

Research Article

Nashik: India's Wine Capital and a Model for Sustainable Wine Tourism

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Abstract: Nashik district of Maharashtra state in India is one of the prominent wine-producing and wine-tourism hubs in India. Its success story has not been studied in depth whether vine growing has provided an inclusive development of rural tourism in Nashik district at the community level. To fill this gap, the study seeks to measure the economic, social, infrastructural, and environmental impacts of vine growing on rural tourism in the Nashik district. The study employed a quantitative-dominant research design based on an illustrative survey method using a sample of 200 respondents, including rural households, wine tourists, vineyard farmers and workers, and local service providers. Descriptive statistics, t-test, ANOVA, correlation and regression analysis were conducted to find the relation between exposure to vine-growing and development of rural tourism. The analysis shows that the villages with higher exposure to vine-growing had better tourism infrastructure, better income generation opportunities, and more diversified employment than villages with lower exposure to vine-growing. Concerns about water pressure, land use changes and the unequal distribution of benefits reflected the growing unease about the environmental impacts of wine tourism. Overall, the research indicates that wine tourism in Nashik is a rural development opportunity, but the successful future of the destination will depend on it being supported by inclusive planning, greater community involvement, environmental considerations and the inclusion of small farmers and local service providers.

Keywords: Nashik, wine tourism, vine growing, rural tourism, sustainable tourism, agro-tourism, rural development.

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INTRODUCTION

The Nashik district of Maharashtra is often referred to as the "Wine Capital of India" since it has many vineyards, wineries, grape growing and wine-tourism facilities. It accounts for a larger share of viticulture growth since the 1990s due to its agroclimatic conditions, its proximity to high potential markets like Mumbai and Pune, and the establishment of wine companies like Sula Vineyards, York Winery, Grover Zampa Enterprises, etc. In wine tourism studies in India, Nashik has been featured as pioneer of wine tourism in the country with meaningful offerings from vineyard tours, tasting rooms, wine festivals, destination branding and investment in hospitality (Singh and Srivastava, 2018; Singh, Wagner and Raab, 2021; Singh and Wagner, 2023). Some prior studies explaining Nashik's growth in terms of wine production, wine consumer behaviour, destination branding, tourism infrastructure, and regulatory issues include Deodhar, Singh and Tank (2019), who examined quality dimensions of the nascent wine industry in India; Kansara (2020), who examined Nashik district's wine industry; Gawde, Behera and Kulshreshtha (2023), who examined the role of Sula Wine Festival in destination branding; and Kotur (2022), who examined the regulatory and ethical issues associated with wine tourism development in Nashik. In terms of wine tourism, the studies provide useful insights, but they do not address the effects of vine growing on rural households, farmers, farm workers, rural infrastructure or other local sharing.

Thus, it seems that although there is a fair amount of literature establishing Nashik as a successful wine region, there is little empirical evidence to suggest that inclusive rural tourism will also develop there. Most studies have been descriptive, focused on the destination or global tourism industry. Little attention has been given to how tourism contributes to village-

level diversification of income and employment, tourism infrastructure development, environmental sustainability, and distribution of benefits from tourism. Wine tourism cannot be assessed only on the basis of number of wineries and visitors and visibility of the destination but also in terms of its contribution to rural population, rural economy and sustainability. This research study has tried to fill the above gap by studying the role of vine growing in rural tourism development of Nashik district in four perspectives: economic impact, social impact, infrastructural development and environmental sustainability. The present paper is guided by the following research questions:

1. How does rural tourism develop due to vine growing in Nashik district?
2. Is tourism development greater at villages that have higher exposure to vineyards and wineries than in villages with lower exposure?
3. Does household income benefit and employment increase from involvement in vine-growing and wine tourism?
4. What sustainability and equity concerns surround the expansion of Nashik's vine-based tourism industry?

This research advances the study of wine tourism, agro-tourism, and rural development by offering empirical findings in addition to description of the destination. It provides information that can be used by policymakers, tourism planners, development planners, wineries, panchayats, and rural communities.

