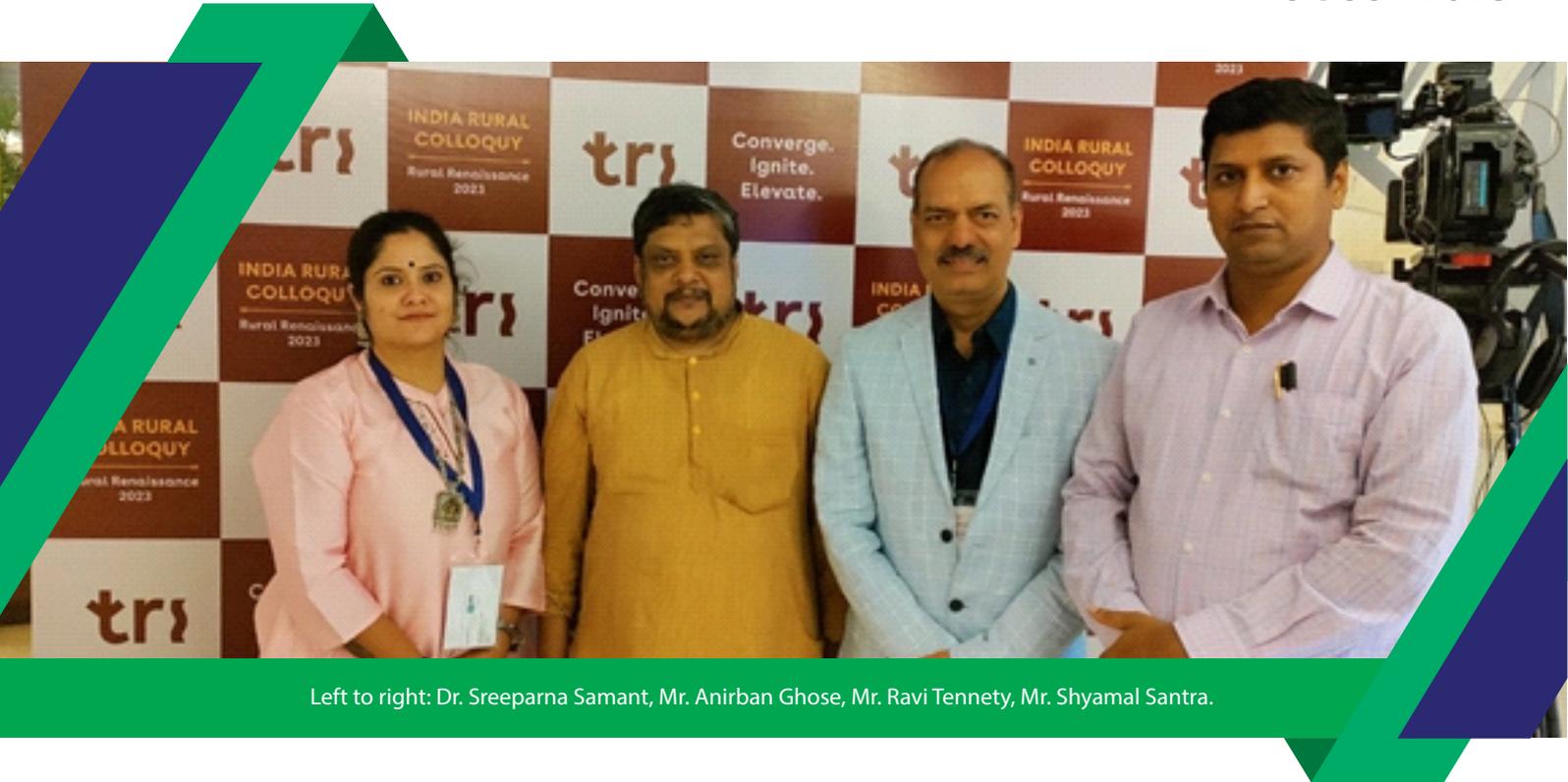




# NEWSLETTER

AUGUST 2023



Left to right: Dr. Sreeparna Samant, Mr. Anirban Ghose, Mr. Ravi Tennety, Mr. Shyamal Santra.

