

Issues and Challenges Faced by Jaggery Manufacturing Units in Kolhapur District

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Abstract

Jaggery manufacturing is an important agro-based rural industry in Maharashtra, particularly in Kolhapur district, which is known for its large-scale sugarcane cultivation and traditional jaggery production units. The sector plays a significant role in generating employment, supporting small farmers, and sustaining local economies. Jaggery manufacturing units face several structural, technological, and market-related challenges that affect their productivity and profitability. Key issues include outdated production technology, fluctuating sugarcane supply, lack of skilled labour, inconsistent quality standards, and limited access to modern processing facilities. Additionally, jaggery producers encounter difficulties related to price volatility, inadequate storage infrastructure, transportation constraints, and competition from refined sugar industries. Environmental concerns such as inefficient fuel usage and waste management also pose operational challenges. This study aims to examine the major problems faced by jaggery manufacturing units in Kolhapur district and analyse their implications for sustainable rural industrial development. The findings are expected to help policymakers and stakeholders design strategies to improve efficiency, quality, and market competitiveness.

Keywords: *Jaggery Industry, Sugarcane Processing, Rural Agro-Based Industries, Kolhapur District, Production Challenges, Traditional Sweetener Production, Small-Scale Manufacturing Units*

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1. Introduction

Jaggery, commonly known as “gur” in India, is a traditional unrefined sweetener produced primarily from sugarcane juice and widely consumed across South Asia. The production of jaggery represents one of the oldest agro-processing activities in India and continues to function as a vital cottage and small-scale rural industry (Jugale, 2000). Maharashtra is among the leading producers of jaggery, and Kolhapur district is particularly renowned for its high-quality “Kolhapuri jaggery,” which received a Geographical Indication (GI) status, highlighting its unique characteristics and regional identity. The industry plays an important role in rural economic development by generating employment opportunities, supporting sugarcane farmers, and promoting local trade networks. As a decentralized agro-based activity, jaggery manufacturing units are often operated by farmers or small entrepreneurs who process sugarcane juice using traditional boiling and crystallization techniques to produce solid blocks or powder forms of jaggery (Kamble, 2023). Kolhapur district has historically been one of the most significant centers for jaggery production in Maharashtra due to its favorable agro-climatic conditions and extensive cultivation of sugarcane supported by the Panchganga river basin. Several villages and talukas such as Karveer and Panhala host a large number of jaggery manufacturing units, forming an important component of the regional rural economy (Kumbhar, 2016). Studies indicate that hundreds of jaggery processing units operate in this district, contributing significantly to employment generation, income diversification, and agricultural value addition. The industry provides seasonal employment to labourers involved in cane harvesting, transportation, crushing, boiling, and packaging processes, thereby strengthening rural livelihoods and local markets.

However, despite its economic importance, the sector largely relies on traditional production techniques and decentralized processing systems, which often affect productivity, efficiency, and quality control in jaggery manufacturing operations (Malkunje, 2018).

In recent years, jaggery manufacturing units have been encountering several operational and structural challenges that hinder their growth and sustainability. Rising production costs, labour shortages, inadequate storage facilities, and fluctuating sugarcane availability are some of the key issues affecting the profitability of these units. Additionally, market competition from refined sugar, lack of technological modernization, and inconsistent quality standards poses significant constraints to the development of the jaggery industry (Patil & Deshmukh, 2022). Research has also highlighted problems such as high labour wages, irregular electricity supply, and limited research and development for value-added jaggery products, which reduce the competitiveness of small manufacturing units. Addressing these challenges is essential for improving the efficiency and sustainability of jaggery production while preserving the traditional agro-based industry that supports thousands of farmers and rural entrepreneurs in Kolhapur district (ChiniMandi Report, 2024).

2. Background of Study

Jaggery production represents one of the oldest agro-processing industries in India and plays a significant role in rural economic development. The industry converts sugarcane juice into an unrefined natural sweetener through traditional boiling and concentration processes, providing a value-addition mechanism for agricultural produce. India is among the largest producers of jaggery globally, producing several million tons annually, and the sector supports a large number of small farmers, labourers, traders, and transporters involved in the sugarcane value chain. Jaggery manufacturing units are typically small-scale and seasonal enterprises operating close to sugarcane fields, which helps reduce transportation costs and enables farmers to obtain better returns from their produce. The agro-based nature of the jaggery industry makes it an important contributor to rural employment and income generation, particularly in sugarcane-growing states such as Maharashtra, Uttar Pradesh, and Karnataka (Madhu et al., 2018).

