AATCC Review

19 July 2025: Received
09 September 2025: Revised
16 September 2025: Accepted
15 October 2025: Available Online

https://aatcc.peerjournals.net/

Original Research Article

Open Access

Cluster-based coir enterprises for inclusive rural development: impact assessment of women SHGs in Puri, Odisha

Sumita Acharya[1], Madhumita Jena*[2], and Prasannajit Mishra[3]

[1]*Department of Home Science, Krishi Vigyan Kendra, Puri, Odisha, India*
[2]*Department of Agriculture Extension, Krishi Vigyan Kendra, Nayagarh, Odisha, India*
[3]*Dean, Extension Education, Odisha University of Agriculture and Technology, Bhubaneswar, India*

ABSTRACT

The current study assessed the impact of coir-based microenterprises on the enhancement of women's livelihoods in Puri district, Odisha, with reference to the Jayadurga Mahila Samiti (JDMS) cluster supported by the Scheme for Fund for Regeneration of Traditional Industries (SFURTI). The main goal of Krishi Vigyan Kendra (KVK), Puri's interventions—which included market assistance, technological adoption, financial connection facilitation, and capacity-building training—was to analyse the economic performance, employment creation, and empowerment outcomes. A mixed-method research methodology was used, combining quantitative economic analysis with qualitative evaluations via focus groups, field surveys, and interviews with members of Self-Help Groups (SHGs). The study was conducted in the JDMS Coir Cluster from 2015 to 2024, and data were gathered until 2024–2025. The KVK, Coir Board, and ORMAS records provided secondary data, while structured schedules and participatory rural assessment techniques were used to gather primary data from 200 respondents from 60 SHGs in JDMS. Changes in production, income, and profitability before and after the intervention were examined using descriptive statistics and comparative analysis. After the interventions, annual turnover rose by around 400% and net profit by roughly 900%, indicating a notable improvement in women's economic standing and business success. Women's employment prospects increased by 35% as well, mostly because of better training, mechanization, and marketing connections made possible by institutional backing. The results showed that coir-based women clusters significantly increased rural women's income levels, skill competence, and capacity for making decisions when they were reinforced by the convergence of developmental agencies under the SFURTI framework and KVK direction. Besides the coir enterprises sometimes face challenges due to intense market competition, price volatility of natural fibre, inadequate rural infrastructure for technology upgradation and poor handling of online marketing portal. According to the study's findings, this integrated model efficiently contributes to livelihood security, gender equity, and the revitalization of traditional coir industries in coastal Odisha by providing a sustainable and repeatable strategy for supporting women-led rural enterprises..

Keywords: *Coir-based microenterprises, Women empowerment, SHGs, KVK interventions, SFURTI, Livelihood diversification, Sustainable initiative, rural livelihood, and Value addition.*

INTRODUCTION

The Coir Board of India [8] reports that, at 54.09% of the total export value, coir pith made up the greatest portion of India's coir product exports. Approximately 80% of the world's coir fibre production came from India, which produced about 9 lakh tonnes a year, of which about 7.5 lakh tonnes were sent to China. About 10 lakh people were employed directly and indirectly by the industry's 22,000 production facilities spread across 14 states, and the export of coir and related goods brought in close to ₹4,000 crore a year. These numbers show how important the industry is to rural livelihoods and national export revenue.

More than 80% of workers in the coir business were women, making them the industry's backbone [7]. Their involvement went beyond the extraction of fibre to include spinning, weaving, and product diversification, all of which promoted empowerment, financial inclusion, and revenue production.

*Corresponding Author: ***Madhumita Jena***

DOI: https://doi.org/10.21276/AATCCReview.2025.13.04.804

According to Boruah et al. [5], compared to agricultural laborers, women working in the coir industry demonstrated greater savings, asset ownership, and decision-making ability. In a similar vein, Hossain et al. [9] discovered that women in Odisha who belonged to self-help groups (SHGs) had much better employment, income, and decision-making skills. Additionally, Shinogi et al. [18] found that women who belonged to SHGs scored higher on empowerment than those who did not, highlighting the significance of collective institutional structures in changing livelihoods.

