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Economic development through sustainable employment generation: An analytical study of India's coir industry

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Abstract
The coir industry is one of India's oldest and most eco-friendly rural industries, providing substantial employment opportunities, particularly for women in coastal and coconut-producing regions. This study analyses the role of the coir sector in promoting sustainable employment and contributing to economic development during the six-year period from 2019-20 to 2024-25. Using secondary data compiled from the MSME Annual Report (2024-25), the study evaluates trends in employment generation, growth in registered coir units, production of fibre and coir-based products, export performance, budgetary support, and the reach of skill development programmes.
The findings show that employment increased steadily from 7.36 lakh to 7.51 lakh, although the annual growth rate declined over the years. Registered coir units grew at a faster pace than employment, with a strong positive correlation indicating that enterprise expansion directly drives job creation. Production and export analysis reveals significant fluctuations, with a sharp decline of around 24-25 per cent in all major coir products and a negative export growth of -35.63 per cent in 2024-25, reflecting supply-side challenges and global market instability. Government budgetary support remained strong until 2023-24 but declined in 2024-25, potentially affecting industry development initiatives. Skill development programmes, especially the Mahila Coir Yojana and value-added product training, continue to play a vital role in enhancing employment, with women forming a major share of beneficiaries.
Overall, the study concludes that the coir industry continues to contribute significantly to sustainable employment and rural economic development, but it faces emerging challenges related to production stability, export volatility, and financial support. Strengthening value addition, improving raw material availability, and expanding skill development are essential for maintaining the sector's developmental role.

Keywords: Coir industry, sustainable employment, economic development, rural industrialisation, women empowerment, coir fibre production, export performance, MSME sector, skill development, government support

1. Introduction
The coir industry is one of India's oldest rural industries and continues to be very important for the country. It is especially significant in Kerala, where it has been a main source of income for many families for generations. Since the work is highly labour-based, it gives jobs to more than seven lakh people, most of them living in villages. Apart from providing employment, the industry is closely linked with farming and the environment. Coir is made from coconut husk and is a natural, eco-friendly material. India produces almost 60% of the world's white coir fibre, which shows its strong position as a leading producer and exporter.
Coir products are sold in more than 80 countries. Items like mats, carpets, ropes and geotextiles are in high demand. Support from the government and easier trade rules have helped the industry grow in the global market. This has also improved the income of rural workers by giving them steady work. Studies show that fewer trade restrictions have helped the coir industry expand its presence worldwide.
The coir sector is also one of the most eco-friendly rural industries in India. It is deeply connected to the social and economic life of coconut-growing areas. Over time, the industry has modernised and now makes many new products such as rubberised coir, pith compost, garden mediums and decorative goods. This change shows growth in technology and changing consumer choices.

Employment is the strongest feature of this industry. As per the MSME Annual Report (2024-25), more than 7.5 lakh people work in coir activities, and around 80% of them are women. Most women are involved in fibre extraction, spinning and making value-added products. This makes the coir industry one of the most women-friendly rural industries in India. The industry includes household units, cooperatives, SHGs, small enterprises and MSMEs. It helps support rural incomes, reduce unemployment and strengthen village economies in states like Kerala, Tamil Nadu, Karnataka, Andhra Pradesh, Odisha and West Bengal.

