



Review Article

Sustainability of Indigenous Alcohol Drinking Culture amongst the Tribes of West Bengal, India: A Sociological Exploration of Native Knowledge versus Urban Stigma

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**Abstract**

This paper aims to explore the sustainability quotient in indigenous alcohol production and consumption within a rural community, while also examining urban perspectives on this practice. It contextualizes indigenous alcohol production and consumption as an essential part of tribal cultural and ecological heritage. The gendered subtexts often challenge the mainstream upper-caste practices prevalent in urban Indian cities. This blend of counter-culture and heritage within the daily tribal experience frequently questions and challenges narratives about development, modernization, and moral norms. Contemporary discussions on commercial marketization, urban stigma, and government policies often overlook the challenges of preserving this tribal heritage. Methodologically, the paper employs a critical review of secondary sources to thoroughly explore the topic. It argues that indigenous brewing fosters social cohesion and is more environmentally sustainable than commercially produced alcohol; therefore, this heritage drink warrants proper guidance, preservation, and targeted promotion.

Keywords

Indigenous Alcohol, Tribal Heritage, Feminist Political Ecology, Decolonial Sociology, Ecological Sustainability, Urban Stigma.

1. Introduction

India is a large economy with diverse socio-cultural communities that have historically depicted different drinking patterns. Vedas and other cultures with alcohol. Sociologically, alcohol consumption has historically been seen as a means of social interchange for men across varied cultures. The enduring presence of these substances in both sacred texts and popular cultural memory reveals a layered, ambivalent relationship that resists reduction to either celebration or condemnation. Technically, ancient Indian literature, including the Vedas, often describes the use of intoxicating drinks such as liquor or spirits (Mandelbaum, 1965) during ritual ceremonies, religious events, and recreational or social activities. The popularity of alcoholic drinks Soma and Sura in both the Vedas and in the popular Indian culture and psyche reveals the layered relationship of Indians with alcohol. The term alcohol primarily denotes 'ethyl alcohol'. The absolute ethyl alcohol (100%) is consumed worldwide in a diluted version as an alcoholic beverage (Eshwar et al., 2020). In India, the pattern of alcohol consumption is not homogeneous. According to an India Today report (Sahoo et al., 2024; Srivastava, 2025), India registered uneven alcohol consumption in 2025, with some pockets reporting increased consumption and some regions reporting lower consumption than their counterparts. While the urban consumption pattern has changed due to rising consciousness of health and wellness, the rural consumption pattern has complex sociological underpinnings (ibid).

The meaning attached to these beverages, like who produces them, who consumes them, and under what conditions, remains deeply structured by class, caste, gender, and colonial history. The contemporary global conversation on sustainability renders this subject particularly urgent. Alcohol production is a big, profitable business. The carbon footprint of the industrially produced alcohol is also high. Industrial brewing is not eco-friendly, as it requires substantial water and generates significant waste. Commercial brewing is highly energy-intensive. For example, a single pint of industrially produced beer can generate 900g of CO₂. The commercial alcohol industry creates a series of ecological crises, like freshwater shortage, exploitation of natural ecosystems, and ultimately, climate change. Hence, the push to shift to a sustainable production process is paramount for top commercial brands such as Carlsberg Group and Heineken (Serviss, 2025). Indigenous tribal brewing, however, operates on a completely different ecological logic, rooted in circular-economy principles, low-carbon fermentation, the use of locally sourced medicinal plants, and the inclusion of production residues in the agricultural cycle. The contrast between these two models of alcohol production is not merely technical; it is epistemological and political. It highlights a basic difference between an industrial paradigm that repeatedly extracts large amounts of value from nature and an indigenous paradigm that embeds production within the rhythms and relationships of a living ecosystem.

Indian tribal culture has a rich heritage of brewing indigenous alcohol. Consumption of indigenous alcohol is part of their identity, everyday dietary patterns, social and economic life, cultural and religious practices, and myths and lore. Almost all the tribes of India have their own native drink, which they consume on mundane days and at every meaningful life occasion, such as marriage, birth, festivals, and even funerals. The native drinks of different tribes and regions may vary in ingredients or preparation methods. Most of these indigenous drinks are made from rice (Saha et al., 2015). In West Bengal, the tribes named Munda, Santhal, Oraon, and Bhumij inhabiting the regions of Birbhum, Bankura, Malda, Purulia, and Jalpaiguri-Dooars use millet and Mahua flowers along with rice (Chowdhury et al. 2006). These locally produced alcoholic drinks, known by various regional names such as Haariya, Chullu, rice beer, sajpani, Kiad, etc., also generate meaningful revenue for tribal communities, as they are sold in local and suburban markets. In India, tribes of North Eastern states, especially Bodo, Garo, Rabha, Karbi, Deori, Damasa, Kachari, and Ahom, are proficient in the production of house liquor (ibid). The existing literature highlights that in India, indigenous communities produce almost 350 varieties of traditional alcohol (Bhattacharya & Kumar, 2022). The paper delves into the native drinks of West Bengal's tribes. In West Bengal, consumption of native drink is entwined with the tribal community's identity, local ecology, and indigenous sociocultural rituals.

Yet this rich heritage exists under severe threat. Contemporary industrialized urban culture has systematically marginalized indigenous beverages, labeling them as the drinks of the poor, the backward, or the uncivilized. The urban market is already saturated with a variety of industrially produced alcoholic beverages with a similar Bordieuan high taste. Drawing on Bourdieu's (1984) analysis of cultural capital and taste as the means of class reproduction, one can discern this stigmatization not purely as an aesthetic judgment but as a political act that propagates the pyramid of taste to normalize the superiority of commercially and industrially produced, large-scale, marketed alcohol while rendering indigenous brewing invisible, inferior, or deviant. The urban market, saturated with standardized commercial beverages, leaves no room for the ecologically and sustainably grounded, community-embedded knowledge systems that have sustained tribal brewing for centuries. This stigma is not merely a contemporary urban attitude; it has deep colonial roots. The Bengal Excise Act of 1909 criminalized indigenous brewing under the guise of regulating public morality, while simultaneously functioning as an instrument of colonial bio politics—disciplining tribal bodies and delegitimizing tribal knowledge (Foucault, 1997). The post-colonial state has, in large measure, inherited and perpetuated this regulatory hostility, leaving tribal communities without legal protection for their brewing practices, without policy support for their livelihoods, and without recognition of their ecological and cultural contributions. As the global dialogue on sustainability and the empowerment of marginalized groups strengthens, the paper seeks to document how the clash between indigenous knowledge and urban stigma has been an impediment.