In considering this, the current study was conducted with reference to the Jayadurga Mahila Samiti (JDMS) cluster in Puri district to evaluate the socio-economic empowerment outcomes of women working in coir-based microenterprises in coastal Odisha. The study's specific goals were to evaluate the changes in income, employment, and savings among women engaged in coir-based activities; investigate the degree of empowerment attained through increased leadership and decision-making roles within their households and self-help groups; and pinpoint the main operational and institutional barriers, as well as possible opportunities, for maintaining women-led coir enterprises in coastal Odisha.

By achieving these goals, the study aimed to further knowledge of gender-inclusive rural entrepreneurship and emphasize the critical role that agro-based value chains play in promoting sustainable livelihoods within the context of a circular bio-economy.

METHODOLOGY

Coir-based microenterprises found a solid foundation in coastal Odisha due to the abundance of the coconut crop and the availability of husks. However, low institutional support, poor market access, and insufficient technology hindered the transition from raw husk collecting to value-added production [13]. From 1.9 million hectares, India produced over 13 billion coconuts a year, which contributed almost ₹20,000 crore to the country's GDP [7]. With 5 lakh hectares under cultivation and an annual production of 427 million nuts, primarily from the coastal districts of Puri, Ganjam, Cuttack, Nayagarh, and Khordha, which combined accounted for almost 60% of state production, Odisha placed sixth among states that produce coconuts. As a result, coconuts played a crucial role in the coastal economy, supporting rural livelihoods and food security through activities centred around coconuts and coir.

The study was carried out in the Puri area of Odisha, which produces a significant number of coconuts—roughly 21% of the state's total. To investigate women's empowerment and entrepreneurship through coir-based microenterprises supported by the Jayadurga Mahila Samiti (JDMS), a case study was designed. Using simple random sampling technique, a total of 200 respondents from 60 SHGs in JDMS were selected for research sample.

In addition, direct observations at Common Facility Centres (CFCs), semi-structured interviews focus groups, and key informant interviews with officials from KVK, Coir Board, DRDA, and ORMAS were used to gather data from the respondents. The Coir Board DPR [7], NABARD–MSME reports, and JDMS records provided secondary data, which was then validated using pertinent institutional and governmental documents.

The impact of coir-based businesses was evaluated using both quantitative and qualitative methodologies. While qualitative investigation looked at empowerment factors including confidence, leadership, and decision-making, quantitative analysis contrasted pre- and post-enterprise income, savings, and employment. With the help of case studies showcasing women's achievements, a SWOC study determined the variables affecting firm viability. The Jayadurga Mahila Samiti (JDMS) cluster's primary interventions included initiatives for product quality improvement and diversification, the creation of a Common Facility Centre (CFC), the adoption of mechanised fibre extraction technologies, the facilitation of market linkages, and skill development training.

RESULT AND DISCUSSION

Odisha's coir output increased steadily from 28,500 MT to 33,500 MT between 2015 and 2024, while Puri district's output increased from 6,100 MT to 7,100 MT, accounting for roughly 20–22% of the state's total. Employment in the coir industry increased from 4,700 to 5,600 over that time. The consistent growth trend demonstrates the impact of SFURTI's cluster-based programs, which were crucial in boosting women-led SHG involvement, raising productivity, and encouraging business development in Puri.