2. Review of Literature

Srinivasan and Raajarajan (2017) [2] highlight that the importance of the coir industry extends far beyond employment generation. According to their study, the industry forms an integral part of India's agricultural and ecological systems. Coir, obtained from coconut husk, is recognised as an eco-friendly fibre with a wide range of applications in construction, textiles, gardening, and other sectors. Their findings also emphasise that India produces nearly 60% of the world's white coir fibre, confirming the country's dominant position as a leading global producer and exporter. Tanwani (2020) [3] further notes that the coir industry makes a significant contribution to India's export earnings. Coir-based products are exported to over 80 countries, with traditional items such as carpets, rugs, mats, and geo-textiles forming a major part of the export basket. Navitha and Jegadeeshwaran (2024) [4] observe that government incentives have played an important role in boosting coir exports. Their study indicates that such support not only strengthens the sector's global competitiveness but also benefits rural economies by generating steady and reliable income, thereby reducing poverty. They also find that the relaxation of trade restrictions has positively influenced export performance, enabling broader participation of Indian coir products in international markets. Bera *et al*. (2023) [5] bring attention to the innovative aspects of the coir industry, particularly its efficient utilisation of byproducts such as coir pith. They highlight that coir pith, which is the waste material from fibre extraction, has gained importance due to its usefulness in soil improvement once composted. This contributes to environmental sustainability by reducing waste and supporting eco-friendly agricultural practices. Ghosh *et al*. (2007) [6] also report that treated coir pith can play multiple beneficial roles, especially as an organic amendment that enhances soil quality. Their study reinforces the growing recognition of coir pith as a valuable input in sustainable agriculture.

3. Statement of the Problem

Although the coir industry is a major source of sustainable rural employment and contributes significantly to India's economic development, recent data reveal several concerning trends. Employment growth is slowing, production of coir fibre and related products has sharply declined in 2024-25, export performance has become unstable, and government budget support has reduced. These fluctuations raise questions about the industry's capacity to continue generating sustainable employment and supporting economic growth. Therefore, the problem of the study is to examine whether the coir industry can maintain its role in sustainable employment generation and economic development despite these emerging challenges.

4. Objectives of this Study

- To analyse the trends in employment generation in the coir industry in India from 2019-20 to 2024-25.
- To examine the growth in registered coir units and its relationship with employment generation.
- To evaluate the production trends of coir fibre and major coir-based products during the study period.
- To assess the export performance of the coir sector and its fluctuations over the years.
- To study the extent and pattern of government budgetary support provided to the coir industry.
- To analyse the role of skill development programmes in enhancing sustainable employment in the sector.
- To determine whether the coir industry contributes effectively to sustainable employment and economic development in India.

5. Research Design

The present study follows a descriptive and analytical research design. It aims to describe the trends in employment, production, exports, and government support in the coir industry and analyse their implications for sustainable employment and economic development in India.

Nature of the Study

This study is quantitative and secondary-data based, relying on numerical data published by government agencies and official reports.

Data Source

The study is based entirely on secondary data collected from the following sources:

MSME Annual Report (2024-25) - Primary source for employment, production, export, and budgetary data.

Coir Board publications, statistical bulletins, and official documents.

Ministry of MSME reports, government databases, and previous research studies.

6. Study Constraints: Sole Dependency on Secondary data sources.

7. Employment Generation and Coir Unit Expansion in India

Table 1 presents the combined trends of employment generation and the number of coir units registered in India over the six-year period from 2019-20 to 2024-25. The data reveals a consistent but gradual upward movement in both employment and enterprise growth, demonstrating the sector's stable contribution to rural livelihood and micro-industrial expansion.

Employment in the coir industry increased from 7,36,733 persons in 2019-20 to 7,51,167 persons in 2024-25, marking a net increase of 14,434 jobs during the period. However, the growth rate shows a clear pattern of declining year-on-year increments, with the annual growth percentage falling from 0.56% in 2020-21 to 0.14% in 2024-25. This indicates that while employment is still rising, the pace of job creation is slowing down, possibly due to greater mechanisation, productivity improvements, or stagnation in production

output during 2024-25.

