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Corporate Social Responsibility of Private Agricultural Universities on Adoption of Innovative Jute Production Technologies

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Abstract

Jute is a commercial crop which is socio-economically beneficial for millions of small and marginal farmers and for rural livelihoods. Recent technical advancements in jute cultivation includes improved retting methods (ribbon retting, free-flowing water retting, microbial/enzymatic retting), improved varieties and innovative mechanization. These could increase the potential and raise fibre yield, improve quality, minimize resource use (water, labour etc.) and hence in turn increase farmer incomes. Private agricultural universities are growing over the past decade in higher-education ecosystem. These are appropriately positioned to transfer as well as translate these jute technologies into farmers' practice through Corporate Social Responsibility (CSR) activities that amalgamate the intersection of research, extension, community development and industry partnerships. So, there is a need to synthesise the relevant literature, a conceptual framework for CSR interventions, identifying factors and barriers in order to propose an operational roadmap and policy recommendations to improve jute value chain.

Keywords: corporate social responsibility, diffusion, extension education, innovations, jute, private agricultural universities, technology adoption.

Introduction

Jute is not only a commercial fibre crop in India, but it is a part and parcel in rural livelihoods, local agro-ecology as well as the regional economy. Proper adoption of innovative technological improvements in production and post-harvest processing of fibres, strongly influences fibre yield and quality, promises both environmental as well as income benefits for the farming communities. But still the adoption gaps persist among the small and marginal farmers because of inadequate extension efforts, information asymmetries, water and labour constraints, poor market linkages and inappropriate coordination failures among the research institutions, State agricultural universities, KVKs industry and the clientele system i.e., the farmers (Mondal, 2015). In this scenario the private agricultural universities can leverage CSR



as a purposeful instrument for public benefit, linking their institutional capacities for community impact by bridging such gaps.

Role - Corporate Social Responsibility, higher education and agricultural development

Corporate Social Responsibility has evolved out of philanthropic efforts into longer-term investments in human capital, diffusion of innovations and ecosystem resilience. In agriculture, CSR can finance extension services, market access projects, sanitation and technology adoption programs in areas that would align closely with the private agricultural university mandates of research, teaching and extension. CSR investments in agriculture has still remain under-mobilised in relation to other sectors of the economy (Ministry of Corporate Affairs, 2023). This is creating an opportunity for private universities and firms to partner on mutually beneficial programmes. Private agricultural universities could serve as an important role in CSR activities by delivering technical training, demonstration plots and popularising locally adapted solutions.

Innovations in jute retting and processing of jute fibres

Retting of jute is the microbial/chemical process of separation of fibre from jute stalks. It is the most significant process that determines the quality of jute fibre and also environmental footprint. Latest innovations with that could be disseminated to the farmers are as follows-

Techniques of *Ribbon retting and concrete or in-situ retting tanks* helps to reduce water use and speed drying at the same time improving quality of fibres and lowering costs of cultivation. Controlled ribbon retting has resulted to shorten the retting duration and reduce consumption of water substantially as compared to that of conventional pond retting. (Chakraborty & Begum, 2023)

Use of *Microbial consortia for retting* (e.g., 'CRIJAF SONA') developed from ICAR-CRIJAF showed that using selected microbial inoculants can improve fibre grade by 1–2 grades. It could reduce retting duration by about 6-7 days and reduce water consumption for retting purpose. This biological retting process is easier to scale through coordinated extension services. (ICAR-Central Research Institute for Jute and Allied Fibres [ICAR-CRIJAF], 2019) Through using *free-flowing and recirculating water retting systems* demand for freshwater would be reduced and environmental or more specifically water pollution/contamination could be controlled at the same time maintaining and improving the quality of retted jute fibres. Studies demonstrate significant water savings and better retting control. (Majumdar et al., 2023)



Mechanization reduces drudgery and labour costs but requires customisation for smallholder contexts. Through *mechanical/partial mechanization* could be done for seed sowing by using seed-drills, weeding through Nail Weeder and also the implements used for specialised decorticators and dewatering platforms,

Each innovation offers distinct benefits in terms of quality, time, labour or water savings. But the adoption of such innovations largely depends up on the extension services like awareness programme, information diffusion, disbursements of mini-kits for trials, local adaptation and market incentives.