LITERATURE REVIEW

2.1 Wine tourism and agro-tourism as rural development frameworks

Wine tourism may be described as a subclass of special-interest tourism involving visiting vineyards, wineries, wine tasting, wine and food festivals, events, and local gastronomy and food production in a wine region, in rural landscapes and scenic routes. According to Croce and Perri (2017), food and wine tourism can link agriculture, culture, gastronomy and destination identity. In India, Bisht and Rauthan (2023) observed wine tourism as an emerging niche tourism segment which could help develop the region. Singh, Wagner and Raab (2021) pointed out the changing consumer demands, lifestyle changes, and experiential tourism made wine tourism in India a growing niche segment. Another related concept, agro tourism, can also be used as an alternative to wine tourism. According to Shah, Gumaste and Shende (2019), rural entrepreneurship and agro-tourism can help achieve sustainable rural development in Maharashtra. Shah, Gumaste and Shende (2023) claimed that agro-tourism, along with allied farming, can offer opportunities for additional household income and social development for rural households. Chowdhury, Bhattacharya and Sharma (2024), in the context of Maharashtra, also stress the prospects of agro-tourism with a focus on sustainable development. The literature supports the argument that the viticulture industry in Nashik is more than just farming, and is a place for income, employment and destination value. However, the literature on agro-tourism finds such gains are not guaranteed, that community involvement, infrastructure, markets, governance, and environmental protection are critical to agriculture-led rural tourism transformation. In Nashik, the wine tourism boom may have benefited wineries and investors more than small farmers, landless laborers and villages outside the main wine tourism belt.

2.2 Destination branding, experience and wine-tourism identity

The destination branding and experience design of wine tourism of Nashik has also been studied. Gawde, Behera, and Kulshreshtha (2023) found that Sula Wine Festival had helped to promote the Nashik destination image and develop the region into an established wine tourism destination. Dahake (2024) develops the concept of the two-sided city of "divine and wine" in studying the case of Nashik with its heritage in religious tourism and its urban identity based on wine tourism. Experience-based tourism theory is useful for this. According to Joy, Belk, Charters, Wang, and Peña (2018), wine tourism in South Africa and India can be understood as a performance, through a sensory, symbolic, and participatory experience. In Boraste (2022), experiential or niche tourism is an increasingly important category for modern tourism practices. Wine tourism to Nashik includes wine tasting, vineyard visits, festivals, food, and rural locations and experiences. These elements are the destination value of the area beyond the wine product. However, destination branding studies have sufficiently covered tourists, festivals, and destination image, but have not studied whether destination branding can strengthen rural livelihoods or improve local engagement. Accordingly, this study seeks to fill a second gap: Nashik's wine tourism branding has been studied, but its village-level developmental impacts remain largely unexplored.

2.3 Infrastructure, planning, and regional tourism development

Infrastructure holds an important role in tourism development. Kaddi and Suklabaidya (2014) studied wine tourists' perceptions towards tourism infrastructure in Maharashtra wine clusters and found that infrastructure, accessibility and service quality impact the tourism experience. Pagar (2022) explained the importance of road density and connectivity to tourism in the Nashik district. Jibhau and Chavan (2021) suggested a need for a tourism master plan for Nashik city. Begampure (2024) concluded that tourism in Maharashtra's wine routes requires infrastructure, connectivity, and amenities. Wineries and vineyards require road, lodging, sanitation, transport, internet, food, safety, and other infrastructure to realise the full potential of tourism. Since Nashik city is a major tourism entry-point, the rural villages surrounding vineyard clusters must be developed with infrastructure. Doing so would ensure that tourism benefits extend beyond the primary winery sites. Other papers such as Kale and Tank (2024) on urban reformation in Nashik, and Chavanke (2023) on cultural-core regeneration in Nashik, are not directly related to wine tourism, but show the spatial and infrastructural transformation underway in Nashik. Pagare (2023) assessed the prospects of eco-tourism in Nashik district with a fuzzy multi-criteria

decision-making approach, and Patil and Chandankar (2015) assessed resources for ecotourism. These sources indicate that Nashik has a potential tourism resource, but it needs to be organised in order to avoid uneven development.

