STRC NEWSLETTER

** 6th Anniversary Edition*

October 2024 | Issue No. 60

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

Compendium of Indigenous Medicinal Plants of Gadchiroli Region : STRC continues its effort to conserve and scientifically document indigenous medicinal knowledge and plant-based traditional healthcare practices. This document would be a valuable resource for researchers, and conservationists alike.

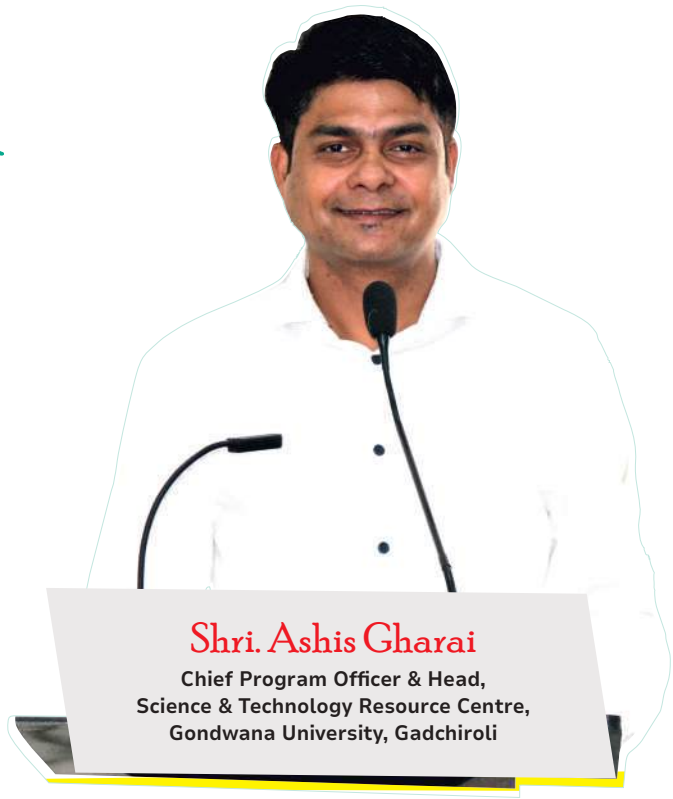
From the CPO's Desk

Empowering Rural Youth in India with Future-Ready Skills for Emerging Industry Demands

Skilling India's rural youth is essential for tapping into the country's vast demographic potential ...

In This Issue

Empowering Rural Youth in India with Future-Ready Skills for Emerging Industry Demands



Shri. Ashis Gharai
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Skilling India's rural youth is essential for tapping into the country's vast demographic potential, especially as industries evolve with new technologies and global demands. A targeted approach to skill development could bridge the gap between rural talent and current industry needs. It is important to understand industry demands, hence, we must delve into the different emerging aspects of it through a framework to address these goals.

Emerging Scenarios:

With industries undergoing digital transformation, digital literacy has emerged as a key aspect. Rural youths need training in basic IT skills, coding, data management, digital marketing, and use of emerging technologies like AI and IoT. Green and Renewable Energy is another important aspect as India shifts towards sustainable energy, industries will require skilled professionals in solar, wind, and other renewable energy sectors. Similarly, the tourism industry, including eco-tourism and local heritage, offers immense potential for job creation through skill development in customer service, travel management, and local entrepreneurship. We can also include agri-business, food processing, healthcare and biotechnology etc.

It would be crucial to develop localized skill development programs by collaborating and partnering with industries and businesses to design curriculum and training programs aligned with their future requirements can ensure that skills taught are directly employable. High quality vocational training through vocational centers in rural areas can offer certifications in sectors like construction, automotive repair, healthcare, and digital skills. Other tech-enabled learning platforms such as making use of mobile-based apps and online learning platforms can deliver content to rural students. This allows for flexibility and wider reach, even in remote areas. Along with these, there must be greater focus on soft skills like communication, problem-solving critical thinking, and leadership alongside technical skills, which will prepare rural youth for varied roles in industries. Instilling entrepreneurial skills among rural youths through entrepreneurial education would help youth start their ventures, especially in agriculture, crafts, small manufacturing, and tourism.

Central and State Priority:

Government has been very pro-active in offering institutional support and relevant schemes like Skill India, PMKVY (Pradhan Mantri Kaushal Vikas Yojana), and Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY) and Pramod Mahajan Kaushalya Vikas Yojana (PMKVY) etc. to target specific regional skill needs and improving outreach. Other ways like Public-Private Partnerships (PPPs) to collaborate with private companies for funding, equipment support, and curriculum development. CSR initiatives can play a key role here. Along with the above stated framework, other sector-specific initiatives such as Agriculture and Agri-Tech, i.e.; skills in precision farming, drone technology, and smart irrigation can modernize agriculture, boost productivity, and make farming a viable option for rural youth. Similarly, focussing on manufacturing and MSMEs through *Make in India* movement, pushing for increased manufacturing, up skilling youth in areas like machine operations, quality control, and lean manufacturing practices can contribute to the sector.