Importance of Private Agricultural Universities in CSR:

Private Agricultural Universities has the immense potential to act as a catalyst for technology adoption and diffusion. A three-dimensional framework would help us to determine that how the universities could operationalise CSR for accelerating the diffusion and adoption of jute technologies:

Firstly, through *Knowledge and Research & Development linkage* these universities could conduct adaptive/minikit trials on ribbon retting, microbial inoculants utilised for retting purpose, recirculating systems and smallholder-appropriate machinery like seed drill or Nail weeder. Also, through using *localised protocols* viz., customizing the fermentation times, tank sizes, inoculant dosages to district-level conditions for each specific region.

Secondly through *capacity building and demonstration* the diffusion of such innovations could be accelerated. These could be executed by establishing on-farm demonstration, farmer field schools and organising farmer training programmes funded under CSR budgets. Also, through using student-led extension clinics as low-cost, high-impact dissemination centres.

Thirdly, by *systems and market integration* for sustainability and increasing the diffusion and adoption coverage through facilitating public–private partnerships (PPPs) by linking CRIJAF/ICAR research outputs to local entrepreneurs and cooperatives. And by supporting innovative business models that may include retail of retting kits, mobile retting services, contract retting etc. that may create recurring revenue and sustain services after the end of the CSR programmes by universities.

This three-dimensional framework would treat CSR not just as one-time charity act but as long-term strategic investment in the diffusion and adoption of jute innovation systems. Where universities will act as knowledge intermediaries, conveners and incubators of technologies. This framework emphasises on quantitative and measurable outcomes like adoption rates, fibre grades, water saved, farmer incomes etc. which could be properly



assessed through regular monitoring and impact reporting consistent with the norms of CSR accountability rules and regulations.

Implementation Frameworks for University CSR Initiative

Private universities could implement the practical programme designs within their CSR mandates for better adoption and diffusion of agricultural technologies within the farming communities. The private universities could design and implement *Demonstration units and Farmer Field Schools (FFS)* for improved retting of jute fibres. Monthly FFS cycles during jute retting season by demonstrating ribbon retting, CRIJAF SONA inoculation and small-scale recirculating water tanks. They could help in the construction of *demo tanks* per district, procurement of inoculant packs and providing remuneration for extension staff. The major output of such framework will be hands on training for farmers, better gradation of jute fibres and improvement in retting time also local farmers will get trained regarding those technologies.

Private universities could implement *Mobile Retting Services and entrepreneur Incubation* by incubating local microenterprises by rendering paid mobile retting services which would include portable tanks, trained operators etc. The rationale behind this is that it will lower down the transactional costs for smallholders and generates employment further ensuring sustainability. CSR mandates could provide seed finance, technical training and business model mentoring.

Private universities could involve *student-community engagement* by initiating sponsored student projects that monitor those retting outcomes and water quality, producing data for continuous improvement. It would benefit the students by developing their capacity, generates local evidence, strengthens university community collaborations.

Through *Market Linkages & Value-Addition Pilots* the private agricultural universities could partner with local fabricators and jute buyers to pilot premium procurement contracts for higher-grade jute that were produced via improved retting. Through CSR those universities could facilitate contracting workshops and guarantees the price to reduce farmers' risk. CSR budgets should be structured to cover initial capital for setting up of infrastructural facilities like tanks, inoculants etc., training facilities and seed finance for local entrepreneurs.

Conclusion

Private agricultural universities have the potential to transform the corporate social responsibilities into strategic and measurable investments that could accelerate the diffusion and adoption of innovative jute production technologies. By aligning the private agricultural universities' research and extension capabilities with CSR resources. By setting up



partnerships with government and non-government research institutes (e.g., ICAR-CRIJAF), industry buyers and community organisations. Those universities could deliver tangible benefits like higher quality and gradation of jute, lower environmental degradation, increase in farmer incomes and development of rural enterprises/cottage industries. But it requires commitment, adaptive pilot testing of strategies and enabling policy implications that could help to make CSR an efficient conduit for diffusion of agricultural innovation.

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