This paper aims to describe the sustainability quotient in the indigenous alcohol production/consumption culture among a rural subset of the population and to understand the urban perspective on it. The paper contextualizes the practice of indigenous alcohol production and consumption as an integral part of the tribal cultural and ecological heritage. The gendered subtexts of the practice often negate the mainstream upper caste practices of urban Indian cities. The existence of such an amalgamation of counterculture and heritage within the tribal everyday lived experiences often interrogates and threatens the narratives of developmental models, modernization practices, and normative moral discourse. Contemporary thinking about commercial marketization, urban stigmatization, and state policy neglects the challenges to preserving this tribal heritage. Indigenous brewing culture, in de Sousa Santos's (2016) view, becomes a living repository of subaltern knowledge, which is an epistemology from the South that resists being absorbed into Western science's universal frameworks and capitalist modernity. The stigmatization, criminalization, and commer-

cialization of indigenous alcohol are all manifestations of what de Sousa Santos terms 'epistemicide': the deliberate and systematic destruction of alternative knowledge systems by dominant epistemic structures.

However, native drinking also runs the risk of death by contamination of adulterated local liquor. Hence, it requires a nuanced understanding of the sociological situation. Studying the act of drinking alcohol reveals pervasive cultural underpinnings. Sociological and cultural studies on the usage of alcohol have immense policy implications and serve as a potent source of knowledge for medical studies of alcoholism. The World Health Assembly in 2005 called for multiple research studies on alcohol and alcoholism to inform evidence-based strategies and policies (Chowdhury et al., 2006). WHO has also corroborated the need for studying alcohol consumption practices through the lens of gender and culture in order to understand its multidimensional manifestations (ibid). These multidisciplinary studies help in developing effective public health programs.

This paper is structured as a thematic review of existing literature, synthesizing scholarship from the anthropology of alcohol, Indian tribal sociology, feminist political ecology, and decolonial theory to address the following central argument: indigenous alcohol brewing among West Bengal's tribal communities constitutes a culturally significant, ecologically sustainable, and gender-embedded knowledge system whose preservation requires urgent policy attention, scholarly legitimation, and decolonial advocacy. The paper contends that indigenous brewing increases social cohesion, reduces ecological harm, sustains women's economic agency, and embodies a form of epistemic sovereignty that deserves recognition rather than marginalization. Accordingly, this paper calls for the formal recognition of traditional fermentation practices as intangible cultural heritage, their decriminalization, and the development of community-controlled, fair-market mechanisms that empower tribal communities as the primary beneficiaries of their own heritage.

2. Literature Review

The literature review is organized into five interconnected categories: (i) anthropology of alcohol and culture; (ii) sociological and class perspectives on alcohol stigma; (iii) Indian alcohol research and policy; (iv) tribal communities, identity, and resistance in West Bengal and eastern India; and (v) feminist political ecology, indigenous knowledge, and women's agency. These categories primarily shape this paper; help formulate the resultant discussion themes and conclusion, identify gaps, especially regarding decolonial epistemology, ecological sustainability, and gendered indigenous knowledge in West Bengal's tribal brewing culture, justify this review, and present potential future research.

2.1. Foundational Anthropology of Alcohol and Culture

The anthropological study of alcohol has a rich cultural history and is challenging. Culture has been defined as the existing norms, beliefs, values, traditions, customs, heritage, and rituals of a community. Basically, a community's way of living. Historically, indigenous communities are known for their rich cultural heritage (Bhattacharya & Kumar, 2022). Alcohol has been an integral part of both tangible and intangible cultures worldwide. Mandelbaum's (1965) landmark essay 'Alcohol and Culture' in *Current Anthropology* established the foundational thesis that alcohol has always occupied a revered place in diverse cultures as a commonly valued ritual and societal artifact, and that the social dimensions of drinking, including gender roles, solidarity functions, and ritual meanings, vary significantly across cultures. For instance, in the Kofyar community of Northern Nigeria, beer is as indispensable a part of their way of life as God (Mandelbaum, 1965). During the Mesopotamian era, alcohol was known as Jamdet Nasr and was widely used in the temple and market economies. In fact, it was so much a part of the staple diet of the Sumerian-Akkadian tradition that approximately 40% of the cereals grown were used to make wine (ibid). On the other hand, the Hopi and other Pueblo Indian tribes of the American Southwest despised the consumption of alcohol as it was perceived to be evil and potent with destructive forces. They even successfully banned it within their community (Parsons, 1939). Mandelbaum (1965) remarked that drinking has been considered more as a social activity than a solo endeavor. Even though women drank, it was primarily men's domain of activity. When alcohol was consumed within family and kinship ties as a part of a family meal, it largely acted as a food rather than a stimulant. His cross-cultural comparisons serve as the foundation for much later anthropological research on alcohol in non-Western societies. According to Durkheim (1915), rituals are an integral part of a community's collective lived experience, fostering collective effervescence, social solidarity, cohesion, and communal identity. Drinking indigenous alcohol is one such sacred ritual. The sociocultural ceremonies surrounding these ritual practices foster a sense of belonging and a profound connection to their community. It helps develop and nurture a shared belief system, transmitted through intergenerational value socialization.

Heath (1987) systematically reviewed the emerging cross-cultural literature and highlighted that research in the field has doubled every five years since the mid-20th century. He stressed the need for greater attention to anthropological context, qualitative methods as a mode of inquiry, and attention to cross-cultural variation and comparison. It moved the narrative beyond the reductive models that had formerly dominated the field. Heath's other work, titled 'Drinking Occasions: Comparative Perspectives on Alcohol and Culture' (2000), extended this very argument, demonstrating that drinking behavior cannot be meaningfully understood without its sociological undercurrents, like everyday habits, geographical settings, and cultural occasions with which it is associated. These foundational principles have shaped the contemporary theoretical vocabulary of the sociology of alcohol, culture, and sustainability globally and provide the conceptual scaffolding within which the current research of indigenous tribal brewing in West Bengal is situated.

