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Repositioning Dhori as a Competitive Post-Mining Heritage Tourism Destination: An Empirical Evaluation Using Dwyer & Kim Framework and Porter's Diamond Model

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Abstract

The transformation of post-industrial mining sites into heritage tourism destinations represents a growing global trend, yet remains underexplored in India. This paper investigates the repositioning potential of Dhori, Jharkhand—a site with dual significance as a devotional landmark and a post-mining landscape—through the application of two established competitiveness frameworks: Dwyer & Kim's Integrated Destination Competitiveness model and Porter's Diamond Model. Drawing from a robust dataset of 441 stakeholder responses and employing perceptual mapping, cluster analysis, and ANOVA, the study identifies key strengths in cultural identity and community engagement, contrasted by critical weaknesses in interpretive infrastructure, service integration, and institutional coordination. Comparative analysis with national (Kenapara, Raniganj) and international (Ruhr Valley, Wieliczka Salt Mine) case studies further underscores the structural and narrative gaps Dhori must address. The findings inform a phased strategy—short-, mid-, and long-term—accompanied by a data-driven Competitiveness Monitoring Toolkit grounded in nine thematic criteria. The study contributes an India-specific empirical model for post-mining tourism transitions, highlighting how dual-identity sites can achieve competitive positioning through integrated cultural, environmental, and economic strategies.

1. Introduction

Obsolete mining lands are increasingly repositioned for heritage reuse, ecological restoration, and place-making rather than left abandoned [1–3]. This reflects the global transition from extractive to regenerative landscapes [4]. The Ruhr Valley in Germany and Sovereign Hill in Australia show how stakeholder engagement, adaptive reuse, and curated storytelling can transform wastelands into cultural tourism destinations [5–8]. Economic renewal is thus linked to heritage conservation and civic participation within sustainable cultural tourism [9–11]. India, with its coal mining legacy, is beginning to adopt similar approaches. Policy initiatives by Coal India Limited (CIL), the Ministry of Coal (MoC), and state tourism councils have promoted eco- and coal heritage tourism in recent years [12]. Projects such as Chhattisgarh's Kenapara Eco Park and proposed routes in Raniganj and Kolar reflect this recognition of mining landscapes as tourism assets [12–14]. Yet most interventions remain infrastructural, lacking competitiveness planning or cultural integration [15–16]. Community perspectives, spiritual overlays, and systematic branding are often absent, leaving sites underperforming [17–19].

Against this backdrop, the Dhori mining complex in Jharkhand's Bokaro district offers a compelling case [20]. Alongside abandoned mines, the area hosts the historic Dhori Mata temple, drawing thousands of pilgrims annually. A pit lake, ex-miner settlements, and partially forested rehabilitation zones create scope for hybrid tourism combining heritage, religious, and environmental

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flows. Dhori's location along major railway lines and its proximity to Bokaro and Dhanbad further enhance its potential. However, Indian mining heritage repositioning remains poorly understood. Research largely focuses on ecological rehabilitation or physical restoration, with little application of competitiveness models for sustainability or stakeholder-driven development [21–25]. Globally tested frameworks such as Porter's Diamond Model and the Dwyer & Kim Integrated Framework remain underutilized in Indian post-industrial heritage contexts. With India simultaneously expanding tourism circuits and phasing out coal assets under energy transition, this gap is both methodological and empirical.

1.1. Research Objectives and Questions

This study addresses the absence of competitiveness-based evaluations in Indian post-mining tourism by analysing Dhori's potential through two globally recognised models (Dwyer & Kim; Porter). The research pursues three objectives:

- **O1.** Apply a perception-based diagnostic tool to identify Dhori's competitive strengths and weaknesses.
- **O2.** Analyse stakeholder views on heritage, infrastructure, environmental value, and governance readiness.
- **O3.** Translate findings into practice and policy strategies using Porter's and Dwyer & Kim's frameworks.

Research Questions

- **RQ1.** How do different stakeholder groups perceive Dhori as a heritage tourism destination—its strengths and limitations?
- **RQ2.** How do competitiveness factors (management, authenticity, accessibility, community involvement) align with global frameworks in Dhori's case?
- **RQ3.** How can Dhori be repositioned in regional tourism circuits—short, medium, and long term—while ensuring inclusion and sustainability?

The subsequent sections detail: literature review and comparative cases (Section 2), methodology (Section 3), empirical results (Section 4), national and international case comparisons (Section 5), application of competitiveness frameworks (Section 6), strategic implications (Section 7), recommendations and monitoring toolkit (Section 8), and concluding reflections (Sections 9–10).

2. Literature Review

2.1. Post-Mining Heritage Tourism: Global Trends

2.1.1. Conceptual Foundations of Heritage and Mining Heritage Tourism

Over the last two decades, heritage tourism has expanded to encompass diverse tangible and intangible cultural expressions [26]. Timothy and Boyd [27] define it as "travel undertaken to experience the places, artifacts, and activities that authentically represent the stories and people of the past." Its core lies in interpreting and valuing heritage assets, typically including monuments, architectural complexes, living traditions, and cultural landscapes [28–29]. Authenticity and sense of place are central attractions for tourists seeking memorable and educational experiences—hallmarks of heritage tourism [30–33]. Mining heritage tourism (MHT) emerges as a sub-domain focused on industrial heritage, particularly extractive industries such as coal, copper, salt, and metal mining [34–35]. Unlike conventional legacy tourism that often romanticizes the cultural or royal past, it confronts socioeconomic change, environmental impacts, and labor heritage [2, 36–37]. As Conlin and Jolliffe [36] argue, "through site reuse, community memory, and reinterpretation of extractive landscapes, MHT builds a narrative of the industrial legacy." It thus connects public history, industrial archaeology, and spatial planning [2]. A further development is the rise of post-mining heritage tourism (PMHT) [38–39]. Rather than merely preserving industrial ruins, this approach remakes deindustrialized landscapes into cultural-economic opportunities [40], aligning with debates on landscape healing, adaptive reuse, and sustainable regeneration [2]. Examples such as Australia's Sovereign Hill, Germany's Emscher Park [41–42], and Britain's Big Pit National Coal Museum [43] illustrate this post-industrial shift, where narrative construction, visitor interaction, and infrastructure redesign have revitalized declining mining districts. It is also essential to distinguish live heritage tourism from post-industrial or post-mining tourism (see Figure 1). Live heritage tourism involves performing arts, festivals, and crafts practiced by living communities [44]. In contrast, PMHT is anchored in fixed, retired sites, relying on immersive interpretation, installations, and curated narratives to create visitor experiences rather than continuing cultural practices [45].

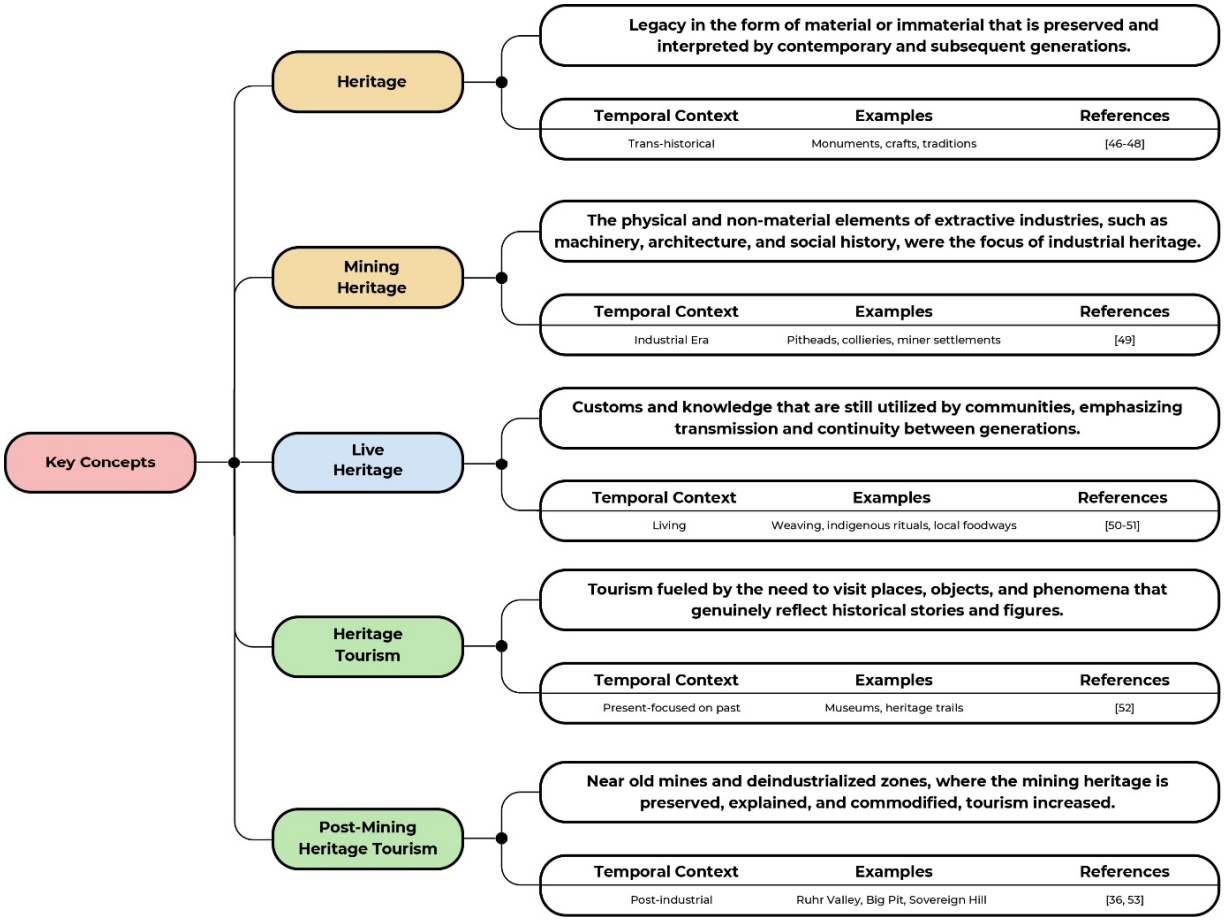

Figure 1. Key Concepts in Heritage and Post-Mining Tourism: Definitions, Contexts, and Scholarly Grounding

2.1.2. PMHT: Global Perspectives and Emerging Practices

Globally, several countries have pioneered the conversion of former mining sites into tourist attractions by combining infrastructure, cultural narrative, and economic regeneration [36]. The Ruhr Valley in Germany remains a quintessential example of post-industrial transformation [2]. The IBA Emscher Park project (1989–1999), supported by the German state, municipalities, and EU partners, integrated heritage tourism, green space planning, and brownfield remediation [54–55]. Industrial landmarks such as the Zollverein Coal Mine Industrial Complex, now a UNESCO World Heritage Site, demonstrate how post-mining stories can catalyze regional identity and renewal, offering tours, design museums, and cultural events [56–57]. Poland's Wieliczka Salt Mine, also UNESCO-listed, exemplifies experiential reuse, where travelers encounter underground chapels, statues, and lakes. Its interpretive layering of religious, geological, and industrial narratives has set global benchmarks in heritage tourism through sensory and emotional impact [58–60]. In the UK, the Big Pit National Coal Museum in Wales represents socially inclusive post-mining tourism. Managed by Amgueddfa Cymru (National Museum Wales), it preserves labor traditions through ex-miner-led underground tours, embedding authenticity and memory into visitor practice [61–62]. This aligns with Smith's [50] notion of "authorized heritage discourse," where community narratives shape interpretation [63]. In the southern hemisphere, Sovereign Hill in Australia extends post-mining legacy tourism into edutainment. Actors recreate the gold rush era within a reconstructed settlement, blending heritage, performance, and education [64–65]. More than a historical theme park, it embodies municipal identity, illustrating the productive tension between authenticity and consumerism [64].

These international cases reveal common drivers of post-mining tourism success: (1) interpretive depth and coherent narrative, (2) immersive infrastructure, (3) economic regeneration, and (4) community participation [20]. In India, however, sites such as Dhori in

Jharkhand remain underdeveloped due to fragmented stakeholder collaboration, weak conservation mechanisms, and the absence of a unified post-industrial tourism policy. As argued in subsequent sections, such landscapes can be redefined through the twin prisms of competitiveness and resilience, particularly within the discourse of heritage-led regeneration and spatial justice (see Figure 2).

