



Integrating Indigenous Knowledge and Vocational Education: The Impact of NEP 2020 on the Sustainable Development of the Herbal Liquor Economy in Dahanu Taluka

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Abstract:

At the intersection of indigenous knowledge systems, modern educational frameworks and sustainable economic development is a particularly pertinent paradigm for rural empowerment in India. The conceptual research paper in this essay analyzes the possible effect of National Education Policy (NEP) 2020 on sustainable development of Traditional herbal liquor industry in Dahanu Taluka in Palghar district, Maharashtra from an Indian perspective. Dahanu consists of a sizeable tribal strata, mostly Warli and Katkari communities with deep ethnobotanical knowledge. As for this knowledge in particular is particularly important when dealing with the fermentation of Mahua (Madhuca longifolia) and other locally obtained botanical infusions. Historically, the production of these traditional beverages has been restricted by law, stigmatized, and relegated to the back drop. And in consequence, tribal brewers have been exploited and the ancestral knowledge systems gradually eroded. This paper argues that the pedagogical shift in the NEP 2020—specifically its call for vocational education, Indian Knowledge Systems (IKS) promotion and local entrepreneurs—provides a potential road path to the formalization and sustainable development of this sector. Local institutions can offer scientific training in fermentation technology, sustainable harvesting, quality control, and business management, aligning localized educational curricula with the United Nations Sustainable Development Goals (SDGs), particularly SDG 1 (No Poverty), SDG 8 (Decent Work and Economic Growth), and SDG 12 (Responsible Consumption and Production). However, as many institutions are out of season and have no means to adapt to changing conditions, this paper provides a proposed pedagogical framework for local Higher Education Institutions (HEIs) in the Dahanu province aimed at addressing the dilemma between traditional practices and the external market. Additionally, it fills the gap regarding the current legal and socio-cultural landscape, identifying policy opportunities, recommendations and alignments to align excise policy at the state level with educational and entrepreneurial efforts. Finally, this paper proves that utilizing NEP should lead to a success.

Keywords: National Education Policy 2020, Sustainable Development, Indigenous Knowledge, Herbal Liquor, Dahanu Taluka, Tribal Economy, Vocational Education, Mahua.

Introduction:

Dahanu Taluka, in the Palghar district of Maharashtra, is home primarily to the indigenous tribal communities of Warlis,

Kathodis and Malhar Kolis in the eco-sensitive area of the state. The diverse biodiversity of the area has enabled these communities to maintain a deep-rooted heritage of ethnobotanical knowledge developed over

centuries of coexistence with the area (Deokar & Shinde, 2019). At the core of the culture/botanical heritage is the traditional brewing of herbal liquors using the Mahua (*Madhuca longifolia*) plant and infused with different indigenous medicinal roots and barks. The agricultural and forest industry of the Thana (now Palghar/Thane) region has traditionally been closely tied to the political ecology as well as the survival strategies of the indigenous peoples (Saldanha, 1990). Herbal liquor brewing was, for generations, more than just a method for synthesizing intoxicants; it was a complicated socio-cultural practice, a local micro-economy, and an indigenous medicine. But in today's economy, this strategy is very much dismissed. In a colonial era, traditional brewers were stigmatized as "illicit liquor" and constrained to excise mentalities, leading to punitive legal actions as well as economic exploitation by intermediaries (Baviskar, 2018). A paradigm shift is being introduced in Indian education landscape with the commencement of NEP 2020. The NEP 2020 opens the door to an unprecedented scope through its focus on multidisciplinary learning, professional training, the integration of vocational training, as well the mainstreaming of Indian Knowledge Systems (IKS) (Government of India, 2020). The purpose of this paper is to examine the impact of strategic strategies to implement NEP 2020 on herbal liquor micro-economy in Dahanu Taluka as a catalyst for sustainable development of a marginalized traditional practice by formalizing a scientifically validated and economically viable business by using the herbal liquor sector as an agent.