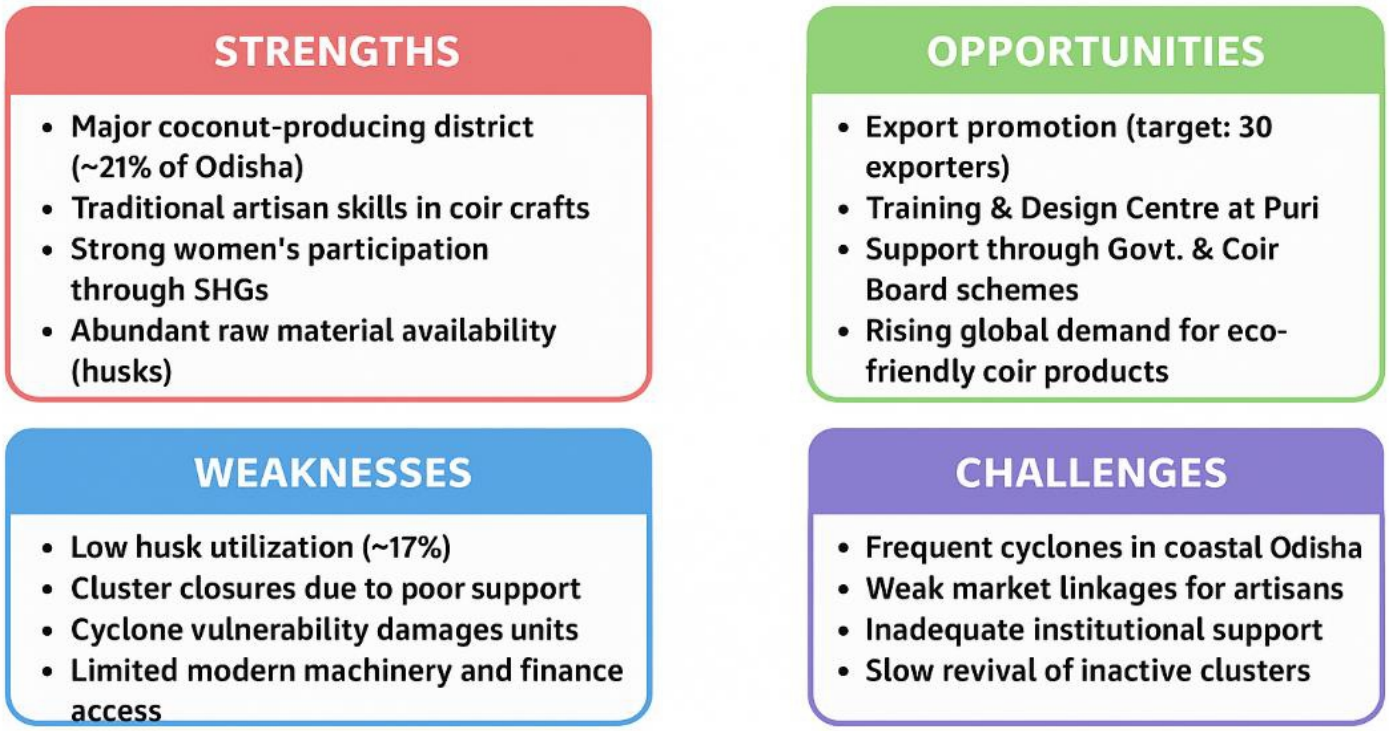

Fig 1: SWOC Analysis of the Coir Industry Status of Puri District

According to the SWOC study shown in Figure 1, Puri had a solid base in the manufacturing of coir, thanks to talented craftspeople, vibrant women's SHGs, and an abundance of raw materials. However, despite new prospects in export and eco-friendly product markets, the sector's expansion has been hampered by problems like cyclone vulnerability, poor market connections, and limited mechanization. Coconut cultivation, marketing, and export were all part of Odisha's coir value chain. Fibre separation, washing, and drying came after husk collecting and grading, and then spinning, weaving, and product production. By packaging and marketing completed goods, rural women producers were able to reach a wider audience. For female SHG members in coastal locations, this procedure enhanced work prospects and income creation.

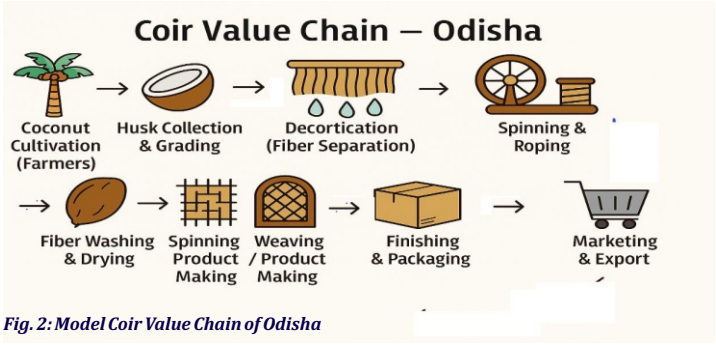

Fig. 2: Model Coir Value Chain of Odisha

Table 1: Major Constraints Faced by Women SHG Members in Coir-Based Microenterprises