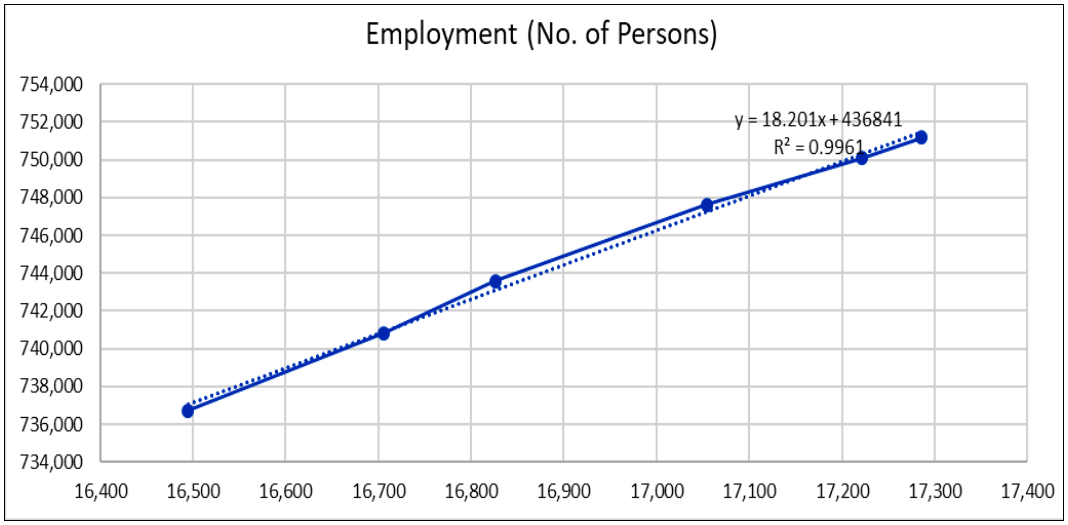
Similarly, the number of registered coir units increased from 16,495 to 17,286, reflecting the creation of 791 new units. Unit registration recorded relatively higher growth rates compared to employment, especially in 2020-21 (1.28%) and 2022-23 (1.35%). The overall AAGR of units (0.9418%) is more than double the AAGR of employment (0.3889%), suggesting that enterprise expansion is outpacing labour absorption. This aligns with the national trend of MSME growth supported by government schemes such as CVY, MCY, and PMEGP.

The CAGR of employment (0.3888%) and CAGR of units (0.9412%) further confirm the sustained but modest long-term growth. The most striking insight is the very high Pearson correlation coefficient (r = 0.998), indicating an almost perfect positive linear relationship between the number of units registered and employment generated. This means that the establishment of new coir units directly contributes to incremental employment creation, reinforcing the importance of MSME-led industrialisation in rural areas.

Table 1: Coir Units Registered and Employment Generated in India (2019-20 to 2024-25)

Year	Employment (No. of Persons)	Absolute Change	% Growth (YoY)	Units Registered	Absolute Change	% Growth
2019-20	7,36,733	-	-	16,495	-	-
2020-21	7,40,834	+4,101	0.56%	16,706	+211	1.28%
2021-22	7,43,566	+2,732	0.37%	16,826	+120	0.71%
2022-23	7,47,637	+4,071	0.54%	17,054	+228	1.35%
2023-24	7,50,089	+2,452	0.32%	17,221	+167	0.98%
2024-25*	7,51,167	+1,078	0.14%	17,286	+65	0.38%
AAGR		0.3889%				0.9418%
CAGR		0.3888%				0.9412%
*Provisional up to December 2024						
R = 0.998						

Source: Compiled from MSME Annual Report



Source: Compiled from MSME Annual Report

Fig 1: Employment and Coir Unit Registration Trends in India (2019-20 to 2024-25)

Coir Fibre Production and Export Performance in India

Table 2 provides a comprehensive view of the trends in coir fibre production and coir export performance in India during the period 2019-20 to 2024-25. The data shows a mixed pattern, with the industry experiencing steady growth during the initial years but witnessing a significant contraction in 2024-25. This trend reflects the complex interplay between domestic production conditions, global market demand, and supply-chain dynamics.

During 2019-20 to 2023-24, coir fibre production increased from 7,41,000 MT to 7,96,300 MT, representing an overall positive trajectory. However, the year-on-year growth rates demonstrate notable fluctuations. The highest production growth occurred in 2022-23, with a 3.13% increase, driven by expansion of units, improved fibre extraction processes, and post-pandemic revival in market demand. Conversely, 2023-24 recorded only 0.67% growth, signalling early signs of stagnation.