## Transform Rural India and The BeST Cluster Join Hands for Rural Development

An impactful collaboration for rural development and innovation has been revealed. Transform Rural India and The BeST Cluster recently signed a breakthrough Memorandum of Understanding (MOU) during The India Rural Colloquy in Delhi on August 1, 2023. Transform Rural India, known for its dedication to empowering rural populations, partnered with The BeST cluster to collaborate in areas of healthcare innovation and deploying them to build value and scale for the benefit of rural communities. This collaboration aims to bridge the gap between availability of low-cost healthcare access and cutting-edge technology. With the leadership of Mr. Anirban Ghose, Joint Managing Director of Transform Rural India, and Prof. Ambarish Ghosh, alongside Dr. Taslimarif Saiyed, CEO and Director of C-CAMP representing The BeST cluster. The partnership strives to make a lasting impact on India's rural communities. Together, Transform Rural India and The BeST cluster envision empowering rural communities through innovative solutions, creating opportunities, and driving sustainable development.

Stay tuned for more updates on this promising partnership as they work towards a brighter future for rural India



Left to right : Mr. Yasir Khan, Dr. Toteja, Dr. Mrutyunjay Suar, Dr. Shipra Mishra, Dr. Neha Pankow, Dr. (Mrs.) Parminder Maini, Prof. Ajay Kumar Sood, Dr. Arun Bharadwaj, Ms. Prachi Pasalkar, Dr. Rashmi Pimpale, Mr. Vivek.

## City Science & Technology (S&T) Clusters Annual Report 2022-23' Launch

BeST cluster participated in the City Science & Technology Clusters Annual Report 2022-23 Launch by Office of Principal Scientific adviser. On 3rd August 2023, a significant moment unfolded as the 'City Science & Technology (S&T) Clusters Annual Report 2022-23' was unveiled. The event saw the presence of Professor Ajay Kumar Sood, who inaugurated the report.

The launch ceremony was attended by Dr. (Mrs.) Parvinder Maini, the Scientific Secretary, and representatives from the six S&T Clusters. The report, a collective effort of the Office of the Principal Scientific Advisor (PSA), aims to highlight the progress, accomplishments, partnerships, and prospects of the S&T Clusters. These clusters, strategically located in Bengaluru, Bhubaneshwar, Delhi, Hyderabad, Jodhpur, and Pune, serve as key players in driving innovation and technological growth.

For those interested in delving into the details of the 'City Science & Technology (S&T) Clusters Annual Report 2022-23', the complete report can be accessed through this link: <https://bit.ly/44SADp8>



Left to right: Prof. Farah Ishtiaq, Mr. Rohit Satish, Dr. Ravi Chellam, Dr. Viswanath, Dr. Rakesh Mishra, Dr. Bhaskar, Dr. Taslimarif Saiyed, Dr. Giridhar, Dr. Sindura Ganapathi, Prof. Shannon B Olsson, Mr. Ajay Ragavan, Dr. Sreeparna Samanta, Prof. Uma Ramakrishnan

## One Health Bengaluru Consortium Aligns Efforts with National Mission

Bengaluru, 9th August 2023: The One Health Bengaluru Consortium gathered on August 9th to meet with Dr. Sindura Ganapathi from the Office of the Principal Scientific Advisor to the Government of India. The focus was to connect Bengaluru's One Health efforts with the National One Health Mission. Attendees included renowned experts: Prof. Farah Ishtiaq (TIGS), Prof. Uma Ramakrishnan (NCBS), Dr. Ramesh Mishra (TIGS), Dr. Taslimarif Saiyed (C-CAMP), Dr. Bhaskar (Artpark), Mr. Ajay Ragavan (ICA), Dr. Giridhar, Dr. Viswanath (BIOME Trust), Prof. Shannon B Olsson (Echo Network). The Consortium's multi-disciplinary approach aligns with the national objective of integrating health sectors. Discussions centered on collaboration opportunities and strategies to magnify their collective impact. Dr. Sindura Ganapathi expressed enthusiasm for this synergy, noting its potential to address intricate health challenges. The meeting strengthens the bridge between local and national One Health initiatives.



