

Sugarcane Cultivation and Sugar Industry in Bihar: Historical Perspectives, Contemporary Challenges, and Policy Pathways

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ABSTRACT

Bihar occupies a unique and historically significant place in India's sugarcane and sugar industry. Once accounting for nearly 40 percent of India's total sugar production and hosting the country's first modern vacuum-pan sugar mill at Marhowrah in 1904, the state has experienced a dramatic structural decline to merely 3–4 percent of national output in recent years. This article examines the historical evolution of sugarcane cultivation and the sugar industry in Bihar from ancient times to the present, analyzes trends in production, productivity, and mill performance, and evaluates the effectiveness of government policies and institutional interventions. Drawing on primary data from the Economic Survey of Bihar (2008–2022), the Bihar State Sugar Corporation's reports, secondary literature including Hutková (2021), Shrivastava et al. (2011), Solomon (2014), and Paswan et al. (2022), the paper traces Bihar's trajectory from a leading sugar-producing state to one grappling with waterlogging, irrigation deficits, mill closures, and farm-to-factory supply disruptions. The paper argues that while contemporary policy interventions including the Incentive Package 2014, the Chief Minister Sugarcane Development Programme, and the revival of closed sugar mills present credible pathways for renaissance, sustained and coordinated action across agricultural, industrial, and institutional dimensions is essential for Bihar to reclaim its historical stature.

Keywords: Mudra Yojana, MSME, Sugar Mills, Agricultural Productivity

1. Introduction

Sugarcane cultivation in India dates back to the 4th century AD in the Vedic period. The very word 'sugar' is known to have derived from the Sanskrit word *Sharkara*, underscoring India's primordial relationship with this crop. Today, India ranks as the world's second-largest producer of sugarcane after Brazil, with an area of over 5.71 million hectares, a production of roughly 330.70 million tonnes, and an average yield of 78.3 tonnes per hectare (2018–19). The sugar industry is India's second-largest agro-based industry after the cotton textile sector, supporting the livelihoods of approximately six million farmers and over five million skilled and semi-skilled workers (Solomon, 2014).

Within this national landscape, Bihar occupies a position of remarkable historical significance and contemporary paradox. Once the cradle of India's sugar industry contributing nearly 40 percent of the country's total sugar output in the early decades of the twentieth century Bihar has witnessed a precipitous decline to a mere 3–4 percent share in recent years. The state's first modern vacuum-pan sugar mill was established at Marhowrah in Saran district in 1904, an event that placed Bihar at the

vanguard of India's industrial sugar revolution. Between 1904 and 1940, a total of 33 sugar mills were established in the state. Today, of the 28 sugar mills that once operated, 18 have become completely sick and closed, and only a handful remain operational.

This article seeks to illuminate the arc of Bihar's sugarcane and sugar story from its ancient and colonial roots through its mid-twentieth century prominence to its contemporary challenges and to assess the policy architecture being constructed to engineer a revival. The sugarcane area in Bihar is currently concentrated across 37 districts, with the total area under cultivation standing at approximately 0.34 million hectares, or 5.58 percent of the national total, making it the fourth-largest sugarcane-cultivating state in India (2018–19). Bihar's total gross cultivable land is approximately 76 million hectares, of which sugarcane occupies a small but strategically significant share.

2. Objectives of the Study

The present study is guided by the following objectives:

- To study the historical evolution of sugarcane cultivation and the sugar industry in Bihar from ancient times to the present.
- To analyze trends in sugarcane cultivation, production, productivity, and sugar industry performance in Bihar.
- To evaluate the effectiveness of government policies and institutional support for the sugar industry in Bihar.