The Herbal Liquor Economy and Traditional Knowledge in Dahanu:

1. The sociocultural and Ethnobotanical background:

The inhabitants of Dahanu and its tribal communities have always used non-timber forest based products (NTFPs) as a source of livelihood for their subsistence in the past (Ghate & Mehra, 2021). The Mahua tree is an idol in the tribal cosmology and in the everyday life of the tribe. The plant-based liquor that is served from flowers is shared with the community in festivals, wedding celebrations and religious ceremonies, and is the base that is used in the herbal extractions that remedy all sorts of illnesses including digestive disease and inflammation of joints (Patil & Deshmukh, 2021). The art of picking the flowers correctly with the proper blooming patterns, picking the flowers, and picking other complementary medicinal herbs and plants to the flowers is ancient knowledge transmitted by an orally based system.

2. Current Economic Realities and Marginalization:

Despite this rich cultural heritage, the herbal liquor enterprise in Dahanu is characterized by little access to formal sector activity, an informal, unorganised industry that is almost wholly outlawed. The Maharashtra Prohibition Act and very strict state excise regulations severely restricted the production and sales of traditional tribal brews. Thus, several systemic and structural problems emerge:

- **Economic Exploitation:** A production system is forced into secrecy as producers sell their product at low prices to syndicates in cities as a means to perpetuate poverty (Sharma, 2019).
- **Quality and Safety Risks:** As fermentation takes place in unregulated

environment, with no standardized scientific procedures, there can be contamination (e.g., high levels of methanol), increasing risk to public health.

- **Heritage Loss:** The age-old cultural stigma attached to the trade discourages the young, educated generation to learn the esoteric ethnobotanical knowledge, which results in cultural erosion, and distress migration to urban centers for unskilled labor.

How to Change: NEP 2020 to facilitate:

To implement the changes made in the context of multidisciplinary, the National Education Policy 2020 is a reflection of education that is indigenous to India but also a reflection of a higher and even global standard to be maintained in the education systems (Government of India, 2020). A number of core principles in NEP 2020 are applicable for revitalising Dahanu's herbal liquor sector.

1. Vocational inclusion as an integrated part of schooling:

NEP 2020 emphasizes the need for vocational education to be introduced from Grade 6 so that at least 50% of students will be exposed to vocational training (Government of India, Ministry of Skill Development and Entrepreneurship [MSDE], 2022). Within rural and tribal contexts such as Dahanu, vocational courses (for example IT or mechanic) need to be complemented by NTFP-focused modules at the local level. According to Kulkarni (2022), vocational education for rural consumers in India is only successful if it aligns with the local micro-economy. Schools and colleges can offer modules on scientific principles of fermentation, safe distillation practice, and sustainable harvest.

2. The policy strongly promotes Indian Knowledge Systems (IKS) being embedded in the formal curriculum:

The indigenous ways of identifying medicinal herbs, their seasonal life cycles, and the traditional brewing methods are examples of the tribal technique of ecological knowledge. Educational resources that take this knowledge into the classroom, in a way that allows us to validate it through modern botanical science, can overcome this historical stigma and give tribal students a sense of pride and ownership in the plants learned and are valued by both indigenous students and the teachers who teach them.

Aligning NEP 2020 with Sustainable Development Goals (SDGs):

Formalizing the herbal liquor industry through educational intervention fits well with the United Nations Sustainable Development Goals (SDGs) and encourages holistic development in Dahanu Taluka (United Nations, 2015).

1. Economic Sustainability (SDG 1): No Poverty & SDG 8: Decent Work). Education turns informal brewers into licensed micro-entrepreneurs by creating official certifications on fermentation technology and managerial processes for tribal youth. Inspired by the formalization of Agave in Mexico (Tequila/Mezcal) or Feni in Goa, educated youth in Dahanu can brand and sell premium standardized Mahua and herbal spirits. Such a shift transforms the economic situation from subsistence-based illegal brewing into a high-value legalized industry, directly targeting poverty (SDG 1) and ensuring decent work (SDG 8) (Sharma, 2019).

2. Environmental Sustainability (SDG 12): Responsible Consumption & SDG 15: Life on Land). A major threat to Dahanu's ecology is

the unsustainable extraction of forest resources. An educational curriculum formulated through NEP 2020 can include sustainable harvesting practices and ensure that Mahua flowers and medicinal roots are harvested without destroying the environment (Singh & Rao, 2020). In addition to these, scientific training can bring more efficient distillation methods, which reduce the enormous volume of firewood traditionally used in rural brewing.