Another vital cog in the wheel is the localized entrepreneurship and micro-enterprises by promoting local start-ups through incubators in rural areas focussed on agriculture, crafts, renewable energy, and small-scale manufacturing. And cooperatives and SHGs can be strengthened as cooperatives with skill training and financial literacy can enhance economic participation. Hence, a community driven approach to engage local leaders, schools, and panchayats to promote skill development programs can ensure higher participation and retention to help build a rural workforce ready for the future.

University Initiatives:

In an effort to promote social entrepreneurship in bamboo, STRC Gondwana University runs a Model Production Unit around which community level CFCs have been formed. This effort has created sustainable jobs for over 200 local artisans in the region. STRC is also a registered Training Partner (TP) and a Training Centre (TC) under Maharashtra State Skill Development Society (MSSDS), Govt of Maharashtra. Gondwana University, in collaboration with district administration and Tata Technologies has established Centre for Invention, Innovation, Incubation and Training (CIIIT), a state-of-the-art skilling centre in modern technologies. Similarly, to promote micro-enterprises and local start-ups, Tribe-Tech Community Entrepreneurship Foundation (TRICEF), an university incubation centre has been registered as a Section-8 Company. Along with the above efforts, to address the needs of the Industry-Academia connect, Lloyds Metals Energy Pvt. Ltd. has collaborated with Gondwana University, with a vision to establish the University Institute of Technology (UIT) which would foster developing a cadre of skilled professionals catering to varied industry demands of the region, slated to become the 'Steel Hub' of the country.

Bamboo

The Career Path of Tomorrow

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In recent times, bamboo is experiencing a resurgence as a versatile and sustainable resource. This non-timber forest product boasts a wide range of domestic, commercial, and industrial applications. As a fast-growing and renewable alternative to timber, bamboo is helping to combat deforestation and reduce pollution, making it an invaluable resource for a sustainable future.

India holds a significant position in the global bamboo landscape, accounting for 13% of the world's bamboo forests and producing 4.5 million tons annually across 8.96 million hectares. With 148 species in 29 genera of bamboo *(Bamboo Diversity of India: An Update, M. L. Sharma and Nirmala C., Dept. of Botany, Panjab University, Chandigarh 2015)*, India is the second-richest nation in bamboo genetic diversity, with 100,000 Sq Km. dedicated to bamboo cultivation. Despite these resources, India currently ranks 23rd in the global bamboo trade, contributing only 4% to the $5.5 billion bamboo industry, indicating significant room for growth *(Source: Forest Survey of India Status Report 2017).*

Globally, the bamboo market is projected to reach $98.3 billion by 2025, growing at a compound annual growth rate (CAGR) of 5.7% from 2021 to 2028. In India, the bamboo industry is expected to grow substantially, with estimates placing its value between INR 25,000 - 30,000 crore. Technological advancements, cost-effective innovations, and aesthetically pleasing product designs have the potential to drive demand for bamboo, promoting its cultivation and expanding its market in India *(Author: Paridah Md Tahir, et al, Title - Multifaceted Bamboo - Engineered Products and Other Applications).*

Recent research and development in bamboo processing have been ground-breaking, making this natural material a key player in the movement toward greener industries. To foster a sustainable future, it is essential to promote the use of bamboo, both in India and globally. Young people, in particular, have the opportunity to take part in this bamboo revolution and contribute to India's eco-conscious development. This sector offers exciting opportunities in areas like sustainable architecture, eco-friendly product design, and advanced agricultural practices.

By pursuing education in bamboo cultivation, processing, and product design, it is essential to prepare the next generation for this emerging industry. By embracing bamboo, India can create job opportunities and establish itself as a global leader in sustainable practices. Empowering today's youth to innovate with bamboo will not only fuel economic growth but also position India at the forefront of the global bamboo revolution.

Recognizing the potential of bamboo, STRC has been collaborating with local artisans to develop their skills, introducing modern technologies into making of bamboo products and has launched a social entrepreneurship platform, Gondwana Craft, encompassing other dying art-forms of the region. Similarly, a one-year diploma course, Bamboo Entrepreneurship and Design, being offered by the Gondwana University, designed to equip tribal and rural youth with the skills needed to build a career in the bamboo industry, creating a pool of competent and skilled professionals for the future. Through this initiative, STRC is helping to unlock the immense potential of bamboo as a career path and a tool for sustainable development in India.