SITE	ORIGINAL MINING USE	CURRENT HERITAGE USE	KEY INTERPRETATION & EXPERIENCE FEATURES	ECONOMIC & SOCIAL IMPACT
RUHR VALLEY, GERMANY	Coal and Steel Mining	Industrial Heritage Trail, Museums, Event Spaces	Immersion interpretation centers, cultural route integration, and the iconic Zollverein Coal Mine repurposing as a UNESCO site.	Job creation through tourism, regional branding, creative economy
WIELICZKA SALT MINE, POLAND	Salt Mining (13th century)	Underground museum, art installations, guided heritage tours	UNESCO World Heritage designation; underground chapels and sculptures; multisensory tourist involvement.	High tourism revenue, preservation funding, local employment
BIG PIT NATIONAL COAL MUSEUM, UNITED KINGDOM	Deep coal mining	Underground mining tours, interactive exhibits	Tours led by ex-miners, educational programs, and audio-visual accounts.	Educational tourism focus, community revitalization
SOVEREIGN HILL, AUSTRALIA	Gold Mining (19th century)	Open-air museum and historical reenactments	Gold panning, live history performances, and preserved costumes and buildings.	Strong domestic and international tourist draw, cultural education
DHORI (PROPOSED MODEL), INDIA	Coal Mining (CMPDI-managed site)	Under conceptual transition; SWOT analysis & stakeholder survey ongoing	New avenues for ecological restoration, employment at the local level, reuse of the landscape, and theme narrative.	To be developed based on competitiveness and perception mapping

Figure 2. Comparative Models of PMHT - Global Best Practices and Dhori's Proposed Trajectory

2.2. Indian Mining Heritage & Eco-Tourism Sites

India's extractive landscapes of central and eastern regions are slowly undergoing a transformation as deserted or operational mining grounds are being converted into ecotourism or historical tourist attractions [2, 20]. There are some significant site-based interventions that propose a hybrid route through ecological restoration, industrial heritage interpretation, and incorporation of local livelihood, even though the process is not yet endowed with the institutional maturity and integrative cultural valorization schemes of post-industrial Europe or Australia [20].

2.2.1. Emerging Models of MHT in India

Kenapara Eco-Park in Chhattisgarh, Raniganj Coalfields in West Bengal, Kolar Gold Fields in Karnataka, and Topchanchi in Jharkhand are among the most cited Indian examples, each reflecting a distinct trajectory in early post-mining tourism. Kenapara Eco-Park, created from a spoil dump by South Eastern Coalfields Limited (SECL), attracts local tourists and school groups. With walkways, restored flora-fauna zones, water bodies, and cultural activities, it illustrates PSU-driven ecological rehabilitation and green branding [66]. Raniganj, one of India's earliest coal mining areas, retains colonial-era mining infrastructure [67]. Plans for memorials, museums, and trails highlighting mining history and workers' struggles have been proposed, though bureaucratic hurdles and weak policy instruments impede progress [36]. Kolar Gold Fields (KGF) remains a strong but neglected industrial heritage landscape [68]. Abandoned tunnels, colonial cemeteries, and Anglo-Indian architectural typologies survive, yet lie outside heritage tourism planning [69–70]. Civil society actors advocate adaptive reuse, with occasional history walks and film shoots generating niche interest [71]. Topchanchi near Dhanbad, meanwhile, has evolved as a nature-tourism site centered on Topchanchi Lake [72]. Managed by the Forest Department, its appeal rests on the lake, forest cover, and accessibility, but visitor experiences overlook mining histories [73].

As consolidated in Table 1, these cases reveal that Indian post-mining tourism remains fragmented. Scholarship is largely descriptive, emphasizing ecological restoration, livelihood rehabilitation, or isolated eco-tourism, while competitiveness-oriented studies are absent. No work has yet applied established models such as Dwyer & Kim or Porter's framework to Indian mining heritage [36]. This gap limits benchmarking and evidence-based policy. The present study addresses this void by applying dual competitiveness models to Dhori (Jharkhand), integrating stakeholder perceptions, environmental

carrying capacity, and comparative case analysis. It thus extends competitiveness frameworks to an underexplored geography while offering a transferable methodology for evaluating mining heritage destinations in India.

2.2.2. Governance, Interpretation, and the Way Forward

The cases above demonstrate an atmosphere of experimentation but a lack of systematic coherence. Governing methods differ widely, from civic-initiated heritage activism to PSU-initiated green branding, but without any of the models incorporating economic, cultural, and environmental objectives in complete form [74-76]. Finance and institutional assistance are also constrained by the sites' absence of official status under Indian heritage legislation or tourism classification systems despite several [77], such as KGF and Raniganj, having substantial mining heritage importance. Interpretation is a major area of disparity as well [78]. Unlike European post-industrial destinations that provide experiential and controlled interpretation, Indian mining eco-parks rarely engage in discussions about historical patterns of labor, technological developments, or sociocultural change related to mining [8, 12, 79-80]. The absence of digital media, multilingual materials, or skilled interpreters still limits outreach to domestic and international constituencies [81]. But these initial efforts provide a model for replication and scaling. India can forge an integrated model of PMHT by developing heritage impact assessments, documenting best practices, and applying CSR or District Mineral Fund (DMF) appropriations. An inclusive approach that infuses heritage identity, people ownership, and competitiveness initiatives has the potential to turn such places from reclamation areas into regional cultural hubs, as the Dhori case attempts to demonstrate.

Table 1. Comparative Overview of Select Indian Mining Heritage and Eco-Tourism Sites (Source: Author's compilation)

Site Name	State	Governance Model	Key Offerings	Public Engagement	Heritage Interpretation
Kenapara Eco-Park	Chhattisgarh	PSU-led (SECL)	Eco-park, boating, amphitheatre, gardens	Moderate: school visits, local events	Low – Focus on ecology
Raniganj Coalfields	West Bengal	Fragmented (ECL, State Govt.)	Proposed trails, industrial relics	Low: informal proposals only	Potentially high – under development
Kolar Gold Fields	Karnataka	Civic-led, informal advocacy	Anglo-Indian architecture, mines, churches	Medium: heritage walks, film shoots	Moderate – unstructured
Topchanchi Lake Area	Jharkhand	Forest Dept. + Local tourism	Reservoir tourism, forest trails	High during festivals/weekends	Absent – no mining link

2.3. Destination Competitiveness Frameworks

Policy and academic studies are now emphasizing tourism destinations' competitiveness, particularly in destinations emerging from post-industrial or post-mining transformation [82-83]. Competitive destinations, aside from being able to attract significant numbers of tourists, also offer quality, distinctive, and sustainable experiences while improving the welfare of local people and conserving natural and cultural resources [84-86]. Two powerful analytical frameworks—the Porter's Diamond Framework and the Dwyer and Kim Destination Competitiveness (DC) Model—are ideal theoretical lenses for measuring Dhori's repositioning as a post-mining heritage tourist destination. The complex interplay between physical resources, government actions, stakeholder cooperation, and consumer behavior can be more effectively understood through the application of these frameworks, which support the analysis of multi-layered effects across supply-side and demand-side variables [87-88].

2.3.1. Dwyer & Kim's Integrated Model of DC

One of the most comprehensive models for analyzing DC was published by Dwyer and Kim [89], who drew on elements of economic theory with those specific to tourism [90]. The core concept of their model is that resources, both created and endowed, affect DC, which in turn is mediated through demand, situational factors, and destination management practices [89-92] (see Table 2 and Figure 3). The theory emphasizes the necessity of strategic and uniform management measures to convert relative advantage—e.g., nature and culture resources—into competitive advantage [93].

Table 2. Core Dimensions of the Dwyer & Kim's Integrated Model of DC (Source: Author's compilation)

Component	Sub-Components	Relevance to Dhori
Resource Endowment	Natural resources, cultural heritage, tourism superstructure	Presence of mining landscape, regional folklore, unique coal-based cultural imprint
Destination Management	Marketing, planning, development, crisis response, stakeholder coordination	Lack of a coherent narrative, underutilized spaces, yet strong local interest in tourism diversification
Demand Conditions	Awareness, image, perceived value, visitor satisfaction	Currently low tourist awareness; emerging interest as per stakeholder perception analysis
Situational Conditions	Economic, social, political, technological contexts	High potential under India's eco-reclamation and mining rehabilitation policies
Supporting Industries	Transportation, hospitality, tour services	Proximity to Dhanbad and Bokaro; existing road infrastructure but underdeveloped tourism services

Through quantitative measures such as those derived through ANOVA and perceptual maps, and qualitative perception measures, the Dwyer and Kim framework allows operationalization of competitiveness [94]. This applies directly to the Dhori case, where essential success drivers were extracted from stakeholder perception through 42 variables.

2.4. Porter's Diamond Model Adapted for Tourism

Michael Porter's Diamond Model (1990), originally developed to describe national competitiveness, has been adapted for application in tourist destinations to describe why some places are positioned to offer profitable and internationally competitive tourism products [95-97]. The model consists of four related elements: Firm Strategy, Structure, and Rivalry; Related and Supporting Industries; Factor Conditions; and Demand Conditions [98-99] (see Table 3 and Figure 4). Contextual influences are Government and Chance. Its emphasis on systemic interactions over distinct benefits is what renders it effective [100-101].

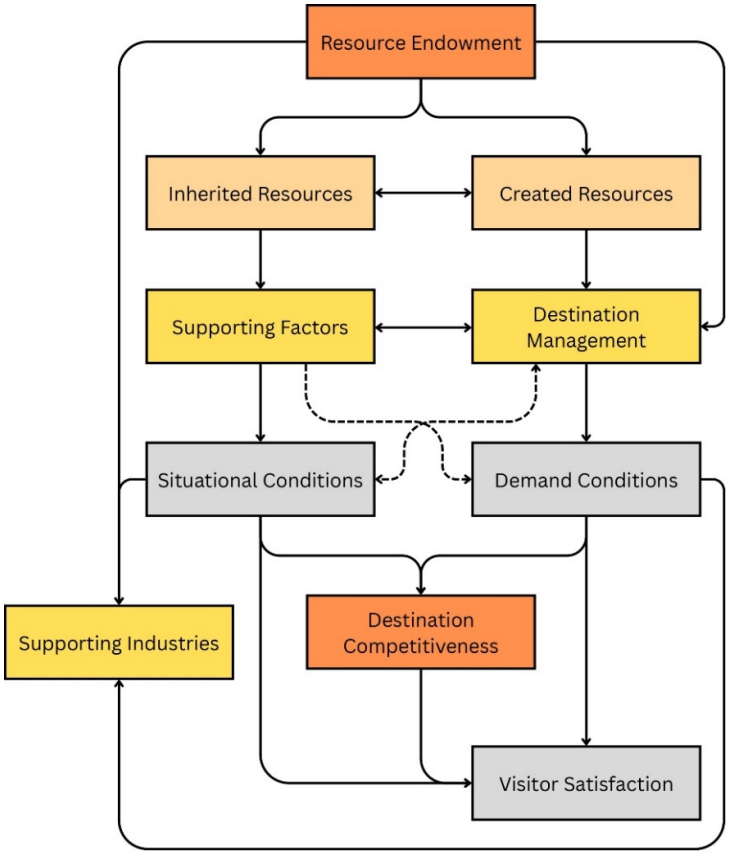

Figure 3. Schematic of Dwyer & Kim's DC Model (Source: Author)

Table 3. Adaptation of Porter's Diamond Model to Post-Mining Tourism Sites (Source: Author's compilation)

