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STRC NEWSLETTER

Science & Technology Resource Centre
Gondwana University, Gadchiroli

A centre of excellence for sustainable value creation, conceived and funded by Rajiv Gandhi Science and Technology Commission (RGSTC), Mumbai, Govt. of Maharashtra.

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Member Secretory, Rajiv Gandhi Science & Technology Commission, Mumbai, GoM

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From the CPO's Desk

Rooting Resilience

Sustainable Agroforestry Models for Climate Change in Vidarbha

Shri Ashis Gharai
Chief Program Officer
and Head, STRC

Vidarbha, the eastern region of Maharashtra, known for its agrarian backbone and forest-dependent communities, is facing intensifying climate vulnerabilities—erratic rainfall, rising temperatures, soil degradation, and recurring droughts. Traditional agriculture is increasingly unsustainable under such stress. In this context, agroforestry—the integration of trees with crops and livestock—offers a transformative solution to ensure climate resilience, livelihood security, and ecological restoration.

Why Agroforestry?

Agroforestry systems create microclimates, improve soil fertility, enhance water retention, and sequester carbon—all while generating income from diversified sources such as timber, fruits, fodder, and non-timber forest produce (NTFPs). These systems can also reduce pressure on natural forests and support biodiversity corridors across fragmented landscapes.

Key Agroforestry Models for Vidarbha

Agri-Horti-Silvi Model

Components: Fruit trees Mango, Custard apple, Tamarind, leguminous crops Pigeon pea (Tur), Mung bean (moong) and native tree species (Bamboo, Teak, Neem).

Impact: Ensures seasonal income, improves soil health through nitrogen fixation, and builds long-term asset base for smallholders.

NTFP-based Agroforestry Systems

Focus Species: Mahua, Indian ebony (Tendu), Bamboo, Karanja (Indian beech) and Custard apple (Sitaphal) — species with traditional value and market potential.

Best suited for: Tribal areas with customary forest rights and community knowledge of forest product processing.

Alley Cropping with Nitrogen Fixing Trees

Example: Gliricidia and Leucaena planted in rows interspersed with millets, pulses, and oilseeds.

Benefits: Enhances soil fertility, acts as windbreak, provides fodder and green manure.

Silvi-Pastoral Systems

Model: Tree species like Neem, White tamarind (Subabul) and Acacia catechu (Khair) combined with improved grass varieties for fodder (Stylo, Guinea grass).

Relevance: Ideal for farmers with livestock; boosts milk productivity and reduces overgrazing in commons.

Community Agroforestry Clusters

The **Community Agroforestry Clusters** Approach emphasizes the formation of cohesive farmer groups—typically 50 to 100 farmers—adopting integrated agroforestry models across contiguous patches of land. This collective model enhances ecological resilience and economic viability through mixed cropping of trees, fruits, NTFPs, and seasonal crops. Success depends on critical enablers such as institutional facilitation, access to quality planting materials, and robust market linkages. The approach fosters a shared sense of purpose among farmers while maximizing land productivity and climate resilience at a landscape level.

Implementation begins with participatory planning, co-designing agroforestry models in collaboration with local communities by drawing upon indigenous knowledge systems and historical land-use practices. Capacity building is a cornerstone—particularly through training local youth and women as **Agroforestry Fellows** to manage nurseries, plantations, and harvesting operations. For sustained implementation, the model encourages convergence with existing schemes like MGNREGS, NRLM, and the Forest Rights Act, ensuring financial and legal support. To ensure long-term viability, market linkages are fortified through Farmer Producer Organizations (FPOs) that focus on aggregation, value addition, and marketing of NTFPs, fruits, and organic farm produce.

Policy Recommendations

- Integrate Agroforestry in District Climate Action Plans (DCAPs).
- Promote agroforestry under PMKSY, NABARD schemes, and carbon finance platforms.
- Support localized research on agroforestry performance under dryland Vidarbha conditions.
- Enable tenure security through recognition of Community Forest Resource rights.

Conclusion

Sustainable agroforestry in Vidarbha is more than a climate adaptation measure—it is a bridge between ecology and economy, blending resilience with regeneration. With the right policy push, institutional support, and community participation, agroforestry can help Vidarbha root its future in sustainability.

BUSINESS INDIA • THE MAGAZINE OF THE CORPORATE WORLD

Guest Article

Shah: focus on value-additions

DEVELOPMENT

The 'Viksit Bharat' dream

In the dynamic landscape of science and technology, the government of Maharashtra has taken a ploneering step by establishing the Rajlv Gandhi Science & Technology Commission (RGSTC) in Mumbai. Conceived as an innovative action plan by the government of Maharashtra for socio-economic development; RGSTC came into existence as an autonomous entity in April 2005, following the passing of an act by the Maharashtra Legislature in December 2004. The commission stands as a testament to the state's commitment for leveraging scientific advancements for the welfare of people.