Exploring Research Opportunities in Tribal Education in Gadchiroli:

Removing Barriers and Fostering Inclusion

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Education is a powerful tool for social and economic development, yet tribal communities in a geography like, Gadchiroli faces significant challenges in accessing quality education. The unique socio-economic, cultural, and geographical factors that shape their lives often create barriers to educational attainment. Understanding these complexities requires a focused research approach that addresses the external, internal, and psychological obstacles preventing tribal children from thriving in the classroom. The present article explores critical research opportunities in tribal education, aiming to bridge these gaps, foster inclusion, and develop culturally sensitive solutions that empower tribal communities in Gadchiroli.

Various constraints that tribal children face in accessing quality education can be categorized into three broad groups:

External Factors:

These are linked to policy, planning, implementation, and administration. Research can delve into how government policies, schemes, and educational initiatives are reaching tribal areas and whether they address the specific needs of the community.

Internal Factors:

This category focuses on the school system itself curriculum, pedagogy, medium of instruction, and teacher-related challenges. For instance, the language of instruction and culturally irrelevant content can create disconnects between tribal children and the classroom.

Socio-economic and Psychological Factors:

Tribal children often belong to socio-economically marginalized families, and the first-generation learners experience unique psychological barriers. Studies can explore how these factors impact educational participation, school attendance, and dropout rates.

Following are the key research areas where potential efforts can be put in to enhance the tribal education in Gadchiroli:

Curriculum and Pedagogy as Cultural Issues: Studies on development of culturally relevant curricula and pedagogical methods can explore how tribal languages, traditions, and cultural practices can be integrated into formal education to enhance learning experiences. This approach would help tribal children feel more connected to the classroom and can bridge the gap between the Scheduled Tribes and the general population.

Communication and Teaching Methods: Government efforts to improve education in tribal areas often focus on infrastructure and resources. However, research is needed to examine the effectiveness of these interventions, such as better communication facilities, and teaching materials. These studies would provide valuable insights into how such initiatives can bring about an attitudinal change toward education in tribal communities.

Dropout Factors at the Primary Level: Research on the causes of dropouts among tribal children is crucial for designing targeted interventions. Key factors may include lack of motivation, poor economic conditions, lack of trained teachers, inadequate reading materials, and insufficient infrastructure. The focus should also be on the seasonal absenteeism due to migratory lifestyles or agricultural labour that further compounds the issue. Research can identify specific strategies to keep tribal children in school.

Geographical Isolation and Inadequate Teacher Deployment: The remoteness of many tribal villages often leads to long distances between homes and schools. This geographical isolation, coupled with a lack of qualified teachers willing to work in challenging conditions, exacerbates the problem. Research can focus on addressing these geographical and logistical challenges by exploring alternative schooling models, including digital learning, mobile schools, or teacher training programs tailored to tribal contexts.

Socio-economic Disparities and Educational Access: Studies on the socio-economic life of tribal communities can shed light on the financial constraints they face in accessing education. The cost of uniforms, books, and stationery, compounded by the need for children to contribute to family income, often discourages school attendance. Researchers can explore how economic support systems, such as scholarships or school meal programs, can alleviate these barriers.

Gaps in Policy Implementation: An in-depth assessment of the implementation of existing government schemes and programs is essential for understanding their impact on tribal education. Research can identify gaps in implementation and suggest ways to fine-tune policies to make them more effective for tribal communities.

Micro-level Research and Cultural Diversity: Tribe-specific, micro-level research can provide an understanding of the cultural and social setup, occupational patterns, and attitudes toward education within different tribal groups. Such research will help design education programs that are sensitive to the diverse cultural and linguistic backgrounds of these communities.

Conclusion: The exclusion of tribal people from effective participation in the education system compared to the general population is of immediate concern. The barriers to educational progress among tribal communities are rooted in three key areas: ecological challenges, socio-economic disparities, and structural shortcomings in the school system. To overcome these obstacles, socio-economic development and education must be viewed as interdependent processes. Research in tribal education should aim to create a more inclusive, culturally sensitive education system that addresses the specific needs of these communities while ensuring that tribal children can participate meaningfully in their education journey.

By fostering research in these areas, Gadchiroli can create a model for tribal education that not only helps children access quality education but also empowers communities by addressing the broader socio-economic factors that hinder progress. Only through comprehensive, culturally aligned, and context-specific educational interventions can we hope to achieve true inclusion and equity for tribal children in the education system.

STRC Begins Development of the 'Compendium of Indigenous Medicinal Plants of Gadchiroli Region'

STRC has initiated its efforts in cataloguing the medicinal plant diversity of the region, leading to the development of the 'Compendium of Indigenous Medicinal Plants of Gadchiroli'. This structured checklist would feature comprehensive information on 60 indigenous medicinal plants segregated into various categories. Integral to STRC's effort to conserve and scientifically document traditional medicinal knowledge and plant-based healthcare practices, this document would be a valuable resource for researchers, and conservationists alike. It is scheduled to be released in November 2024.