3. Hypotheses

The following hypotheses are tested:

- H_0 : Bihar's sugar industry has shown significant growth in production and productivity during the last decade and H_1 : Bihar's sugar industry has not shown significant growth in production and productivity during the last decade.
- H_0 : Bihar's sugar industry has adequate historical infrastructure and institutional support for sustainable growth and H_1 : Bihar's sugar industry lacks adequate historical infrastructure and institutional support for sustainable growth.
- H_0 : Government policies and incentives have effectively supported the revival of Bihar's sugar industry and H_1 : Government policies and incentives have not effectively supported the revival of Bihar's sugar industry.

4. Research Methodology

The present study is descriptive and analytical in nature. It relies primarily on secondary data sourced from the Economic Survey of Bihar (2008–22), the Bihar State Sugar Corporation's annual reports, and the Directorate of Sugarcane Development. These are supplemented by published research literature including Shrivastava et al. (2011), Solomon (2014), Paswan et al. (2022), and Hutková (2021). Trend data on cane crushing and sugar production spanning 1939 to 2022 are analyzed using a combination of descriptive statistics and narrative analysis. Policy documents related to the Incentive Package 2014 and the Chief Minister Sugarcane Development Programme 2023–24 are critically examined to evaluate their design and potential impact.

5. Review of Literature

Shrivastava et al. (2011) provide a comprehensive historical overview of sugarcane cultivation and sugar industry development in India from antiquity to the modern era. Their study highlights that the rapid expansion of the sugar industry particularly under legislative protection in the 1930s enabled the establishment of hundreds of new mills. Critically, they note that it was in Marhowrah, Bihar, in 1904 that the first vacuum-pan process sugar plant in India was set up, cementing Bihar's pioneering role in the national industry. They also document the Imperial Council of Agricultural Research's Sugarcane Research Scheme for Bihar, launched in 1932 at Musahari, Muzaffarpur.

Solomon (2014) offers a panoramic view of the Indian sugar industry's contemporary structure and challenges. He underscores that sugar yields in sub-tropical states like Bihar (below 50 tons per hectare) are significantly lower than in tropical states, and that Bihar is classified in the low productivity and medium-to-low sugar recovery zones. He identifies waterlogging, abiotic stress, and static ratoon crop yields as key impediments to productivity improvement in sub-tropical India.

Hutková (2021) provides a meticulous micro-level study of European sugar entrepreneurs in 1830s–1840s Bihar, examining the Jummoah factory and the Dhobah East India Company. Her findings reveal that the critical failure of the modern sugar industry in colonial Bihar was not primarily technological but was rooted in two structural weaknesses: inadequate irrigation (which made sugar yields 5.7 times lower than in the West Indies) and the abrupt reversal of British trade policy in 1846. Her work powerfully demonstrates how policy discontinuity can destroy nascent industries.

Paswan et al. (2022) conduct a statistical trend analysis of cane crushing and sugar production in Bihar from 1939 to 2016 using quadratic trend models. Their forecasts suggested that both cane crushed and sugar production would show positive increasing trends from 2017 to 2026, with the percentage increase in cane crushed ranging from 1.41 to 1.44 and in sugar production from 1.42 to 1.68. The rising trend was attributed to farmers' growing interest in sugarcane cultivation due to improved returns.

Mahajan (2019), in a study of PMMY (Pradhan Mantri MUDRA Yojana) in Maharashtra, documents the broader role of micro-credit in supporting MSME enterprises including agro-processing industries. The study finds that 93 percent of MUDRA loans disbursed are below Rs. 50,000, with Bihar ranking sixth among states in total loan sanctions. This underscores the potential role of financial inclusion schemes in supporting small-scale sugarcane-related enterprises in Bihar.

