the Themes will be accepted and evaluated.

A. YIP 2019 STAR CHALLENGE

A total of 8 themes are open for participation to students from Registered **Premier** designated Institutes in YIP 2019.

1. Assistive Technologies and Systems

Assistive Technologies refers to products, systems or solutions “especially produced or generally available devices, equipment instruments, or software” that are a demonstrated facilitator of functioning for people with disabilities and people ageing into disability. Assistive Technologies have the potential to close the “capability gap” between a person’s individual capacities and contextual barriers, and their aspirations / goals.

In other words, according to the [Glossary of ADA Terms](#), Assistive Technologies can be seen as “any item, piece of equipment, or product system that is used to increase, maintain, or improve functional capabilities of individuals with disabilities. Examples include message boards, screen readers, refreshable Braille displays, keyboard and mouse modifications, and head pointers.”

2. Business Model Innovations in Application and Practice

The Business Model describes the rationale of how an organization creates, delivers, and captures value, in economic, social, cultural or other contexts. The process of business model construction and modification is also called business model innovation and forms a part of business strategy. In theory and practice, the term business model is used for a broad range of informal and formal descriptions to represent core aspects of a business, including purpose, business process, target customers, offerings, strategies, infrastructure, organizational structures, sourcing, trading practices, and operational processes and policies including culture.

Under this broad theme, Ideas / Innovations must clearly demonstrate novelty or innovativeness, cost-effectiveness or efficiency in areas of revenue generation, customer acquisition, operating processes, financial viability, product or solution value, product and service delivery, customer experience and/or any other area that improve the overall financial success or competitive standpoint of the venture.

3. Solid, Liquid and Hazardous Waste Management Systems and Technologies

The terrain gradient, drainage density, runoff coefficient, frequent rain events, perennial streams and rivers etc succor a clean environment for the State of Kerala. Added to this is the concerted effort and achievements of the State in sanitation sector – Kerala was one of the first States in the country to fully do away with the dehumanising practice of scavenging as a culmination of people's movement for basic human dignity. Further, Kerala is one of the three open defecation free States in the country. Though the primary goal of sanitation is achieved, there are various secondary issues related to waste management affecting the State. It includes increasing discharge of solid and liquid waste, cross-contamination of seepage with groundwater, pollutant release from industries, vehicular traffic

beyond the carrying capacity of roads, indiscriminate application of chemical fertilizers and pesticides etc. imposing serious restraints on the environmental cleanliness of the State.

Ideas / Innovations under this theme or category must demonstrate effective solutions to these issues through novel or innovative products or services resulting in either better sustainability, reduced waste footprint, reclamation of land-fills or creation of value-added products from waste materials.

4. Technologies and Systems for value addition, productivity enhancement and drudgery reduction in Agriculture, Dairy, Animal Husbandry and Fisheries

Despite its declining share in the GDP, agriculture and allied sectors continue to play a crucial role in providing food, nutrition and livelihood to a substantive portion of the population in Kerala. There has been a shift from food crops to cash crops in the state. Factors such as fragmentation of land holdings, fertility of land, unpredictable monsoon behaviour, changing patterns of rain fall, wasteful application of fertilizers, climate conditions, marketing facilities, prices, availability of agricultural labour etc. and are major issues in Kerala.

Ideas / Innovations under this theme must demonstrate novel and innovative systems to solve these issues, and could also look at improving veterinary care, access to quality feed and fodder at lower cost, improving in-land fishing practices or address the need for more sustainable and equitable management of marine fishing resources.

5. Technologies and systems for Water Conservation, Renewable Energy, Energy Conservation, E-Mobility etc

The major challenges faced by the Energy sector in the State are

- i) Inadequate capacity addition over the years leading to a massive demand supply gap,
- ii) hydel power dominated supply scenario,
- iii) negligible share of renewable energy in the energy mix,
- iv) Gap between energy conservation potential and its realization,
- v) Limited presence of Independent Power Producers (IPP) and Co-Generating Stations (CGS),
- vi) Limited penetration of star labelled products.

Electric Mobility has emerged has a possible intervention area and holds lot of promise. Ideas and Innovations that can address these issue would fall under this theme.

From the point of view of water resources Kerala is having both abundance and scarcity. The spatial and temporal distribution pattern of rain is mainly responsible for the frequent floods and droughts in Kerala. The peculiarity of the rivers flowing across Kerala is short length of the river and the elevational difference between the high and the low land leading to quick flow of water collected from the river basin and quickly discharged into the Lakshadweep sea, the state has not been able to utilise the river water sources to a major extent. Non-conventional method for utilization of water such as through artificial recharge to ground water and traditional water conservation practices like rainwater harvesting need to be practiced to increase the utilizable water resources. Recycling of grey water, septage processing and desalination are also priorities.

6. Technologies and Systems for value addition, productivity enhancement in Traditional Industries and Systems

Availability of raw material, inadequacies in traditional processing methods, challenges in modernising productions and processing, inadequate application of technology, designs, packaging, marketing, backward and forward linkages are the major problems in traditional industries sector.

Traditional Industries include those centred around Coir, Cashew, Coconut, Toddy-tapping, Handloom Crafts, Artisanal Trades, livelihoods depending on the rich Folk Art and other cultural art forms.

7. Technologies Applications and systems related to Modern Medicine, Biomedical and Medical Devices Technology

Kerala has made significant gains in health indices such as high life expectancy, low infant mortality rate, birth rate, and death rate. The State must ensure that these gains are sustained. Besides, the State also needs to address problems of life style diseases (Non Communicable Diseases) like diabetes, hypertension, coronary heart disease, cancer and geriatric problems. Increasing incidences of communicable diseases like chikungunya, dengue, leptospirosis, swine flu are also a major cause of concern. Besides, there are new threats to the health scenario of the State, like mental health problems, suicide, substance abuse and alcoholism, adolescent health issues and rising number of road traffic accidents. The health status of the marginalised communities like adivasis and fishing workers is also poor compared to that of the general population. To tackle these, concerted and committed efforts with proper inter sectoral co-ordination is essential.

8. Technologies, Systems and Applications related to Complementary and Alternative Medicine including Ethnic Medicine and aspects of integration of various systems of medicine.

High levels of education especially among women and greater health consciousness have played a key role in the attainment of good health standards in Kerala. However, the issues to be addressed are the health problems of the scheduled tribal population, fish workers etc., Besides re-emergence of communicable diseases, second generation health issues like increasing incidence of life-style diseases, health problems of the aged, women pose a substantial challenge to the State and the society. There is a need to look for integrating Ayurveda, Siddha and Unani to provide improved health care to the community holistically in an affordable manner.

B. YIP 2019 MAESTRO CHALLENGE

A broad theme related to the Problems of Children and the Aged in Kerala, is open for participation to students from Registered Non-Premier designated Institutes in YIP 2019.

9. Problems of Children and the Aged in Kerala

Kerala has made significant gains in health indices like Infant Mortality Rate, Birth Rate , Death Rate and expectancy of life at birth, universal enrolment in elementary education, lower drop-out rates etc. The challenges in the Kerala context however include extending these achievements of the mainstream to the outliers. Need for developing community systems for addressing physical and mental illnesses and disabilities among children and adolescents is identified as a priority in Kerala. The issues of the elderly care include the highest proportion of the elderly in the demographic in the country, the precarious socio-economic and health condition of the elderly in the state, increasing morbidity levels, increasing cost of health care, increasing male-female gap in longevity, inadequate support systems and adaptive technologies for daily living requirements, re-integration of the elderly for care from the family etc.