2.4 Sustainability, regulation, and environmental concerns

Sustainability is an important aspect of wine tourism. Grape growing and the production of wine rely on land, water, soil, climate and biological balance. Kotur (2022) studied regulation and ethics in the development of Nashik's wine tourism, and the need for governance, environmental and ethical planning. Sharma et al. (Tiwari, Wadhwani, Chaturvedi, 2024) studied land-use and land-cover change in Nashik focusing on regional changes in ecosystem services. According to Pagar (2020), Nashik district's agricultural sustainability can be improved by increasing local farmers' knowledge of soil testing. A study released by Nagar and Malhotra (2024) on circular economy in the beverage industry, based on the Sula Vineyards Limited, focused on waste management, resource efficiency and sustainable processes in wine-making. Gopalakrishna Pillai, Ngcobo-Onunkwo and Al Rooq (2025) researched the use of blockchain technology to ensure transparency, traceability, and trust in global wine markets within the wine industry. The study is regarding wine fraud, but what comes to Nashik is the resultant need to ensure it is associated with authenticity and credibility as a wine destination. This may be an issue not only because of wine tourism; if viticulture expands without proper water, waste, soil and community management, it could harm the ecosystem in the long term. Therefore, other relevant indicators in this study include water pressure, land-use change, waste, pesticide use, and sustainability assessment.

2.5 Rural livelihoods, farmers and local benefit-sharing

The burgeoning wine tourism and its impact on rural agriculture depends on the extent of local farmers, employees, family members and service providers' participation in the wine-tourism economy. Lalitha (2019) studied the role of farmer producer organizations in transforming smallholder farming in Nashik, and stressed the need for the institutional support to rural producers. Mangalu (2021) studied entrepreneurial behaviour of grape growers in Nashik district and concluded that market-driven changes in business strategies encourage farmer adaptation to market opportunities. Chandahar (2010); Sahebrao (2010); Veeraghanta (2010) studied wine marketing and wine business in Nashik and in India. Adsule (2018) discussed evolution, current status and prospects of grape wine industry in the country. Kulshreshtha and Kumar (2021) explored the culture of indigenous beverage consumption and the impact of beverage tourism and regional brand identity in creating economic and cultural value. Investigating wine tourism in Bangalore in 2015, Thaliath and Kumar found similarities in awareness, consumption and business development of the wine tourism sector among the emerging Indian wine regions. Much of the Nashik wine-tourism literature does not explore farmer or household perspectives, which is a key blind spot. Different stakeholders (winery owners, urban tourists, large farmers, small farmers, landless farm laborers, transport operators, and local food service providers) may have different and unequal experiences of the wine touristic developments.

2.6 Theoretical anchoring and conceptual framework

The present study is based on four complementary frameworks.

