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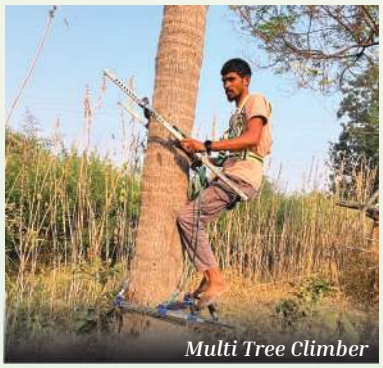
STRC NEWSLETTER

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.

TECHNOLOGY | ENTERPRISE | DEVELOPMENT


Multi Spice Grinder


Multi Tree Climber


Multi purpose food processing machine

Catalyzing Grassroots Innovation into sustainable Solutions

From the CPOs Desk

Empowering Rural and Tribal Economies Through Grassroots Technology Replication

Shri. Swapnil Girade
Chief Program Officer & Head, STRC

Article

Smoked Fish : Sustainable Micro-enterprise Model for tribal communities

Ms. Ruchika Nimaje
Field Coordinator, Aquaculture & Livelihoods, STRC

Whats Making News

From the CPO's Desk

Empowering Rural and Tribal Economies Through Grassroots Technology Replication

The Bridge Between Innovation and Impact

Shri Swapnil Girade
Chief Program Officer and Head, STRC

At Science and Technology Resource Centre (STRC), we believe that the true measure of technological progress is not found in the complexity of a lab experiment, but in the tangible change it brings to a remote village. Our mission has always been to serve as a bridge connecting advanced scientific thought with the lived realities of underserved regions.

In our journey across the landscape of rural and tribal development, we have discovered a profound truth: the most sustainable solutions often already exist at the "grassroots." The challenge, however, lies in replication. How do we take a brilliant, context-specific innovation and scale it to empower thousands? This is the core theme of our current efforts, particularly as we work to revitalize the economies of districts like Gadchiroli with the continuous guidance and support from Rajiv Gandhi Science and Technology Commission, Government of Maharashtra and Gondwana University, Gadchiroli.

The Soul of Grassroots Innovation

What exactly do we mean by "grassroots technology" ? These are not just "low-cost" alternatives; they are high-thinking, context-aware solutions. Born out of necessity, these innovations whether in the form of specialized bamboo processing tools, efficient Minor Forest Produce (MFP) value-addition units, or agri-harvest techniques are sustainable by design.

They are unique because they are user-driven. When a tribal artisan or a traditional farmer contributes to a design, the resulting technology is inherently culturally compatible and environmentally responsible. Our role at STRC with the Support from National Innovation Foundation (NIF), India is to identify these "sparks" of local genius and provide the scientific refinement needed to make them robust enough for widespread adoption and replicate the other proven innovative grassroot technologies groomed by the NIF, India.

The Strategy of Scaling: From Idea to Industry

Replication is not a simple "copy-paste" process. It is a rigorous methodology of adaptation. At STRC, our approach begins with identification scouring the field for proven successes. We then move to refinement, where our technical teams work to enhance the ergonomics, safety, and efficiency of the tool or process.

Finally, we focus on capacity building. We don't just hand over a machine; we build an ecosystem. By training local youth and women's collectives to operate, maintain, and manage these technologies and transforms a simple tool into a sustainable enterprise.

Catalysing a New Economic Narrative in Gadchiroli

In districts like Gadchiroli, the replication of these technologies is fuelling a quiet revolution. We are seeing the birth of individual and community-led enterprises that are fundamentally altering the socio-economic fabric.

By introducing mechanized value-addition for forest resources and improving craft-production techniques, we are helping artisans move from being "raw material providers" to "finished product entrepreneurs." This shift has a massive multiplier effect:

- **Income Stability:** Families are seeing a significant rise in monthly earnings.
- **Reversing Migration:** By creating dignified, technology-backed livelihoods at the village level, we are providing the youth with a reason to stay and grow within their own communities.
- **Empowerment:** When a tribal woman masters a modern processing unit, she isn't just gaining a skill; she is gaining a seat at the decision-making table of her Gram Sabha.