6. Historical Evolution of Sugarcane Cultivation and the Sugar Industry in Bihar

6.1 Ancient and Medieval Connections

Sugarcane's connection to Bihar is ancient and richly documented. In 647 AD, the Chinese Emperor Tsai Hang sent a delegation specifically to Bihar where sugarcane was cultivated for making sugar to learn the art of sugar-making (Ghosh, 1947; cited in Shrivastava et al., 2011). This episode not only establishes Bihar as a recognized centre of sugar knowledge in the ancient world but also underscores that the region's sugarcane heritage predates by more than a millennium the industrial-era developments that are often treated as the starting point of Bihar's sugar story. Ancient Indian texts including the Puranas, the Charak Samhita, and the Shushruta Samhita describe the medicinal and ritual uses of sugarcane products, with gur and sharkara featuring prominently in descriptions of the subcontinent's agricultural wealth.

6.2 The Colonial Period: British Policies and the Rise and Fall of Modern Sugar in Bihar (1800–1904)

Before the 1830s, sugarcane cultivation in Bihar was a traditional, peasant-based activity. Farmers grew cane on small patches of land using cattle-powered mills, producing unrefined sugars gur, rab, and khar primarily for local consumption and Asian trade. Sugar produced for home consumption was obtained by boiling cane juice at peasant homes, while sugar destined for regional or export markets went through rudimentary refining processes carried out by specialist traders (Hutková, 2021).

A decisive turning point came in 1836 when the British government equalized sugar duties between the East Indies (including Bihar) and the West Indies, allowing Bihar sugar to enter Britain at the same preferential rate of 24 shillings per hundredweight. This policy driven partly by abolitionists promoting 'free labour' sugar as a moral alternative to slave-grown West Indian sugar, and partly by the high London sugar prices resulting from West Indian decline incentivized European entrepreneurs to invest heavily in the Tirhoot (Tirhut) region of Bihar. Attracted by the prospect of high profits, investors imported advanced West Indian technologies including steam engines and vacuum pans, and experimented with foreign cane varieties such as Otaheite cane, aiming to produce white sugar for the British export market (Hutková, 2021).

However, these modern ventures confronted crippling structural challenges. The most decisive was low agricultural productivity owing to inadequate irrigation: without reliable watering, sugar yields per acre in Bihar were 5.7 times lower than in the West Indies. In a revealing comparative analysis, the Jummoah factory a European-owned enterprise using the most advanced available technology produced only 2.8 cwt of muscovado per acre, which was 20 percent lower than the output of average peasant cultivators using traditional methods. Cheap Indian labour could not compensate for the scarcity and high cost of raw cane juice. Internal transport from the interior of Bihar to Calcutta was slow, taking two to three months by river, risky due to underdeveloped infrastructure, and expensive, with some five percent of sugar value lost to quality deterioration and robbery (Hutková, 2021).

The final blow came in 1846 when the British government passed the Sugar Duties Act, ending imperial preference and equalizing duties on all sugar, including cheaper slave-grown sugar from Cuba and Brazil. This sudden policy reversal came just as European entrepreneurs in Bihar were still experimenting and had not yet achieved commercial viability. The Dhobah East India Company the largest sugar enterprise in India lost Rs. 40,000–50,000 in 1846 and a further Rs. 70,000 in 1847, entirely wiping out the profits of Rs. 84,000 accumulated over 1836–1845. Within two years, most European-owned sugar businesses in Bihar had gone bankrupt (Hutková, 2021). Hutková concludes that the failure was not primarily technological or managerial but was rooted in inconsistent British trade policy and the chronic underinvestment in irrigation.

6.3 The Industrial Era: Bihar's Rise as a Sugar Giant (1904–1947)

Despite the collapse of European-owned enterprises in the 1840s, the Bihar sugar industry was not extinguished. It persisted in its traditional peasant-based form until the early twentieth century, when a new chapter of industrialization began. In 1904, the first vacuum-pan process sugar plant in all of India was established at Saran in Marhowrah, Bihar a milestone that placed the state at the very forefront of Indian industrial modernity (Shrivastava et al., 2011). Between 1904 and 1940, a total of 33 sugar mills were established in Bihar, reflecting the rapid expansion of the industry. At its peak, Bihar contributed nearly 40 percent of the nation's total sugar production, a remarkable achievement that reflects the state's natural agricultural advantages, the entrepreneurial energy of its mill owners, and the institutional

support of the colonial state.