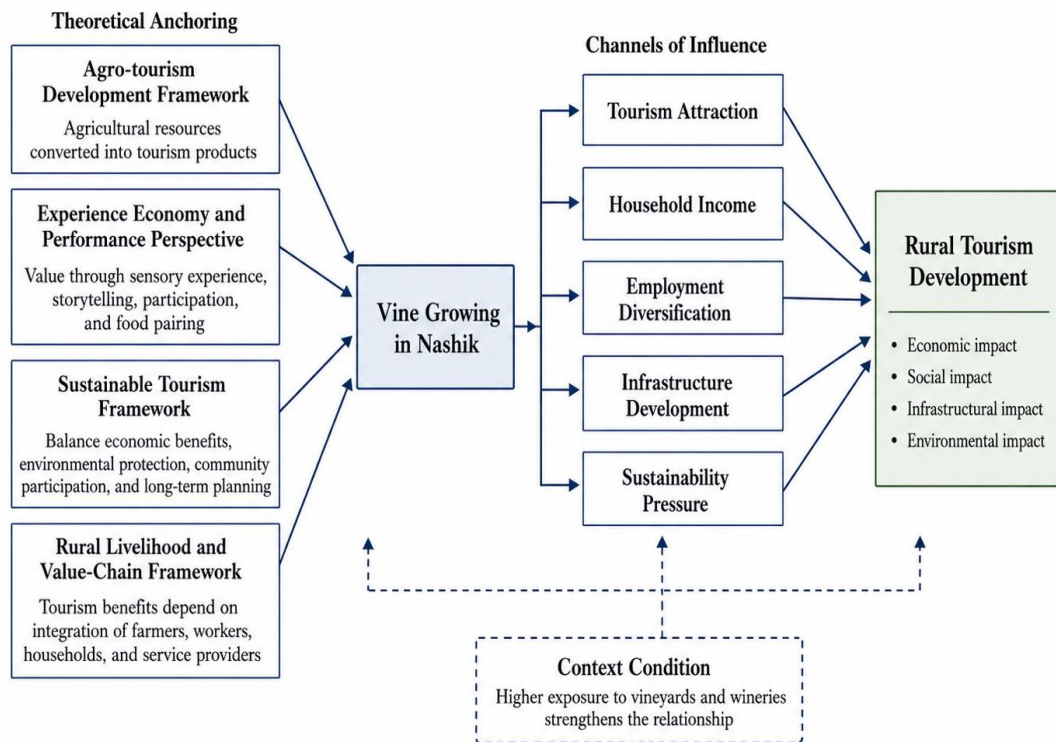
In the domain of agro-tourism development, a framework is defined, which converts agricultural resources to agro-tourism services, such as farm visit, rural experience, food, accommodation, hospitality, and place promotion in destination (Shah, Gumaste & Shende, 2019; Shah, Gumaste & Shende, 2023; Chowdhury, Bhattacharya & Sharma, 2024).

Secondly, the experience economy and performance perspective explains how wine tourism can improve the experiences of wine lovers through sensory experience, storytelling, participation, landscape, food pairing, and cultural performance (see: Croce and Perri 2017; Joy, Belk, Charters, Wang, and Peña 2018; Boraste 2022).

Third, the sustainable tourism framework highlights balancing economic gains with environmental, community, and long-term sustainability. It is supported by the works of Kotur (2022), Sharma, Tiwari, Wadhwani, and Chaturvedi (2024) and Nagar and Malhotra (2024).

Fourth, according to the rural livelihood and value-chain framework, tourism livelihood benefits depend on how much producers, laborers, households, and service-providers integrate themselves into the tourism-based economy (Lalitha, 2019; Mangalu, 2021; Kaddi and Suklabaidya, 2014).

Figure 1. Theoretical Anchoring and Conceptual Framework of the Study



Source: Developed by the researcher

Based on the proposed theoretical models, this study identifies five mechanisms linking vine growing to rural tourism development: tourism attraction, household income, diversification of employment, infrastructure, and sustainability. The effects of these mechanisms are expected to be larger in villages with higher exposure to vineyards and wineries.

METHODOLOGY

3.1 Research design

The study used a quantitative-dominant descriptive and analytical research approach to study the relationship between vine growing and rural tourism development in Nashik district. This design was most appropriate for this study because it called for quantifiable data on income, employment, infrastructure, tourism participation, satisfaction and perceptions.

3.2 Study area

The current research was done in selected rural areas of Nashik district, Maharashtra where one or the other has been influenced by vineyards and wineries and wine tourism. Villages with different exposure to vine growing and wine tourism were chosen.

For analysis, villages were placed into three categories:

1. High-exposure villages: villages within 3 km (1.9 mi) or less of large vineyards and wine-tourism facilities.
2. Medium-exposure villages: near vineyards and tourism facilities, 3 to 10 km (2 to 6 mi).
3. Low-exposure villages: villages that are 15 km (9 mi) or more from the major wine-tourism activity.

This was useful to determine if being near vineyards and wine-tourism infrastructure contributed to rural tourism.

3.3. Sample size and sampling

The research engaged 200 respondents from four groups of target audiences, the rural household, the wine tourist, the vineyard farmer and worker and the hospitality or service sector provider.