Action Initiated to Develop STRC Proposal Under the Bamboo Task Force DPR

Following the two roundtable conferences on Bamboo for a Green Economy and subsequent constitution of the Bamboo Task Force, Shri Abhay Gandhe, the nominated External Resource Person, assigned to develop the Bamboo Task Force Detailed Project Report, visited STRC during 21st -22nd October, 2024. This visit was scheduled to have an intensive deliberation on the pre-proposal framework for STRC bamboo initiatives.

Exploratory visits to selected CFR Gramsabhas were conducted to hold community interactions, followed by detailed discussion on the perspective framework and budget. STRC is likely to come up with the final proposal soon.

Reassessment of Established Hatcheries to Promote Sustainable Fish Seed Production

With the motto of 'healthy fish seeds for healthy aquaculture management', STRC conducted series of interactions with the Fish Farmers Interest Group (FIG) Members from Aheri, Armori, Kurkheda, Korchi, Chamorshi and Mulchera blocks this month. During the survey, current status of the PCHs were assessed to understand the challenges hindering its smooth functioning. Necessary technical guidance were provided on Better Management Practices (BMP) to strengthen fish farmer's resilience. These efforts are aimed at positioning each FIG as a successful unit of fish business providing sustainable income to the member beneficiaries.

STRC Engages With Traditional Bamboo Artisans of Bhandara and Gadchiroli to Assess Future Scope

On October 17, 2024, a delegation from STRC visited Lakhandur (Bhandara Block) and Shankarpur (Gadchiroli Block) interacted with local bamboo artisans of Bhandara and Gadchiroli blocks. STRC sees an opportunity to replicate its existing community entrepreneurship model being implemented at Maldugi. Over 40 traditional artisans of *burud* community were addressed during the interaction. Existing skill-set, scope of bamboo craft as a livelihood option and aspirations of the local artisans were assessed during the visit. As part of the future action plan, STRC going to onboard groups of artisans from selected villages and enroll them into STRC's regular skilling and production activities.

Sale of Raw Bamboo is Fast Becoming A Major Revenue Source for STRC Promoted Local SHG

As STRC is gradually venturing into the structural application of bamboo, the requirement of raw bamboo has increased. This has presented an opportunity to engage with local Gramsabhas (with CFR land holdings) and local SHGs for the trade of naturally available raw bamboo.

Among many such Gramsabhas in the district, the STRC promoted *'Luchai Dhan Shetkari Self-Help Group'* (NTFP Collectivization Project) from Kharkadi Gramsabha has seized this opportunity first hand to ensure regular supply of raw bamboo, specifically the *Tulda* and *Manvel* varieties to the Model Production Unit at STRC. This increased demand of locally sourced bamboo poles will help the SHG generate additional revenue every month which will support local livelihoods and sustainable resource use.

Father of Saguna Baug, Appreciates STRC's Efforts in Implementing Saguna Rice Technique (SRT)

During a recent visit to the Rajiv Gandhi Science & Technology Commission in Mumbai, Shri Chandrashekhar Bhadsawade emphasized the Saguna Rice Technique (SRT) implemented by STRC as one of its best practices for community engagement.

Recognized as the Father of Saguna Baug, Shri Bhadsawade, Managing Trustee, Saguna Rural Foundation, interacted with Padma vibhushan Dr. Anil Kakodkar, Chairman, RGSTC, Mumbai, Govt of Maharashhtra.

Dussehra and Diwali Celebration at STRC

11th & 12th Convocation and 13th Establishment Day was Held at Gondwana University Gadchiroli

Gondwana University Bags the Prestigious Institutional Social Responsibility (Public) Award at the 10th FICCI Higher Education Excellence Award 2024 at New Delhi

Bamboo Craft

Earthen Pottery

Dokra Craft

Gond Painting

Services

Gondwana Craft

An initiative by Science & Technology Resource Centre (STRC) Foundation, Gadchiroli, to bring traditional art-forms of the region under one umbrella brand, 'Gondwana Craft', with an artisan centric approach to preserve and promote these unique yet dying art-forms on a sustainable and viable social entrepreneurship platform.

Hon'ble Chancellor Shri. C. P. Radhakrishnan is being greeted by Dr. Prashant Bokare, Vice Chancellor, Gondwana University Gadchiroli with a Gondwana Craft Bamboo Flower Bouquet at the Raj Bhavan, Mumbai

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Team STRC is proudly led by Shri Ashis Gharai, CPO & Head, STRC

STRC is represented by a group of competent and committed young professionals having expertise in varied techno-social development sectors, ably leading science and technology based programs centered around forests and other natural resources, designed for all round human capacity development of the region.

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.

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