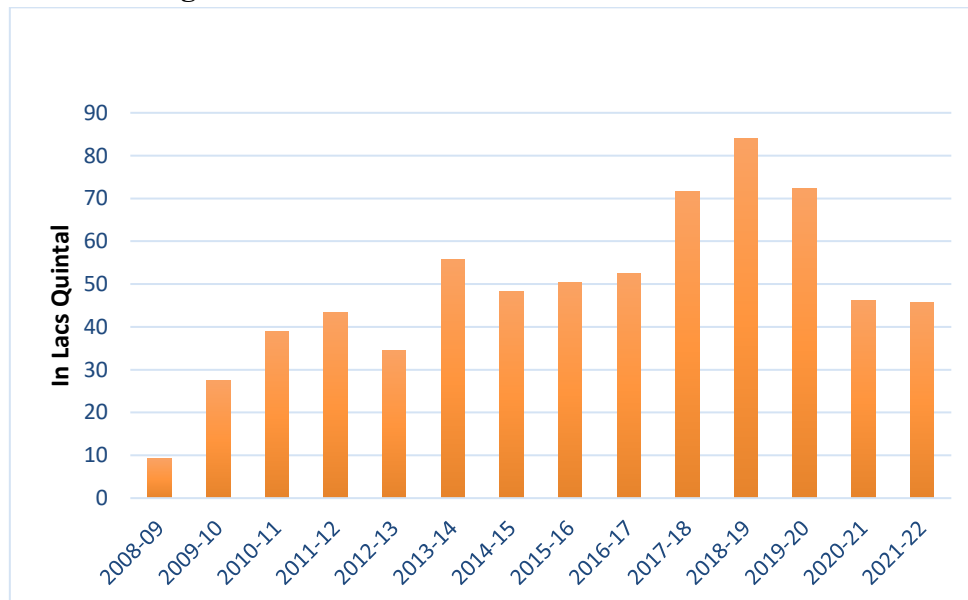
In 1932, the Imperial Council of Agricultural Research sanctioned a Sugarcane Research Scheme for Bihar, started at Musahari, Muzaffarpur. This eventually developed into the Sugarcane Research Institute at Pusa (Samastipur), which has since become a key institution for variety development and agricultural advisory services in the state.

6.4 Post-Independence Decline (1947–Present)

The decades following Independence witnessed a gradual erosion of Bihar's sugar industry. Of the 28 sugar mills that remained in the state post-Independence, 18 became completely sick and were closed. Currently, only 9 mills operate under private management, and 2 mills Lauria and Sugauli operate under Hindustan Petroleum Corporation Limited (HPCL). Bihar now accounts for only 3 to 4 percent of the country's sugar production, compared to 27.22 percent for Uttar Pradesh and 33.52 percent for Maharashtra (as of 2015–16), reflecting its dramatic fall from national prominence (Paswan et al., 2022). The structural reasons for this decline are well-documented. Waterlogging affects 10–15 percent of sugarcane area for 3–4 months annually, severely reducing yields. Irrigation is available in only 40–50 percent of the sugarcane-growing area, making the crop dependent on erratic rainfall. The state faces a severe shortage of agricultural extension staff with only 20 percent of sanctioned field positions filled undermining the dissemination of improved varieties and cultivation practices. The sugarcane area, though spread across 37 districts, is heavily concentrated in districts with a high spread index: West Champaran, Gopalganj, East Champaran, Sitamarhi, Siwan, Samastipur, and Bhagalpur, where average cane yields are relatively higher at around 70.50 tonnes per hectare.