Porter Component	Tourism Interpretation	Application to Dhori
Factor Conditions	Availability and quality of local attractions, skilled labor, infrastructure	Rich coal history, but limited tourism workforce and interpretation infrastructure
Demand Conditions	Sophistication and scale of domestic and international tourists	Untapped urban middle-class markets in Jharkhand, school tourism potential
Related & Supporting Industries	Transport, hospitality, media, academic institutions	Nearby hospitality hubs (Dhanbad, Bokaro); but weak integration with heritage and educational sectors
Firm Strategy, Structure	Governance models, public-private partnerships, NGO involvement	CMPDI & state government collaboration possible; potential for livelihood-linked ecotourism ventures
Government (external factor)	Tourism policy, subsidies, branding campaigns	Jharkhand Tourism's emerging policies on eco-parks and cultural reclamation
Chance (external factor)	Unforeseen events (e.g., global interest in industrial heritage, energy transition)	Alignment with national discourse on energy transitions and cultural revalorization of mining history

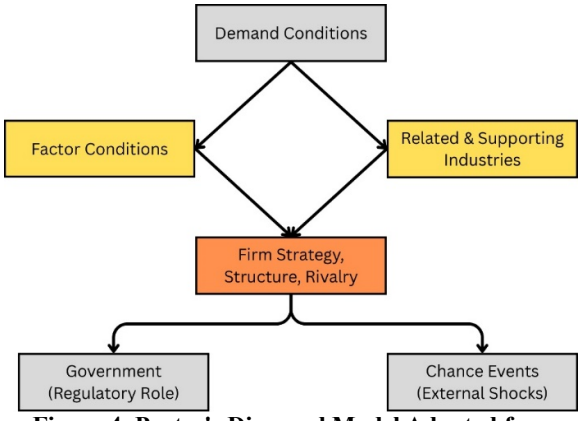

Figure 4. Porter's Diamond Model Adapted for Post-Mining Tourism (Source: Author)

2.5. Prior Applications in Tourism Competitiveness Research

In international tourism literature, both the Dwyer & Kim and Porter models have received wide support. Dwyer & Kim's model was modified from Crouch and Ritchie [102], who conducted empirical work in a variety of North American and Southeast Asian locations. Porter's Diamond is an effective model for describing Hong Kong's competitiveness as a tourist destination, based on research by Enright and Newton [103]. Applications remain rare but increasing in the Indian context; no comprehensive studies have evaluated eco- and heritage tourism strategies through these frameworks in Kerala, Sikkim, and Rajasthan. But, the present study of Dhori is both new and contextually significant since there is no known study that has adapted these models to evaluate a post-mining heritage landscape.

2.6. Theoretical Foundations of DC: Integrating Dwyer & Kim's Framework with Porter's Diamond Model

Porter's Diamond Model of National Competitive Advantage and the Dwyer and Kim Integrated Model of DC provide the conceptual foundations for repositioning Dhori as a competitive PMHT destination. Together, they offer complementary lenses to assess macro- and micro-level conditions for post-industrial tourism development. The Dwyer and Kim framework, widely used in tourism research, incorporates both comparative advantage (resource endowments) and competitive advantage (destination management capacity) [89]. It identifies five constituents: (1) Attractors and Core Resources (natural, cultural, heritage assets); (2) Resources and Supporting Factors (infrastructure, accessibility, services); (3) Destination Management (marketing, governance, policy); (4) Situational Conditions (political, environmental, social forces); and (5) Demand Conditions (tourist tastes, awareness, perceptions) [89–90]. Applied to Dhori, the model integrates endogenous strengths—industrial heritage and ecological change—with exogenous pressures such as demand variability and bureaucratic constraints. Porter's Diamond Model, originally developed for national competitiveness, has been adapted to tourism to evaluate how local firm strategies and factor conditions shape long-term sustainability [95]. It comprises four interlinked elements: (1) Factor Conditions (human, physical, knowledge capital); (2) Demand Conditions (tourist aspirations and sophistication); (3) Related and Supporting Industries (enterprises, logistics, hospitality); and (4) Firm Strategy, Structure, and Rivalry (public–private cooperation, innovation, stakeholder coordination) [95–101]. Government and chance events act as additional influences. For

Dhori, the diamond model highlights systemic constraints and potential pathways for strategic innovation.

Both models have been widely applied in tourism studies. Dwyer and Kim's framework has evaluated competitiveness in post-conflict regions, ecotourism sites such as Costa Rica, and heritage cities like Istanbul and Athens [104–106]. Similarly, Porter's diamond has guided analyses of tourism clusters in Slovenia, Korea, and South Africa, focusing on cooperation among tourism and allied industries (creative economies, green infrastructure) [107–108]. In Dhori's case, these models provide a multi-scalar perspective for analyzing stakeholder perceptions, infrastructure development, and destination repositioning amid the shift from coal to heritage tourism. To align empirical variables with theory, a cross-mapping was conducted using the 42-item tool employed in this study, situating Dhori's competitiveness diagnostics within recognized international models (see Table 4).

Table 4. Mapping of Empirical Variables to DC Models (Source: Author)

Empirical Variable (Derived from Survey)	Mapped to Dwyer & Kim Model	Mapped to Porter's Diamond
Historical Identity & Cultural Significance	Core Resources and Attractors	Factor Conditions
Accessibility (road, rail connectivity)	Supporting Factors and Resources	
Tourism Facilities (signage, trails, seating)		Related & Supporting Industries
Infrastructure Support (parking, toilets, visitor center)		Related & Supporting Industries
Local Handicrafts and Economic Linkages		
Digital Connectivity & Wayfinding Systems		Factor Conditions / Innovation Infrastructure
Quality of Heritage Interpretation	Core Resources / Destination Management	Firm Strategy and Rivalry
Community Participation in Tourism Planning	Destination Management	Firm Strategy / Government Role
Public-Private Partnership (PPP) Models		
Marketing and Promotion Effectiveness		
Stakeholder Coordination Effectiveness		Firm Strategy and Structure
Legal and Regulatory Support		Government Role
Employment Generation through Tourism	Situational Conditions / Demand	Demand Conditions
Awareness of Dhori's Heritage among Tourists	Demand Conditions	
Satisfaction with Visitor Experience		
Safety and Cleanliness of the Site	Supporting Factors and Destination Management	Factor Conditions
Environmental Rehabilitation (green cover, water bodies)	Core Resources / Situational Conditions	Chance / Government Role
Perceived Uniqueness Compared to Nearby Sites	Core Resources and Attractors	Demand Conditions
Seasonality and Tourist Volume Patterns	Situational Conditions	

Table 4's detailed mapping helps in a deeper diagnostic clarity. While Porter's model analyzes the systemic ecology within which tourism operates, such as policy, industry linkages, and innovation streams, Dwyer and Kim's model is able to capture Dhori's controlled and inherent assets. Together, these models provide a robust analytical framework with which to understand Dhori's current competitive position and the strategic adjustments needed to regain it as a leading post-mining heritage tourist destination.

3. Methodology

3.1. Case Study Context: Dhori, Jharkhand

The Dhori region, which is located in Jharkhand's Bokaro district, is a significant milestone in Indian economic history since it was a prolific coal mining site for decades (see Figure 5). Nonetheless, with time, mining activities have progressively shut down due to declining productivity and ecological issues. The estate is in the process of transformation, providing a challenging and complicated setting for heritage-led regeneration. The special character of Dhori lies in its compound nature, which integrates industrial memory, religious pilgrimage, and natural rejuvenation. A spiritual tourism element is introduced into the post-mining narrative by the shrine of Dhori Mata, a very sacred place of pilgrimage for both local and regional tourists. In addition, wetland-type environments that were created incidentally when pit lakes were created from mining cavities are now attracting birds and offering possibilities for eco-tourism [20]. Disused railway tracks, the remains of coal-processing plants, and the adjacent miners' settlements all evoke substantial industrial-era heritage values waiting to be reused interpretively. In Dhori, the post-closure land use has been designated by the mining authority for various areas as of 2024, opening up space for adaptive reuse through the paradigms of sustainable tourism and green

infrastructure. Within the broader landscape of PMHT in India, Dhori presents a unique sell due to its combination of spiritual, environmental, and industrial narratives [20]. Thus, by applying combined theoretical models, the website presents a fascinating case study for evaluating new historic sites' competitiveness.

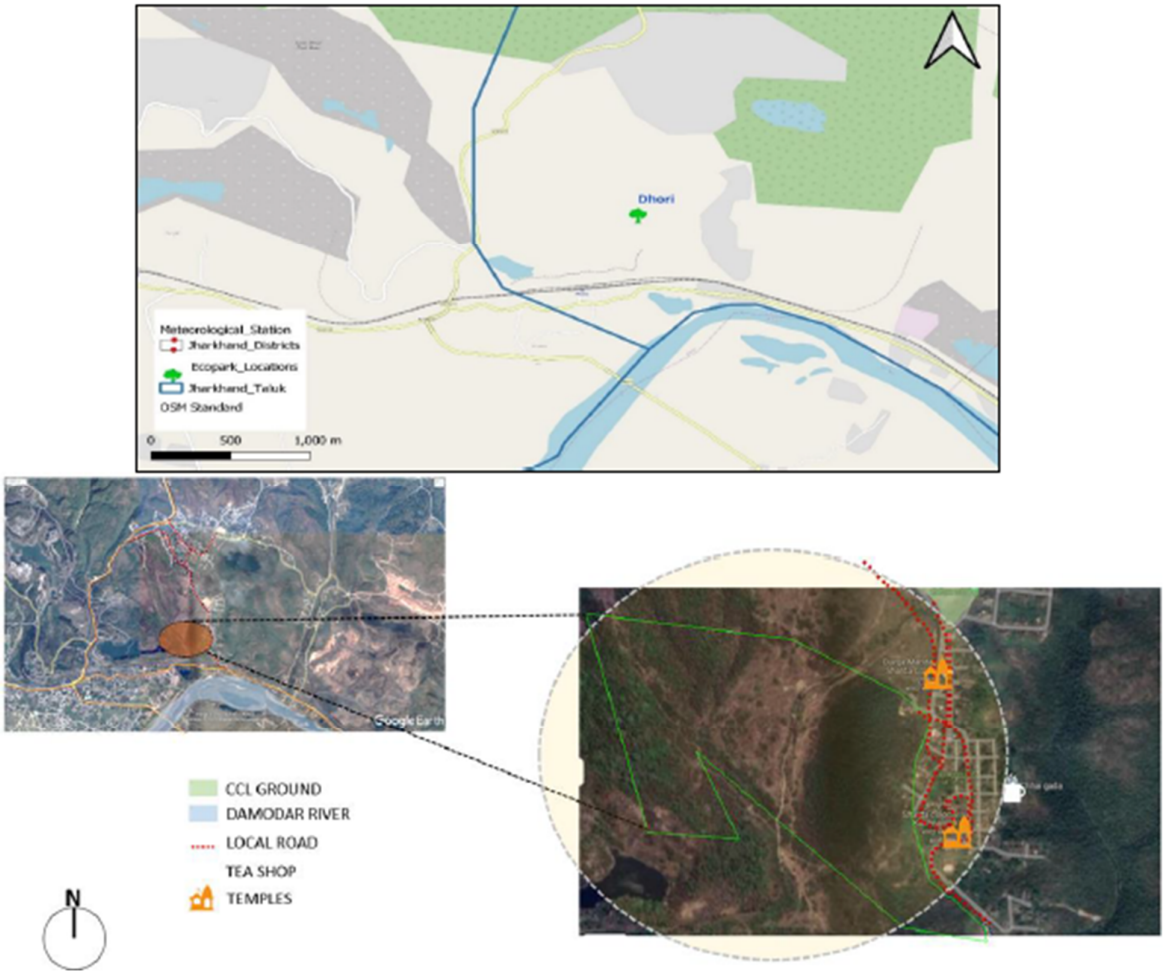

Figure 5. Dhori mine and Eco-park location (Source: Nag [20])

3.2. Survey Instrument And Sampling Framework

A structured questionnaire was designed to capture stakeholder perceptions of Dhori's tourism potential and competitiveness. The 42-item tool measured dimensions such as economic linkages, community participation, tourism facilities, cultural authenticity, environmental conservation, and sustainability consciousness. Responses were recorded on a 5-point Likert scale, supplemented with demographic and behavioral variables (age, gender, income, education, length of stay, purpose of visit).