Among previous cross-cultural contributions, Donald Horton's study (1943) on primitive communities showed that a substantial number of tribal communities use alcohol as a coping mechanism for the uncertainties and anxieties of everyday lived realities, like food scarcity or war. Lemert's (1954) work on Northwest Coast Indians, by contrast, emphasized drinking as a bonding mechanism for social integration, a theme directly relevant to the West Bengal tribal context, where indigenous alcohol serves not only as an intoxicant but as a social currency and medium of communal cohesion. Douglas (1998) further developed the cultural construction argument by showing that drinking practices are often used to construct an ideal social world, or to perform a collective identity. These works collectively established that indigenous drinking is a social institution rather than a deviant behavior. Again, two specific models of drinking patterns, namely holocultural and sociocultural models, have been developed by Room et al. (2002). These types of research explore alcohol consumption through various social meanings, practices, rituals, norms, and values. These kinds of ethnographic research and qualitative work have also been used to devise public health policies (Gillbert, 1990).

Contemporary works like researches published in the Frontiers in Sustainable Food Systems research series on the Sustainable Production of Ethnic Alcoholic Beverages (Soto-Cruz et al., 2022), has commenced to bridge the gap between cultural anthropology and sustainability science, arguing that traditional alcoholic beverages play a pertinent role in preserving the ancient traditions of tribes, and that their preservation is not only culturally necessary but economically and ecologically urgent. This emerging intersection of anthropological and sustainability concerns is precisely the area this paper seeks to occupy.

2.2. Class, Taste, and the Stigmatization of Indigenous Alcohol

Sociologically investigating the urban stigmatization of indigenous alcohol requires engagement with the sociology of taste and cultural capital. Bourdieu's (1984) famous work is foundational here. Bourdieu states that taste is never merely a matter of personal preference but a marker of social class, identity, and cultural capital. His analysis reveals how cultural hierarchies are reinforced by designating certain foods, beverages, and practices as refined or civilized, and others as unpolished or low-class, not on the basis of any intrinsic quality, but on the social position of their practitioners. Applied to the Indian tribal context, this framework discloses how the stigmatization of indigenous alcohol as a drink of the poor, the backward, or the subaltern is not merely an aesthetic judgment but a class-based political act.

Brierley-Jones et al. (2014) applied Bourdieu's theory directly to alcohol consumption practices, demonstrating that choices in food and drink are allied to one's position in the class hierarchy. Findings of the research reiterate how bourgeois drinking practices are mainstreamed as civilized, while practices associated with working-class or rural communities are labeled as deviant, pathological, or low-class. This analysis applies directly to the Indian context, where the divide between industrially produced alcohol, linked to modernity and upward mobility, and traditional, native-brewed alcohol, associated with primitivism and poverty, reflects Bourdieu's logic of distinction through consumption.

Additionally, within the Indian context, this process has deep historical roots. Mandelbaum (1965) traced how the Brahminical prohibition on alcohol gradually transformed it from a sacred substance used in Vedic rituals into a marker of social pollution, confined to the lower castes and tribal communities. As Guha (1999) documented in his work on subaltern histories, the colonial encounter further crystallized this stigmatization, with British administrators and missionaries positioning the image of the drunken tribal to justify both regulatory intervention and civilizational/cultural hierarchy. The Bengal Excise Act of 1909 formalized this colonial biopolitics by criminalizing indigenous brewing, rendering tribal alcohol-producing communities not merely low-status but legally transgressive (ibid).

Furthermore, decolonial sociology helps us understand the historicity of this stigmatization. As a thought process, decolonial sociology encourages scholars to unravel Eurocentric assumptions (later widely adopted by urban trends and marketing strategies) and colonial power relations within the discipline of sociology. The culture of indigenous alcohol

consumption should be examined through the lens of epistemic justice. However, local native knowledge is rarely devalued against capitalistic hegemonic structures and narratives that categorize it as deviant, low-class, subaltern, etc. (Savransky, 2017). Colonial hegemony has traditionally centered on colonizers' experiences and narratives as a universal theory. It fails to include experiences of displacement, enslavement, and dispossession. This theory helped shape the understanding of urban stigma around native alcohol and the resulting labeling of it as inferior. Karl Polanyi's theories (Gemici, 2008) further aid in understanding the embedding of economic markets into sociocultural structures.

2.3. Indian Alcohol Research: Patterns, Policy, and the Tribal Lacuna

The existing research on alcohol in India covers epidemiological, public health, sociological, and policy perspectives. Saxena's (1999) detailed country profile, part of the WHO's Alcohol and Public Health in 8 Developing Countries volume, serves as a key reference for any broad overview of alcohol use across India. Saxena highlighted the variety of alcohol types produced and consumed, the prominent role of indigenous and country liquor, and the fragmented, state-by-state regulation system. His findings show that indigenous alcohol constitutes a significant share of overall consumption, especially among lower-income and tribal groups. These insights remain relevant today and form the empirical foundation for future research.

Mohan et al. (2001), in their cross-sectional analysis of alcohol consumption in India published in the WHO-backed volume 'Surveys of Drinking Patterns and Problems in Seven Developing Countries,' offered the most comprehensive nationwide epidemiological mapping available. Their findings revealed significant regional and social class differences in drinking, along with the influence of structural factors such as poverty, displacement, and labor conditions on problematic drinking among marginalized groups. Importantly, their study also pointed out that public health strategies often wrongly pathologize indigenous and tribal alcohol use without considering cultural contexts, a shortcoming that later sociologically aware research has aimed to rectify.

Chowdhury et al. (2006), in their ethnographic study 'Cultural Context and Impact of Alcohol Use in the Sundarban Delta, West Bengal', offer the most pertinent empirical evidence for this review. Conducted in six villages in West Bengal through participant observation and focus groups, the study highlights that alcohol consumption is deeply embedded in local culture. It also notes that social change has led to new, often contested, patterns of alcohol use, with the spread of commercially produced distilled liquor replacing traditional locally brewed rice beer, which is an important factor in health issues. This aligns closely with the current paper's concerns about market influence and cultural change.

War et al. (2020), in their three-site study of alcohol consumption among tribal adolescents in India, present important comparative data indicating that homemade indigenous drinks are consumed at notably higher rates than commercial beverages among tribal youth, especially in northeastern India, where brewing traditions remain deeply rooted in culture. Their conclusion that indigenous communities should be supported and educated to manage alcohol-related issues on their own terms, instead of relying on externally imposed, top-down interventions, aligns with the decolonial ethos discussed in this paper.