Table 1: Demographic and respondent profile of the sample

Variable	Category	Frequency	Percentage
Respondent group	Rural households	100	50.0
	Wine tourists	50	25.0

	Vineyard farmers and workers	35	17.5
	Hospitality and service providers	15	7.5
Gender	Male	118	59.0
	Female	82	41.0
Age group	18 to 30 years	46	23.0
	31 to 45 years	82	41.0
	46 to 60 years	54	27.0
	Above 60 years	18	9.0
Education	Up to secondary	58	29.0
	Higher secondary	62	31.0
	Graduate	56	28.0
	Postgraduate and above	24	12.0
Village exposure	High exposure	76	38.0
	Medium exposure	68	34.0
	Low exposure	56	28.0
Direct link with vine or tourism activity	Yes	112	56.0
	No	88	44.0

3.4 Data collection tools

Data was collected using structured questionnaires related to respondents' demographic characteristics, income, employment, tourism participation, infrastructure, tourist satisfaction, environmental concerns, and socio-economic impacts on livelihood and benefits distribution. The questionnaires were formulated on the basis of tourism satisfaction, livelihood impact and indicators of agro-tourism used in the studies by Kaddi and Suklabaidya (2014), Shah et al. (2019), Singh et al. (2021), and Chowdhury et al. (2024).

3.5 Data analysis

To analyse the data, descriptive statistics and inferential tests were performed. The profile variables were analysed as frequency and percentage. Mean and standard deviation were used for the perception-based indicators. ANOVA was carried out to compare the exposure groups in rural tourism development. An independent samples t-test was used to test for differences between the incomes of engaged and non-engaged households. Correlations and regressions were used to investigate the relationship between participation in vine-tourism and rural tourism development.

3.6 Hypotheses

The following hypotheses were tested:

- H1: Villages with higher exposure to vineyards and wine-tourism activity report significantly higher rural tourism development than medium and low-exposure villages.
- H2: Households engaged in vine-growing or wine-tourism-related activities report significantly higher monthly income than non-engaged households.
- H3: Participation in vine-growing and wine-tourism activities has a significant positive effect on perceived rural tourism development.

ANALYSIS AND RESULTS

4.1 Descriptive analysis

Table 2: Respondent distribution by exposure to wine-tourism activity

Exposure category	Frequency	Percentage
High exposure	76	38.0
Medium exposure	68	34.0
Low exposure	56	28.0
Total	200	100.0

The survey results show that 38 percent of the respondents lived in high-exposure villages, 34 percent in medium-exposure villages and 28 percent in low-exposure villages. Thus, a distribution across quintiles was created to compare different levels of wine tourism exposure.

Table 3: Perceived economic impact of vine-based tourism

Statement	Mean	SD	Interpretation
Vine growing increased local income opportunities	3.86	0.82	High
Wine tourism created new employment opportunities	3.92	0.79	High
Local businesses benefited from tourist visits	3.74	0.88	High
Small farmers received fair benefit from wine tourism	3.08	0.97	Moderate

Tourism income was distributed equally in the village	2.91	1.02	Moderate to low
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Respondents' net benefit was increased income and job growth, and an increase in economic activity within the local community. Dimensions of fair benefit and equal distribution were scored lower than others, indicating that benefits were not evenly distributed. This reinforces the viewpoint of Kotur (2022), Lalitha (2019), and Dahake (2024) on fair access and localization.

Table 4: Tourism development indicators

Indicator	Mean	SD	Interpretation
Increase in tourist visits due to vineyards	4.01	0.76	High
Growth in wine tasting and vineyard tours	4.13	0.69	High
Improvement in destination image of Nashik	4.22	0.65	Very high
Increase in rural hospitality services	3.71	0.84	High
Increase in cultural and food-related tourism	3.52	0.91	Moderate to high

These results suggest that vineyards and wineries contributed greatly to tourist visitation, wine tours, destination image and hospitality services. This is in line with Singh et al. (2021), Gawde et al. (2023) and Bisht and Rauthan (2023) who highlighted the beginnings of the wine tourism industry in India.