The survey was administered through face-to-face interviews, community meetings, and bilingual (Hindi–English) workshops to maximize accessibility. Clustered random sampling ensured representation across three groups:

1. Tourists visiting the shrine and nearby attractions
2. Local residents in legacy mining zones
3. Institutional stakeholders (panchayat leaders, NGOs, tourism officials, business owners)

From 2023–2024, 441 valid responses were collected: tourists (n = 192, 43.5%), residents (n = 163, 37.0%), and institutional stakeholders (n = 86, 19.5%), yielding a 78% response rate. Limitations included smaller institutional representation, potential non-response bias, and festive-season responses amplifying religious tourism. The multi-stakeholder design was nevertheless essential to

capture heterogeneous and contested perspectives typical of post-industrial tourism development.

3.3. Analytical Methods

A multi-level statistical approach, aligned with DC theory and psychometric standards, was employed:

- **Step 1: Reliability and Validity** – Cronbach's Alpha ($\alpha \geq 0.70$) confirmed internal consistency. Sampling adequacy for factor analysis was established using KMO (>0.70) and Bartlett's Test of Sphericity ($p < 0.05$).
- **Step 2: Factor Structuring** – Exploratory Factor Analysis (EFA) using PCA with Varimax rotation grouped variables into latent constructs such as authenticity, infrastructure, sustainability, and cultural engagement. Items <0.40 loading were excluded.
- **Step 3: Multivariate Analyses** – Correlation analysis tested linear associations; ANOVA and Discriminant Analysis identified perceptual variations across groups; perceptual mapping (z-scores) visualized Dhori's competitiveness across nine criteria. Carrying capacity estimation linked satisfaction thresholds with infrastructure readiness and socio-environmental tolerance, providing visitor load benchmarks without GIS-based models.
- **Step 4: Strategic Synthesis** – Findings were organized into a SWOT framework and mapped onto Porter's Diamond Model and the Dwyer & Kim Framework. Normalized z-scores, weighted by factor loadings, produced composite competitiveness scores for benchmarking.

This dual-framework integration provided theoretical rigor and practical applicability, situating Dhori within international competitiveness models while generating India-specific evidence for PMHT planning.

3.4. Mapping of Perception Variables to Competitiveness Frameworks

The 42 variables (see Table 5 in Appendix) were aligned to corresponding aspects of the Dwyer & Kim and Porter's Diamond models to facilitate theoretical use and strategic planning. The strategic relevance of each variable—that is, the extent to which it is crucial to impact tourist policy or intervention—as well as its relevance to sustainability and resilience outcomes were also evaluated.

4. Results & Analysis

The empirical evaluation of tourist competitiveness of Dhori is discussed in this section. It is quantitative based on SPSS statistical analysis and a perceptual structured survey. The results are systematically separated into three parts based on basic criteria: (i) dimensional structure and reliability, (ii) perceptual clustering and differentiation, and (iii) competitiveness mapping. Providing an evidence-based determination of Dhori's position regarding PMHT in India is the objective.

4.1. Reliability and Dimensional Structure

The internal consistency test of the survey instrument was the initial phase of inquiry. The Cronbach's Alpha value of the 42-item perception scale is shown in Table 6, measuring 0.600. With the diversity in stakeholder types included—locals, visitors, and government officials—this reliability coefficient reflects a moderate but tolerable amount of consistency between variables.

Table 6. Reliability Statistics of the 42-item Instrument using SPSS16.0 (Source: Author)

Reliability Statistics	
Cronbach's Alpha	**N of Items**
.600	42

The solution on dimensions generated by the factor analysis appears in Table 7 to aid further examination of the perceptual response structure. Strategic theme mapping was facilitated through the variables being clumped under rational clusters like Cultural Identity, Access & Infrastructure, Community Links, and Sustainability Practices. Perceptual segmentation in the following section relies on these clusters, which are indicators of underlying patterns in stakeholder responses.

Table 7. Dimensional Solution using SPSS16.0 (Source: Author)

Case Processing Summary	
Valid Active Cases	441
Active Cases with Missing Values	0
Supplementary Cases	0
Total	441
Cases Used in Analysis	441

Iteration History

Iteration Number	Variance Accounted For		Loss
	Total	Increase	
26[a]	9.994307	.000009	3.200569E1

a. The iteration process stopped because the convergence test value was reached.

Model Summary

Dimension	Cronbach's Alpha	Variance Accounted For		
		Total (Eigenvalue)	Inertia	% of Variance
1	.932	11.116	.265	26.467
2	.909	8.872	.211	21.125
Total		19.989	.476	
Mean	.922[a]	9.994	.238	23.796

a. Mean Cronbach's Alpha is based on the mean Eigenvalue.

4.2. Perceptual Mapping and Cluster Analysis

A K-means cluster analysis of responses from 441 stakeholders identified three distinct perceptual groups based on agreement with 42 competitiveness-related items:

- **Cluster A – Heritage-Oriented Visitors (n = 162):** Predominantly external visitors prioritising conservation, heritage authenticity, and cultural learning.
- **Cluster B – Locally Concerned Citizens (n = 146):** Mainly residents focused on community benefits, socio-environmental sustainability, and balanced tourism growth.
- **Cluster C – Amenity-Driven Tourists (n = 133):** Visitors valuing convenience, infrastructure, and basic amenities over ecological or heritage concerns.

The perceptual map generated in SPSS 16.0 (Figure 6) shows clear spatial separation:

- **Cluster C** aligns strongly with the "infrastructure and amenities" dimension.
- **Cluster B** is more dispersed, reflecting diverse local viewpoints.
- **Cluster A** forms a tight grouping in the heritage–sustainability quadrants.

Discriminant Function Analysis (Table 8 in Appendix) identified the most influential differentiators: concern for ecosystem impact (A30, 0.416), use of digital guides/apps (A34, 0.420), willingness to volunteer (A31, 0.342), guided vs. self-tour preference (A20, 0.368), and support for local businesses (A38, 0.384). These reflect three primary levers for segmentation:

1. Sustainability awareness,
2. Digital preparedness, and
3. Community support.

The nine competitiveness factors—authenticity, accessibility, local connection, environment, service quality, policy fit, interpretation, digital preparedness, and experience value—are closely associated with these dimensions.

ANOVA testing (Table 9 in Appendix) confirmed significant inter-cluster differences ($p < 0.05$) for variables such as concern for tourism's impact on locals (A19), influence of social media (A25), perception of visitor behaviour (A41), and interest in cultural performances (A29).

Actionable implications:

- **Cluster A** supports heritage storytelling and guided cultural modules.
- **Cluster B** requires strategies emphasising local benefit and environmental safeguards.
- **Cluster C** needs improvements in signage, accessibility, and basic visitor facilities.

Along with validating the heterogeneity of stakeholder expectations, perceptual mapping and cluster analysis provided insightful information that aligned with the nine competitiveness criteria used in this study. These results directly inform competitiveness framework applications (Section 6) and strategic recommendations (Section 8).

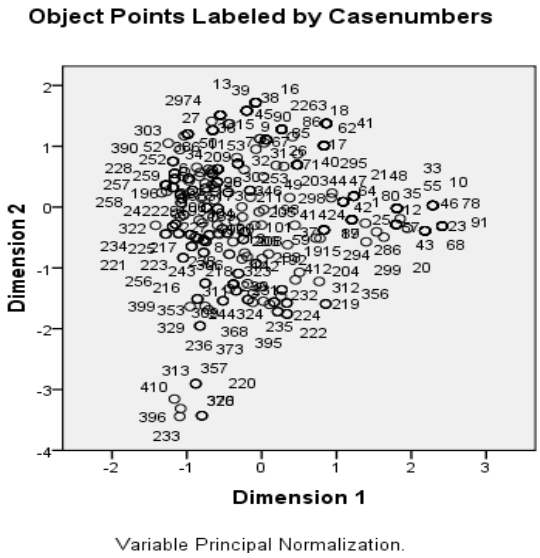

Figure 6. Perceptual map – Object points labelled by case numbers using SPSS16.0

4.3. Competitiveness Score Mapping (9 Criteria)

Mapping Dhori's DC across nine thematic criteria—derived from the 42-item stakeholder survey—formed the final stage of the perceptual analysis. The criteria included: Cultural-Heritage Value, Digital & Technological Readiness, Environmental Sustainability, Community Engagement, Interpretation & Storytelling, Accessibility & Transportation, Visitor Amenities, Policy & Governance Fit, and Experience Value. The normalized mean values for each criterion, aggregated from their respective variable sets, were used to generate competitiveness scores.

A Perceptual Mapping of Competitiveness Scores (Figure 7) illustrates Dhori's relative strengths and weaknesses.

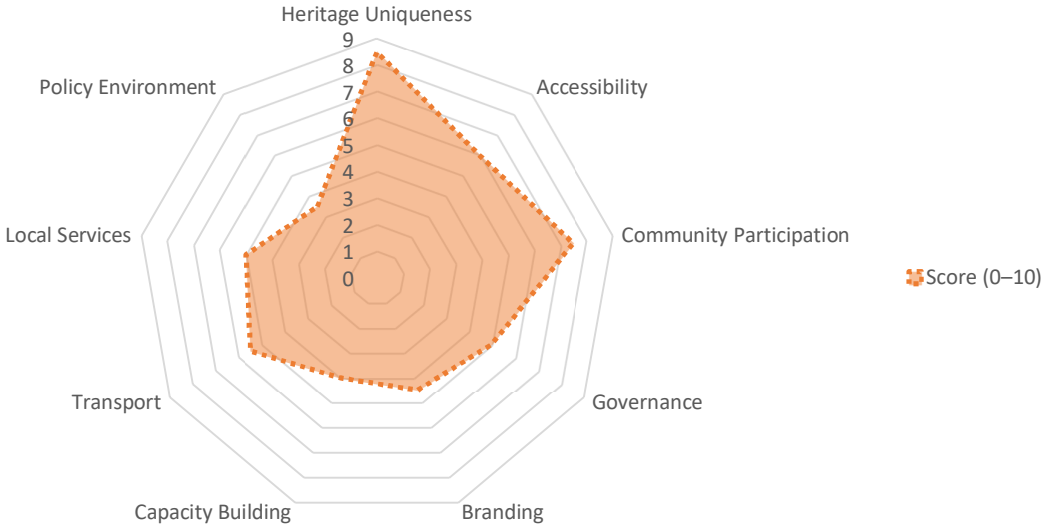

Figure 7. Perceptual Mapping of Competitiveness Score amongst 9 criteria (Source: Author)

The mapping highlights three notable peaks:

- **Cultural-Heritage Value** (driven by A15 – Knowledge of local history; A27 – Site authenticity)
- **Community Engagement** (A17 – Frequency of engagement; A31 – Willingness to volunteer)
- **Environmental Sustainability** (A16 – Environmental concern; A30 – Ecosystem impact sensitivity)

Conversely, the lowest scores were recorded under:

- **Interpretation & Storytelling** (A35 – Interest in storytelling; A32 – Awareness of restoration projects)
- **Visitor Amenities** (A12 – Accommodation preference; A14 – Facility satisfaction)
- **Digital Readiness** (A34 – Use of digital apps; A25 – Influence of social media)

These differences indicate a mismatch between Dhori's heritage–environmental strengths and its readiness in visitor-oriented services and interpretive systems.

4.3.1. Integration of Environmental Carrying Capacity

Following the revised analytical framework (Section 3.3), the Environmental Sustainability criterion was cross-referenced with carrying capacity thresholds to assess ecological limits and visitor load. This involved benchmarking current infrastructure (e.g., accommodation units, sanitation facilities, circulation routes) and socio-environmental tolerance levels (e.g., resident acceptance, local resource strain) against projected visitor flows. While not spatially modelled through GIS, these thresholds provide an operational baseline for maximum sustainable visitation without jeopardising ecosystem integrity or community wellbeing.

4.3.2. Cluster-Specific Insights

Competitiveness scores disaggregated by cluster reveal:

- **Cluster A (Heritage-Oriented Visitors)** ranked sustainability and cultural value highest, suggesting alignment with heritage-focused tourism products.
- **Cluster C (Amenity-Driven Tourists)** gave lower scores overall but showed acute sensitivity to facility deficits (sanitation, signage, information services).
- **Cluster B (Locally Concerned Citizens)** prioritised community engagement and environmental responsibility, indicating strong potential for SHG-led governance.