The year 2024-25 marks a sharp decline of -24.68%, with production dropping to 5,99,800 MT (provisional). This significant contraction may be attributed to factors such as raw material shortages, monsoon variability affecting coconut husk availability, rising production costs, or global market slowdowns. Such a steep fall indicates vulnerabilities in supply stability and the need for stronger value-chain resilience.

Coir exports show a similarly volatile pattern. Export earnings rose sharply from ₹2,41,596.65 lakh in 2019-20 to ₹4,24,034.21 lakh in 2021-22, reflecting strong international demand and the growing market for eco-friendly sustainable products. Notably, the sector registered a remarkable 45.97% export growth in 2020-21, followed by a 20.24% increase in 2021-22. This period represents the peak of India's coir export performance.

However, export values dropped drastically in 2022-23, with a negative growth rate of -31.73%. This downturn can be linked to global economic uncertainties, shipping disruptions, and high freight costs. Although exports

recovered slightly in 2023-24 (3.02% growth), the year 2024-25 again shows a steep decline of -35.63%, corresponding to the fall in production.

A notable observation is that export fluctuations closely mirror production patterns—suggesting strong dependence of export performance on domestic fibre availability. This indicates that supply-side constraints directly impact India's global coir market position, making production stability crucial for sustaining foreign exchange earnings.

Overall, the analysis underscores that while the coir industry demonstrated robust growth during the early years, the recent downturn highlights structural challenges that require policy attention. Strengthening raw-material availability, incentivising modernisation of fibre-extraction, and expanding domestic value-added processing could help stabilise production and sustain India's leadership in the global coir market.

Table 2: Coir Fibre Production in India (2019-20 to 2024-25)

Year	Production (MT)	Absolute Change	% Growth (YoY)	Export Value (Rs. in Lakh)	Absolute Change	% Growth (YoY)
2019-20	7,41,000	-	-	2,41,596.65	-	-
2020-21	7,58,000	+17,000	2.29%	3,52,654.84	+1,11,058.19	45.97%
2021-22	7,67,000	+9,000	1.18%	4,24,034.21	+71,379.37	20.24%
2022-23	7,91,000	+24,000	3.13%	2,89,454.12	-1,34,580.09	-31.73%
2023-24	7,96,300	+5,300	0.67%	2,98,200.40	+8,746.28	3.02%
2024-25*	5,99,800	-1,96,500	-24.68% (Provisional dip)	1,91,916.05	-1,06,284.35	-35.63%
*Provisional up to December 2024						

Source: Compiled from MSME Annual Report

Product-wise Production Trends of Coir and Coir-based Goods in India

Table 3 presents the production trends of major coir and coir-based products in India from 2021-22 to 2024-25. The data highlights both the expansion and recent contraction across all product categories, offering insight into the structural behaviour of the sector.

Between 2021-22 and 2023-24, all product categories—coir fibre, coir yarn, coir products, coir rope, curled coir, and rubberized coir—showed consistent growth, reflecting strong domestic production capacity and increasing market demand. Coir fibre production increased from 7,67,000 MT to 7,96,300 MT, while coir yarn rose from 4,61,500 MT to 4,77,780 MT, signalling improvements in fibre extraction and spinning mechanisms. Similarly, value-added coir products grew from 3,04,500 MT to 3,15,335 MT, indicating diversification and market expansion in mats, mattresses, geotextiles, and horticulture products.

However, in 2024-25, all product categories experienced a sharp and uniform contraction of approximately -24.67% to -24.69%, marking the most significant decline in recent years. Coir fibre output dropped by 1,96,500 MT, while coir yarn shrank by 1,17,900 MT. The decline in value-added coir products (-77,815 MT) further underscores the ripple effect of reduced fibre availability on downstream industries. Rubberized coir—an important product for the mattress and automotive sectors—also fell by 29,475 MT, reflecting reduced industrial demand or constrained raw material supply.