2.4. Tribal Identity, Cultural Resistance, and Heritage in Eastern India

The sociological and anthropological research on the tribes of West Bengal and the wider Chota Nagpur plateau provides the most pertinent empirical background for this paper. Hunter's (1875) early systematic colonial documentation included a statistical account of Bengal that mentioned rice beer and the racial hierarchies linked to it among the Santhal and Munda groups. It showed that colonial administrators already viewed indigenous alcohol through a racial and moral lens. Verrier Elwin (Guha, 1998) challenged this colonial perspective by highlighting that native drinks are vital to the sociocultural life of tribal communities, not signs of backwardness.

Later scholarly works by Ranjit Guha (1999) and Ramachandra Guha (1996) explored the shared sociocultural and religious practices among tribal and peasant communities, framing indigenous alcohol within larger structures of subaltern resistance to colonial and capitalist expansion. Guha's subaltern studies approach is especially useful here because it offers the historiographical tools to understand indigenous brewing not as a primitive leftover but as a form of cultural expression and epistemic sovereignty.

Midya's (2004) qualitative analysis of Santhal local brewing culture constitutes one of the more recent and methodologically rigorous studies in the West Bengal context, foregrounding themes of women's agency, social cohesion, and ecological harmony in indigenous brewing networks. Midya's work is significant because it moves beyond both the co-

lonial pathologization and the romanticization of tribal culture to offer a grounded sociological account of how brewing functions as a living cultural system, precisely the approach the present paper seeks to extend. The native brew preparation itself highlights a unique biochemical heritage.

The recent study by [Pramanik and Das \(2025\)](#) on the Santhal and Munda tribes in the Ayodhya Hills of Purulia adds valuable ethnographic evidence to this review. It details women's roles in Handiya fermentation, including its ritual significance during Sohrai and Baha festivals, and highlights their economic contributions through Mahua processing. Notably, women handle about 72 percent of the Mahua collection and processing, earning an average of INR 3000 per month. This data stands out as one of the most specific and policy-relevant insights in West Bengal's tribal alcohol research.

In their study on the ecology and ethnobotany of tribal brewing, [Saha et al. \(2015\)](#) documented the medicinal plant ingredients used by the Oraon community in Malda district in the preparation of Chullu, providing ethnographic confirmation of the drink's ethnomedicinal properties and its role in the village economy. This study is foundational to the ecological sustainability argument developed in this paper. [Mishra and Poonia \(2019\)](#) extended this analysis to the Mahua economy more broadly, establishing that nearly three-quarters of tribal households in India are involved in mahua flower collection, representing approximately 7.5 million individuals, underscoring the macroeconomic stakes of indigenous alcohol production.

The review of traditional fermented foods and beverages in West Bengal ([Alam et al., 2024](#)) provides the most comprehensive microbiological and socio-economic overview of the region's fermentation heritage among its ethnic communities to date. It emphasizes that fermented foods and drinks are vital in daily life and social events among West Bengal's tribal populations, with some families depending entirely on their production and sale for income. Additionally, this review, along with [Narzary et al.'s \(2016\)](#) study on indigenous fermented foods in Assam's Kokrajhar district, provides a regional comparative framework to contextualize West Bengal within the broader pattern of northeastern India.

2.5. Feminist Political Ecology, Indigenous Knowledge, and Women's Agency

The feminist political ecology literature represents the third major theoretical tradition relevant to this paper. Often, the culture of brewing in tribal communities is a gendered act, drawing on years of women's labor. Feminist Political Ecology is a school of thought that holds that power, gender, and ecology are interrelated and that interrogates one's location within the social stratification system through an intersectional lens ([Sundberg, 2017](#)). It highlights how gendered power relations manifest in unequal access to natural resources. It criticizes top-down, unregulated market intervention in the management of ecological resources. Tribal communities share ownership of natural resources and are, in turn, majorly displaced by developmental projects. [Rocheleau, Thomas-Slayter, and Wangari's \(2013\)](#) influential edited volume, *Feminist Political Ecology: Global Perspectives and Local Experience*, outlined the main claims of this school: that gender relations shape, rather than just exist alongside, ecological relations; that mainstream development discourse often undervalues women's knowledge systems; and that the politics surrounding access to natural resources are inherently linked to gender politics. These ideas directly inform the gendered aspects of indigenous brewing in West Bengal, where women are the primary producers, custodians, and keepers of fermentation traditions.

[Agarwal's \(1992\)](#) seminal article, 'The Gender and Environment Debate: Lessons from India' in *Feminist Studies*, contended that environmental degradation and resource exploitation negatively impact indigenous knowledge and livelihood strategies, which are vital for poor, rural women. This feminist ecological perspective from India directly relates to women brewers in West Bengal's tribal communities, who confront both ecological threats, such as forest enclosure and displacement due to development and market pressures from external contractors who commercialize Mahua and Handiya, benefiting at the expense of indigenous producers.

[Vandana Shiva's \(1988\)](#) work, though later critiqued for its essentialism, was a pivotal early study that highlighted how mainstream development projects often displace women from traditional knowledge and productive areas. The paper underscores a relevant concern about cultural erosion and identity theft: the commercialization of West Bengal's native brewing traditions. [Leder et al.'s \(2019\)](#) recent study on feminist political ecologies in Eastern India and Nepal provides a detailed geographic focus of the feminist political ecology (FPE) framework. It demonstrates how intra-household gender relations and intersectionality shape outcomes related to environmental and social justice, particularly in the context of the brewing cooperatives in Purulia.

The existing research on women's involvement in indigenous eco-religious and brewing traditions within tribal India is also pertinent. A recent investigation into the Adivasi women's movement in Jharkhand (Borde, 2019) revealed that women possess knowledge of the root mixture used to brew rice beer, a sacred beverage. Furthermore, women's ethnobotanical expertise, especially regarding healing practices, is highly regarded in tribal communities. This highlights that women's brewing knowledge encompasses not only economic aspects but also spiritual and epistemic authority. This perspective is often overlooked by mainstream development models.