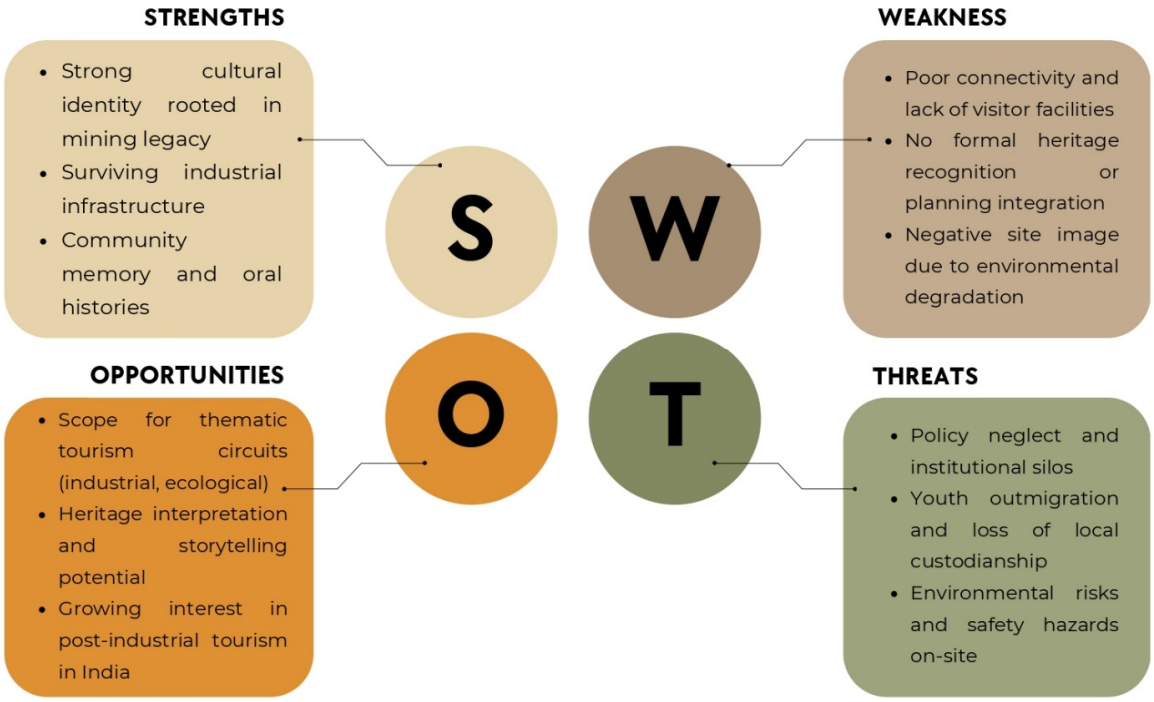

Figure 8. SWOT Analysis of Case Study – Dhori (Source: Author)

- **Strengths:** Strong cultural heritage narrative (Dhori Mata shrine), existing post-industrial assets, high local willingness to participate in tourism planning.
- **Weaknesses:** Poor basic amenities, weak interpretive infrastructure, fragmented institutional coordination.
- **Opportunities:** Linkages to state ecotourism projects, SHG-based entrepreneurship, integration into pilgrimage circuits.
- **Threats:** Low visibility and branding; risk of unsustainable visitor pressure without carrying capacity safeguards.

4.3.3. Policy Linkages

The mapped findings and capacity benchmarks informed recommendations such as:

- Immediate funding for signage and interpretation centres
- Medium-term SHG capacity building for guided heritage-ecotourism
- Long-term eco-tourism zone designation with regulated visitor caps
- Branding Dhori as a dual-narrative destination (devotional and industrial heritage)

- Rolling application of a competitiveness monitoring toolkit aligned with the nine criteria and integrated carrying capacity checks.

In conclusion, triangulating stakeholder segmentation, capacity-informed competitiveness mapping, and dual-framework validation (Porter; Dwyer & Kim) reinforces Dhori's readiness for repositioning—provided storytelling and amenity gaps are addressed within ecological and community thresholds.

4.4. Comparative Case Study Review

A comparative examination of national and international precursors is required to place Dhori's repositioning as a PMHT destination in perspective. To establish the salient best practices, governance designs, and structural innovations, this section gives an analysis of some selected case studies. Besides providing guidance for the development of locally centered but internationally inspired initiatives, the comparison prism facilitates the identification of thematic gaps in Dhori's developmental path.

4.4.1. National Comparisons

India's MHT sector is still emerging, with scattered pilots in ecotourism, cultural reuse, and selective restoration. Table 10 compares four relevant sites—Kenapara, Raniganj, Kolar Gold Fields (KGF), and Topchanchi—highlighting governance models, strengths, and weaknesses.

Table 10. National Mining Heritage and Eco-Tourism Sites: Comparative Analysis (Source: Author)

Site	Key Feature	Strengths	Weaknesses	Governance Model
Kenapara (SECL)	Floating restaurant, SHG-led	Livelihood integration, experiential tours	Lacks heritage interpretation	Coal India + local SHGs
Raniganj	Heritage tours planned	Strong mining legacy, strategic location	Implementation delays	State tourism board
KGF, Karnataka	Colonial structures, museum proposed	Strong built heritage	Limited tourism infrastructure	Mixed government/NGO
Topchanchi, Jharkhand	Water reservoir, mining hills	Eco-tourism zone in proximity	Minimal heritage narrative	Forest Dept + tourism

4.4.1.1. Actionable insights for Dhori

- **Kenapara** shows how post-mining water bodies can be activated for tourism through SHG-led enterprises, but underlines the need for strong interpretive content.
- **Raniganj** illustrates the importance of efficient governance to prevent project delays despite high tourism potential.
- **KGF** highlights the value of built heritage assets but warns against poor stakeholder integration.
- **Topchanchi** demonstrates ecological appeal but reveals the risk of neglecting cultural storytelling.

These cases show that India offers models for community-driven tourism and green reuse, yet few sites integrate eco-recreation, industrial heritage, and faith-based tourism in a unified strategy—the key differentiator Dhori can leverage.

4.4.2. International Comparisons

Global post-industrial tourism models demonstrate how multi-stakeholder management, interpretive facilities, and thematic curation can transform mining heritage sites. Table 11 summarises four successful examples—Ruhr Valley, Wieliczka Salt Mine, Big Pit Mining Museum, and Sovereign Hill—and the lessons relevant to Dhori.

Table 11. International Post-Mining Heritage Tourism Sites: Key Lessons for Dhori (Source: Author)

Site	Country	Approach	Key Takeaway for Dhori
Ruhr Valley Industrial Park	Germany	Multi-layered adaptive reuse	Thematic storytelling + industrial trail
Wieliczka Salt Mine	Poland	Underground immersive experience	Authenticity + UNESCO support
Big Pit Mining Museum	UK	Underground tour + museum complex	Interpretive infrastructure
Sovereign Hill	Australia	Living history experience	Re-enactment + multi-sensory engagement

4.4.2.1. Actionable insights for Dhori

- **Ruhr Valley** demonstrates layered reuse with strong public-private partnerships—adaptable to pit lakes and industrial ruins in Dhori.
- **Wieliczka** shows the power of immersive authenticity, a principle Dhori can apply through shrine-based and industrial narratives.
- **Big Pit** validates employing ex-miners as guides, deepening visitor connection to mining culture.
- **Sovereign Hill** underscores the appeal of interactive storytelling to keep visitors engaged over time.

Together, these examples indicate that Dhori's competitive positioning will depend on an interpretive master plan integrating economic revitalisation, storytelling, and heritage preservation, adapted to its cultural and environmental context.

4.5. Application of Competitiveness Frameworks

This paper critically examines how two prominent DC frameworks—Porter's Diamond Model and Dwyer & Kim's Integrated Framework—are applicable in interpreting the empirical results obtained through stakeholder perception questionnaires and cluster segmentation. Utilizing these models, Dhori's tourism competitiveness can be more precisely diagnosed and actionable entry points towards branding, intervention, and stakeholder interaction are unveiled. Since Dhori is both a religious location (the shrine of Dhori Mata) and a post-industrial location with possible cultural reuse, the dual-framework method was used.

4.5.1. Dwyer & Kim Framework for Dhori

DC, as per the paradigm of Dwyer and Kim, arises from the dynamic interaction of created assets, demand circumstances, situational impacts, destination management, and resource endowments. In developing places such as Dhori, where traditional assets are mixed with transitional socioeconomic conditions, this paradigm is particularly appropriate.

4.5.1.1. Resource Factors

The generic inherited materials that together constitute the central attractor base are the pit lake, the Dhori Mata shrine (Variable A21, A9), and traces of the mining economy (for example, miners' colonies and abandoned railway tracks). Cluster A (heritage-oriented tourists) contained high perceived heritage value, which is reflected in the strong loading of A15 (local history knowledge) and A27 (perceived site authenticity) for this dimension, based on factor analysis. The model's focus on natural and cultural capital as the building blocks of competitiveness aligns with these elements.

4.5.1.2. Destination Management

In spite of the rich resources, some perception gaps regarding site management emerged between Clusters B and C. Weak curation of experience and lack of interpretive infrastructure were signified by variables such as A14 (facility satisfaction), A20 (guidance vs. self-tour preferred), and A35 (story interest), which had lower mean scores and significant ANOVA variation ($p < 0.05$). This shortfall applies directly to the model's "created resources" and "destination management" areas, suggesting that poor branding, planning, and tourist services undermine competitiveness.

4.5.1.3. Demand Conditions

Segmented interest was demonstrated by cluster analysis: Cluster C leaned towards accessibility and recreational services, Cluster B emphasized community and sustainability, and Cluster A cherished authenticity and history. There is a significant latent demand, particularly for multi-narrative experiences, as shown by variables such as A10 (the reason for the visit), A18 (willingness to pay for conservation), and A23 (support for sustainable tourism). Nonetheless, a low frequency of visits (A9) and few follow-up visits point to a demand curve that is underleveraged. These kinds of latent possibilities are identified by the Dwyer & Kim model as one of the most important resources of competitiveness.

4.5.1.4. Situational Conditions

Within the value chain of tourism, factors such as A41 (visitor behavior perception), A33 (overcrowding perception), and A26 (site accessibility) serve as environmental thresholds and structural fragility. These fit within the model's "situational conditions," which are contextual factors that affect how resources are turned into competitive strengths. Incomplete decommissioning of mining, lack of branding, and multi-jurisdictional administration are some of Dhori's key hindrances, all of which reduce the competitiveness of the company. While Dhori has dormant demand and high resource potential, it

suffers from poor situational preparation and destination management. Therefore, the Dwyer & Kim model provides a road map with top priority funding for infrastructure, stakeholder-driven models of service, and interpretation.

4.5.2. Porter's Diamond Model for Dhori

By incorporating tourism competitiveness into regional economic systems and the industrial strategy, Porter's model broadens the vision. Five critical elements are encompassed in this model: the government role, related and supporting industries, demand conditions, factor conditions, and firm strategy and structure.

4.5.2.1. Factor Conditions

Two items in the survey, A12 (accommodation choice) and A11 (transportation infrastructure), reflect a sufficient but uneven distribution of underlying tourism infrastructure. The absence of certified history guides, eco-tourists, or digital storytellers is of greater concern, as attested by factors such as A3 (level of education) and A16 (environmental concern). Thus, human capital and institutional knowledge—two of the advanced factor conditions—are in short supply. This correlates with the survey's observation that, though without organized platforms, Cluster B (locally engaged residents) is willing to contribute.

4.5.2.2. Demand Conditions

The high variation in A5 (income), A10 (visit reason), and A39 (local recommendation influence) indicates a market fragmented but still with potential, although Cluster C evidences amenity-led interest. Religious, historical, and environmental reasons all intersect with this culturally founded latent need. Yet Dhori remains under-communicated to potential markets due to a lack of tourism marketing, as indicated by A25 (social media impact) and A36 (certification awareness).

4.5.2.3. Related and Supporting Industries

Dhori does not have structured linkages to SHGs (Self-Help Groups), eco-tour operators, and local artisans, unlike Sovereign Hill or Kenapara Eco-Park. A28 (gastro awareness), A38 (support for local businesses), and A34 (empowerment of digital technologies) all scored lower on the means, which demonstrate this. Dhori will be unable to take advantage of value chain integration, an important pre-requisite for sustainable competitiveness, without this environment.