3. Social Sustainability (SDG 3: Good Health and Well-being & SDG 10: Reduced Inequalities):

By incorporating the trade into educational institutions, food safety, hygiene, and standardized chemical testing can be taught. This eliminates the risk to public health associated with contaminated liquor (SDG 3). Socially, this empowers the Warli and Katkari communities to reduce inequalities (SDG 10) as it enables them to take ownership of a legally recognized industry.

The Proposed Pedagogical Framework for Dahanu HEIs:

To realise the potential of NEP 2020 in the particular area of Dahanu, to ground the vision of NEP 2020 in a framework for the local Higher Education Institutions (HEIs) and vocational centres, this paper offers a structured framework:

1. Certificate Course in Traditional Fermentation Sciences:

- Curriculum: Yeast and fermentation biology, chemistry of alcohol distillation, identification and removal of toxic by-products, and alcohol by volume standardization (ABV).
- Outcome: The safe, hygienic, and scientifically sound production of traditional beverages.

2. Diploma in Ethnobotany and Sustainable Harvesting:

- Curriculum: Flora of the Western Ghats, sustainable foraging techniques, conservation of endangered medicinal plants, and organic propagation of herbs (Deokar & Shinde, 2019; Singh & Rao, 2020).
- Outcome: Environmental stewardship and reliable and sustainable supply chains.

3. Incubation and Entrepreneurship Hubs:

- Curriculum: Applying for FSSAI (Food Safety and Standards Authority of India) licenses, state excise regulation, packaging, branding, and e-commerce.
- Outcome: Build market-ready entrepreneurs who can launch legal, premium herbal liquor labels with potential to target a Geographical Indication (GI) tag for Dahanu's unique blends.

Challenges and Policy Implications:

Though the education framework for NEP 2020 is strong, realizing sustained development through NEP 2020 will present diversified educational needs in Dahanu herbal liquor production and is hard in practice. The lack of policy interventions to address unique hurdles and efforts in the education frameworks outlined in NEP 2020 are yet to take effect in the herbal liquor sector as one of the distinct and multifaceted issues faced by Dahanu.

1. Regulatory and Legal Obstacles: The biggest stumbling block continues to be the state's excise policies, which have always approached indigenous liquor with a punitive-centric view. For educational outcomes to translate from NEP 2020 into economic reality, the Government of Maharashtra must coordinate its excise policies with tribal welfare initiatives. This entails a separate licensing category for "Heritage Tribal

Beverages" that will be accessible to all and subsidization of commercial distillation licenses for graduates of vocational programs of the suggested initiative.

2. Socio-Cultural Stigma and Infrastructure: Awareness campaigns for these products, reframing them as artisanal heritage products, are possible and can go a long way in dismantling the conventional mindset of brewing as an illegal activity, courtesy of educational institutions. In addition to this, with regard to this educational vision, targeted funding would be needed for building more localized "Center of Excellence" laboratories in rural Dahanu as most of the local institutions do not have the infrastructure to conduct advanced botanical and chemical analysis (Kulkarni, 2022).

Conclusion:

National Education Policy 2020 is a rare moment for education in India to situate itself in this context. For the tribal society of Dahanu Taluka, such a policy could be an essential bridge from ancestral heritage to modern sustainable development. By integrating herbal liquor production (an ethnobotanical phenomenon) with formal vocational and higher education, the state can solve many developmental problems at the same time. It provides a straightforward way out of the stigma of traditional brewing into a formalized, scientifically backed, and environmentally sustainable micro-economy. By imparting the local population of Dahanu with fermentation science, sustainable harvesting ethics, and the art of modern business, their cultural identity can be preserved while at the same time raising people's social status. Nevertheless, whether this educational intervention will work depends on the willingness of state regulatory

authorities to modify old excise laws. As such, localizing the implementation of NEP 2020 in Dahanu can offer a powerful example of how indigenous resources can be employed as resources in education to achieve localized Sustainable Development Goals and build upon, or leverage, local traditions that are at the heart of local-to-global integration strategies.

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