2.6. *Synthesis: The Research Gap*

The above review reveals a rich but fragmented literature. By synthesizing these traditions through a critical content analysis of secondary sources, this paper aims to fill the gap left by studies that treat the subject from only one disciplinary angle, and to argue for the recognition, preservation, and sustainable support of indigenous brewing as simultaneously a cultural heritage, an ecological practice, and a site of women's knowledge and agency. Further, the four theoretical frameworks used in this paper, Durkheim's ritual theory, Bourdieu's sociology of taste and cultural capital, Foucauldian biopolitics, and Feminist Political Ecology, are not mutually exclusive but interlinked. Each offers a distinct analytical perspective, and together they form a layered model in which no single framework is sufficient. De Sousa Santos's (2014) concept of epistemicide serves as the overarching analytical umbrella under which all four are constituted. It defines the context and the systemic process by which colonial and capitalist modernity destroys subaltern knowledge systems.

The paper argues that indigenous alcohol brewing among West Bengal's tribes is not merely a cultural survival or a public health concern. It is concurrently an ecologically rational system, a feminist knowledge economy, a site of colonial and postcolonial epistemic structural violence, and a living form of subaltern heritage and sovereignty. Sociologically, these four dimensions are intertwined and inseparable: the ecology nurtures the culture, the culture is transmitted through gendered and community-based knowledge, that knowledge has been systematically and deliberately delegitimized through colonial biopolitics, and its continued marginalization, as well as its appropriation by urban markets, perpetuates that epistemic violence in a new market logic. No existing source in the available literature combines all four of these dimensions. Therefore, the paper's original claim is that the sustainability of indigenous brewing cannot be preserved through any singular policy framework, be it political, ecological, economic, gender-focused, or legal, because its existence depends on the integrity and complexity of the whole system in which ecology, gender, knowledge, and cultural sovereignty are mutually enmeshed.

3. Methodology

The paper is structured as a thematic literature review that synthesizes scholarly and documentary sources to examine the sustainability of indigenous alcohol-drinking culture among West Bengal tribes. A thematic literature review organizes and synthesizes previous research by grouping sources based on common topics, concepts, or themes, rather than by publication date or author (Snyder, 2019). This approach helps researchers outline broad ideas, locate gaps in existing knowledge, and compare different perspectives within a given field of inquiry.

The current paper draws on an interdisciplinary range of literature, including sociology, anthropology, feminist political ecology, public health, and decolonial studies, highlighting the subject's complex, multidimensional nature.

3.1. *Source Selection and Search Strategy*

The literature was studied through systematic searches across different academic databases and sources, namely Google Scholar, JSTOR, Scopus, and Shodhganga (the Indian national repository of doctoral theses and research). Additionally, journalistic and media sources were included selectively, typically for sociological context and contemporary empirical framing. Since it was a thematic literature review, the final number of sources directly cited and analytically engaged with in the paper was 52, after excluding duplicates and irrelevant results.

The search employed the following keyword clusters:

- Indigenous alcohol / tribal brewing / native drink / rice beer / Handiya / Chullu / Mahua
- Tribal communities West Bengal / Santhal / Munda / Oraon / Bhumij
- Alcohol culture in India / drinking practices in tribal India
- Feminist political ecology / indigenous knowledge / decolonial sociology

- Sustainability / ecological brewing / traditional fermentation
- Colonial biopolitics / urban stigma / subaltern culture

Sources were included based on the following criteria: (a) direct relevance to native alcohol culture in West Bengal or comparable Indian tribal contexts operationalized through geographic relevance, subject, and community emphasis; (b) theoretical grounding to the analytical frameworks used in the paper; (c) publications of different natures directly relevant to the topic to develop a holistic understanding.

3.2. Analytical Approach

The review uses a thematic content analysis approach to organize and interpret the gathered literature. Thematic categories were developed inductively from the recurring concerns identified throughout the literature, specifically: ecological sustainability and ethno medicinal knowledge; gendered dimensions of indigenous brewing; colonial and post-colonial stigmatization; urban marketization and cultural commodification; and the heritage status of indigenous alcohol. These thematic clusters form the organizational structure of the discussion section.

The analytical lens is interpretive and critical. The paper does not aim to produce generalizable quantitative findings. Instead, it aims to present a theoretically grounded and sociologically aligned understanding of why indigenous alcohol culture persists in a given geography, what impedes it, and what its preservation demands from policy, academia, and civil society. Comparative literature from neighbouring Indian states and a few international contexts has been incorporated, thereby deepening the analytical understanding of patterns observed in West Bengal.

3.3. Ethical Reflections, Researcher Reflexivity, and Limitations

As a secondary-source review, the paper is constrained by the availability and scope of existing published research on West Bengal's tribal communities specifically. A significant portion of the available ethnographic literature focuses on a limited number of communities, particularly the Santhal, Munda, and Oraon, leaving other tribal groups underrepresented. Furthermore, the sole reliance on secondary sources automatically entails that the ethnographic engagement with tribal communities, especially the experiences of women brewers, is understood only through the interpretive frameworks of past researchers rather than being accessed directly. This creates a tension directly raised by the feminist and decolonial frameworks the paper invokes. To address this tension, the paper first acknowledges tribal communities, especially women brewers, as the sole custodians of their knowledge and secondly refuses to make any academic claims beyond the capacity and jurisdiction of the available literature. Future research using in-depth interviews, field visits, focus group discussions, participatory action research, and oral history documentation would enrich the findings presented here.

Although this paper does not involve the direct collection of primary data from human participants, it nonetheless carries significant ethical responsibilities. Research on marginalized indigenous communities can never be completely ethically neutral. As Smith (2016) has clarified in her foundational decolonial methodology work, Decolonizing Methodologies, even scholarly research that does not involve direct fieldwork can reproduce colonial epistemic hierarchies when it treats indigenous communities as objects of inquiry rather than as subjects with their own knowledge and sovereignty. Therefore, the most ethical commitment of this paper is to do epistemic justice. The subject of this paper has historically been studied through frameworks of public health pathology and discourse, criminological, and colonial-era social reform, all of which target tribal communities as problems or 'social issues' requiring external rehabilitation and intervention rather than as guardians and creators of valid, sustainable knowledge systems. This paper deliberately reverses that epistemic hierarchy. Additionally, reflexivity requires the researcher to make their own position clear. The author of this paper is an Indian Bengali academic trained in sociological pedagogy, writing from within the Indian academic discourse about communities that are geographically close but socially and culturally different from the dominant, urban, upper-caste/class milieu. Training in Indian sociological and anthropological traditions allows for a more nuanced and value-free engagement with the material and social reality than might be possible for an entirely external researcher of a different discipline.