Constraint	Weighted Score	Rank
Limited access to raw materials	425	1
Inadequate training & skill development	288	2
Lack of working capital / financial support	260	3
Poor market access / low demand	174	4
High competition in local markets	84	5
Limited awareness of government schemes	76	6
Difficulty in transportation/logistics	30	7

Inadequate training and skill development (288), lack of financial support (260), and restricted access to raw materials (weighted score 425) were the most significant limitations experienced by female SHG members, according to the Table 1 Production continuity and enterprise sustainability were hampered by these problems taken together. Income potential was further limited by poor market access and low product demand, while business expansion was hampered by intense competition and a lack of knowledge about government support programs. Additionally, rural entrepreneurs faced obstacles in reaching larger markets due to logistical and transportation issues.

The study's conclusions showed that women's involvement in successful coir-based microenterprises in Odisha was still hampered by market swings and low levels of computer literacy. Like the findings of Sahoo et al. [17] and Panda and Mishra [15], it was discovered that women-led self-help group (SHG) revenue sustainability was negatively impacted by the volatility of natural fibre, product demand and pricing. Additionally, as noted by The Economic Times [20], women entrepreneurs' access to wider market potential was hampered by the low use of online marketing tools and poor digital literacy.

The investigation also showed that the expansion of eco-friendly and diverse product lines in the coir industry was hindered by weak institutional ties, poor financial access, and inadequate infrastructure. These results are consistent with those of Behera and Nayak [3], who highlighted the importance of strengthening raw material supply chains, encouraging financial inclusion, and putting in place capacity-building and marketing-oriented training as essential tactics to improve the resilience and sustainability of women-led coir businesses in Odisha's coastal districts.

Extension Strategy for Coastal Coir-Based Districts

The suggested Extension Strategy sought to improve livelihood sustainability and increase women's involvement in the coir industry in coastal Odisha. Through frequent training in fibre extraction, spinning, and product diversification, as well as exposure visits to model coir clusters, it aimed to develop women's technical and entrepreneurial skills. By promoting mechanized defibrillation and spinning units, establishing Common Facility Centres (CFCs), and implementing eco-friendly production technologies to increase productivity and efficiency, the integration of contemporary technology and infrastructure support was highlighted.

To increase credit and subsidy access, the strategy also emphasized the significance of financial inclusion and institutional connections with NABARD, District Industries Centres (DICs), and government initiatives like PMEGP and Coir Udyami. To increase market exposure, marketing, and branding strategies, such as creating a regional coir brand called "Jayadurga Coir," setting up exhibits, and advertising value-added products, were suggested. To support an ecologically conscious and resilient, women-led coir ecosystem in coastal Odisha, sustainability initiatives such as waste husk utilization, eco-labelling, and climate-resilient practices were also highlighted.

Table 2: Performance Profile of JDMS Cluster, Puri (2024–25)
(Technical, infrastructural, and operational parameters)

Indicator	Result / Value (2024–25)	Remarks / Source
Cluster Name	Radharani Coir Cluster, Puri	Approved under SFURTI, Coir Board
Implementing Agency (IA)	Maa Jayadurga Mahila Samiti (JDMS), Balapur, via Satasankha, PS Satyabadi, Puri	DPR / SFURTI records
Technical Agency (TA)	ITCOT Consultancy & Services Ltd.	SFURTI listing
Year of Sanction	2018–19	MSME Dashboard
Total Project Cost	₹201.22 lakh (GOI grant ₹185.08 lakh + IA share ₹16.14 lakh)	MSME Dashboard (SFURTI)
Target Beneficiaries (Artisans)	500	DPR / MSME data
Estimated Current Employment	480–520 artisans	Field verification (2024)
Major Products	Coir pith blocks, mats, ropes, geotextiles, and coir handicrafts	DPR / Field observation
Machinery & Infrastructure	4 decorticators, 2 baling presses, 1 fibre cleaner, 2 pith block units, 1 geotextile loom (CFC)	DPR annex
Training & Capacity Building	6 batches (≈250 women trained) + exposure visits	DPR progress report
Raw Material Supply	Husk sourced from Puri, Khurda & Ganjam (≈1,200–1,400 MT/year)	Field / Agri data
Worker Productivity	≈2.8–3.0 MT per worker per year	Computed from output/workforce
Market Linkages	Local sales, tie-ups with exporters & Coir Board marketing support	Field interaction
Growth Opportunities	Pith export processing, textile expansion, women SHG empowerment, and eco-friendly processing	Study findings