4.5.2.4. Firm Strategy, Structure, and Rivalry

There is a serious void in strategy. Dhori is neither controlled by any official tourism authority nor lead operator. While there remains organizational uncertainty, the high scores on A17 (frequency of interaction with communities) and A31 (willingness to volunteer) in the survey do suggest that there is local enthusiasm for participation. For investment alignment, accountability, and design of the visitor experience, a Public-Private Partnership (PPP) approach is needed, perhaps under the umbrella of a district tourism development authority.

4.5.2.5. Role of Government

While Dhori is also in favor of Jharkhand's heritage campaign and the National Eco-Tourism Mission's goals, low cluster scores on A32 (knowledge about restoration efforts) and A36 (policy understanding) indicate insufficient top-down communication and gaps in policy information. Absence of a nodal agency and interagency rivalry slow down progress. One of the ways to accelerate convergence is to constitute a multi-stakeholder task team under the District Collectorate.

Porter's idea puts stress on the insufficiency of site-level activity. In order to raise the competitiveness of Dhori, institutional and economic improvements need to be achieved at the ecosystem level. It is imperative that there be strategic investments in formal operational structures, cross-sectoral linkages, and training. There are a number of areas in common between the two models, which are networked value chains, participatory governance, human resource development, and narrative infrastructure. The perception data provides tangible, achievable strategies for the rejuvenation of Dhori as a competitive, culturally-oriented, and ecologically friendly post-mining heritage site in addition to confirming theoretical models.

4.6. Discussion

The empirical assessment of Dhori's tourist competitiveness presents us with a paradoxical situation: while many observers and stakeholders at the local level perceive vast potential, the site's performance as a heritage tourism facility lags behind. By situating these observations within broader strategic, cultural, and governance

discourses, this section clarifies how Dhori differs from other successful models both at home and abroad. The dialogue identifies Dhori's dual nature, highlights perception-reality gaps, and underscores the need for an all-inclusive repositioning strategy integrating post-industrial re-use and cultural sanctity.

4.6.1. Bridging Perception and Reality: A Misalignment of Potential

The findings of the survey indicate that the stakeholders are clearly willing to endorse the expansion of the tourism sector. In Clusters A and B, variables such as A9 (local culture awareness), A21 (site distinctiveness perception), and A38 (belief in support for local business) reported high mean values, suggesting strong belief in the cultural and economic value of Dhori. General discontent with experiential infrastructure, however, works against this: ANOVA indicates statistically significant differences between visitor segments ($p < 0.05$), with much lower values for A14 (facilities satisfaction), A15 (identification with guided interpretation), and A26 (ease of navigation and signs). This gap points to the "aspiration-action gap": while individuals are willing to be involved in Dhori's tourism future, actual involvement is discouraged by the absence of basic facilities and interesting story. Interestingly, the absence of historical account was the reason for the most dissatisfaction among heritage-oriented travelers in Cluster A (A27, A35), directly impacting the chances of return visits (A39). This highlights a transferable insight: investments in basic visitor infrastructure and interpretive storytelling—already proven effective in Ruhr or Kenapara—are equally applicable to Dhori, but must be scaled to its smaller economy and resource base.

4.6.2. Peer Benchmarking: What Dhori Lacks

Chhattisgarh's Kenapara Eco-Park presents a working, community-based ecotourism model. Its success lies in the mobilization of SHGs for on-site services, hospitality, and interpretation, even in the absence of a strong heritage core. The potential for distributed governance is illustrated by Kenapara's SHGs, which operate canteens, eco-huts, and nature hikes after training under state-funded livelihood missions. Dhori, however, does not have active SHGs, a perceptible livelihood-tourism nexus, and limited avenues for the residents to invest their returns. SHG-based livelihood linkages are directly transferable, but require adaptation to Jharkhand's institutional setting where community mobilization is weaker and coal company CSR remains dominant. At the international level, the Ruhr Valley in Germany provides a demonstration of industrial reuse because of its thematic integrity. Art work installations, galleries, and heritage walking tours are accommodated within refurbished structures and are all integrated under an approach with multiple agencies. Good governance and accurate investment have enabled Ruhr to create a linear visitor narrative, whereas Dhori has disjointed components (shrine, pit lake, miners' cottages). Dhori's failure at strategic storytelling and weak interpretative spine are accentuated by its inability to achieve such cohesiveness at the prototype level. The Ruhr model demonstrates transferable principles of multi-agency collaboration and narrative coherence, but Dhori's fragmented governance demands locally adapted, small-scale coordination (such as district-level task forces) instead of large regional agencies.

4.6.3. Cultural-Industrial Fusion: Dhori's Unique Challenge

Dhori is rare in that it is both a retired coalfield and a place of pilgrimage (Dhori Mata). Competing pressures for space, symbolism, and design are afforded by these dualities. Heritage and eco-tourists seek interpretation, amenities, and multisensory encounters, whereas religious tourists value more devotion, sanctity, and minimal commercial disturbance. Survey variables indicate this split: Polarized groups were determined by A10 (purpose of visit): Cluster B emphasized spiritual continuity and participation at the local level, Cluster C maintained facilities and recreational use, and Cluster A preferred historic accounts. This dual identity makes branding harder: must Dhori be branded as a mining reclamation area, religious site, or both? Omitting this symbolic hybridity might scare off critical users. For example, pilgrims might find informative panels or guided history trails near the shrine obtrusive, whereas specialist visitors will be deterred by the lack of heritage signals. These clashes are resolved through culturally allocated development, e.g., recreational lakefront, interpretative belt, and sacred center. Unlike Ruhr or Sovereign Hill, where a single narrative dominates, Dhori's fusion of religious sanctity and industrial past requires a locally adapted "zonal branding" strategy, allocating sacred, recreational, and interpretive spaces separately.

4.6.4. Policy Misalignments and Governance Fragmentation

Dhori has policy-level incoherence at the ground level, although its ideology is consistent with policies such as the State Tourism Policy of Jharkhand, the National Eco-Tourism Mission, and Atmanirbhar Bharat. Without financial synergy or an integrated master plan, institutional silos operate in organizations like the Forest Department, the District Tourism Office, local panchayats, and CMPDI. Lack of confidence was observed in stakeholder interviews, especially concerning work commitments, site heritage preservation, and land rights after mining. All clusters had low values for variables such as A32 (knowledge of planning work) and A36 (trust in policy implementation). Dhori's transformation stands the risk of getting stuck in bureaucratic purgatory without a specified nodal agency or interdepartmental task force, with tourist efforts driven by disconnected mandates and fleeting optics. While global cases stress multi-agency integration as transferable best practice, Dhori requires an adapted governance model with a clear nodal agency to navigate its more complex bureaucratic silos.

4.6.5. Strategic Imperative: Integrative Regeneration

Dhori must adopt an integrative approach that synthesizes its cultural, environmental, and economic dimensions in order to overcome its symbolic potential:

- Cultural: thematic trails linking spiritual and industrial histories, digital preservation of miners' oral histories, and festival programming around the shrine of Dhori Mata.
- Environmental: Utilize MGNREGA to develop nature trails; reforest buffer zones with indigenous flora; and restore pit lakes for low-impact boating and bird-watching.
- Economic: Promote youth tour guides, create a cooperative for profit-sharing, and facilitate SHGs for food stalls, sales of artisans, and eco-hospitality.

These solutions acknowledge Dhori's distinctive features while drawing inspiration from peer websites' effective features. The cultural and environmental measures are broadly transferable, but the economic interventions—particularly SHG mobilization and cooperative governance—require tailored adaptation to Jharkhand's socio-political realities. Collectively, the models of Dwyer & Kim and Porter substantiate that the only means of making tourism competitive is not through the development of assets but also through developing an enabling ecosystem, mobilizing stakeholders, and developing multi-narrative experiences. Strategic incoherence, rather than a shortage of resources, is the repositioning issue of Dhori. Even its strongest assets—spiritual pull, mining memoryscape, and ecological potential—lie latent in the absence of narrative coherence, institutional unity, and participatory planning. It is evident from the discussion that Dhori is poised to transform, but it can only become a viable destination for sustainable tourism through layered, co-produced, and place-sensitive planning.

4.6.6. Short-, Mid-, and Long-Term Roadmap

The strategic roadmap for Dhori builds directly upon the competitiveness score mapping (Section 4.3), cluster analysis (Section 4.2), and SWOT synthesis (Figure 8). It recognises that stakeholder clusters differ in priorities—Cluster A values heritage authenticity, Cluster B values community benefit and environmental stewardship, and Cluster C values amenities and accessibility.

The roadmap phases are sequenced to deliver incremental competitiveness gains without exceeding ecological carrying capacity thresholds identified in the environmental sustainability assessment (see Table 12 in Appendix). Predictive modelling integrates three components:

1. **Baseline Data**
   - Current estimated visitation: 18,000/year (mix of local pilgrims, occasional tourists, and event-based visitors)
   - Current average spend per visitor: ₹1,950
   - Current annual tourism revenue: ₹3.51 crore
   - Current load is at ~70% of estimated ecological comfort threshold (~26,000 visitors/year).
2. **Growth Drivers**
   - Literature-based elasticity for rural heritage tourism improvements:
     - Minor amenity/branding upgrades: +6–8% annual growth
     - Moderate infrastructure/interpretive investments: +10–12%
     - Major heritage/ecotourism integration with regional linkages: +12–15%
   - Cluster-weighted response:

- Cluster A: +20% demand uplift from interpretive and heritage enhancements
- Cluster B: +10–12% uplift from community engagement and environmental programmes
- Cluster C: +15% uplift from improved amenities and transport access

3. **Carrying Capacity Controls**
   - Long-term projections capped at 38,000 visitors/year to avoid ecological stress and heritage site degradation.
   - Revenue projections prioritise spend-per-visitor growth alongside visitor growth to ensure financial sustainability without overtourism.

4.6.6.1. Key Insights from Projections

- **Revenue Growth Outpaces Visitor Growth**: By focusing on value-added experiences (premium interpretation, eco-stays, cultural performances), the long-term strategy increases average spend by ~13% over the baseline.
- **Cluster-Responsive Product Design** ensures that interventions target the motivations of all three segments, reducing market risk.
- **Environmental Safeguards** in the long-term plan (visitor caps, zoning, and eco-tourism governance) protect the site's heritage and ecological assets from overuse.
- **Mid-Term is the Critical Inflection Point** where capacity pressures emerge—requiring demand management measures to avoid slipping into unsustainable growth patterns.

4.7. Recommendations

Dhori's repositioning as a competitive post-mining heritage site requires a multi-scalar, evidence-based strategy. The perceptual mapping, ANOVA findings, and cluster segmentation highlight a need to close infrastructural, governance, and branding gaps while harnessing Dhori's spiritual, industrial, and ecological potential. The roadmap below outlines phased priorities—short-term activation, mid-term consolidation, and long-term institutionalization—aligned with the Dwyer & Kim and Porter frameworks. Financing can be mobilized through CSR allocations, District Mineral Foundation (DMF) funds, and Public–Private Partnerships (PPPs), while policy levers such as the Jharkhand Tourism Policy, the National Eco-Tourism Mission, and Atmanirbhar Bharat schemes can provide enabling frameworks. A competitiveness monitoring toolkit is also proposed to ensure adaptive, policy-aligned implementation.

4.7.1. Short-Term Priorities (0–12 Months): Enhancing Visibility and Visitor Readiness

Perceptual analysis shows dissatisfaction with infrastructure and signage (A14, A26), particularly among first-time and amenity-seeking visitors (Cluster C). Low-cost, high-impact measures are recommended:

- Signage & Wayfinding: Install themed, directional signage linking the shrine, pit lake, and mining relics to reduce navigational barriers (A26).
- Visitor Information Booth: Establish a temporary interpretation kiosk at the shrine entrance, staffed by interns under tourist skill programs, with maps, pamphlets, and QR-coded guides to address information deficits (A15, A27).
- Basic Facilities: Deploy CSR and DMF funds for dustbins, mobile toilets, solar lighting, and shaded rest points, aligning with Jharkhand Tourism Policy mandates for community-benefiting amenities.