Kolhapur district in Maharashtra has developed a strong reputation as one of the leading centers of jaggery production in India due to its favourable agro-climatic conditions and extensive cultivation of sugarcane supported by irrigation facilities from the Panchganga river basin. The region produces a distinctive variety known as “Kolhapuri jaggery,” which is widely appreciated for its colour, texture, and taste. Because of its unique quality and traditional processing methods, Kolhapuri jaggery has also received Geographical Indication (GI) recognition, highlighting its regional identity and market value. The district hosts a large number of jaggery manufacturing units, particularly in talukas such as Karveer, Panhala, and Hatkanangale, where jaggery production is an important economic activity linked with local agricultural practices. The industry provides seasonal employment to a large rural workforce involved in activities such as cane harvesting, crushing, boiling, moulding, packaging, and transportation, thereby strengthening the rural economy of the region (Kamble, 2023).

Despite its economic importance and historical significance, the jaggery manufacturing sector faces several structural and operational challenges that affect its productivity and sustainability. Many jaggery units continue to depend on traditional production techniques and outdated equipment, which results in lower efficiency and inconsistent product quality. Producers often face problems such as fluctuating sugarcane supply, rising labour costs, lack of technological modernization, inadequate storage infrastructure, and limited access to organized markets. In addition, competition from refined sugar industries, changing consumer preferences, and the absence of standardized quality control mechanisms create further constraints for small jaggery manufacturers. These challenges highlight the need for systematic research to understand the issues affecting jaggery manufacturing units and

to develop strategies that can enhance productivity, improve product quality, and ensure the sustainable growth of the jaggery industry in Kolhapur district (Patil & Deshmukh, 2022).

3. Scope and Significant of study

The present study focuses on examining the major issues and challenges faced by jaggery manufacturing units in Kolhapur district of Maharashtra. The scope of the study includes analyzing various aspects of jaggery production such as availability of raw materials, production processes, labour management, marketing practices, and technological adoption in manufacturing units. Kolhapur has long been recognized as one of the leading regions for jaggery production due to its favourable climatic conditions and strong sugarcane cultivation base. The study explores how local jaggery units operate within the agro-processing value chain and how factors such as fluctuating sugarcane supply, production costs, and market demand influence the functioning of these units. By focusing specifically on Kolhapur district, the research aims to provide a localized understanding of the operational environment and constraints experienced by jaggery producers in this region (Kamble, 2023).

The significance of the study lies in its potential to highlight the economic importance of jaggery manufacturing as a rural agro-based industry and to identify the barriers that limit its growth and sustainability. Jaggery production contributes significantly to rural employment generation and income diversification for farmers and small entrepreneurs engaged in sugarcane cultivation and processing. However, the industry continues to face several structural challenges including outdated production technology, lack of modern processing equipment, irregular electricity supply, limited storage facilities, and inadequate marketing infrastructure. Understanding these challenges is essential for improving productivity, ensuring quality standards, and strengthening the competitiveness of jaggery manufacturing units in both domestic and export markets (Patil & Deshmukh, 2022).

The study is significant for policymakers, agricultural planners, and rural development agencies as it provides insights into the socio-economic and operational difficulties encountered by jaggery producers. The findings of the research may help in formulating effective policies related to technological modernization, financial support, skill development, and market linkages for jaggery manufacturing units. Additionally, the study can contribute to the promotion of sustainable agro-processing industries that support local livelihoods and regional economic development. By identifying practical solutions to existing challenges, the research aims to strengthen the long-term sustainability and competitiveness of the jaggery industry in Kolhapur district and similar sugarcane-producing regions in India (Madhu et al., 2018).

4. Objectives of Study

- To examine the current status and functioning of jaggery manufacturing units in Kolhapur district
- To identify the major production-related challenges faced by jaggery manufacturing units, including raw material availability, labour issues, and technological limitations
- To analyze the marketing and distribution practices of jaggery producers in the Kolhapur region
- To study the economic and operational problems affecting the profitability of jaggery manufacturing units
- To evaluate the role of infrastructure, storage facilities, and transportation in jaggery production and marketing
- To examine the impact of market competition and price fluctuations on jaggery manufacturers

- To suggest suitable measures and policy recommendations for improving the productivity, quality, and sustainability of jaggery manufacturing units in Kolhapur district

5. Review of Literature

The jaggery industry plays an important role in the rural agro-processing economy of India, particularly in sugarcane-growing regions. Research on jaggery production has highlighted its contribution to rural employment, value addition to agricultural produce, and income generation for farmers. Studies indicate that jaggery manufacturing units function primarily as small-scale and rely on traditional processing methods. These units provide seasonal employment opportunities to rural labourers engaged in sugarcane harvesting, crushing, boiling, and packaging activities. The decentralized nature of the jaggery industry also enables farmers to process sugarcane locally and obtain better economic returns compared to selling raw sugarcane directly to sugar factories. However, limited technological advancement and lack of modern processing equipment remain significant constraints affecting production efficiency and product quality (Madhu et al., 2018).