7. Trends in Sugarcane Cultivation and Sugar Production in Bihar

Total Sugar Production from 2008 to 2021 from factor in Bihar



Source: Bar Diagram representation of Economic survey of Bihar (2008-22) data, Government of Bihar, Patna

7.1 Long-term Trend Analysis

Paswan et al. (2022) conducted a systematic trend analysis of cane crushing and sugar production in Bihar using time-series data spanning 1939 to 2016 (78 years). Evaluating three trend models linear,

exponential, and quadratic the study identified the quadratic trend model as the best fit on the basis of lower values of MAPE (26.40), MAD (7.22), and MSD (77.96) and a high R^2 (0.9317) for cane crushed, and similarly superior metrics for sugar production. The quadratic model forecasts for 2017–2026 project a continuously increasing trend, with cane crushed expected to rise from 50.01 lakh tonnes in 2017 to 56.84 lakh tonnes in 2026, representing a percentage increase ranging from 1.41 to 1.44. Sugar production is forecast to grow from 4.63 lakh tonnes in 2017 to 5.32 lakh tonnes in 2026, with percentage increases between 1.42 and 1.68.

7.2 Recent Performance (2008–09 to 2021–22)

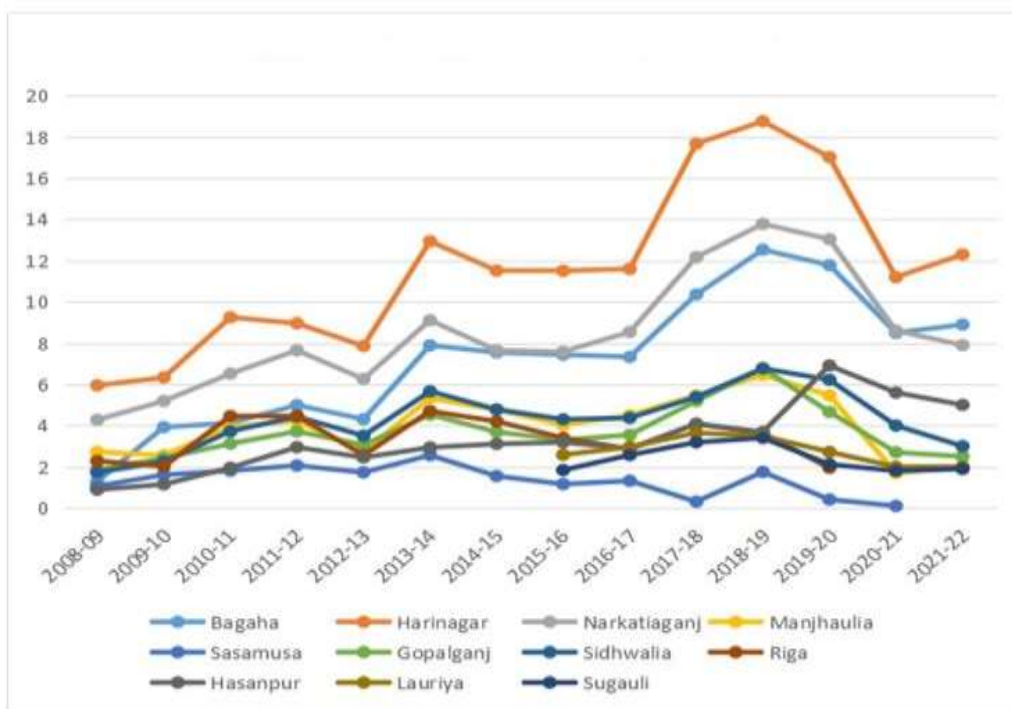
Data from the Economic Survey of Bihar (2008–22) reveal significant fluctuations in sugar production over the past decade and a half. From 2008–09 to 2011–12, sugar production increased gradually, reflecting the growth of the sector and favourable agronomic conditions. Between 2012–13 and 2014–15, production plateaued under conditions of stable demand and supportive government measures.