4. Results and Discussion

Globally, India has the second-highest population of the tribal community. According to the 2011 census, 8 percent of India's population is tribal. Within that bracket, 6% of the population lives in West Bengal. Historically, tribes have remained aloof from mainstream society. Their proximity to nature helped them in preserving their unique lifestyle and indigenous knowledge. Their age-old fermentation process remained sustainable, ecologically, ritually, and beneficial to

them. Gradually, with the onslaught of urbanization and development projects, their distance from the rest of society began to diminish. Development-induced displacement and forced migration led them to lose parts of their tangible and intangible culture over time. Slowly, foreign liquor or local country liquor started infiltrating their indigenous liquor culture, resulting in the loss of a heritage amidst rapid commercialization. Research on the tribes of Nadia district of West Bengal states that many members of the tribal community have been addicted to contaminated local alcohol, which is popularly known as *chollai* in rural Bengal. A similar situation has also been recorded in the Sunderban region of West Bengal, where men are increasingly shifting from locally produced, more nutritious native drinks with lower alcohol content to distilled liquor, which is harmful to health (Chowdhury et al., 2001). The process of rurbanism has also left the youth of the marginalized sections vulnerable to market penetration of adulterated alcohol. Outsiders are increasingly jeopardizing the indigenous alcohol market within small geographical areas (ibid).

The critical review analysis revealed that the sustenance and sustainability of indigenous alcohol depend on the intersection of ecology, culture, and economy. In West Bengal, tribal communities have shown immense resilience against capitalist onslaughts, maintaining indigenous brewing despite marginalization and the market bulldozing of commercially produced liquor. The spirit of cultural sustainability here is embedded in local regional markets, which in turn are embedded in spiritual cosmology and the human-nature relationship. Borrowing Karl Polanyi's theories (Gemici, 2008), these indigenous drink consumption regional pockets resist the commercial hegemony of capitalistic brands and assert their epistemic sovereignty.

The literature review yielded sociologically and anthropologically relevant findings. The following paragraphs present the research findings.

4.1. Ecological, Ethno medicinal Consideration and Sustainability

In India, every tribe has the tradition of brewing native alcohol. While for most of them rice has been the main ingredient, some, like the Oraon tribes of Malda district, West Bengal, use medicinal plants (Saha et al., 2015). It has been observed that the medicinal properties of those plants protect them from diseases such as cholera, insomnia, headache, and body ache (ibid). The Oraon community is one of the largest indigenous communities in India, and a substantial portion of its population is found in the Malda district. Their unique lifestyle and festivals are famous. Their festivals comprise the native *jatrapala* (local theatre with dramatic stories and antics), folklores, songs, and dances. Their native drink, *Chullu*, made from rice and medicinal plants, plays an integral role in those festivities and celebrations. In preparing this drink, medicinal plants such as *Holarrhena pubescens*, *Wattakaka volubilis*, *Clerodendrum viscosum*, and *Ichnocarpus frutescens* are used, along with the main ingredient, rice. The medicinal effects of the drink are confirmed through ethnographic fieldwork conducted by the researchers. The drink also generates revenue, as these locally brewed liqueurs are sold extensively. The socio-cultural value of this drink is twofold: a medicinal stimulant drink and easy cash. The research reports state that *Chullu* production has played a valuable role in the village's economic uplift (ibid). The preparation process has been going on successfully without any sophisticated commercial plan. The Oraons use their own distinct distillation process with locally made pots. For packaging and selling, they use humble glass bottles. The local medicine practitioners and healers prescribe the use of these medicinal plants and herbs in the drink. Since the research has conducted extensive interviews with consumers and producers of *Chullu*, the ethnographic evidence in favor of the native drink's medicinal properties is thick. The drink is not limited to the tribal communities. The non-tribal population of the village also consumes this native alcohol, as *Chullo* bottles are available at local beer shops. Therefore, this indigenous knowledge cannot be dismissed as unscientific or irrational. Rather, with the support of state-backed policies and the sophistication of the market economy, this ecologically sustainable knowledge can be harvested and organized into a business model for indigenous peoples. The medicinal properties of the drink transcend mere intoxication, imbuing it with a meaning that connects humans with nature and makes the bond sacred and special. Some researchers have also depicted the use of native drinks during pregnancy amongst certain tribal communities (Pati et al., 2018). Alcohol is often perceived as a non-injurious relaxant. Since most native drinks are rice beers, they are imagined as safe and nourishing. Additionally, it can also be used to cure abdominal pain and cramps (ibid).

In addition to the documented physiological benefits and medicinal properties of native alcohol, it is also eco-friendly, as its production process aligns with the spirit of the circular economy. Here, fermentation leftovers serve as feed for livestock, excess and wastewater are used for irrigation, and the cultivation of local herbs is boosted through continuous brewing. This indigenous traditional brewing process has a lower carbon footprint than industrial distillation (Serviss, 2025). The sustainability quotient of indigenous brewing is primarily based on four measurable factors: carbon emissions, water use, waste recycling, and biodiversity. Peer-reviewed Life Cycle Assessment (LCA) studies show that the industrial brewing industry has significant environmental impacts. Cimini and Moresi (2018), in their cradle-to-grave LCA of beer production across nine breweries of different sizes, estimated a carbon footprint ranging from

25 to 259 kg CO₂ equivalent per hectolitre of beer, with packaging and barley agriculture recognized as the leading emission sources. A bigger supply chain study of the Chinese beer industry confirmed this, stating that production, packaging, and transportation account for 59.6%, 22.3%, and 17.7% of total carbon emissions, respectively (Chen & Pei, 2023). When the complete product lifecycle is assessed globally, the alcoholic beverage industry accounts for approximately 0.7% of total global greenhouse gas emissions (Shin & Searcy, 2018). Similarly, water consumption follows a parallel pattern. Olajire (2020) noted that the brewing industry is a major freshwater user, consuming 4-6 liters of water per liter of beer, with wastewater making up about 25%. This wastewater has a high biochemical oxygen demand, sugar and alcohol, and a low pH, requiring treatment before discharge. In contrast, tribal rice beer production uses local rainwater, with residual liquid reabsorbed into the soil or used for small-scale irrigation. Whereas, the fermentation of *Handiya* and *Chullu* in West Bengal is conducted at ambient temperature in earthen vessels using naturally occurring microbial starter cultures, such as the Bakhar tablets prepared by Santhal women from locally harvested plant materials, with no mechanized production, refrigeration, or a long-distance distribution chain.