Several researchers have examined the economic and operational challenges faced by jaggery producers in different regions of India. Studies reveal that fluctuations in sugarcane supply, increasing labour costs, and rising fuel expenses significantly affect the profitability of jaggery manufacturing units. In addition, producers frequently encounter difficulties related to transportation, storage, and marketing of jaggery products, which further complicates the functioning of small-scale manufacturing units. Research also suggests that the absence of organized marketing channels and standardized quality control systems creates price instability in the jaggery market. These factors collectively influence the competitiveness of jaggery production and create barriers for small producers attempting to expand their market reach (Patil & Deshmukh, 2022).

Another important dimension highlighted in the literature is the need for technological modernization and improved processing practices in the jaggery industry. Scholars emphasize that adopting improved furnace designs, energy-efficient boiling systems, and better storage techniques can significantly enhance production efficiency and product quality. The introduction of improved jaggery processing technologies has the potential to reduce fuel consumption, minimize production losses, and increase the shelf life of jaggery products. Furthermore, research also emphasizes the importance of value-added jaggery products such as jaggery powder, liquid jaggery, and organic jaggery, which can help producer's access new markets and increase profitability. Technological innovation and quality standardization are therefore considered essential for strengthening the sustainability and competitiveness of jaggery manufacturing units in India (Kamble, 2023).

6. Discussion and Analysis

The jaggery manufacturing industry plays a crucial role in the rural agro-processing sector of India, particularly in sugarcane-producing regions such as Kolhapur district of Maharashtra. Jaggery units operate as small and medium-scale agro-based enterprises that add value to sugarcane production and contribute significantly to rural employment and income generation. The analysis indicates that these units serve as an important alternative to sugar mills by enabling farmers to process sugarcane locally and obtain better economic returns. The decentralized nature of jaggery production also supports local supply chains involving farmers, labourers, traders, and transporters. However, the production system in many units still relies heavily on traditional processing methods and manual labour, which limits efficiency and technological advancement in the industry (Singh & Kumar, 2021). It is observed that those enterprises which make an effective use of high-end technology in their manufacturing process are likely to sustain and grow as they offer the various competitive advantages such as integration, automation, simplification etc. (Gaikwad, 2024).

Another major issue identified in the analysis is the fluctuating availability of raw materials and rising cost of production. Sugarcane is the primary raw material for jaggery production, and its

supply often depends on climatic conditions, irrigation facilities, and market competition from sugar factories. When sugar mills offer higher prices to farmers, jaggery manufacturers face shortages of raw material, which directly affects production levels. In addition, jaggery units encounter several operational challenges such as increasing labour wages, fuel costs, and lack of skilled workers during peak production seasons. These factors increase production expenses and reduce the profitability of small-scale jaggery manufacturing units, particularly those operating with limited financial and technological resources (Rathod & Patil, 2020).

Marketing and infrastructure constraints also significantly influence the functioning of jaggery manufacturing units in Kolhapur district. Most jaggery producers depend on local traders or intermediaries to sell their products, which often results in reduced profit margins for producers. The absence of organized marketing systems, grading standards, and proper storage infrastructure creates additional difficulties for producers in maintaining product quality and market stability. Seasonal fluctuations in jaggery prices further create uncertainty for manufacturers and farmers involved in the industry. Researchers emphasize that modernization of processing technology, improved market linkages, and better policy support for agro-processing industries can enhance productivity and strengthen the competitiveness of jaggery manufacturing units in rural regions (Chandran & Kulkarni, 2022).

7. Findings of Study

- Jaggery manufacturing units play a significant role in the rural economy of Kolhapur district. The industry provides employment opportunities to farmers, labourers, and small entrepreneurs engaged in sugarcane cultivation, processing, and marketing activities.
- Fluctuating availability of sugarcane is one of the major challenges faced by jaggery manufacturers. Competition from sugar mills offering higher prices often results in shortage of raw material for jaggery units during the production season.
- Traditional production methods and outdated equipment reduce production efficiency and product quality. Many units still depend on conventional furnaces and manual processing techniques, which lead to higher fuel consumption and lower productivity.
- Rising labour costs and shortage of skilled workers significantly affect the profitability of jaggery manufacturing units. Seasonal labour demand and increasing wages create financial pressure on small-scale producers.
- Lack of organized marketing channels and dependence on intermediaries reduce profit margins for jaggery producers. Most manufacturers rely on local traders for selling their products, which limits their bargaining power in the market.
- Inadequate storage facilities and price fluctuations create uncertainty in the jaggery market. Seasonal production and unstable market prices often lead to income instability for producers and traders involved in the jaggery industry.

