

4. Transformative Implementation of Jute Crop - Economy

The evolution of India's jute sector has entered a decisive new phase with the implementation of the Jute Crop Information System by the National Jute Board since 2023.

1. Background

Jute, known as the "golden fibre" for its natural, renewable, biodegradable, and eco-friendly properties, has been integral to India's agricultural and industrial economy for over a century. India is the world's largest jute producer followed by Bangladesh and China, with the sector providing direct employment to approximately 4 lakh workers and supporting livelihoods of around 40 lakh farm families, predominantly in West Bengal, Bihar, and Assam which account for 99% of India's total production. However, unlike Bangladesh which accounts for three-fourths of global jute exports, India consumes 90% of its production domestically due to vast domestic market demand including jute bags for food grain packaging mandated by government regulations. Prior to the Jute Crop Information System introduction, the jute ecosystem was marked by structural limitations constraining planning and productivity—crop area and yield estimates were based on fragmented inputs and expert assessments resulting in inconsistencies and delays, field data collection remained manual with limited standardization and absence of geo-referencing, and lack of real-time mechanisms to detect crop stress from floods, droughts, pests, or temperature variations led to delayed responses and higher crop losses. The National Jute Board, implementing JCIS since 2023 in collaboration with ISRO and Jute Corporation of India, developed two key tools—BHUVAN JUMP (mobile app for on-field jute monitoring) and PATSAN (web-based platform providing near-real-time jute surveillance and analytics supporting informed decision-making). This technological transformation aims to modernize jute cultivation through remote sensing, improve yield predictions, enable timely interventions, and strengthen the sector's competitiveness. However, challenges persist including competition from synthetic fibers like polypropylene and polyester, limited product innovation and diversification, quality issues in retting processes affecting fibre characteristics, jute mill concerns regarding machinery modernization and labor shortages, and price fluctuations influenced by climate conditions and supply-demand imbalances affecting industry stability.

2. Jute Crop Information System (JCIS)

Implementation and Collaboration

1. The National Jute Board has been implementing JCIS since 2023 in collaboration with the Indian Space Research Organization and the Jute Corporation of India.
2. The initiative aims to monitor jute cultivation using remote sensing and field data improving planning and productivity.

Key Tools Developed

BHUVAN JUMP – A mobile application for on-field jute monitoring enabling real-time data collection by field officials.

PATSAN (Prospective Assessment of Jute Using Mobile App-Based Field Observations) – A web-based platform providing near-real-time jute surveillance and analytics to support informed decision-making by officials and stakeholders.

Need for JCIS

1. Prior to JCIS, crop area and yield estimates were based on fragmented inputs and expert assessments, often resulting in inconsistencies and delays.
2. Field data collection remained manual with limited standardization and absence of geo-referencing.
3. Lack of real-time mechanisms to detect crop stress from floods, droughts, pests, or temperature variations led to delayed responses and higher crop losses.

3. Jute Production in India

Global Position

1. Jute is called the golden fibre due to being natural, renewable, biodegradable, and eco-friendly.

2. India is the largest producer of jute followed by Bangladesh and China.
3. However, in terms of acreage and trade, Bangladesh leads accounting for three-fourths of global jute exports compared to India.
4. Most Indian jute is consumed domestically due to vast domestic market demand, with average domestic consumption of 90% of total production.

Employment and Livelihoods

1. The jute sector provides direct employment to about 4 lakh workers in the country.
2. It supports the livelihood of around 40 lakh farm families across jute-growing regions.

Geographic Concentration

1. West Bengal, Bihar, and Assam account for almost 99% of India's total jute production.
2. This concentration reflects favourable agro-climatic conditions in these states.

Conditions Required for Jute Production

Temperature – Mean maximum and minimum temperatures of 34°C and 15°C, with mean relative humidity of 65% required.

Rainfall – Around 150–250 cm of well-distributed rainfall during growing season.

Soil – Jute can be raised on all soils from clay to sandy loam, but loamy alluvial soils are best suited.

4.Challenges for Jute Industry

Competition from Synthetic Fibers

1. Jute faces stiff competition from synthetic fibres like polypropylene and polyester, which are often considered more versatile and cost-effective.
2. Synthetic alternatives offer uniform quality, longer durability, and lower prices challenging jute's market share.

Lack of Innovation and Product Diversification

1. The industry faces challenges in limited product innovation and diversification beyond traditional uses.
2. Jute remains confined to packaging applications without adequate penetration into value-added products like textiles, home furnishings, and industrial applications.

Quality Issues

1. Under retting, jute bundles are kept under water at about 30 cm depth, giving fibre its shine, colour, and strength.
2. This should ideally be done in slow-moving, clean water bodies like rivers, but Indian farmers lack access to such resources.
3. Poor retting leads to inconsistent fibre quality affecting market prices and competitiveness.