What sets Maharashtra state apart is its unique initiative to create a statutory commission dedicated to driving science & technology innovations for societal benefits. The mandate of RGSTC is clear: to act as a facilitator and a proactive enabler, bringing science and technology closer to the people. Over the years, RGSTC has successfully launched a range of programmes and schemes aimed at fostering innovation, bridging the gap between academia and industry and empowering local communities through technological solutions. Ably led by the visionary Anil Kakodkar, a Padma Vibhushan awardee and chairman, RGSTC, as also senior advisors (along with a dynamic group of young sclentists), RGSTC is surely leading the way to help science and technology by directly influencing lives of people in the state.

"The commission identifies and develops technological innovations, formulates action projects and conducts studies, to address technology gaps in domains such as agriculture, rural economies, artisans, cottage industries, agro-based sectors, building materials and marine products, with a focus on value additions," says Narendra Shah, member-secretary, RGSTC. "Te commission promotes replicable non-conventional energy technologies and establishes centres of excellence in emerging science and technology fields to foster employment." Responsibilities of the commission include feasible project identification, implementation, monitoring and review, as well as providing financial support to organisations engaged in project executions, he adds. It also collaborates with educational and research institutions by leveraging their facilities with the financial support arrangements; and provides consultancy services to government agencles, line depariments, industries and voluntary organisations. It also promotes projects for skill development and disseminates project-related information through media to ensure widespread awareness.

One of the key initiatives of the commission Is the scheme on the Assistance for S&T Applications, which invites proposals on innovative applications of science & technology for socio-economic development. This scheme encourages projects that are area-specitic or sector focussed, ensuring practical and impactful implementations. In an effort to extend research culture to smaller local and regional institutions, RGSTC also runs the scheme on assistance for S&T applications through university system, in its decentralisation approach to support projects that address local resources, skills, problems and development needs across science & engineering colleges and polytechnics.

Learning opportunities Recognising the need to nurture scientific curiosity from an early stage, RGSTC has introduced Science and Innovation Activity Centres for school students. These centres provide hands-on learning opportunities for enabling young minds to experiment, innovate and develop a scientific temperament. Six such centres are functional at Waranan-agar, Pravarnagar, Baramati, Devrukh, Satara and Amravati. Three new centres are approved and will be commissioned in 2025 at Nanded, Parbhani and Akola. Another remarkable initiative is the assistance to Collaborative Proiects between Institutions and Industries for Technology Development & Adoption (CPIITA). This scheme fosters collaboration between research institutions and industries for driving demand-driven research that leads to tangible technology transfers. Projects under this scheme often involve scaling up bench-scale work, pilot demonstrations and location-specific interventions for ensuring the scientific advancements to find real-world applications.

"Science & Technology Resource Centre (STRC), Gondwana University, Gadchiroli, one of the premier projects conceived and funded by RGSTC, is a testament to RGSTC's vision of science- and technology-driven initiatives that drives societal change in remotely located areas," says Shah. "Through these initiatives and many more, RGSTC continues to shape Maharashtra's innovation ecosystem, strengthening its position as a leader in science and technology-led development. As we move forward, it is imperative to sustain and expand these efforts, ensuring that every innovation serves as a catalyst for societal progress".

The journey of scientific progress is built on dreams, belief and defermination. Maharashtra state, through RGSTC like initiatives, is not just dreaming but realising the vision of a technologically empowered society where science serves humanity in its truest sense. The RGSTC's efforts are worthwhile in constructing 'Viksit Bharat' by 2047 through empowered youth in the country.•

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Cover Story

A Grateful Goodbye: Shri Ashis Gharai Bids Farewell to STRC

Honoring the Visionary Leadership Behind STRC's Growth

Gadchiroli | May 27, 2025

After 9 years of remarkable and dedicated journey at the Science and Technology Resource Centre (STRC), Gondwana University, Shri Ashis Gharai, Chief Program Officer and Head of STRC, bid an emotional farewell to the institution. His leadership has been instrumental in shaping STRC as a pioneering platform for science- and technology-led rural development in tribal and underserved regions.

The farewell ceremony was graced by several esteemed dignitaries, including Dr. Shriram Kawale, Pro Vice Chancellor, Gondwana University, Prof. Manish Uttarwar, Director, Innovation, Incubation and Linkages, Dr. Vivek Joshi, Professor, HoD, Department of English and Dr. Prity Patil (Kale), Assistant Professor, Department of Sociology, Gondwana Universit, Gadchiroli.