Table 5: Infrastructure development linked with wine tourism

Infrastructure indicator	Improved	Not improved	Percentage improved
Road connectivity	132	68	66.0
Transport services	118	82	59.0
Accommodation facilities	104	96	52.0
Restaurants and food services	126	74	63.0
Digital connectivity	96	104	48.0
Sanitation and public facilities	82	118	41.0

Data collected so far show that, while wine tourism has spurred road, transport, accommodation and food service improvements, the same is not true for sanitation, public conveniences (toilets) and digital infrastructures which have historically lagged behind other sectors (Kaddi and Suklabaidya, 2014; Pagar, 2022; Jibhau and Chavan, 2021).

Table 6: Environmental and sustainability concerns

Environmental concern	Frequency	Percentage
Increased pressure on water resources	126	63.0
Land-use change due to vineyards and resorts	112	56.0
Waste generation from tourism activity	98	49.0
Pesticide or agrochemical concerns	84	42.0
Traffic and crowding during peak season	106	53.0
Need for stronger sustainability regulation	138	69.0

From these findings, it is obvious that major sustainability concerns relate to water pressure, change in patterns of land use and need for stronger regulation. Likewise, results here pertain to findings of Kotur (2022), Sharma, Tiwari, Wadhwani and Chaturvedi (2024), and Nagar and Malhotra (2024) on environmental governance and resource-efficient development.

Hypothesis 1

- H1: Villages with higher exposure to vineyards and wine-tourism activity report significantly higher rural tourism development than medium and low-exposure villages.

Table 7A: Rural tourism development score by exposure category

Exposure category	N	Mean	SD
High exposure	76	4.08	0.54
Medium exposure	68	3.61	0.62
Low exposure	56	3.02	0.71
Total	200	3.62	0.75

Table 7B: ANOVA result for exposure category and rural tourism development

Source of variation	Sum of Squares	df	Mean Square	F	Sig.
Between groups	31.284	2	15.642	38.916	.000
Within groups	79.180	197	0.402		
Total	110.464	199			

The one-way ANOVA results suggest an important difference in developing rural tourism across exposure groups: $F =$

38.916, $p < .001$, the means are the highest for the high-exposure villages, the medium-exposure villages come next, and the low-exposure villages rank last. These results suggest that H1 was supported, as distance to vineyards and wine tourism facilities were correlated with an increase in rural tourism.

Hypothesis 2

- H2: Households engaged in vine-growing or wine-tourism-related activities report significantly higher monthly income than non-engaged households.

Table 8A: Monthly income by engagement status

Engagement status	N	Mean monthly income in INR	SD
Engaged in vine or wine-tourism activities	112	38,450	9,820
Not engaged	88	28,760	8,940

Table 8B: Independent sample t-test for income difference

Variable	t-value	df	Sig.	Mean difference
Monthly income	7.198	198	.000	9,690

The t-test results indicated that the income of households engaged in vine growing or wine-tourism activities was considerably higher than the income of households that were not engaged in any of such activities, $t = 7.198$, $p < .001$, confirming H2; this means that vine-based tourism activities could contribute to household income. Nonetheless, the data suggest that the benefits are not equally distributed.

Hypothesis 3

- H3: Participation in vine-growing and wine-tourism activities has a significant positive effect on perceived rural tourism development.

Table 9A: Correlation between vine-tourism participation and rural tourism development

Variables	Vine-tourism participation	Rural tourism development
Vine-tourism participation	1.000	.642**
Rural tourism development	.642**	1.000

Note: $p < .01$

Table 9B: Regression analysis predicting rural tourism development

Predictor	B	Beta	t-value	Sig.
Constant	2.214		18.426	.000
Vine-tourism participation	0.486	.642	11.776	.000

Model summary	Value
R	.642
R Square	.412
Adjusted R Square	.409
F-value	138.675
Sig.	.000

Table 7 shows that the correlation between the vine-tourism participation and the rural tourism development was statistically meaningful since $r = .642$, $p < .01$. The regression result shows that the vine-tourism participation is an important predictor of the rural tourism development with $\beta = .642$, $p < .001$. The R Square value shows that participation in the vine-growing and the wine-tourism activities explained about 41.2 percent of the rural tourism development variance. Therefore, H3 is accepted.