The period from 2016–17 to 2018–19 witnessed peak production, with the highest recorded output of approximately 90 lakh quintals in 2018–19. This peak was attributable to increased acreage under sugarcane, favourable weather conditions, and enhanced industrial processing capacity. However, production fell sharply in 2020–21, attributed to supply chain disruptions, reduced agricultural output, and the effects of the COVID-19 pandemic. By 2021–22, production had partially recovered to approximately 60 lakh quintals, indicating a degree of sectoral resilience.

Five-year historical cane crushing data from 2016–17 to 2021–22 also shows significant fluctuations: cane crushed peaked at 810.17 lakh quintals in 2018–19 before dropping sharply to 460.20 lakh quintals in 2020–21 and recovering to 473.09 lakh quintals in 2021–22.

7.3 Performance by Individual Sugar Mills

Figure: Trends of total Sugar Production by different Sugar Mills :-



Source: Line Graph of Sugar productivity rate of Economy survey of Bihar (2008-2022) data, government of Bihar, Patna

An analysis of mill-wise performance in Bihar reveals significant heterogeneity across units. Among the operational mills, Harinagar consistently records the highest production, peaking at approximately 18 lakh quintals in 2018–19 before a steep decline in 2020–21. Narkatiaganj and Manjhaulia show competitive production levels with notable increases around 2017–18 and 2018–19, benefiting from favourable agricultural conditions and improved processing efficiency. Other units including Bagaha, Sasamusa, and Sugauli exhibit lower and more stable output trends, reflecting limited capacity or resource constraints. Units such as Hasanpur and Lauria contribute minimally to total output, with slight variations over time.

Payment performance data for the 2019–20 crushing season reveals an equally uneven picture. While Harinagar paid 58.89 percent and Sidhwalia paid 54.38 percent of dues to farmers, Majhaulia paid only 11.23 percent and Riga a mere 0.34 percent. The overall payment percentage stands at 41.42 percent, indicating systemic delays in clearing farmer dues a critical weakness that undermines farmer confidence and suppresses future cane supply.

8. Status of the Sugar Industry in Bihar: Structural Weaknesses

Bihar's sugar industry is characterized by a cluster of interrelated structural weaknesses that have compounded over decades. These include:

- **Waterlogging:** Approximately 10–15 percent of the sugarcane area is flood-prone for 3–4 months annually, reducing effective growing seasons and depressing yields.
- **Irrigation Deficit:** Irrigation is available in only 40–50 percent of the sugarcane-growing area, making yields heavily dependent on monsoon rainfall and susceptible to drought years.
- **Low Productivity:** Bihar's sugarcane yield of approximately 54.41 tonnes per hectare (2016–17) is significantly below the national average and far below Maharashtra or Tamil Nadu.
- **Mill Sickness and Closure:** Of 28 operational sugar mills, 18 became sick and closed. Payment delays to farmers create disincentives for cane cultivation and erode the farmer-miller relationship.
- **Institutional Capacity Deficits:** Only 20 percent of sanctioned agricultural extension positions are filled, limiting the dissemination of improved varieties, integrated pest management advice, and modern agronomy.
- **Variety Degeneration:** The prevalence of obsolete or denotified cane varieties limits productivity gains; recommended improved varieties (CO-0238, CO-0118, CO-98014, COP-9301, CoP-112, CoP-16437/Rajendra Ganna-I, COLK-94184, CoLK-12207, CoLK-12209, Bo-153) are insufficiently adopted.

9. Government Policies and Institutional Support

9.1 Historical Policy Framework: The British Era (1836–1947)

The most critical lesson from Bihar's colonial sugar experience is the devastating impact of policy discontinuity. The 1836 equalization of duties between the East and West Indies created a window of opportunity for investment in Bihar's sugar industry, attracting European capital and modern technology to the Tirhoot region. However, the abrupt reversal in 1846 driven by a Whig free-trade agenda prioritizing cheap sugar for British consumers over colonial manufacturing interests destroyed the nascent industry before it could achieve competitiveness. As Hutková (2021) argues, the British government failed to create a long-run perspective for colonial industrial development, a lesson with profound resonance for post-Independence policy design.