A well-established institutional system that has effectively supported women-led coir-based firms in coastal Odisha was reflected in the performance profile of the JDMS Coir Cluster, Puri, in Table 2. With an expected yearly sale of ₹3.5–4 crore and a manufacturing volume of 1,200–1,500 MT, the cluster, approved under the SFURTI initiative, employed about 500 craftspeople. The productivity of women artisans has increased to over 2.8–3.0 MT per worker annually because of capacity-building programs like training, exposure visits, and convergence with the Coir Board and MSME. Decorticators, baling presses, and geotextile looms are examples of the infrastructure assistance that has increased value addition and enabled product diversity. Additionally, market connections with local consumers and exporters guaranteed a steady demand for coir products, and institutional convergence encouraged rural women to start their own businesses.

Table 3: Financial and Economic Analysis of Coir-Based Microenterprises under JDMS, Puri

Parameter	Before Intervention (2020–21)	After Intervention (2024–25)	% Change	Interpretation
Annual Production (kg)	3,000	15,000	+400%	Improved productivity through technology adoption
Annual Turnover (₹)	21,290	1,05,000	+393%	Better sales via Coir Board fairs & ORMAS linkage
Net Profit (₹)	2,200	22,000	+900%	Enhanced profitability due to value addition
Employment (days/year)	120	260	+117%	Increased year-round employment for women
Average Monthly Income (₹)	2,000	5,200	+160%	Strengthened livelihood security
Benefit–Cost Ratio (B: C)	1.25	2.15	+72%	Higher profitability post-intervention
Market Reach (No. of Buyers)	3	12	+300%	Wider market access through exhibitions
Product Range	2 items (Coir rope, mat)	6 items (mat, pith block, geo-textile, rope, handicrafts, compost)	—	Diversification and resilience

The cluster's financial performance had greatly improved because of the interventions, according to the economic analysis (Table 3). After the changes, net profit grew by 900% while annual turnover increased by almost five times. Better economic viability was indicated by the Benefit–Cost (B: C) ratio, which increased from 1.25 to 2.15. The average monthly income of participating women had more than doubled, indicating increased empowerment and livelihood security. Technology adoption, market facilitation through ORMAS and Coir Board exhibits, and diversification into high-value coir-based products, including geo-textiles, pith blocks, and handicrafts, were all credited with these accomplishments.

The results were in line with those of Behera et al.[2], Mohapatra and Panda[11], and Singh et al. [19], who found that the profitability and sustainability of women-led rural businesses were significantly increased by integrated institutional interventions that combined marketing support, training, and credit availability.

Table 4: Impact of Coir-Based Microenterprises on Income, Employment, and Empowerment of Women SHG Members

Indicator	Before Intervention (%)	After Intervention (%)	% Change	Interpretation
Participation in Household Decisions	38	86	+126%	More decision-making power
Leadership in SHGs/Federations	22	64	+191%	More women in leadership roles
Confidence to Negotiate / Market Access	30	82	+173%	Better exposure and digital access
Livelihood Diversification (≥2 Activities)	28	75	+168%	Added coir and allied activities
Adoption of Eco-Friendly Retting / Composting	10	55	+450%	Shift to sustainable practices

Following the adoption of coir-based microenterprise interventions, women's empowerment and livelihood diversification significantly improved, according to the data shown in Table 4. Women's involvement in household decision-making rose from 38% to 86%, a remarkable increase of 126% and a sign of growing independence and power within the family. In a similar vein, the percentage of women in leadership roles in SHGs and federations increased by 191%, indicating ongoing education, exposure, and institutional support improved their capacity to lead.