DISCUSSION

The results showed that growing of vine has led to development of rural tourism in Nashik district, especially in the villages which are in proximity to vineyards and wineries. The villages with more exposure to vineyards and wineries have more development of tourism infrastructure and income opportunities as compared to low-exposure villages. These findings are corroborated by prior scholarship that represents Nashik as a nascent wine-tourism hub and premier wine tourism destination in India's burgeoning wine economy (Kansara, 2020; Singh, Wagner, and Raab, 2021; Singh and Wagner, 2023), following the agro-tourism and rural development perspective. In addition to producing wine, vineyards are important generators of tourism, hospitality services, and jobs that support other agricultural, commercial and service-based forms of income generation. This finding corroborates the assertion made by Shah, Gumaste and Shende (2019, 2023) and Chowdhury, Bhattacharya and Sharma (2024) that agriculture-based tourism has the potential to contribute to diversified rural livelihoods.

These findings show that wine tourism presents uneven benefits and that those households with involvement in vine-growing

or tourism activities tend to have higher incomes, even if the perception of the fairness of its distribution is moderate to low. The wine-tourism economy seems to favour the interests of winery owners, large farmers, and strategically placed service providers over those of small farmers, landless laborers, and outlying villages. Lalitha (2019), Mangalu (2021), and Kotur (2022) suggest that rural producers and local communities need more support in terms of institutional and policy measures. In infrastructure, roads, transport, accommodation and food services performed better, while sanitation, public facilities and ICT (digital connectivity) performed less well. This supports Kaddi and Suklabaidya (2014), Pagar (2022), and Jibhau and Chavan (2021) who determined that tourism development does not only require private winery infrastructure, as dualization of rural tourism development can not be done without public infrastructure and village level planning.

With regard to environmental issues, most responses indicated that there was also concern regarding water pressure, change in land use, waste and regulation of sustainability. This reinforces the concern from Kotur (2022), Sharma, Tiwari, Wadhwani and Chaturvedi (2024), and Nagar and Malhotra (2024) that Nashik should not be represented as a universally relevant example of sustainable wine tourism practice. We conclude that Nashik is an early but efficient example of a wine tourism destination, but that without careful management of water, waste, land use, and involvement from the local community, it will not be sustainable. The study contributes to cross-disciplinary knowledge in agro-tourism, the experience economy, sustainable tourism, and rural livelihoods. Whereas other wine tourism studies focus on branding, tourists, infrastructure, or regulation, this study links these components to the area of rural development. The practical implication is the need for wine tourism policy to move beyond the destination and to include farmers, village employment and infrastructure, environmental monitoring, and sharing benefits.

CONCLUSION

The present study examined the effect of vine growing on the development of rural tourism in the Nashik district. A total of 200 respondents were taken as sample. The study found considerably positive effects of growing vines on wine tourism activity and rural tourism. Villages with high exposure reported more developed tourism than medium or low exposure villages. Households involved in vine-growing or wine tourism and households participating in vine-tourism activities were associated with higher levels of household income and with higher levels of perceived rural tourism development. In practice, however, the current pattern of development had clear limitations. The benefits selectively accrued do have some environmental impact, with water pressure, land transformations, waste and waste disposal, and sustainability regulation to consider. Thus, Nashik should not be seen as a fully-formed global case study, but as an emerging Indian wine-tourism destination with great potential but many challenges for governance and cooperation. The theoretical contribution of the study is its linkage of wine tourism with rural development, agrotourism, sustainability and livelihood approaches. The practical contribution of the study is that it provides, with evidence, a basis for policymakers, wineries, panchayats and tourism planners to develop more inclusive and sustainable wine tourism programs. Future planning needs to focus on small farmers, village infrastructure, participation, environmental regulation, and equitable sharing of benefits. However, there are limitations to this study. First, the analysis is based on representative data and needs to be validated with field data. Second, as the analysis is based on a particular rural area of the Nashik district, the results may not be generalised to wine growing regions of India. Third, environmental indicators, perceived measures of sustainability, would benefit from including technical indicators such as water use, soil quality, waste measurement, and land-use change. Future research could consider longitudinal studies, GIS mapping the current spatial distribution of vineyards, as well as comparatively examining Bangalore, Meghalaya and new or up-and-coming vineyard regions in India.

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