The Power of Partnership: STRC & National Innovation Foundation, India

The success of these initiatives is deeply rooted in our strategic partnership with National Innovation Foundation, India. This collaboration creates a unique synergy: the NIF-India facilitates the grassroot and technology and training support, while STRC provides the field-based implementation and community connect.

Together, we are creating a "living laboratory" in Gadchiroli. This partnership ensures that our technology replication is backed by scientific validation and integrated into the broader S & T based livelihood framework, allowing students to engage with real-world challenges through experiential learning.

The Road Ahead: A Call to Action

As we look to the future, we see a rural economy that is self-reliant, tech-savvy, and deeply connected to its roots. But the success of this vision depends on more than just the STRC. It requires the continued participation of the community, the support of policymakers, and the commitment of our institutional partners.

Catalyzing Grassroots Innovation into sustainable Solutions

Bamboo Strips Making

Leaf Plate and Bowl Making

Multi purpose food processing machine

Multi Spice Grinder

Multi Tree Climber

Cotton Wick Making

Article

Smoked Fish

Sustainable Micro-enterprise Model for tribal communities

Smoked fish is a traditional, indigenous practice that has long contributed to food security and livelihoods among tribal communities across India. Using simple and locally available materials, this method preserves fish through controlled smoking, extending shelf life while enhancing flavor and market value. In regions with limited access to cold storage, it serves as a practical and cost-effective solution to reduce post-harvest losses.

Ms. Ruchika Nimaje
Field Coordinator,
Aquaculture & Livelihoods, STRC

Key Aspects of Smoked Fish in Gadchiroli district & Vidarbha

- **Communities & Livelihood**

  Smoked fish processing is traditionally practiced by tribal communities such as Gond, Madia, Bhil, and Kolam, relying on inland fisheries for income and livelihood security.

- **Fish Species Used**

  Includes murrels, Indian major carps (Rohu, Catla, Mrigal), minor carps, catfishes, tilapia, and small indigenous species like Gudusia chapra, Rasbora daniconius, and Amblypharyngodon mola

- **Smoking Process**

  Fish are cleaned, sometimes salted, placed on grass or bamboo racks, and smoked using biomass like firewood or straw, enabling simultaneous cooking and drying, resulting in a firm, flavorful product with extended shelf life

Role in Economy and Health

- **Preservation & Food Security:** Extends shelf life in the absence of refrigeration, reducing losses and ensuring year-round nutrition in Gadchiroli district
- **Traditional Knowledge & Health Beliefs:** Among communities like Gond and Madia, smoked fish is linked with indigenous medicinal practices
- **Value Addition & Livelihoods:** Enhances market value of fish and supports income generation

through SHGs and tribal women-led micro-enterprises

Learning from Indigenous Practices Across India

Traditional smoked fish processing across India demonstrates its scalability from subsistence to commercial levels:

- The Jagiroad Dry Fish Market is recognized as one of the largest hubs for dried and smoked fish in Asia
- In regions along the Narmada River, particularly in districts like Mandla and Betul, indigenous women prepare Bhunji Machli using small, freshly caught fish.
- Around Loktak Lake, communities produce Nga-Ayaiba, a salt-free hot-smoked fish consumed daily
- The Mising community (Assam) prepares Namsing or Xukoti, often fermenting and smoking fish using bamboo structures above kitchen stoves. This method enhances flavor, preservation, and storage life.
- The Lepcha community (Himalayan Region) produces Gnuchi, where fish are slowly smoked by hanging above traditional ovens for 10–14 days, ensuring long-term preservation.

Future Potential and Capacity Building in Gadchiroli District

Smoked fish processing in Gadchiroli district has strong potential to develop into a sustainable micro-enterprise model.

Key opportunities include:

- Development of village-level production clusters
- Promotion of women-led SHG enterprises
- Introduction of improved processing, hygiene, and packaging
- Expansion of market linkages and branding of traditional products

Scaling this activity requires focused capacity building among tribal communities and SHGs. Training in improved smoking techniques, quality control, value addition, packaging, and marketing can significantly enhance product quality and income potential.