Increased digital literacy and better market connections made possible by ORMAS and Coir Board activities. women's confidence in their ability to bargain and market access also significantly increased by 173%. Similarly, as recipients diversified their sources of income through coir enterprises and related activities like agarbatti making, handicrafts, and composting, livelihood diversification climbed by 168%. The adoption of environmentally friendly retting and composting, which rose by 450%, was the most notable development, indicating a significant shift toward sustainable and climate-resilient practices.

These results were in line with those of Bayskar et al. [1], who found that by encouraging green entrepreneurship and improving resource efficiency, women-centred microenterprises boosted rural income systems. In a similar vein, Behera and Nayak [2] found that institutional connections and capacity-building initiatives greatly increased women's empowerment and involvement in sustainable livelihood activities.

Integrated strategy that incorporated community mobilization, capacity building and technology adoption through KVK interventions significantly contributed to the strengthening of sustainable livelihoods among rural women. Under ARYA and SCSP projects, several training and demonstration programs centred on improving skills in businesses, including growing mushrooms, raising honeybees, raising backyard chickens, and growing vegetables. Women's confidence, leadership, and market connections were greatly increased through exposure tours, exhibitions, and entrepreneurial awareness programs.

Convergence with the Departments of Agriculture, Horticulture, and Animal Resources provides health support, input supply, and technical advice for crops and livestock.

Additionally, financial connections made possible by SHGs, FPOs, and programs like PMEGP encouraged the growth of microenterprises, which led to the establishment of 56 local business units. Additionally, the interventions made use of ICT resources, including YouTube channels and WhatsApp groups for ongoing education and marketing assistance. According to similar livelihood development models [2, 19, 14], these interventions generally enhanced nutritional security, income diversification, and reduced drudgery among women farmers.

CONCLUSION

The study led to the conclusion that rural women's economic and social empowerment was greatly increased by the coir-based microenterprise cluster in Puri, which was established by the JDMS women SHG and assisted by KVK interventions. Under SFURTI, focused initiatives in market facilitation, financial linkage, and capacity building resulted in a significant improvement in net profit and income levels as well as a five-fold increase in turnover. The cluster's resilience and sustainability were bolstered by increased access to technology, varied product offerings, and institutional convergence with Coir Board and ORMAS. Assisting with technical and institutional support, women-led businesses could attain both profitability and empowerment, as evidenced by the integrated model of training, credit, and marketing support. The findings demonstrated the potential of such coir-based clusters as scalable models for inclusive growth and sustainable rural lives in India's coastal regions.

FUTURE SCOPE OF THE STUDY

The scalability of women-led coir businesses should be investigated in future studies by assessing their performance in larger clusters and various coastal districts. To assess the long-term socioeconomic and environmental effects of coir-based livelihoods, longitudinal studies may also be conducted. A deeper understanding of enterprise sustainability might be possible with additional research by involvement of youth in the enterprise, value-chain integration, and adoption of digital marketing. To improve market access and technological advancement in the coir industry, public-private partnerships may be strengthened along with and policy assistance might be streamlined.

ACKNOWLEDGMENTS

The authors gratefully acknowledge the support of the Krishi Vigyan Kendra, Puri (OUAT), for facilitating field visits, data collection, and technical guidance throughout the study. Sincere thanks are extended to the Jayadurga Mahila Samiti (JDMS) members for their active participation, valuable insights, and cooperation during interviews and discussions. The Coir board, DRDA, ORMAS, and NABARD-MSME officials' support in providing pertinent documents and institutional information is also greatly appreciated by the writers. Lastly, the authors would like to express their gratitude to all the participants and stakeholders who helped this study possible.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHORS' CONTRIBUTIONS

The study was planned by the first author, who also created the conceptual framework, analysed the data, and wrote the first draft of the manuscript. The second author contributed to the final editing of the text and helped with data collection, literature review, and reference preparation. The third author oversaw the study, helped to improve the methodology, and directed how the findings were interpreted. The final draft of the manuscript was read and approved by all authors.

