

Health to Heritage Technologies

Rural Development Initiatives @IITH

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At the beginning of 20th Century, Mahatma Gandhi proclaimed, "The soul of India lives in its villages". This is still relevant to this day. India's economy heavily depends on its rural areas. According to a World Bank Report, 66.7% of the Indian population still resides in rural areas, which accounts for almost 1/4th of the world's rural population. The diversity of the country is also reflected in its rural population. The distribution of the rural population is also varied. Thus, the strategies for rural development should also be customized for the specific rural population.

IITH, being a premiere technological institute, has engaged with rural development as a key activity. It is involved in technology development for the rural areas, outreach and support to the villages in the nearby areas, and outreach and handholding activities for the rural communities. With continued effort and keeping in mind the aspirations of rural India,

IITH established the Rural Development Centre (RDC) in July 2020 with a vision to support rural development initiatives of the Government through innovative technologies being developed at IITH.

Rural Development can be defined as "The Integrated development of the area and the people through optimum development and utilization of local resources - physical, biological and human and by bringing about necessary institutional, structural, and attitudinal changes for the rural public".

The objectives of rural development include a sustained increase in per capita output and incomes, expansion of productive employment and greater equity in the distribution of the benefits of growth. Rural development over the years has emerged as "a strategy designed to improve the economic, social and cultural life of a specific group of people as well as living in rural areas". Increased employment, higher productivity, and higher income, as well as ensuring minimum acceptable levels of food, clothing, shelter, education, and health, are the main objectives of rural development. The faculty of IIT Hyderabad is actively involved in rural development.

Thrust areas Technologies for rural development

From healthcare to Heritage technology has influenced all walks of rural life. As a premier institute, the primary goal of IIT Hyderabad is also to develop socially relevant technologies.

Rural Education

Education is one of the thrust areas of rural development. Technological developments and Design thinking methodologies, if rightly introduced at appropriate levels of school education, will bring a great change in the overall development of students. IIT Hyderabad is an educational institute has a core competency in enhanced quality of education and learning. Hence, it is pertinent to disseminate the knowledge and understanding of imparting quality education to the rural education and learning systems.

Healthcare

Healthcare is one of the important areas to be addressed for the overall development of rural areas. The pandemic has shown the resilience of the country to address the healthcare issues in remote areas. Women's and child health in rural areas is also extremely important. Rural India is currently facing challenges in geriatric care.



Due to the skewed distribution of employment opportunities, youth migrate from the villages making the elderly vulnerable to health conditions. A collective approach of social engineering, technology and innovation is required to address such wicked problems.

Skill Development & Entrepreneurship

Digital technologies have democratized knowledge leading to grassroots innovation and entrepreneurial activities in rural areas. It is not enough because, currently, there is no ecosystem to support such entrepreneurs. Enabling rural innovators with end-to-end solution support is the need of the hour. The rural innovation and startup ecosystem is essential to address the localized needs of society.



Rural housing

Providing housing for the rural population has been one of the key areas of the government, and so has its importance in the country's development. Rural housing needs to be customized for geographic and climatic conditions. Also, it should leverage the availability of locally available construction materials, building typologies, social requirements, etc.

Water and Sanitation



As the country's economy develops, it also influences the rural economy. Thus it also influences the rural economy, which brings in changes in consumption patterns and lifestyles. This leads to some urban challenges like waste management and sanitation. If not addressed at a smaller scale, it can lead to larger problems affecting the nearby areas. The strategies for urban areas may not be suitable for rural areas, This requires further investigation and planning.

Food Security



Rural India contributes the majority requirements of the Food and nutritional requirement of the country. IIT Hyderabad is working on cutting-

edge technologies for Food and nutrition security in crop monitoring through drones, water quality assessment, drinking water and sanitation, digital communication platforms for real-time monitoring of production consumption and logistics management, etc.

The current methods of farming and agriculture are predominantly traditional. The adoption of novel scientific methods has to penetrate into rural areas.

Technologies like soil testing to match the crops, crop diversification, digital monitoring by drones, organic fertilizers, value addition, fortification, etc., will help in matching up to the growing needs of food and nutrition.

With these thrust areas, Rural Development Centre (RDC) has taken up several initiatives. Even before the setting of RDC, the Institute was actively involved in the Ministry of Education's rural development initiative of Unnat Bharat Abhiyan (UBA). The establishment of the RDC gave a fresh impetus to the rural development activities at the Institute. Post-pandemic, the emphasis was on rural education.

Prof BS Murty, Director, IITH, with other faculty, visited several schools in the rural areas around the Institute. This led to the setting up digital classrooms in schools in remote villages. To start with, 5 Government schools were identified for this program viz. Zilla Parishad High Schools in 1) Mamidapally, 2) Kandi, 3) Rudraram, 4) Cheriyaal and 5) Yeddumailaram villages.



Not just setting up the digital classrooms but also facilitating online teaching for high school students in rural schools by the students and faculty of IIT Hyderabad. With a detailed timetable for each school, it was ensured that there was a dedicated faculty /student for each school for all six days in a week. It was also ensured that the IITH students do not have to compromise on their academics, and they have to dedicate

only one hour of teaching per week.

Another major initiative was to fund Rural Development (RD) project proposals from the IIT Hyderabad faculty. The Institute earmarked 50 lakhs (5 projects with 10 lakhs each) for the project in the year 2020-21. Following are the projects which are catering to different problems of the rural areas.

- IOT-enabled aquaculture monitoring system to assist the farmers
- Development of a generic low-cost device for detecting heavy metals in groundwater sources.
- Utilization of waste corn cobs for the production of furfural
- Improving Personal Health and Hygiene in Rural Schools through Interactive Installation
- Kitchen/Poultry waste for defluoridation of drinking water

Many of these projects have been successfully demonstrated and deployed in the villages or in the advanced stages of development. These projects have also acted as a catalyst for addressing problems in rural areas and are able to attract funding from industry and other sources to be developed further.

entrepreneurial venture of production of household products of hand-made soaps, Hand-pounded dals, cold-pressed oils, detergent cakes and liquid soaps, etc. Some of the packaging and branding of the products with the brand name of "Manjeera" was supported by IIT Hyderabad.

Some of the activities conducted in this direction include celebrating farmers' day on 23rd December, conducting health (cancer) screening camps in collaboration with the Mallareddy Cancer Hospital and Research centre,



Similarly, the Suzuki Innovation Centre (SIC), established in the IIT Hyderabad Research Park, which is also involved in the rural development initiative, is actively collaborating with the Institute. In this issue of KIRIITH, there are separate articles on the projects supported by SIC.

a 1-day Edu-Tech 360 conference emphasising rural education, etc.

As part of the academic activity, a 2-credit course in Rural Development called "Samagra Gramaseva" was introduced, which is intended to expose the students to the village environment, and it is open to all the students of the Institute. RDC also facilitated to conduct of some of the courses in the nearby villages so that students get first-hand exposure to the challenges of the rural environment.

We want to carry on with the current operations in a more efficient way and create more rural development projects that help the villagers improve their standards of living.



The RDC is also actively involved with private industries, NGOs, grassroots innovators, and mentors to facilitate development activities in rural areas. The members of the RDC have supported the cottage industry set up in the Gognlur village of Sangareddy district. The NGO Sarvodaya Foundation is helping the women

The RDC also regularly conducts events to engage with the community and the stakeholders involved in the rural development activities in the neighbouring areas leading to greater synergy and supporting cohesive plans to implement development activities in the rural areas.

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