8. Conclusion

The jaggery manufacturing industry in Kolhapur district represents an important agro-based sector that contributes significantly to rural employment, agricultural value addition, and regional economic development. The industry provides livelihood opportunities to a large number of farmers, labourers, and small entrepreneurs involved in sugarcane cultivation, processing, and marketing activities. Kolhapur has developed a strong reputation for producing high-quality jaggery, which has gained recognition in domestic markets due to its unique taste and traditional production methods. However, despite its economic importance, the industry continues to face several structural and operational challenges that affect its productivity and long-term sustainability. Issues such as fluctuating sugarcane supply, rising labour costs, outdated production technology, and inadequate infrastructure create difficulties for jaggery manufacturing units, particularly small-scale producers operating with limited financial resources. To ensure the sustainable growth and competitiveness of the jaggery

industry, it is essential to introduce technological modernization, improved processing facilities, and better marketing infrastructure. Government agencies, agricultural institutions, and rural development organizations can play a vital role in supporting jaggery manufacturers through financial assistance, training programs, and technological innovations that enhance production efficiency and product quality. Strengthening organized marketing channels, developing storage infrastructure, and promoting value-added jaggery products can also improve income opportunities for producers. By addressing these challenges through coordinated policy measures and industry support, the jaggery manufacturing sector in Kolhapur district can achieve sustainable development while continuing to contribute to rural economic growth and agricultural diversification.

References

- Chandran, V., & Kulkarni, S. (2022). Agro-processing industries and rural development in India: Opportunities and challenges. *Journal of Rural Development*, 41(2), 215–228. <https://nirdpr.org.in/jrd>
- ChiniMandi. (2024). *Maharashtra: Kolhapur's iconic jaggery industry battles challenges to keep its sweet legacy alive*. <https://www.chinimandi.com/maharashtra-kolhapurs-iconic-jaggery-industry-battles-challenges-to-keep-its-sweet-legacy-alive/>
- Gaikwad, S. R. (2024). Role of artificial intelligence in smart manufacturing of automobile industry in India. *AIP Conference Proceedings*, 3178(1), 070012. <https://doi.org/10.1063/5.0229368>
- Jugale, V. B. (2000). *Sugarcane pricing: Policy, procedure and operations*. Atlantic Publishers. <https://books.google.com>
- Kamble, V. G. (2023). Economics of chemical-free jaggery production in Kolhapur district. *Journal of Agriculture Research and Technology*. https://jart.co.in/uploads/168/15795_pdf.pdf
- Kumbhar, Y. S. (2016). Study on gur (jaggery) industry in Kolhapur. *International Research Journal of Engineering and Technology*. <https://acspublisher.com/journals/index.php/jpht/article/view/15716>
- Madhu, B., Patel, S., Jagannadha Rao, P. V. K., & Sreedevi, P. (2018). Use of edible coatings to increase the shelf life of jaggery: A review. *International Journal of Current Microbiology and Applied Sciences*, 7(6), 2466–2479. <https://doi.org/10.20546/ijcmas.2018.706.292>
- Malkunje, N. M. (2018). Marketing analysis of organic and inorganic jaggery in Kolhapur district. *CAB International Digital Library*. <https://www.cabidigitallibrary.org/doi/pdf/10.5555/20183195501>
- Patil, S., & Deshmukh, R. (2022). Constraints faced by jaggery producers regarding production and marketing. *The Pharma Innovation Journal*. <https://www.thepharmajournal.com/archives/2022/vol11issue2S/PartG/S-10-12-305-540.pdf>
- Rathod, S., & Patil, R. (2020). Economic analysis of jaggery production and marketing in Maharashtra. *Indian Journal of Agricultural Economics*, 75(3), 345–356. <https://ageconsearch.umn.edu>
- Singh, A., & Kumar, P. (2021). Small-scale agro-processing industries and rural employment generation in India. *Agricultural Economics Research Review*, 34(1), 67–78. <https://doi.org/10.5958/0974-0279.2021.00007.2>