These interventions reframe Dhori from derelict mining land into an accessible cultural-ecological site, paving the way for deeper engagement.

4.7.2. Mid-Term Interventions (1–3 Years): Building Local Capacity and Institutional Linkages

Survey data (A9, A30, A38) suggests latent tourism demand, but trust in institutions is weak and community participation remains unorganized (A36). To address this:

- SHG-Based Training: Initiate skill programs in guiding, food entrepreneurship, storytelling, and eco-hospitality, targeting Cluster B (local pride, low engagement). Link with the Jharkhand Skill Development Mission and finance via DMF and PPP tourism ventures.
- Circuit Integration: Formally link Dhori to Rajrappa (Shakti Peetha), Tenughat (nature getaway), and Itkhori (Buddhist site). This circuit expansion broadens Dhori's market coverage and attracts both religious and heritage-oriented visitors (Clusters A and C). Inclusion in state eco-heritage circuits unlocks circuit-specific funding under the Jharkhand Tourism Policy.
- Digital Heritage Archive: Document industrial artifacts, shrine narratives, and miner oral histories to strengthen uniqueness (A21) and digital accessibility (A33). Collaborations with

state IT/tourism departments can support smart-tourism platforms and apps.

These steps institutionalize community participation and embed Dhori in wider regional tourism flows.

4.7.3. Long-Term Strategy (3–7 Years): Institutionalizing the Eco-Industrial Heritage Identity

Cluster analysis confirms Dhori's combined religious, industrial, and ecological significance. To reinforce its distinctiveness:

- Legal Recognition: Secure designation as a heritage-ecotourism site under state and federal law to access conservation funds and structured investment through the Tourism Masterplan and Ministry of Coal CSR allocations.
- Dual Branding: Adopt *"Dhori: Where Faith Meets Industry"* for integration into state and national campaigns (e.g., Incredible India), providing a model for mainstreaming industrial heritage tourism.
- Flagship Projects: Develop eco-homestays, an Industrial Memory Museum, and heritage trails linking lake, shrine, and mining sites. PPP financing ensures sustainable operation beyond state budgets.
- Ecological Regeneration: Implement wetland boardwalks, pit lake bio-remediation, and native reforestation, meeting Cluster C's sustainability demands (A30). Funding can converge from DMF ecological restoration, MGNREGA, and CAMPA schemes.

The long-term vision positions Dhori as a post-industrial regeneration model integrating community ownership, ecological resilience, and policy-backed competitiveness.

4.7.4. Competitiveness Monitoring Toolkit

A Competitiveness Monitoring Toolkit (see Table 13) is proposed for tracking progress, derived from the nine criteria in the theoretical frameworks and perceptual mapping. This ensures evidence-based, adaptable planning by delineating clearly roles, standards, and review frequency.

Table 13. Dhori Tourism Competitiveness Monitoring Toolkit (Source: Author)

Criterion	Monitoring Indicator	Data Source	Frequency	Responsible Body	Benchmark (Target)
1. Accessibility & Connectivity	% visitors using public transport; signage rating (A26 ≥ 3.5)	Visitor surveys, transport logs	Bi-annual	District Transport Office + Tourism Cell	≥ 60% signage satisfaction
2. Heritage Experience	% visitors reporting enhanced cultural understanding (A9, A21, A27)	Exit surveys, online reviews	Bi-annual	SHG Tour Operators + Local Historians	≥ 70% positive heritage engagement
3. Infrastructure & Services	Cleanliness score; presence of key facilities (A14 ≥ 4.0)	Field audit reports	Quarterly	District Tourism Office + Gram Panchayat	All core amenities in place at 3 key nodes
4. Environmental Stewardship	Waste segregation rate; lake BOD level; plantation survival rate	Environmental audits, SHG logs	Bi-annual	Forest Dept + Community Eco Monitors	≥ 80% survival; lake BOD within prescribed limits
5. Economic Linkages	% revenue retained locally; # SHGs operational	Financial tracking, SHG reports	Annual	SHG Federation + District Livelihood Mission	≥ 50% revenue locally retained; ≥ 5 SHGs engaged
6. Cultural Continuity	Festival frequency; % visitors attending traditional events	Event calendar, cultural logs	Annual	Culture Dept + Artisans' Association	≥ 3 annual events with > 500 attendees
7. Governance & Participation	# stakeholder meetings/year; % local representation in decision-making bodies	Minutes, SHG feedback	Quarterly	Dhori Tourism Task Force	≥ 70% local representation in planning decisions
8. Visitor Satisfaction	Net Promoter Score (NPS); composite experience rating (A39, A40, A41)	Exit survey platform, QR ratings	Bi-annual	SHG Ops + Digital Feedback Partner	NPS ≥ +30; average experience rating ≥ 4.0
9. Digital & Storytelling Reach	Monthly web hits; QR scan count; story interaction rates (A33, A34)	Analytics dashboards, app reports	Monthly	Digital Agency + Local Content Creators	≥ 5000 monthly hits; ≥ 1000 QR scans/month

By aligning performance measures with broader competitiveness, sustainability, and inclusion goals, this toolbox will reinforce Dhori's status as a data-driven, community-focused destination.

4.7.5. Transferability and Generalization

The competitiveness monitoring toolkit designed for Dhori is not site-specific, but adaptable across other post-mining and industrial heritage contexts in India and globally. Its indicators, while calibrated to Dhori's religious–industrial–ecological hybrid identity, can be re-weighted or substituted depending on local priorities.

For example:

- In Raniganj (West Bengal), emphasis could be placed on *heritage experience* and *cultural continuity* through workers' memorials and interpretive trails, with SHG participation in storytelling.
- In Kolar Gold Fields (Karnataka), *governance and participation* would need stronger benchmarking, since civil society advocacy exists but lacks structured institutionalization.
- Globally, in the Ruhr Valley (Germany), *digital and storytelling reach* can be used as a transferable metric, with Dhori's QR-based interpretation adapted into multilingual mobile applications.

This illustrates that the Dhori model is both locally rooted and globally relevant: locally, it integrates livelihood and spiritual-cultural layers; globally, it contributes a replicable framework for monitoring competitiveness in regenerating post-industrial landscapes.

By demonstrating adaptability, the model underscores its scalability as a planning and evaluation instrument, capable of informing District Mineral Foundation (DMF) investments in India as well as cross-cultural benchmarking in international post-mining regeneration programs.

5. Conclusions

The Dhori case demonstrates how industrial memory, spiritual heritage, and ecological potential can be fused to reposition a historically extractive region as a competitive tourism destination. Drawing on 441 stakeholder responses and analyzed through Porter's Diamond and the Dwyer & Kim DC framework, the study advances an India-specific method for operationalizing strategic planning in post-mining heritage landscapes. Unlike most Indian precedents, Dhori embodies a cultural–industrial–ecological hybrid: a living shrine within mining memoryscapes and rehabilitated ecologies. Findings reveal a clear perception–performance gap. While stakeholders recognize Dhori's religious significance, mining heritage, and community aspirations, the absence of interpretive infrastructure, governance alignment, and strategic branding undermines destination readiness. Addressing these gaps requires calibrated short-, medium-, and long-term interventions.

A key contribution lies in demonstrating how community engagement—particularly through Self-Help Groups—can link livelihoods with guiding, eco-hospitality, and cultural interpretation, offering a replicable model of bottom-up regeneration. By connecting resource endowments, stakeholder dynamics, and market-facing strategies, Dhori illustrates the necessity of integrating Porter and Dwyer & Kim frameworks as a decision-support toolkit. This dual approach informs tourism policy, DMF allocations, and CSR strategies, making the research both theoretically significant and practically actionable. Dhori thus exemplifies a new category of hybrid historic places emerging in India, where ecological restoration, derelict infrastructure, and devotional culture converge. Such landscapes—scarce but increasingly relevant under energy transition pressures—can evolve into resilient, place-based destinations if aligned with ecological ethics, participatory planning, and experience design. The study provides both a methodological roadmap and policy-relevant insights for scaling post-mining tourism competitiveness across India.

5.1. Limitations & Scope for Future Research

Despite offering a comprehensive assessment, the study has several limitations. First, the cross-sectional survey captures perceptions at a single point in time; sustainable planning requires longitudinal data on seasonal trends, repeat visitation, and post-intervention impacts. Second, given Dhori's cultural and ecological sensitivity, environmental carrying capacity analysis was omitted. Future work should employ GIS-based modeling, ecosystem service valuation, and landscape analytics to establish ecological thresholds and visitor-load tolerances. Third, while conventional statistical techniques (SPSS) were used, AI/ML-driven approaches could enhance granularity and scalability. Tools such as NLP for digital sentiment analysis, unsupervised clustering for visitor profiling, and neural networks for

demand forecasting could refine DC assessments. Finally, validating the dual-framework model across other mining heritage sites (e.g., KGF, Raniganj, Neyveli) through comparative, multi-site modeling would strengthen indicator design and weighting schemes. Overall, this research provides the groundwork for an emerging field of post-mining tourism studies in India, while opening pathways for technology-enabled, interactive, and inclusive policy design.

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Appendix

Table 5. Variable Mapping to Dwyer & Kim and Porter's Diamond Models (Source: Author)

Variable	Description	Dwyer & Kim Component	Porter's Diamond Component	Strategic Inclination	Sustainability Relevance
A1	Age group	Demand Condition	Demand Conditions	Demographic Insight	Low
A2	Gender	Demand Condition	Factor Conditions	Demographic Profile	Low
A3	Education level	Human Capital	Factor Conditions	Human Capital	Moderate
A4	Employment status	Supporting Industries	Factor Conditions	Economic Indicator	Medium
A5	Annual income	Demand Condition	Demand Conditions	Purchasing Power	Medium
A6	Marital status	Demand Condition	Demand Conditions	Household Dynamics	Low
A7	Number of children	Demand Condition	Demand Conditions	Family Tourism Appeal	Low
A8	Length of stay in the area	Situational Conditions	Factor Conditions	Local Stake-holding	High
A9	Frequency of heritage visits	Demand Condition	Demand Conditions	Cultural Familiarity	High
A10	Purpose of visit	Demand Condition	Demand Conditions	Motivation Typology	Medium
A11	Mode of transportation used	Supporting Industries	Factor Conditions	Access Infrastructure	High
A12	Accommodation preference	Destination Management	Supporting Industries	Service Infrastructure	Moderate
A13	Spending habits during visits	Economic Contribution	Related Industries	Economic Value Chain	Moderate
A14	Satisfaction with facilities	Destination Management	Related Industries	Infrastructure Quality	High
A15	Knowledge of local history	Resource Endowment	Related Industries	Heritage Experience	Moderate
A16	Perception of environmental conservation	Sustainability	Factor Conditions	Environmental Management	High
A17	Community engagement frequency	Destination Management	Firm Strategy & Rivalry	Participatory Planning	Very High
A18	Willingness to pay for conservation	Destination Management	Demand Conditions	Conservation Financing	Very High
A19	Concern for tourism impact on locals	Sustainability	Demand Conditions	Social Responsibility	Very High
A20	Guided vs. self-tour preference	Destination Management	Firm Strategy	Experience Design	Moderate
A21	Participation in festivals	Resource Endowment	Demand Conditions	Cultural Attachment	Moderate
A22	Awareness of sustainable practices	Sustainability	Factor Conditions	Sustainability Awareness	Very High
A23	Support for sustainable tourism	Destination Management	Government Role	Policy Alignment	Very High
A24	Perception of safety and security	Situational Conditions	Factor Conditions	Visitor Security	High
A25	Influence of social media	Destination Management	Related Industries	Digital Influence	Moderate
A26	Awareness of site accessibility	Situational Conditions	Factor Conditions	Inclusive Infrastructure	High
A27	Perception of site authenticity	Resource Endowment	Demand Conditions	Cultural Authenticity	High
A28	Familiarity with local gastronomy	Supporting Industries	Related Industries	Culinary Tourism	Moderate
A29	Interest in cultural performances	Resource Endowment	Related Industries	Cultural Tourism	Moderate
A30	Concern for ecosystem impact	Sustainability	Factor Conditions	Environmental Sensitivity	Very High
A31	Willingness to volunteer	Destination Management	Firm Strategy	Civic Engagement	High
A32	Awareness of restoration projects	Destination Management	Government Role	Conservation Literacy	High
A33	Perception of overcrowding	Situational Conditions	Demand Conditions	Carrying Capacity	High
A34	Use of digital guides/apps	Supporting Industries	Related Industries	Technological Adaptation	Moderate
A35	Interest in storytelling	Destination Management	Related Industries	Interpretation Value	Moderate
A36	Knowledge of sustainability certification	Destination Management	Government Role	Policy Literacy	High
A37	Perception of handicraft authenticity	Resource Endowment	Related Industries	Product Authenticity	High
A38	Support for local businesses	Supporting Industries	Related Industries	Local Linkages	High
A39	Local recommendation influence	Demand Condition	Related Industries	Word-of-Mouth	High
A40	Preference for peak/off-peak visits	Demand Condition	Demand Conditions	Demand Segmentation	Moderate
A41	Perception of visitor behaviour	Situational Conditions	Firm Strategy	Responsible Tourism	Very High
A42	Overall satisfaction with experience	Destination Management	Firm Strategy	Product Attractiveness	High