The uniformity in the percentage decline across all products signifies a systemic production disruption rather than product-specific issues. This sharp downturn may be attributed to factors such as reduced availability of coconut husk due to climatic variance, disruptions in the supply chain, lower export demand, rising production costs, or delayed procurement cycles. Since fibre availability determines the output of yarn and other processed products, the sector's high interdependence becomes evident in the synchronized fall.

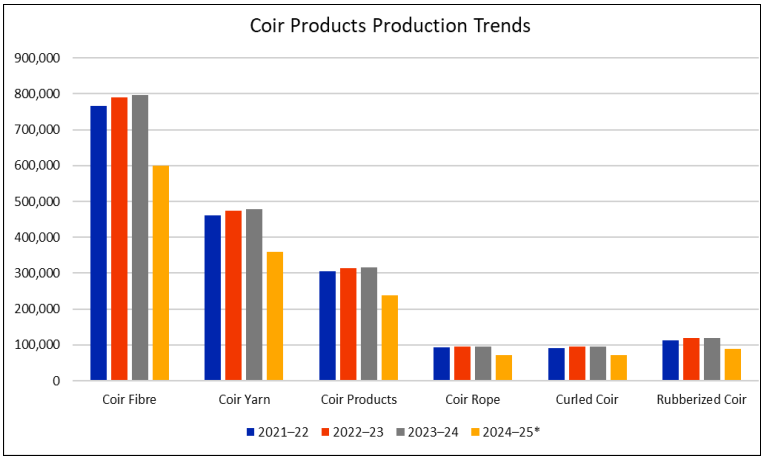
Despite the decline, the data also reveals the robust production capability of the Indian coir sector, as year-on-year growth rates before 2024-25 were positive across all items. This indicates that the sector has the potential to return to growth provided raw material supply, export stability, and technological reinforcement are ensured.

Overall, the table highlights that while the Indian coir industry demonstrated strong growth and diversification until 2023-24, the significant drop in 2024-25 points to vulnerabilities in raw material sourcing and external market fluctuations. Strengthening agricultural linkages, promoting mechanisation, improving storage facilities, and encouraging value addition are essential to stabilising production and ensuring long-term resilience.

Table 3: Production of Coir & Coir Products (MT)

Item	2021-22	2022-23	2023-24	2024-25*	Absolute Change (2023-24 to 2024-25)	% Growth
Coir Fibre	7,67,000	7,91,000	7,96,300	5,99,800	-1,96,500	-24.68%
Coir Yarn	4,61,500	4,74,600	4,77,780	3,59,880	-1,17,900	-24.69%
Coir Products	3,04,500	3,13,236	3,15,335	2,37,520	-77,815	-24.67%
Coir Rope	92,300	94,920	95,556	71,976	-23,580	-24.67%
Curled Coir	92,000	94,920	95,556	71,976	-23,580	-24.67%
Rubberized Coir	1,11,800	1,18,650	1,19,445	89,970	-29,475	-24.67%

Source: Compiled from MSME Annual Report



Source: Compiled from MSME Annual Report

Fig 2: Trends of Coir Products

Budgetary Allocation and Fund Utilisation for the Coir Industry in India

Table 4 presents the budgetary allocation and fund utilisation pattern for the Coir Board from 2020-21 to 2024-25. The data offers important insights into the government's financial commitment to the coir sector and the efficiency with which allocated funds are released and presumably utilised.

From 2020-21 to 2023-24, the Coir Board consistently received high levels of support, with annual allocations ranging from ₹80.00 crore to ₹92.15 crore. A key observation is the near-perfect fund utilisation during the first four years, with funds released equalling or nearly equalling the allocated amounts. For instance, in 2020-21, the Board received ₹80.69 crore against an allocation of ₹80.70 crore, reflecting a utilisation rate of 99.99%. Similarly, in 2022-23 and 2023-24, the release matched the allocation perfectly, showing 100% fund utilisation. This high consistency indicates that the sector maintained strong administrative efficiency and that the government ensured full support for coir development programmes.