In his heartfelt farewell message, Shri Gharai expressed deep gratitude to the visionary leaders and mentors who guided and supported him throughout his tenure:

> *"My sincere and heartfelt gratitude to Padma Vibhushan Dr. Anil Kakodkar, Chairman, RGSTC, Mumbai, Govt. of Maharashtra, Dr. Charudatta Mayee, Chairman, Governing Body, STRC, Dr. Prashant Bokare, Hon'ble Vice Chancellor, Gondwana University, Gadchiroli, Prof. Narendra Shah, Member Secretary, RGSTC, Dr. Shriram Kawale, Pro Vice Chancellor, Gondwana University, Gadchiroli, Dr. Anil Hirekhan, Registrar, Gondwana University, Gadchiroli, Dr. Prakash Dolas, Former Advisor RGSTC, Nagpur, Smt. Pragati Gokhale, Advisor and Office In-charge, RGSTC, Nagpur and Senior faculties at Gondwana University and everyone who guided me through this long journey at STRC."*

He further added: *"My special affiliation will always rest with my dearest Team STRC. I will remain grateful for life."*

Shri Gharai's tenure at STRC has been marked by groundbreaking initiatives in science and technology for rural development, impactful community engagement, and institutional innovation. His leadership has not only shaped the trajectory of STRC but also empowered significant individuals and communities across the region.

The STRC family extends its deepest appreciation and best wishes to Shri Gharai as he embarks on new endeavours, carrying forward the spirit of service, science, and social transformation.

What's Making News

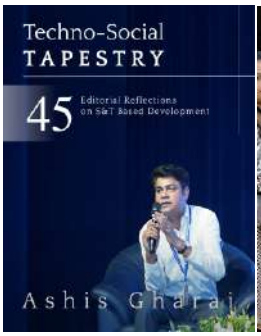
Chief Program Officer and Head, STRC, Shri Ashis Gharai Nominated for the Jamnalal Bajaj Award 2025

Gadchiroli | 16 May 2025

Science and Technology Resource Centre (STRC), Gondwana University, Gadchiroli takes immense pride in announcing that Shri Ashis Gharai, Chief Program Officer and Head, STRC, has been shortlisted as one of the nominees for the prestigious Jamnalal Bajaj Awards (JBA) 2025 in the category of 'Application of Science and Technology for Rural Development'.

As part of the award selection process, a six-member delegation from the Jamnalal Bajaj Foundation (JBF), Mumbai, visited STRC on Friday, 16th May 2025, to evaluate the impactful work led by Shri Gharai at STRC. The delegation comprised of eminent personalities and members of the JBA 2025 Review Committee including Ms. Shubhangi Karkannavar, Ms. Jyoti Bangera, Ms. Smita Jassal, Dr. Sudarshan Iyengar, Dr. Shobhna Radhakrishna, and Dr. Ulhas Jajoo.

During the visit, the committee held an in-depth interaction with Shri Gharai, exploring his personal and professional journey and his contributions in science and technology based rural development over the past two decades. They also participated in field visits to observe STRC's on-ground activities and interacted with the core team, field workers, and community stakeholders, gaining firsthand understanding of the Centre's impact.



A significant highlight of the visit was the release of a special compilation titled 'Techno Social Tapestry – 40 Editorial Reflections on S & T based Development', authored by Shri Ashis Gharai. This thought provoking volume features 40 editorial reflections offering deep insights into science and technology led development, grassroots innovation, and social transformation. The book release ceremony was graced by the esteemed presence of the members of Jamnalal Bajaj Award Review Committee, along with Dr. C. D. Mayee, Chairman, Governing Body, STRC, Dr. Prashant Bokare, Hon'ble Vice Chancellor, Gondwana University, and Smt. Pragati Gokhale, Advisor and Office In-chaarge, RGSTC, Nagpur, Govt. of Maharashtra.

This prestigious nomination marks a significant moment of pride and honor for the Science and Technology Resource Centre (STRC), Gondwana University. It is a powerful testament to the unwavering

dedication, innovative spirit, and deep-rooted commitment to community centric development that define STRC's mission and work. Over the years, STRC has consistently strived to bridge the gap between science, technology, and grassroots needs, empowering local communities through context-specific solutions and inclusive practices under the leadership of Shri Ashis Gharai.

The entire STRC team joins together in extending warm and heartfelt congratulations to Shri Ashis Gharai for this distinguished honor. It serves as both a celebration of individual excellence and a reaffirmation of STRC's collective pursuit of sustainable, community-driven transformation in the region.