9.2 Incentive Package 2014 (Revised)

A key contemporary policy instrument is the Bihar government's Incentive Package 2014 (Revised), which provides a 20 percent subsidy on fixed capital investment for setting up new sugar industry units or expanding existing ones. Specifically, a new sugar mill with a minimum capacity of 2,500 TCD (tonnes of cane crushed per day) or capacity expansion of at least 1,500 TCD is eligible for a subsidy of up to Rs. 15 crore. A new distillery or ethanol unit of at least 30 KLPD (kilolitres per day) or expansion by 15 KLPD can receive up to Rs. 5 crore, while a new co-generation power plant of 10 MW or expansion by 5 MW qualifies for up to Rs. 15 crore. This policy aims to attract private investment, modernize the industry, and increase both sugarcane crushing capacity and ethanol production in Bihar.

9.3 Chief Minister Sugarcane Development Programme

The Chief Minister Sugarcane Development Programme, with a total budget of Rs. 25 crore for 2023–24, represents a comprehensive scheme to enhance sugarcane productivity and farmer income. The largest allocation Rs. 13.38 crore is directed toward certified seed subsidies, ensuring farmer access to high-yielding improved varieties. This is followed by Rs. 5.87 crore for seed production incentives, Rs. 1.85 crore for farmer training and seminars, Rs. 1.48 crore for pesticide and fungicide subsidies (covering 50 percent of cost), Rs. 0.61 crore for the Monitoring and Advisory Services for Sugarcane (MAAS) and IT portal, and Rs. 0.38 crore for bio-compost subsidies. Together, these allocations address the supply-side constraints in Bihar's sugarcane sector promoting scientific cultivation, pest management, organic farming, and technology dissemination.

9.4 Revival of Closed Sugar Mills

The Bihar State Sugar Corporation (BSSC) has pursued a multi-pronged strategy to revive closed mills. Of the 15 closed BSSC mills, seven units have been successfully leased to private investors, with Lauria and Sugauli already operational and Samastipur under development. For the remaining eight mills, along with 2,442 acres of land, the government has transferred them to the Bihar Industrial Area Development Authority (BIADA) to establish priority sector industries. This strategy ensures that even non-operational mill sites are productively utilized, creating employment and attracting private investment without requiring direct government funding.

9.5 Research and Development: Sugarcane Research Institute, Pusa

The Sugarcane Research Institute (SRI) at Pusa, Samastipur successor to the Imperial Council of Agricultural Research's Bihar scheme established in 1932 at Musahari plays a central role in variety development and technical advisory services. In 2021–22, the IISR Motipur Regional Centre produced 18,350 quintals of breeder seed from 35 hectares. The MAAS (Monitoring and Advisory Services for Sugarcane) programme, launched by SRI Pusa, provides technical advisory to farmers on pest management, intercropping, and modern cultivation techniques. Ten improved varieties are officially recommended for Bihar: CO-0238, CO-0118, CO-98014, COP-9301, CoP-112, CoP-16437 (Rajendra Ganna-I), COLK-94184, CoLK-12207, CoLK-12209, and Bo-153.

10. Key Findings

The analysis yields the following principal findings:

- Bihar was historically India's most prominent sugar-producing state, contributing up to 40 percent of national production and hosting India's first vacuum-pan sugar mill in 1904. This leadership position has been dramatically reversed, with Bihar accounting for only 3–4 percent of current national output.