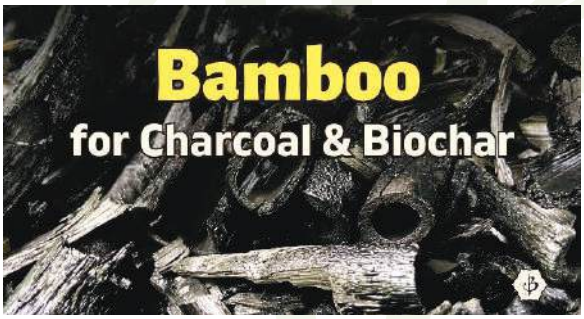
Conclusion

In Gadchiroli district, where tribal communities are closely linked to rivers, reservoirs, and ponds, smoked fish holds significant potential beyond subsistence. With increasing demand for traditional and value-added products, Smoked fish, and related product can be transformed into a viable micro-enterprise model, promoting livelihood security, women's participation, and sustainable rural development. Integrating indigenous practices with scientific interventions, market support, and capacity building, it can be transformed into a resilient and sustainable micro-enterprise model, contributing to economic empowerment and rural development in Gadchiroli.

Cover Story

Towards a Circular Bamboo Economy in Gadchiroli

Gadchiroli | March 6, 2026



A focused discussion was convened under the guidance of Padma Vibhushan Dr. Anil Kakodkar, Former Chairman, Atomic Energy Commission of India and Chairman, Rajiv Gandhi Science and Technology Commission (RGSTC), Mumbai, Government of Maharashtra to explore the development of a circular economy model for bamboo in eastern Maharashtra, particularly Gadchiroli, where bamboo is abundantly available.

The core discussion centered on leveraging this resource through scientific and technological interventions. In this context, Padma Bhushan Prof. J. B. Joshi, Vice Chancellor, Institute of Chemical Technology (ICT), Mumbai, presented a proven pyrolysis-based technology developed by ICT. This technology enables the conversion of bamboo waste into valuable products such as bio-oil, biochar, and other value-added materials, offering a sustainable pathway for large-scale utilization of bamboo.

Building on this, the ICT team is planning to propose this initiative to Anusandhan National Research Foundation, while also exploring support from Rajiv Gandhi Science and Technology Commission for establishing a pilot plant in Gadchiroli. The proposed setup aims to create a circular economy ecosystem, linking bamboo resources with industrial applications, including potential integration with Lloyds Metals and Energy Limited, while generating sustainable livelihood opportunities for local communities.

The meeting brought together key stakeholders including Dr. C. D. Mayee (Chairman, Governing Body, STRC), Padma Bhushan Prof. J. B. Joshi (Vice Chancellor, ICT, Mumbai), Dr. Prashant Bokare (Hon'ble Vice-Chancellor, Gondwana University), Shri. Girish Sohani (Principal Advisor & Trustee, BAIF Development Research Foundation, Pune), Smt. Pragati Gokhale (Advisor & Office In-charge, RGSTC, Nagpur), Shri. Manish Uttarwar (Director, Innovation, Incubation and Linkages, Gondwana University), Col. Vikram Mehta (Residential Director, Lloyds Metals & Energy), along with Dr. Vrushali Kulkarni (Member Secretary (I/C), RGSTC, Mumbai), and Shri. Swapnil Girade (Chief Program Officer & Head, STRC) and other delegates.

A key outcome of the discussion was the strong recognition of STRC's role in supporting this initiative. It was specifically emphasized by Dr. Anil Kakodkar and Dr. C. D. Mayee that STRC, with over a decade of experience working in the region and in the bamboo sector, can serve as a nodal resource centre. STRC is expected to provide reliable socio-economic data on bamboo resources, including community dependence, plantation status, and availability, to strengthen planning and implementation of the project.

This initiative reflects a strategic step towards transforming abundant bamboo resources into a driver of sustainable livelihoods, green tech. and regional economic development in Gadchiroli.

What's Making News

STRC Contributes in RSETI as Training Partner

Gadchiroli | March 6, 2026

Science and Technology Resource Centre (STRC), Gondwana University, actively collaborated as a training partner in a 10-day program on "Fish Farming and Management" organised at Rural Self Employment Training Institutes (RSETI), Gadchiroli from 17 to 26 March 2026.