Therefore, sociologically, even with all the attributes of sustainability, the preference for industrially brewed alcohol in the urban consumer market over indigenous brewing is driven by unequal power dynamics, in which corporate beverages are equated with cultural and symbolic capital (Bourdieu, 1984; Sorensen et al., 2020), thereby reinforcing social status and class. Additionally, the brewing industry has recently been incorporating sustainable strategies to map its carbon footprint. The fact that tribal communities have historically engaged in practices now aimed for by industrial actors strongly supports the epistemic legitimacy of indigenous knowledge.

4.2. Knowledge Transition and Gender Politics

The inclusion of indigenous knowledge within the ambit of the scientific and rational paradigm should encourage researchers and policymakers to develop an interdisciplinary lens of inquiry into the culture of native drinks without usurping tribal identity and heritage. Knowledge of the locally available medicinal plants used in the making of native drinks is often passed down through traditional oral transmission within families and is poorly preserved. The knowledge is also restricted within kinship networks and may involve layers of secrecy, gender, and family politics (Saha et al., 2015). Traditionally, tribal women are experts at procuring unique herbs and applying specialized fermentation techniques. In regions where women are mainly deployed in the making of the native drink, the occupation itself becomes a matter of agency and a network for solidarity. The works of Vandana Shiva (1988) have already highlighted how mainstream development projects have uprooted women from the narrative while engulfing such rural/tribal/agrarian spaces of production. The feminist perspective advocates for the protection of such spaces for gender justice, as state policies have historically displaced and disposed women from their own agencies because of maldevelopment projects. Indigenous liquor production is one such domain. Any attempt to mainstream indigenous knowledge transmission should be met with care and mindfulness. Sovereignty of the tribal knowledge is pertinent. Values associated with knowledge are transmitted from one generation to another through socialization and living in proximity (intergenerational transmission).

Another example is the Ayodhya Hills of Purulia, where women serve as custodians of the ritualistic and social process of native drink fermentation. Among Purulia's tribal populations, the preparation and consumption of *Handiya* are part of everyday ritualistic practices (Pramanik & Das, 2025). It renders meaning and social cohesion among them. Women initiate and preserve the making of *Handiya* as guardians. *Handiya* is the popular name of rice beer. For tribal people, it often acts as both food and an intoxicant. During preparation, women supervise the preparation of bakhhar with a few local herbs and determine the total duration. *Bakhar* is a mixture of parboiled rice and yeast, typically extracted from ground roots found in the forest (Chowdhury et al., 2006). Tribal people think that drinking this from the earthen pot makes the act more pleasurable and intoxicating. This native drink is also offered to the deity Mother Earth as a form of gratitude for preserving and protecting fertility. The native drink *Handiya* is indispensable during the Sohrai and Baha festivals in the region. The sociological importance of the native drink here signifies the pertinent role of women as both custodians of their culture and mediators of their religious rituals. The research on tribes in Purulia found that women contribute around 72% of the labor in the entire collection and processing of Mahua products, including alcohol, with an average monthly income of INR 3000. The research further suggests the need for collaboration between the indigenous knowledge system and sustainable, efficient harvesting techniques, along with state-backed market support, to ensure the economic upliftment of women through this occupation (ibid). The sustenance of this indigenous knowledge has already been threatened by youth migration and market intrusion from cities. To balance livelihood protection and local heritage preservation, some NGOs have approached the women's cooperative to ensure hygienic packaging and the sale of *Handiya* in bottles.

The gendered knowledge economy of indigenous brewing in West Bengal thus occupies a doubly precarious position: it is simultaneously a domain of women's economic and cultural agency and one structurally invisible to both state policy and market logic. According to Feminist Political Ecology, this invisibility is both systemic and structural, created by the same developmental and political frameworks that have historically displaced tribal women from their own agency in the name of modernization (Rocheleau et al., 1997; Agarwal, 1992). Challenges such as youth outmigration, market intrusion, and the commodification of *Mahua* do not merely endanger the community's livelihood; they also disrupt the intergenerational transmission chains through which this knowledge has been preserved.

4.3. Colonial Bio politics and Stigma

The attitude of colonial rulers towards indigenous alcohol was ambivalent (Guha, 1999). The Bengal Excise Act of 1909 declared the culture of tribal brewing as illicit, inferior, and marginalized, perpetuating stigma and judgment. The colonial narrative often described tribal communities as wild, unruly, unsophisticated, and plagued with addiction. These narratives ignored the cultural context and historicity. The idea of governing over tribal regions started to be equated with controlling the tribal population through regulation, surveillance, religion, and hegemonic educational pedagogy. Michel Foucault's (1975) ideas of biopolitics help us understand how legal dictates were used to regulate tribal bodies and culture. Biopolitics is a technique authorities use to indirectly control the population through population studies, such as policies on fertility, demography, and health. Bio-politics is the art of governing people's lives. Foucault's (1975) concept of biopolitics discloses how the regulatory apparatus of the Bengal Excise Act of 1909 operated less as a public health measure than as a mechanism of population control, inscribing tribal communities as characteristically deviant and their cultural practices as inherently inferior. The tactic of stigmatization was used as an alibi for colonial disciplinary culture, which led to the degradation of the self-esteem of the tribal communities and the invisibilization of tribal cultures and identities. In this research, stigma has been used as a conceptual category denoting the socially perceived mark of disgrace associated with certain activities, communities, and individuals. Often, decolonizing is the solution in such cases. One theory (Udah, 2024) argues that colonial research constitutes a form of epistemic injustice, leaving value hierarchies and relations of knowing unchanged while delegitimizing non-Western ways of knowing and epistemological contributions. This argument is directly applicable to this paper's argument about the delegitimization of tribal brewing knowledge. The colonial stigma has been carried forward in post-colonial discourses as well. Even though tribal communities have certain cultures and ethos that are far superior, rational, inclusive, and egalitarian than non-tribal communities, yet tribal communities bear the stigma of being 'backward', which was bestowed upon them by the colonial rulers. For instance, mainstream South Asian culture considers alcohol consumption as an inherent male activity and disapproves of female consumption of the same. This reflects both gender hierarchy and cultural norms. However, this gender bias has not infiltrated the tribal communities of India. Many tribal communities have women members who enjoy power, agency, and freedom.