### Publication from BeST Cluster

We are happy to share a whitepaper co-authored with the best and brightest minds, Shailesh Nayak, Ambarish Ghosh, Shesha Raghunathan, M Girish Chandra, Subbaiah TS, Arindam Ghosh, Vivek Sharanappa, Satyajit Arikutharam, Moumita Koley, PhD, Agastya Bellad, Alex George, Rachna Singh Puri, Sanmati Naik, Tarun Arora, Ph.D., Neha Pankow, Ph.D. The paper summarizes findings and suggestions from the G20-Chief Science Advisers Roundtable (G20-CSAR) side event hosted by the Bengaluru Science & Technology cluster on 21st July 2023 at the Council Chamber, Indian Institute of Science (IISc), Bangalore. Thanks to Lena Robra, Francois-Xavier MORTREUIL, Manjula Shekar, Abdul Rawoof Pinjari, Prof. Abinandanan, David Emanuel Kasman, Heine Lageveen, for their contributions to the discussion.

Link: Announcements - Bengaluru Science & Technology Cluster (BeST) ([www.bestkc.in](http://www.bestkc.in))

## FACULTY SPEAKS



### URBASI SINHA

Professor (Light and Matter Physics)  
Raman Research Institute



Our Quantum Information and Computing (QuIC) lab at RRI works on different applications of single and entangled photons in quantum science and technologies. We have an active program in the domains of secure quantum communications, quantum computing, quantum sensing and imaging as well as precision tests of the fundamental principles of quantum mechanics.

India has recently launched the National Quantum Mission (NQM) and I have had the privilege of participating as a member of the Draft Project Report (DPR) committee, specifically penning the quantum communications aims and objectives. The NQM main objectives in this domain are aimed at long distance quantum communications. To this end, we wish to explore free space, fibre as well as integrated chip based approach to quantum key distribution (QKD) as well as entanglement distribution-based protocols. Our lab is well poised to take on most of the objectives of the NQM as we have been working on relevant projects for the last several years and have been honored to achieve several local and global firsts. One of our flagship projects is a collaboration between RRI and ISRO on India's first project on satellite-based quantum communications. This project is called Quantum Experiments using Satellite Technology (started end 2017) and has achieved several milestones including first lab-based free space QKD, first long distance QKD between buildings using an atmospheric free space channel, first demonstration of QKD between a stationary source and a moving receiver platform. With further optimisation, miniaturisation and space compatibility, we should be able to fly the payload in a satellite during the NQM. We are also working towards Quantum Teleportation, Quantum Relay and Repeater technologies under DST's QuEST programme.

We have an active project on integrated photonic QKD under DST's ITPAR programme and a very successful project on device independent random number generation under the Centre for Excellence project from MEITY. Our work in photonic quantum computing, sensing and imaging are also well aligned with the NQM objectives. We eagerly look forward to the start of NQM so that we can contribute towards the mission objectives along with likeminded partners in a holistic framework.



## **SUCCESS STORIES OF START-UPS** associated with BeST Cluster



**Shanmukha Innovations**, a IISc spin-off, has developed SickleCert, India's first indigenous CDSCO-approved point-of-care confirmatory test for quantitative

detection and differentiation of sickle-cell disease/Trait. The technology based on High-Performance Optical Spectroscopy (HPOS) demonstrated high accuracy in clinical evaluations and has been approved by ICMR and recommended by the Department of Health Research as a cost-effective field solution for NHM programs.

Sickle cell anemia is a genetic disorder that is characterized by an altered hemoglobin structure, which causes flexible red blood cells to become stiff sickle-shaped cells, leading to debilitating effects like obstruction of blood flow, oxygen deficiency and an increasing risk of organ damage. It is a condition that affects an estimated 10% of India's tribal population, which has far-reaching negative consequences in terms of their financial condition and general well-being.

The Government of India has announced an ambitious National Sickle Cell Elimination Mission to eradicate the disease from the country by 2047 in the recent Budget. The Mission plans to screen 7 Crore people across 17 states over the next 3 years as a first step. HPOS provides an affordable and efficient solution to screen large populations as a point-of-care quantitative diagnostic test. With a tiny amount of blood from a finger prick, the test provides highly accurate results in 15 minutes.

In batch mode over 40 samples can be tested in an hour enabling a large volume of screenings to be completed in a much shorter time span. The team is working with partners across government, non-profits and organizations working in public health to deploy the solution aligned with the national mission.



**Office of the Principal  
Scientific Adviser to  
the Government of India**

SCIENCE & TECHNOLOGY CLUSTER



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