However, a significant shift occurs in 2024-25, where the allocation drops to ₹75.10 crore, and the funds released are only ₹53.77 crore, representing 71.56% of the allocation. The absolute difference of ₹-21.33 crore marks the largest gap in the observed period. This decline may be due to changes in budget priorities, pending project utilisation, restructuring of schemes under the MSME Ministry, or delays in fund disbursement. It may also reflect a more cautious approach by the government, given the simultaneous decline in coir production and exports during 2024-25.

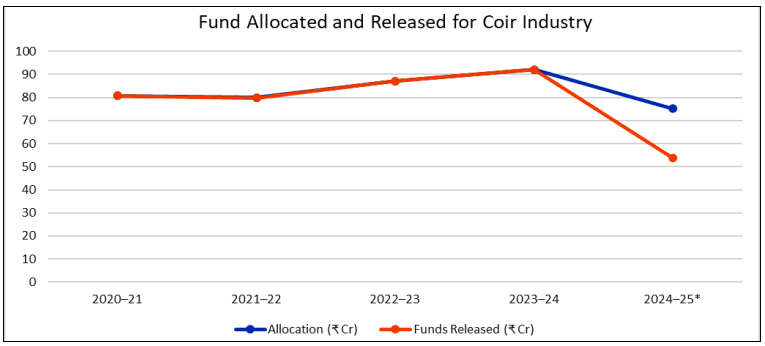
The data pattern suggests that while the coir sector enjoyed stable and complete fund support during earlier years, the latest year's drop signals challenges either in fund absorption capacity or in government spending decisions. Since budgetary support plays a critical role in training, research, technological upgradation, modernisation, and export promotion—any reduction can hamper industry performance, especially in a year where production has also significantly fallen.

Overall, Table 4 highlights the importance of consistent government financing for sustaining growth in the coir industry. The sharp fall in fund release in 2024-25 is a concern, suggesting that policy attention is needed to ensure uninterrupted funding and effective utilisation to support employment, production, and export performance in the coming years.

Table 4: Budgetary Support for COIR Industry in India

Year	Allocation (₹ Cr)	Funds Released (₹ Cr)	% Release vs Allocation	Absolute Difference
2020-21	80.70	80.69	99.99%	-0.01
2021-22	80.00	79.81	99.76%	-0.19
2022-23	87.14	87.14	100%	0
2023-24	92.15	92.15	100%	0
2024-25*	75.10	53.77	71.56%	-21.33

Source: Compiled from MSME Annual Report



Source: Compiled from MSME Annual Report

Fig 3: Budgetary Support for COIR Industry in India

Skill Development and Capacity-Building Initiatives in the Coir Industry

Table 5 summarises the distribution of beneficiaries under various skill development programmes implemented by the Coir Board. The data clearly indicates the sector's strong emphasis on women empowerment, skill enhancement, and capacity building, which are essential for strengthening employment outcomes and productivity in the coir industry.

The largest share of beneficiaries comes from Value-Added Product (VAP) Training, which accounts for 989 beneficiaries or 50.82% of the total. This dominance highlights the rising importance of value addition within the coir industry. Value-added products—such as mats, carpets, geotextiles, furnishing materials, and horticulture items—offer higher economic returns compared to raw fibre and yarn. The preference for VAP training suggests a strategic shift toward developing specialised skills that support diversification, innovation, and market competitiveness.

The Mahila Coir Yojana (MCY) represents the second-largest category, covering 912 women beneficiaries (46.86%). As the first woman-oriented self-employment scheme in the coir sector, MCY plays a crucial role in promoting gender-inclusive development. The high participation rate reflects the coir industry's historically strong association with women's labour, especially in yarn spinning and fibre processing. This scheme not only provides technical training but also contributes to income generation, social empowerment, and rural livelihood enhancement for women artisans.