Understanding this historical genealogy is essential because the urban stigma that indigenous alcohol faces today is not a fresh prejudice generated by contemporary class taste alone, but it is the sentiment of a colonial biopolitics that has been normalized, spanning over a century of institutional and structural replication.

4.4. Urban Stigma and Politics of Marketization

Historically, Indian tradition has a long relationship with alcohol. The Vedas describe the use of alcohol in religious rituals, such as the Soma ritual. Over time, alcohol in rituals lost its sacredness and was seen as polluting. With Manu's ideology, social drinking became stratified, with Brahmins barred from drinking, followed by Kshatriyas. The social meaning shifted, making drinking a compartmentalized practice (Mandelbaum, 1965). Offering alcohol in religious contexts was mainly among lower social groups, who believed it protected against calamities from local gods and goddesses. This can be seen as the beginning of the mainstream marginalization of locally brewed alcohol. It has been noted that locally brewed alcohol is visually and metaphorically associated with the men whose livelihoods require heavy physical labor. From an exotic drink, natively brewed alcohol has been relegated to the drink of the lower-class people, mainly because of its easy availability and affordability in rural sections. It is popular culture amongst marginalized sections of society to drink *chullu* at the end of the day (Chowdhury et al., 2006). Villagers, both tribals and non-tribals, purchase it from the local shops, also known as *bhatikhana* in the local language. Drinking this native drink, along with *adda* (chatting), has been a popular evening social practice in many rural and suburban areas (ibid). Similarly, research indicates that *handiya* has been a popular drink among lower-caste men and laborers (ibid). Urban stigma has always treated local native drinks as inferior in both taste and status. However, capitalism and industrial interests have cleverly generated profit from the knowledge and resources of less powerful indigenous peoples.

Market transitions have already created opportunities to profit from sectors that were previously marginalized. Bankura's tribal populations depend on Mahua flowers for their livelihood. For them, the usage of *Mahua* for any activity is only permitted after the granting of communal blessings by the custodians of their society. Market forces have infiltrated this indigenous market, transforming the sacred entity into a commercial product. From 2018 onwards, large-scale commercialization began with private contractors, often excluding native people. This process highlights Polanyi's "disembedding" process, which is the technique of converting a social good into a profit-making product. Even though media reports have shown the commercialization of *Handiya* and *Mohua* with government-backed incentives, it suffers from the risk of cultural dilution and theft of tribal identity.

Therefore, the marketization of indigenous brewing presents a structural paradox: the same market forces that stigmatize tribal alcohol as low-status and inferior are simultaneously extracting saleable value from its ingredients, aesthetics, and cultural distinctiveness. In Polanyi's terms (Gemici, 2008), this is the disembodiment of a social good, one whose value derives from its embeddedness in communal relationships, spirituality, and ecological knowledge, and its transformation into a commodity whose profits accrue to external contractors rather than community members.

4.5. Indigenous Alcohol: A Heritage

Tribes have profound pride in their culture and heritage. They strive to preserve their culture and heritage. Indigenous alcohol is not only a food and an intoxicating drink but also a medium of exchange and acts as a social currency in many tribal communities. Tribal people often use it as a form of payment for purchases and social rituals (Chowdhury et al., 2006). Traditionally, in many rural sections, alcohol has also remained an accepted form of remuneration for certain occupations. In the Sunderban region of West Bengal, Chullu bottles are often distributed to fishermen as payment. Hence, the native drink is intertwined into the social fabric of tribal and rural life in multiple ways. In the Dooars region of West Bengal, indigenous Oraon and Munda communities working in nearby tea plantations celebrate every occasion with rice beer. Here, rice beer symbolizes their identity, cultural resistance, and social glue. The famous Karam Puja, one of their primary festivals, includes celebrating and consuming their native drink as an identity marker in the face of industrial labor regimes and economic dependency. This highlights the sociological manifestation of cultural resilience and community pride under capitalistic structures.

To preserve this tribal pride and heritage and remove any form of stigmatization, recognition of indigenous alcohol as one of UNESCO's intangible cultural heritages (UNESCO 2003 and 2025 orders) is crucial (Kurin, 2004; Senarathna, 2025). India's National Mission on Cultural Mapping can also include and integrate these cultural practices. State government-sponsored Lac cooperatives, which primarily aim to facilitate tribal livelihoods, could be formed to promote equitable distribution of profits. To sustain the heritage, the government should decriminalize traditional fermentation processes and ensure regulations against industrial exploitation. Compared with other work on indigenous Latin American societies (Pérez-Armendáriz & Cardoso-Ugarte, 2020), establishes that traditional fermented beverages are a valuable cultural, economic, and social heritage of Latin American societies that deserve to be preserved and strengthened through sustainable development and respect for diversity. Additionally, the editorial for the series (Soto-Cruz et al., 2022) concludes that traditional alcoholic beverages play a significant role in preserving the ancient traditions of tribes, while also adding value to enhance the economic sustainability of tribal communities.

In sociological understanding, indigenous alcohol in West Bengal is a living heritage, a dynamic, adaptive cultural practice through which tribal communities continuously negotiate their identity, solidarity, and relationships with the natural world.

5. Conclusion

To ensure sustainable commercialization, it is crucial to raise awareness about the heritage status of indigenous alcohol and the importance of conserving traditional fermentation methods. Training local cultivators in sustainable harvesting, careful cultivation of medicinal plants, and attentive monitoring by local governance bodies regarding the health of regional tribal communities and surrounding biodiversity are key measures. These steps can help promote the native drink's commercialization while safeguarding tribal identity and ownership. To sustain this culture, the government must think beyond monetary schemes and paternalism and move towards meaningful empowerment, like legal recognition, fair-market inclusion, and participation. Academia and think tanks must incorporate participatory ethnographic practices, the documentation and digitization of oral traditions and folklore, and the proper recognition of the heritage tag. It is about sustaining the spirit of the indigenous people for whom it denotes a space of belonging.

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The author confirms sole responsibility for all aspects of this work

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The authors declare no conflict of interest.

Use of AI and AI-Assisted Technologies

A paid version of Grammarly was used to edit the language and improve the manuscript's readability. The authors take full responsibility for the accuracy and integrity of all content.

Data Availability Statement

No new data were generated or analyzed in this study.

Ethical Requirements for Human Subject Research

Not applicable as it is a thematic literature review paper.

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