The training was conducted under the High Impact Mega Watershed Project (HIMWP), led by the Bharat Rural Livelihoods Foundation in collaboration with the Government of Maharashtra and implemented by Yuva Rural Association (YRA). The programme was jointly supported by the Fisheries Department, Zilla Parishad Gadchiroli, Viksit Bharat - Guarantee for Rozgar and Ajeevika Mission (Gramin), UMED, RSETI, and STRC.

On behalf of STRC, Shri Suraj Gongale, Junior Scientific Officer (Aquaculture), delivered sessions on pond preparation and management, physico-chemical parameters of water, and scientific stocking practices. Ms. Ruchika Nimaje, Field Coordinator (Aquaculture), provided insights into fundamentals of aquaculture, Indian fisheries, ecological aspects, and breeding behaviour of Indian Major Carps.

To strengthen practical learning, a field visit to Chamorshi was organised, during which Shri Gongale demonstrated the use of a portable carp hatchery provided under the STRC–MAFSU joint project and explained the process of fish seed rearing from spawn to fingerling stage.

The training enabled participants to acquire scientific knowledge and practical skills in modern fish farming techniques. As a training partner, STRC continues to promote sustainable livelihoods and skill development among rural communities.

NAVYA Program and Skill Training Courses Launched in Gadchiroli

Gadchiroli | March 4, 2026

An inauguration program for NAVYA (Nurturing Aspirations through Vocational Training for Youth and Adolescent Girls), along with skill development courses for Gram Sabhas -Forest Nursery Raisers and NTFP Harvesters, was held on 5th March 2026 at 3:30 PM at the District Planning Office, located within the District Collector Office, Gadchiroli.

The program was organized by the District Skill Development Department Gadchiroli. The Science & Technology Resource Centre (STRC) is the implementing agency for the skill training courses under this initiative, with support from the District Mineral Foundation (DMF).

The event was chaired by Collector & District Magistrate of Gadchiroli, Shri. Avishyanth Panda (IAS), while the program proceedings were conducted by Assistant Commissioner Shri. Yogendra Shende. The initiative aims to empower rural youth, particularly adolescent girls, and strengthen livelihood opportunities through skill-based training.

A large number of girl students were present, reflecting strong interest and enthusiasm among young women to participate in vocational skill development opportunities. The program also witnessed participation from Gram Sabha representatives through online mode, ensuring wider outreach and engagement from remote areas.

The skill courses introduced under the initiative include training for Forest Nursery Raisers and Non-Timber Forest Produce (NTFP) Harvesters, focusing on sustainable resource management and income generation.

Distinguished dignitaries joined the program virtually, including Additional Chief Secretary Manisha Varma along with officials from the Maharashtra State Skill Development Society, Mumbai. Their presence highlighted the state-level commitment towards skill development and inclusive growth in aspirational districts like Gadchiroli.

The initiative marks a significant step towards enhancing employability, promoting sustainable livelihoods, and empowering women and forest-dependent communities in the district.

STRC Initiates Skill Training Mobilisation under District Mineral Fund Project in Etapalli

Etapalli | March 06, 2026

STRC undertook a field visit to Etapalli as part of its ongoing District Mineral Fund (DMF) supported skill development initiative focused on community-led forest conservation and management.

During the visit, the STRC team reviewed and finalised arrangements at the Forest Ranger Office, Etapalli, for conducting the Skill Course on Forest Nursery Raising (Course Code-AGR/Q6103). Field-level mobilisation was also carried out in Jivangatta village, where 30 participants were identified and successfully registered for the training program.

The exercise also included data collection of the interested students through interviews and interactions to ensure effective planning and implementation. These preliminary efforts mark a significant step towards strengthening local capacities and enabling sustainable livelihood opportunities through structured skill development interventions.

STRC Conducts Soil Module under Environmental Education Program in Markhanda

Markhanda | March 18,2026

STRC conducted an interactive session on the “Soil, Plants and Us” module at the Government Ashram School, Markhanda, engaging 42 students as part of its ongoing environmental education program for tribal school children. Having successfully completed Phase I and nearing the completion of Phase II, STRC is currently implementing the fifth module of the programme, focusing on building scientific understanding through experiential learning.