In contrast, only 46 beneficiaries (2.36%) enrolled in Certificate and Diploma programmes. These long-term, structured technical courses are designed for advanced skill acquisition in coir technology, machinery operation, and product development. The small share indicates that while basic and intermediate training programmes attract large numbers, more intensive and formalised technical education remains limited—possibly due to time constraints, cost factors, or lack of awareness.

Overall, the data demonstrates that the Coir Board's training initiatives are primarily focused on practical, production-oriented skills that directly enhance employability and promote self-employment. The concentration of beneficiaries in VAP and MCY programmes aligns with the industry's labour-intensive nature and the goal of expanding rural livelihood opportunities. The focus on women artisans further strengthens the coir sector's role in fostering inclusive and sustainable employment generation.

Going forward, increasing enrolment in formal Certificate and Diploma programmes could strengthen the industry's technical capabilities and support long-term modernisation. Enhancing awareness, expanding training centres, and offering incentives for advanced skill development would help build a more skilled and competitive workforce in the sector.

Table 5: Skill Development Programmes

Programme	Beneficiaries	Share (%)
MCY (Women Spinning)	912	46.86%
VAP Training	989	50.82%
Certificate/Diploma	46	2.36%
Total	1,947	100%

Source: Compiled from MSME Annual Report

8. Findings of the Study

- **High Participation in Skill Development Programs**

The data shows that a total of 1,947 individuals benefited from skill development initiatives under the coir sector. Among these, the VAP Training programme recorded the highest share with 989 beneficiaries (50.82%), indicating strong interest in value-added production and diversified coir activities.

- **Women-Centric Participation in MCY**

The Mahila Coir Yojana (Women Spinning) accounted for 912 beneficiaries (46.86%), highlighting the significant involvement of women in traditional spinning and fibre-based activities. This confirms the industry's role as a crucial source of women's employment and empowerment.

- **Limited Enrollment in Formal Certification**

Only 46 beneficiaries (2.36%) underwent Certificate or Diploma-level training, suggesting a comparatively lower inclination towards long-term or formal skill-oriented programmes. This indicates the need to encourage more structured and advanced training among workers.

- **Balanced Distribution of Beneficiaries**

The overall distribution shows that nearly 97% of the trainees are concentrated in MCY and VAP, reflecting higher demand for hands-on, practical training rather than classroom-based technical programmes.

- **Impact on Rural Skill Development**

The substantial number of beneficiaries in both MCY and VAP reflects the sector's continued importance in strengthening rural livelihoods through targeted skill-building and small enterprise support.

9. Conclusions and Suggestions

The analysis of skill development data demonstrates that the coir sector continues to be an important driver of rural employment, especially for women. With 1,947 trainees participating in various programmes, the industry shows strong engagement in capacity-building efforts. The dominance of VAP Training (50.82%) and MCY (46.86%) highlights a clear preference for practical, production-related skills among workers, which aligns with the labour-intensive nature of the industry. However, the minimal participation in Certificate and Diploma programmes (2.36%) reflects the need to strengthen awareness and accessibility of formal training pathways. Overall, the sector remains vital for promoting inclusive development, upgrading skills, and enhancing productivity in coir-based activities.

To strengthen the overall performance of the coir sector, several measures can be taken. First, there is a need to increase awareness about formal Certificate and Diploma programmes, as only a small share of workers currently participates in these courses. Encouraging enrolment through incentives, job placement support, and easier access can help workers acquire advanced technical skills. Since the Mahila Coir Yojana accounts for a large proportion of beneficiaries, expanding women-focused training initiatives will further enhance women's economic participation and empowerment. Similarly, the high enrolment in Value-Added Product (VAP) training highlights the growing interest in diversified and modern coir products; therefore,

these programmes should be strengthened to promote entrepreneurship and small-scale enterprise development. Introducing advanced modules on product design, technology use, branding, and digital marketing will help workers improve the quality and marketability of their products. In addition, extending training centres to remote rural and coastal areas can make skill development more accessible. Overall, combining practical training with formal certification, improved facilities, and stronger market linkages will help the coir industry grow sustainably and become more competitive.

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