Concerns of Jute Mills

1. Jute mills face issues of machinery modernization requiring substantial capital investments.
2. Mismanagement, labor shortages, and unrest affect productivity and operations.
3. Dependence on government support and regulations limits commercial dynamism.

Price Fluctuations

1. Jute prices are volatile, influenced by climate conditions and supply-demand imbalances affecting industry stability.
2. Price unpredictability creates uncertainty for both farmers and mills impacting investment decisions.

5.Government Initiatives

Jute Packaging Material Act

1. Continuation of Jute Packaging Material (Compulsory Use in Packing Commodities) Act, 1987 ensures captive demand.
2. Government maintains 100% reservation for food grains and 20% for sugar to be packed in jute packaging material.

Minimum Support Price

1. MSP for raw jute provides floor price protecting farmers from market volatility.
2. Ensures farmers receive remunerative prices encouraging continued cultivation.

National Jute Development Program (NJDP)

1. Approved for implementation during 2021-22 to 2025-26 for overall development and promotion of the jute sector.
2. NJDP covers multiple schemes addressing different aspects of jute value chain.

Improved Cultivation and Advanced Retting Exercise (Jute ICARE)

1. Introduces package of scientific methods of jute cultivation and retting exercises improving fiber quality and farmer incomes.

Jute Resource cum Production Centre (JRCPC)

1. Spreads jute diversification programs by providing training to new artisans.
2. Develops skills for manufacturing jute diversified products beyond traditional packaging.

Jute Raw Material Bank (JRMB)

1. Supplies jute raw material to jute artisans and MSMEs for production of jute diversified products at Mill Gate price.
2. Ensures raw material availability at reasonable prices supporting small enterprises.

Jute Design Resource Centre (JDRC)

1. Designs and develops market-worthy innovative jute diversified products.
2. Helps existing and new jute diversified product manufacturers and exporters with design support.

Production Linked Incentive Scheme

1. Supports Jute Mills and MSME JDP units for manufacturing and exporting jute diversified products.
2. Makes them cost competitive in international markets through financial incentives.

Market Development Promotion

1. Development of Jute Mark Logo for certification of quality jute diversified products.
2. Launching publicity campaigns to popularize jute and create consumer awareness about eco-friendly alternatives.

6. Jute Corporation of India

Establishment and Mandate

1. JCI was incorporated by the Government of India in 1971 as a price support agency.
2. Its mandate is procurement of raw jute from growers at Minimum Support Price.

Objective

1. The objective is not profit-making but a social cause to protect the interest of families engaged in jute farming.
2. JCI intervenes in markets when prices fall below MSP ensuring farmer welfare.

7. Way Forward

Technology-Driven Cultivation

1. Scale up JCIS implementation across all jute-growing regions ensuring comprehensive coverage, while training farmers and field officials in using BHUVAN JUMP and PATSAN platforms enabling data-driven decision-making, timely interventions for pest management, and optimal resource utilization improving yields and reducing losses.

Product Innovation and Diversification

1. Invest in research and development for innovative jute products including textiles, home furnishings, automotive components, and packaging alternatives competing with synthetic materials, while leveraging jute's eco-friendly credentials appealing to environmentally-conscious consumers globally creating new markets and value addition.

Quality Improvement

1. Establish community retting facilities with access to clean, slow-moving water ensuring consistent fibre quality, while promoting improved retting techniques, quality certification systems, and grading

standards enabling premium pricing for superior quality jute incentivizing farmers to adopt best practices.

Modernization of Jute Mills

1. Provide financial support for machinery modernization through subsidized credit and technology upgradation schemes improving productivity and product quality, while addressing labor issues through skill development, improved working conditions, and worker welfare measures ensuring stable operations and industrial peace.

Market Linkages and Export Promotion

1. Strengthen domestic market linkages connecting farmers and small producers with buyers reducing intermediary exploitation, while aggressively promoting jute exports through trade fairs, buyer-seller meets, and leveraging India's commitment to sustainable development showcasing jute as green alternative to synthetic materials expanding international markets.

Conclusion

The National Jute Board's implementation of JCIS since 2023 in collaboration with ISRO and Jute Corporation of India marks decisive transformation. Two key tools—BHUVAN JUMP (mobile app) and PATSAN (web-based platform)—provide near-real-time surveillance addressing previous limitations of fragmented estimates, manual data collection, and delayed crop stress detection. India is the largest jute producer but consumes 90% domestically, with Bangladesh dominating exports. The sector employs 4 lakh workers and supports 40 lakh farm families, with West Bengal, Bihar, and Assam producing 99%. Challenges include synthetic fibre competition, limited innovation, quality issues from inadequate retting facilities, jute mill modernization needs, and price volatility. Government initiatives include Jute Packaging Material Act, MSP, NJDP (2021–26), Jute ICARE, JRCPC, JRMB, JDRC, PLI scheme, and market development. Solutions require technology-driven cultivation scaling, product innovation, quality improvement, mill modernization, and export promotion.

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