RESEARCH AND INNOVATION CIRCLE OF HYDERABAD

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COVER STORY

Enriching the innovation-entrepreneurship-investment ecosystem with RICH

It is largely agreed that India's aspirations to become a global superpower will be met through our technological successes. Several public and private institutes are currently contributing to cutting-edge research and development, while, in parallel, incubators are supporting startups and bringing investors together.

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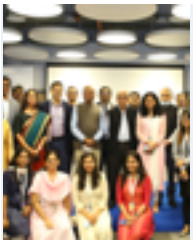

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COVER STORY

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Despite a functional system, novel products and marketplace technologies have not yet achieved numbers that reflect their true potential. This can be attributed to a lack of bridges and collaboration between research, innovation, and investment. Telangana holds great promise as a space for research and innovation. There are several R&D institutions, numerous startups, and many incubators. The state offers a chance to develop a model system of collaboration that enables India's technological advancement. RICH has fostered collaborations between multiple stakeholders in alignment with national missions.

The need to collaborate and innovate was highlighted by the ongoing pandemic. The urgency of developing rapid technologies for prevention, testing, and remediation of COVID-19 only served to underscore this. With the Centre for Cellular and Molecular Biology and Atal Incubation Centre, RICH has been a part of the Hyderabad Reagent Consortium. This consortium brought together a national-level collaboration between the Hyderabad, Pune, and Bengaluru Science and Technology Clusters. The collaboration has helped in developing affordable testing kits and enabling the scaling-up of manufacturing processes through the right partnerships. During the pandemic, it set into motion a trial supported by FIND and the Bill and Melinda Gates Foundation. This trial identified and validated the capability and capacity of several Micro, Small, and Medium Scale Enterprises (MSMEs) to produce indigenous testing kits and reagents. Under this project, the consortium has been able to achieve a 100% local manufacturing of COVID-19 test kits. RICH has been continually supporting the manufacture of quality and affordable diagnostic and testing tools, not just for COVID-19 but for other infections and diseases as well. This is also a step towards an *Atmanirbhar India*, sufficient and abundant in its ability to tackle any health crisis in the future.

This example demonstrates how a platform, such as RICH, can bring together industry, academia, startups, and government agencies to create national impact. With climate change, our country faces an impending food shortage, as well as a loss in yield from other crops of economic importance.

A set of technological solutions can help enhance farming practices for better crop production. In line with mandates of the National Agricultural Development Programme and National e-Governance Plan in Agriculture (NeGPA), RICH has collaborated with the Telangana Government and Professor Jayashankar Telangana State Agricultural University (PJTSAU) to identify 10 startups out of a compendium of 85 startups to work with and demonstrate the use of technological solutions to solve agricultural problems. These startups are working towards bringing technology to irrigation, daily farming tasks, quality assessment, and produce tracing. RICH had secured a funding of ₹310 lakh from the Ministry of Agriculture, under NeGPA, for this project, within which RICH is working on solving problems like nutrient management, irrigation management, etc.

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With an eye on a sustainable ecosystem for innovation, RICH has also initiated the task of building the capacity among young students to be innovators and entrepreneurs. Additionally, there is unutilized potential in institutions located in tier-two cities which could support training and innovation. To empower such institutes, RICH has worked with Vaagdevi colleges to establish a fully functional R&D ecosystem, with innovation funds and guidance. Through a screening process, 26 out of 50 projects from the colleges were identified for the receipt of support from the inhouse incubator, Vaagdevi Incubation and Business Accelerator (VIBA).

Since its inception, RICH has fostered collaborations among several partner research institutions, hospitals, startups, incubators, and businesses. These linkages between participating bodies are enabling capability and capacity for innovation.

ENRICHING INITIATIVES

Accelerating growth in the Indian diagnostics sector

The COVID-19 pandemic revealed several efficiencies and deficiencies in the global healthcare system. For example, it was observed how the timely diagnosis of conditions and infection status is important for achieving general well-being. The global diagnostics sector is booming with opportunities for growth. In India, the projected compound annual growth rate (CAGR) of the Indian diagnostics sector was 16%, accounting for approximately ₹802 bn, in August 2020.

Hyderabad, Telangana, is aptly India's pharma capital because the city has the ideal infrastructure —largest med-tech park, several production facilities and research institutions, and nearly 15 life science incubators—to research and develop medical technologies. In the diagnostics sector, startups often require support in the form of access to medical equipment, clinical samples, testing beds, and help in navigating regulatory frameworks.

In an attempt to bring together industry, hospitals, clinicians, and mentors to help startups reach their maximum potential, RICH conceived AID (Acceleration Initiative for Diagnostics). AID was launched in collaboration with partners like Centre for Cellular and Molecular Biology (CCMB) and I-Venture@ISB. The programme invites applications from innovators in the diagnostics space across the globe.

Successful applicants receive access to expertise from mentors in the research sphere and pharmaceutical industry, as well as equipment and other facilities, like collaboration with medical hospitals, connections with potential investors and industries, and fund provision.

Open to researchers, innovators, doctors, scientists, engineers, and data scientists, this programme has already had two open calls. The programme garnered much interest from entrepreneurs worldwide, with 75 applications from India, USA, Canada, Korea, and other countries in the first round. The selected companies are being incubated at the Atal Incubation Centre at CCMB (AIC-CCMB).

AID helps Indian diagnostics startups to overcome challenges at the conceptual and infrastructural stages. With AID's support, the development of these innovations can be fast-tracked, thereby, making them available to individuals in the shortest possible time. The prompt detection of diseases is key to saving lives.