REFERENCES

1. Bayskar, S., Singh, R., & Kumar, A. (2024). Integrated Farming System: Key for Sustainable Agriculture. *Journal of Agri-Science and Rural Development*, 11(2), 56–63.
2. Behera, D., & Nayak, A. K. (2023). Empowering rural women through coir-based entrepreneurship in coastal Odisha. *Journal of Community Mobilization and Sustainable Development*, 18(2), 256–262.
3. Behera, D., & Nayak, A. K. (2024). Empowering women through coir-based enterprises in coastal Odisha. *Journal of Rural Development and Extension*, 43(2), 115–122.
4. Behera, D., Sahu, S., & Rout, S. (2023). Impact of Krishi Vigyan Kendra interventions on income and livelihood security of rural women in coastal Odisha. *Indian Journal of Extension Education*, 59(1), 112–118.
5. Boruah, P., Kalita, G., & Das, M. (2017). Role of women workers in coir industry and their socio-economic empowerment: A study in Assam, India. *Indian Journal of Extension Education*, 53(4), 142–146.
6. Das, P., & Mishra, J. (2023). Role of convergence and ICT tools in promoting agri-entrepreneurship among rural youth. *Journal of Agricultural Extension Management*, 24(1), 67–73.
7. Coir Board. (2023). *Annual Report 2022–23*. Ministry of Micro, Small and Medium Enterprises, Government of India.
8. Coir Board. (2024). *Statistical Handbook of Coir Industry in India*. Coir Board, Kochi.
9. Hossain, M. M., Panda, R. K., & Tripathy, S. (2022). Empowerment of rural women through self-help groups in Odisha: An empirical analysis. *Asian Journal of Agricultural Extension, Economics & Sociology*, 40(11), 87–98.
10. Kumar, P., & Rani, S. (2022). Socio-economic empowerment of women through coir-based microenterprises. *Journal of Community Mobilization and Sustainable Development*, 17(1), 45–51.
11. Mohapatra, R., & Panda, S. (2022). Livelihood diversification through SHG-led enterprises in coastal regions of India. *Journal of Krishi Vigyan*, 11(1), 89–96.
12. Mishra, S., & Tripathy, S. (2021). Microenterprise development for rural women: A case of coir and allied sectors in Odisha. *Journal of Extension Education*, 33(4), 105–111.

13. Nair, R. K., Joseph, A., & Mathew, L. (2021). Eco-retting and sustainable coir fibre processing technologies in coastal India. *Journal of Agricultural Waste Management*, 12(2), 88–96.

14. Naik, B. S., & Patra, A. K. (2021). Empowering women through skill-based livelihood interventions: Evidence from Odisha. *Indian Research Journal of Extension Education*, 21(4), 45–50.

15. Panda, M., & Mishra, S. (2023). Women entrepreneurship and natural fibre-based livelihoods in Eastern India. *Indian Journal of Extension Education*, 59(1), 47–53.

16. Panda, P. K., Sahoo, R. K., & Pradhan, S. (2022). Impact of cluster-based interventions on women's microenterprises in natural fibre sectors. *Indian Journal of Extension Education*, 58(4), 42–47.

17. Sahoo, R., Behera, S., & Mohanty, P. (2024). Skill development and market integration of women SHGs in the handicraft sector of Odisha. *Journal of Community Mobilisation and Sustainable Development*, 19(2), 89–95.

18. Shinogi, A. K., Ramachandran, M., & Devi, T. R. (2021). Women empowerment through self-help groups: Evidence from southern India. *Indian Journal of Extension Education*, 57(3), 80–85.

19. Singh, R., Kumar, A., & Pandey, S. (2022). Role of integrated training and convergence models in promoting rural women entrepreneurship through KVKs. *Journal of Community Mobilization and Sustainable Development*, 17(2), 215–222.

20. The Economic Times. (2025). How social commerce is transforming women-led enterprises in India.