During the session, students explored basic properties of soil through observation using magnifying lenses and direct examination, identifying characteristics such as texture, colour, and composition. Fundamental concepts like acids and bases were introduced in a simple and practical manner. A hands-on experiment was conducted to test the presence of iron in soil using Hydrochloric Acid (HCl) and Sodium Hydroxide (NaOH), helping students understand scientific methods through real-time application. Interactive activities and games further enhanced engagement and learning outcomes.

Through such initiatives, STRC continues to promote scientific temper and environmental awareness among tribal students by adopting activity-based and participatory learning approaches.

STRC Participates in Stakeholder Consultation on Women Farmers' Empowerment at Gondwana University Conducted by M. S. Swaminathan Research Foundation and District Administration, Gadchiroli

Gadchiroli | 12 March 2026

Science and Technology Resource Centre (STRC), Gondwana University, actively participated in a one-day stakeholder consultation on the Empowerment of Women Farmers Program organised by the M. S. Swaminathan Research Foundation at Gondwana University, Gadchiroli.

The consultation was chaired by District Collector and Magistrate of Gadchiroli Shri Avishyant Panda (IAS) and attended by key dignitaries including Pro Vice-Chancellor of Gondwana University, Dr. Shriram Kawale and CEO, Zilla Parishad Gadchiroli, Shri Suhas Gade (IAS). The event brought together representatives from government departments, academic institutions, NGOs, and grassroots organisations.

STRC contributed to the consultation by sharing field-level insights and experiences on community-based livelihood interventions, particularly in strengthening rural and tribal livelihoods through science and technology-driven approaches. The Centre's inputs focused on enhancing capacity building, promoting sustainable practices, and strengthening institutional linkages at the grassroots level.

A key highlight of the Program was the presentation by M. S. Swaminathan Research Foundation, outlining its proposed initiative on climate-resilient agriculture with a focus on women farmers. The Program is planned to be implemented in Korchi and Dhanora blocks of Gadchiroli district.

The consultation concluded with a collective commitment from stakeholders to collaborate and ensure effective implementation of the Program, aiming to create sustainable livelihood opportunities and empower women farmers across the district.

STRC Promotes Grassroots Innovations through Hands-on Training Program

Gadchiroli | March 10, 2026

STRC in collaboration with the National Innovation Foundation, India, continues to promote livelihood opportunities by facilitating access to low-cost, grassroots technologies among rural communities. These include tools and machines such as bamboo processing units, multi-food processing units, tree climbers, and leaf plate-making technologies, supported with practical demonstrations for selected beneficiaries.

As part of this initiative, STRC organised a hands-on training program on a Cotton Wick Making Machine, innovated by Vikay Solankhi and Dipak Vyas from Ahmedabad, Gujarat. The technology is among a set of grassroots innovations shared by National Innovation Foundation, India to strengthen livelihood-based applications in rural areas.

Around 10 participants of women SHG group from Gadchiroli attended the session, gaining practical exposure to the machine and exploring its potential for initiating small-scale enterprises and income generation.

Hon'ble Vice-Chancellor of Punyashlok Ahilyadevi Holkar Solapur University Visits STRC

Gadchiroli | March 10, 2026

During their visit to Gondwana University, the Hon'ble Vice-Chancellor of Punyashlok Ahilyadevi Holkar Solapur University, Prof. Prakash Mahanwar, along with the Pro Vice-Chancellor, Gondwana University Dr. Shriram Kawale, and other dignitaries, visited STRC.

The delegation was briefed on STRC's ongoing initiatives and community based interventions, followed by visits to key facilities, including the Model Production Unit and Vaidya Chikitsalay, to understand implementation strategies and on-ground impact. The team also explored products developed under Gondwana Craft.

Prof. Mahanwar also appreciated the key initiatives of STRC and expressed interest in collaboration with GUG for replication of best practices of Gondwana University, in Solapur University.

Our Latest Publications

Monthly Newsletters

Our 2024 Story
A Pictorial Representation

Techno-Social Tapestry
By Shri Ashis Gharai,
Former CPO & Head, STRC

- Executive Editor -

Shri Swapnil Girade

Chief Program Officer and Head, STRC

- Graphics and Design -

Ms Priyanka Durge

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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