For more details and registration, visit www.rich.telangana.gov.in/RICH-AID.html

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SUSTAINABILITY

Walking towards a sustainable future

Dryland food systems in Telangana

The UN is working with 17 sustainable development goals (SDGs) to 'achieve a better and more sustainable future for all'. One of these goals is dubbed 'zero hunger', which is directed towards food security for all, with appropriate nutrition, along with the promotion of sustainable agricultural practices.

The state of Telangana is a dryland ecosystem that can be a challenging agricultural landscape. Because of the dedication towards these SDGs, RICH collaborated with the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) which convened and contemplated the challenges faced by farmers in dryland areas. The meeting, held on 16 July 2021, had representatives from multiple stakeholders, including government representatives (state and central), researchers, civil society organisations, members of the agriculture industry, and farmers.

Dryland farmers, while contributing to a large portion of Indian grain production, are at high risk. The area is unsuitable for high-yield crops and has very poor resilience to the changing climate and the resulting temperature and rainfall fluctuations. In an effort to mitigate hunger and improve the lives of farmers from this area, collaboration is required among nutrition specialists and agriculture experts.

The discussions during the meeting were summarized in a paper that was presented at a pre-summit event held between 26 and 28 July 2021, in Rome. It was a lead-up event for the

2021 United Nations Food Systems Summit, marking the beginning of the 'Decade of Action'. The aim of presenting the paper, 'Dryland Food Systems in Telangana' was to develop and design evidence-based approaches based on inputs from global interest groups. The pre-summit brought together youth, farmers, indigenous peoples, civil society, researchers, the private sector, and policy leaders, as well as ministers of agriculture, environment, health, nutrition, and finance from across the world.

RICH's efforts to highlight and solve local problems will be a big step towards solving the interlinked problems of hunger and poverty—a local change that will lead to global effects. As a fertile space for collaboration, it is perfectly positioned to devise and drive innovations that contribute to a sustainable future at the state, national, and global scales.

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SPOTLIGHT

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AGRO-TECH SOLUTIONS

BioPrime—Priming India for a revolution in agriculture biotechnology

Farming is the source of many foods, fibre, and other raw materials in India. Farmers at all scales are dependent on good weather, soil, and other factors to yield successful crops.

BioPrime is an agro-tech company operated by plant scientists to improve the state of farming in India. It develops sustainable solutions based on natural plant physiology and ecology. Its products are created to develop pest resistance and enhance fruit production and ripening. This Pune-based startup is now backed by the Biotechnology Ignition Grant (BIG) and SEED Fund from the Biotechnology Industry Research Assistance Council (BIRAC), Department for Biotechnology (DBT), within the Ministry of Science and Technology, Government of India.

While BioPrime was able to arrive at technological solutions swiftly, it was their association with RICH that made them better prepared for the market. The team at RICH guided BioPrime in developing their value proposition, adapting their technology for use on various crops, and providing a variety of delivery methods.

> ***As Dr. Renuka Karandikar, one of the three founder-members of BioPrime says, "It was our collaboration with RICH that made us re-examine our product–market fit early on, that our product would have to be adapted to various delivery mechanisms to address different varieties of crops. It is their steady mentorship and advice that has become an integral part of our growth from a startup into a viable commercial business organisation."***

RICH has also fostered collaborations between BioPrime and other industrial partners, such as Defat Agrigenetics and Prasad Seeds. Through these strategic alliances, BioPrime is growing its operations across India with a market-driven product portfolio.

INNOVATION

JARSH—Improving everyday life with simple ideas

With development happening everywhere, it is not uncommon to see many construction workers working at a site under the sweltering afternoon sun. Their bright yellow helmet protects them from injuries, but also causes discomfort from the sweat that accumulates. The team at Just Another Really Strong Helmet (JARSH) saw an opportunity to change this status quo. What if we could have a temperature-controlled helmet?

Simple innovations that change the lives of many and disrupt existing habits are hard to come by. Furthermore, the economic challenge of bringing these ideas to fruition in the market is immense. RICH provides its network and support system to technologies like these that impact the masses and can disrupt the market. Be it a setup to sanitise bank notes during the pandemic or develop a pair of shoelaces that cannot untie, there is a need for these products.

Enabled by RICH, JARSH has developed a variety of ergonomically suitable helmets that can heat up or cool down depending on the requirement. These helmets have been donned by the police, JCB construction workers, Godrej security workers, and other industrial workers. The market in the global Middle East is also interested in these helmets. With their knack for solving simple problems, the company is enroute to becoming a big game changer.

Therefore, it is no surprise that JARSH was recently featured as one of the 10 best startups by *Gulf News.*

EVENTS AND ANNOUNCEMENTS

01 enRICHing engagements

RICH hosted members from the Office of the Principal Scientific Adviser to the Government of India and NITI Aayog as part of its engagement with different stakeholders in the research–academia–startup ecosystem of Telangana. The event was attended by Dr. Rajiv Kumar, Vice Chairman, NITI Aayog; Prof. K. Vijay Raghavan, Principal Scientific Adviser to the Government of India; Jayesh Ranjan, Principal Secretary of the Industries & Commerce (I&C) and Information Technology (IT) Departments, Government of Telangana; and Dr. K. Rajeswara Rao, IAS, Special Secretary, NITI Aayog. Other attendees included the heads of participating R&D labs in the Hyderabad Cluster, members of startups/MSMEs supported through the cluster initiative, Telangana Government dignitaries, and industry partners.

The event opened with messages from Prof. Vijay Raghavan, Dr. Kumar and Mr. Ranjan. Later, RICH's key initiatives and achievements were showcased to the audience. The gathering also discussed key policies announced by the Indian Government and some related programmes in Telangana such as deriving value from wastewater and e-waste commercialization, which are key components of the Waste to Wealth Mission of the Prime Minister's Science, Technology, and Innovation Advisory Council (PM–STIAC).

RICH

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