- The colonial-era failure of modern sugar enterprises in Bihar was rooted primarily in structural factors inadequate irrigation and the resultant low cane yields compounded by the abrupt withdrawal of British imperial trade preference in 1846. Technology and management were not the primary constraints.
- Sugar production in Bihar has shown significant cyclicity over the period 2008–09 to 2021–22, peaking in 2018–19 and falling sharply in 2020–21 due to the COVID-19 pandemic. Mill-wise performance is highly heterogeneous, with Harinagar consistently the largest producer.
- Payment delays to farmers with an overall payment rate of only 41.42 percent in 2019–20 constitute a serious structural weakness that threatens the sustainability of sugarcane supply chains across the state.
- Contemporary government interventions including the Incentive Package 2014, the Chief Minister Sugarcane Development Programme (2023–24), and the BSSC mill revival strategy are broadly well-designed and address the principal constraints of low productivity, inadequate variety adoption, and mill capacity.
- Institutional capacity deficits, particularly the filling of only 20 percent of sanctioned extension positions, significantly limit the effectiveness of all agricultural development programmes.

11. Discussion

Bihar's sugarcane and sugar story is, at its core, a story of structural constraint and missed potential. The state possesses the land, the historical knowledge, the institutional framework, and increasingly the policy will to rebuild its sugar industry. What it has lacked across both colonial and post-Independence periods is the sustained, coordinated investment in the foundational factors of production: irrigation, research and extension, transport infrastructure, and institutional capacity.

The parallel with Hutková's (2021) colonial narrative is instructive. Just as the European entrepreneurs of the 1840s were undone not by their own failings but by the combination of low cane yields (rooted in irrigation deficits) and policy discontinuity, Bihar's post-Independence sugar industry has been eroded by structural agricultural weaknesses combined with policy fragmentation a succession of mill closures, payment arrears, and inadequate investment in research and extension.

Solomon's (2014) national-level analysis provides the benchmark against which Bihar's performance must be measured. While Maharashtra achieves sugar recovery rates of over 11.5 percent and cane yields above 100 tonnes per hectare in its best-performing districts, Bihar operates at half or less of these benchmarks. Closing this productivity gap requires not isolated interventions but a comprehensive and sustained programme of irrigation expansion, variety upgrading, and integrated pest and nutrient management.

The MUDRA loan data analyzed by Mahajan (2019) suggests an additional dimension: the role of financial inclusion in supporting small-scale and MSME-category enterprises in the sugarcane value chain including jaggery producers, khandsari units, and molasses-based distilleries which remain largely uncharted in Bihar's industrial landscape.

12. Conclusion

Bihar's central argument is not one of inevitable decline but of arrested potential. The state once accounting for nearly 40 percent of India's sugar and hosting its first modern mill has experienced a structural decline driven by waterlogging, irrigation deficit, policy constraints on cane pricing, mill

closures, and institutional atrophy. Yet current government interventions on mill revival, farmer incentives, ethanol diversification, and research support present a credible pathway for renaissance if sustained and expanded.

The lessons of history are instructive. The collapse of Bihar's colonial sugar industry in the 1840s, as documented by Hutková (2021), demonstrates that even advanced technology cannot substitute for irrigation infrastructure and policy consistency. The state must not repeat the error of investing in industrial capacity while neglecting the agricultural foundations that make it viable. The Chief Minister Sugarcane Development Programme's emphasis on seed quality and farmer training is therefore not merely a subsidy scheme but a structural investment in the productivity base of the entire sugar value chain.

Three priorities emerge as essential for Bihar's sugarcane renaissance: first, a significant expansion of micro-irrigation coverage in the sugarcane belt to address the waterlogging and drought vulnerabilities that have historically depressed yields; second, a rapid adoption of recommended improved varieties through strengthened extension services, which requires urgently filling the 80 percent of vacant field positions in the agricultural extension apparatus; and third, a reliable and transparent farmer payment system to rebuild trust in the farmer-miller relationship that is the foundation of any viable sugarcane supply chain.

Bihar, once the cradle of Indian sugar, can be so again but only through the sustained, integrated effort that its history demands and its potential justifies.

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