STRC Organizes a Transformative Workshop to Capacitate Teachers under Environment Education for Tribal School Children

Focus on Nature, Culture, and Contextual Learning for Rural Educators

Gadchiroli | April 17, 2025

Science and Technology Resource Centre (STRC) organized a transformative workshop for teachers under the Environment Education for Tribal School Children (EES) program. The session was facilitated by Dr. Asmita Redij, Academic Consultant, STRC, engaging teachers from Ashramshalas and Zilla Parishad schools across the region.

The workshop focused on **Module-2 'Nature Trail'**, fostering deep reflection on student participation, culturally grounded pedagogy, and the integration of local knowledge in classroom teaching. Teachers explored how connecting environmental education with students' lived experiences can enhance learning outcomes and foster ecological sensitivity.

A key highlight of the session was a collaborative mind-mapping activity, where teachers worked in groups to contextualize themes such as Water Bodies and their Ecosystems, Forest Fires, Farming Practices, Forest and its Resources, Mathematical Connections with Water Bodies. The workshop served as a platform for peer learning and co-creation, encouraging teachers to adapt the EES module to their local environments and school contexts. By weaving in culturally relevant ecological knowledge and everyday observations, the session reinforced the importance of community rooted, experiential learning for rural children.

Dr. Charudatta Mayee, Chairman, Governing Body, STRC has been selected as the ICAC Researcher of the Year 2025! Award is presented annually by the International Cotton Advisory Committee (ICAC) to recognize outstanding contributions to cotton science and research. The award aims to acknowledge the achievements of scientists who have made significant impacts on the global cotton industry. The ICAC also offers a Research Associates Program, which provides training to researchers from member countries.

Glimpses of the Month

Air Blowers

Solar Dryer

As part of the Primary Processing Centre (PPC) initiative for Non-Timber Forest Produce (NTFP), STRC implemented key livelihood-focused activities in Dhanora block. **10 Air Blowers** were demonstrated and distributed to Gram Sabhas to promote clean and sustainable Mahua flower collection. Additionally, 200 collection nets were provided to improve primary-level handling of forest produce. STRC also facilitated linkage of farmer groups to District Agriculture Department schemes for value addition equipment such as a pulverizer and an e-rickshaw, supporting better processing and income opportunities. These efforts reflect STRC's commitment to strengthening forest-based livelihoods through science and technology.

On April 8, 2025, Dr. N. V. Deshpande, Professor, VNIT, Nagpur and Director NIT – Silchar visited the Science and Technology Resource Centre (STRC) to explore potential collaboration opportunities in the bamboo sector. During the visit, Dr. Deshpande interacted with Shri Ashis Gharai, Chief Program Officer and Head and team STRC to understand the ongoing initiatives in bamboo entrepreneurship, product innovation, and skill development. The discussions focused on strengthening academic industry linkages, enhancing research in bamboo applications, and promoting tribal led bamboo based enterprises.

Science and Technology Resource Centre (STRC) initiated agricultural survey under the Climate Smart & Regenerative Agriculture (CSRA) project at Dotkuli and Bhendala villages of Chamorshi block.

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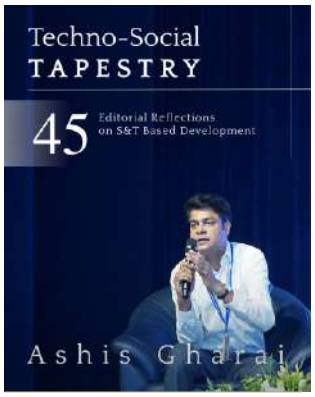

Techno-Social Tapestry
45 - Editorial Reflections
on S&T Based Development

Threads of Change: Our 2024 Story
A Pictorial Representation

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Shri Ashis Gharai

Chief Program Officer & Head, STRC

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Scientific Officer, Communication for Development through ICT, STRC

- Contribution -

Team STRC

Science & Technology Resource Centre
Gondwana University, Gadchiroli

Conceived and funded by Rajiv Gandhi Science and Technology Commission (RGSTC), Mumbai, Government of Maharashtra, Science & Technology Resource Centre (STRC) is an autonomous institute established in concurrence with Gondwana University, Gadchiroli in 2014. As a centre of excellence for sustainable value creation, STRC is leveraging local resources, relevant knowledge and appropriate technologies for human capacity development. STRC acts as a catalyst to science and technology based development of the under-served tribal communities of the Gadchiroli region and as a bridge between knowledge activities of the University and enhanced livelihoods in the neighborhood.

'Science & Technology Resource Centre Foundation Gadchiroli', registered under the Societies Registration Act, 1860 (XXI of 1860)

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