Table 8. Discrimination Measure using SPSS16.0 (Source: Author)

Discrimination Measures			
Variables	Dimension		Mean
	1	2	
A1	.126	.068	.097
A2	.182	.354	.268
A3	.186	.417	.302
A4	.266	.284	.275
A5	.238	.070	.154
A6	.516	.229	.372
A7	.222	.161	.192
A8	.212	.269	.240
A9	.207	.143	.175
A10	.217	.006	.111
A11	.096	.083	.089
A12	.095	.075	.085
A13	.145	.007	.076
A14	.384	.198	.291
A15	.289	.131	.210
A16	.289	.276	.282
A17	.314	.158	.236
A18	.141	.030	.086
A19	.300	.206	.253
A20	.428	.308	.368
A21	.197	.083	.140
A22	.274	.058	.166
A23	.143	.136	.140
A24	.215	.242	.229
A25	.169	.281	.225
A26	.152	.165	.159
A27	.323	.299	.311
A28	.254	.349	.301
A29	.407	.151	.279
A30	.460	.371	.416
A31	.444	.240	.342
A32	.194	.211	.202
A33	.408	.307	.358
A34	.492	.349	.420
A35	.128	.312	.220
A36	.187	.436	.311
A37	.170	.300	.235
A38	.379	.389	.384
A39	.241	.383	.312
A40	.288	.149	.218
A41	.325	.101	.213
A42	.413	.088	.250
Active Total	11.116	8.872	9.994
% of Variance	26.467	21.125	23.796

Table 9. ANOVA Results for Individual Items across Clusters using SPSS16.0 (Source: Author)

ANOVA						
		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
A1	Between Groups	90.191	4	22.548	14.475	.000
	Within Groups	679.156	436	1.558		
	Total	769.347	440			
A2	Between Groups	24.376	4	6.094	3.153	.014
	Within Groups	842.758	436	1.933		
	Total	867.134	440			
A3	Between Groups	92.348	4	23.087	12.235	.000
	Within Groups	822.713	436	1.887		
	Total	915.061	440			
A4	Between Groups	62.900	4	15.725	9.939	.000
	Within Groups	689.793	436	1.582		
	Total	752.694	440			
A5	Between Groups	12.150	4	3.037	2.874	.023
	Within Groups	460.862	436	1.057		
	Total	473.011	440			
A6	Between Groups	34.839	4	8.710	7.318	.000
	Within Groups	518.921	436	1.190		
	Total	553.760	440			
A7	Between Groups	43.061	4	10.765	5.378	.000
	Within Groups	872.776	436	2.002		
	Total	915.837	440			
A8	Between Groups	2.934	4	.733	.494	.740
	Within Groups	646.744	436	1.483		
	Total	649.678	440			
A9	Between Groups	14.463	4	3.616	3.535	.007
	Within Groups	445.945	436	1.023		
	Total	460.408	440			
A10	Between Groups	16.049	4	4.012	2.773	.027
	Within Groups	630.931	436	1.447		
	Total	646.980	440			
A11	Between Groups	14.019	4	3.505	3.032	.017
	Within Groups	503.931	436	1.156		
	Total	517.950	440			
A12	Between Groups	8.565	4	2.141	2.493	.042
	Within Groups	374.568	436	.859		
	Total	383.134	440			
A13	Between Groups	5.457	4	1.364	1.546	.188
	Within Groups	384.788	436	.883		
	Total	390.245	440			
A14	Between Groups	19.137	4	4.784	3.158	.014
	Within Groups	660.537	436	1.515		
	Total	679.673	440			
A15	Between Groups	14.785	4	3.696	2.623	.034
	Within Groups	614.480	436	1.409		
	Total	629.265	440			
A16	Between Groups	17.037	4	4.259	2.881	.022
	Within Groups	644.627	436	1.479		
	Total	661.664	440			
A17	Between Groups	46.993	4	11.748	8.762	.000
	Within Groups	584.617	436	1.341		
	Total	631.610	440			
A18	Between Groups	20.900	4	5.225	7.746	.000
	Within Groups	294.080	436	.674		
	Total	314.980	440			
A19	Between Groups	39.022	4	9.756	12.846	.000
	Within Groups	331.100	436	.759		
	Total	370.122	440			
A20	Between Groups	41.420	4	10.355	9.845	.000
	Within Groups	458.580	436	1.052		
	Total	500.000	440			
A21	Between Groups	23.799	4	5.950	6.682	.000

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
	Within Groups	388.246	436	.890		
	Total	412.045	440			
A22	Between Groups	20.865	4	5.216	6.367	.000
	Within Groups	357.181	436	.819		
	Total	378.045	440			
A23	Between Groups	18.777	4	4.694	6.033	.000
	Within Groups	339.223	436	.778		
	Total	358.000	440			
A24	Between Groups	11.111	4	2.778	4.066	.003
	Within Groups	297.900	436	.683		
	Total	309.011	440			
A25	Between Groups	60.408	4	15.102	17.480	.000
	Within Groups	376.694	436	.864		
	Total	437.102	440			
A26	Between Groups	48.907	4	12.227	12.087	.000
	Within Groups	441.043	436	1.012		
	Total	489.950	440			
A27	Between Groups	35.618	4	8.905	7.006	.000
	Within Groups	554.142	436	1.271		
	Total	589.760	440			
A28	Between Groups	33.017	4	8.254	5.933	.000
	Within Groups	606.616	436	1.391		
	Total	639.633	440			
A29	Between Groups	112.573	4	28.143	16.786	.000
	Within Groups	730.978	436	1.677		
	Total	843.551	440			
A30	Between Groups	24.931	4	6.233	5.422	.000
	Within Groups	501.223	436	1.150		
	Total	526.154	440			
A31	Between Groups	144.422	4	36.106	24.672	.000
	Within Groups	638.045	436	1.463		
	Total	782.467	440			
A32	Between Groups	58.354	4	14.589	8.271	.000
	Within Groups	768.993	436	1.764		
	Total	827.347	440			
A33	Between Groups	10.996	4	2.749	2.085	.082
	Within Groups	574.763	436	1.318		
	Total	585.760	440			
A34	Between Groups	19.731	4	4.933	4.350	.002
	Within Groups	494.355	436	1.134		
	Total	514.086	440			
A35	Between Groups	112.971	4	28.243	17.858	.000
	Within Groups	689.551	436	1.582		
	Total	802.522	440			
A36	Between Groups	4.401	4	1.100	.929	.447
	Within Groups	516.121	436	1.184		
	Total	520.522	440			
A37	Between Groups	14.358	4	3.589	3.641	.006
	Within Groups	429.783	436	.986		
	Total	444.141	440			
A38	Between Groups	19.532	4	4.883	3.960	.004
	Within Groups	537.570	436	1.233		
	Total	557.102	440			
A39	Between Groups	89.208	4	22.302	18.644	.000
	Within Groups	521.545	436	1.196		
	Total	610.753	440			
A40	Between Groups	37.971	4	9.493	6.134	.000
	Within Groups	674.723	436	1.548		
	Total	712.694	440			
A41	Between Groups	116.328	4	29.082	22.223	.000
	Within Groups	570.574	436	1.309		
	Total	686.902	440			

Table 12. Detailed Projection of Visitor Numbers & Tourism Revenue by Intervention Phase)

Long-Term	Mid-Term	Short-Term	Phase
6–10 years	3–5 years	1–2 years	**Timeframe**
- Eco-tourism zone designation with formal zoning controls - Integration into state pilgrimage circuits - Heritage trail with curated events and re-enactments - Premium eco-stay facilities & experience-based packages	- Permanent interpretation centre - Guided heritage–ecotourism loops (mining heritage + pit lake recreation + shrine) - Digital information kiosks and app-based tours - Expanded SHG entrepreneurship in food/crafts	- Basic amenity upgrades (sanitation, seating, directional signage) - Temporary interpretation panels at key sites - Local branding campaign (Dhori dual-narrative positioning) - SHG hospitality and guide training pilots	**Key Interventions**
Environmental Sustainability, Policy Fit, Experience Value, Cultural-Heritage Value	Cultural-Heritage Value, Interpretation, Digital Readiness, Community Engagement	Visitor Amenities, Accessibility, Community Engagement	**Competitiveness Criteria Impacted**
Cluster A (+25% for immersive authenticity), Cluster C (+18% for high-end amenities), Cluster B (+15% for eco-tourism governance)	Cluster A (+20% for heritage depth), Cluster C (+10% for improved facilities), Cluster B (+12% for participatory eco-tours)	Cluster C (+15% for amenities), Cluster B (+8% for community benefit), slight uplift for Cluster A (+5% from improved orientation)	**Cluster Demand Response**
35,000–38,000 (capped)	26,000–28,000	21,000–22,000	**Projected Visitors/ year**
2,200	2,150	2,050	**Avg. Spend (₹)**
7.70–8.36	5.59–6.02	4.30–4.51	**Projected Revenue (₹ Crore)**
Max load; requires seasonal visitor caps, permit system, and ecological monitoring	Load ~100–108% of comfort threshold; requires visitor flow scheduling to prevent peak congestion	Load ~80% of ecological comfort threshold; no major environmental strain expected	**Ecological/ Carrying Capacity Notes**

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تغییر جایگاه دوری به عنوان یک مقصد گردشگری میراث پس از استخراج معادن رقابتی: ارزیابی تجربی با استفاده از چارچوب دوایر و کیم و مدل الماس پورتر

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چکیده

تبدیل مکان‌های معدنی پساصنعتی به مقاصد گردشگری میراث، نشان‌دهنده یک روند جهانی رو به رشد است، اما هنوز در هند کمتر مورد بررسی قرار گرفته است. این مقاله، پتانسیل تغییر موقعیت دهوری، جارکند - مکانی با اهمیت دوگانه به عنوان یک بنای مذهبی و یک چشم‌انداز پسامعدنی - را از طریق به‌کارگیری دو چارچوب رقابتی تثبیت‌شده بررسی می‌کند: مدل رقابت‌پذیری یکپارچه مقصد دوایر و کیم و مدل الماس پورتر. این مطالعه با استفاده از یک مجموعه داده قوی از ۴۴۱ پاسخ ذینفعان و با استفاده از نقشه‌برداری ادراکی، تحلیل خوشه‌ای و ANOVA، نقاط قوت کلیدی در هویت فرهنگی و مشارکت جامعه را شناسایی می‌کند و در مقابل، نقاط ضعف مهمی در زیرساخت‌های تفسیری، ادغام خدمات و هماهنگی نهادی را نشان می‌دهد. تحلیل تطبیقی با مطالعات موردی ملی (کناپارا، رانیگانج) و بین‌المللی (دره روهر، معدن نمک ویلیچکا) شکاف‌های ساختاری و روایی را که دهوری باید به آنها بپردازد، بیشتر برجسته می‌کند. یافته‌ها، یک استراتژی مرحله‌ای - کوتاه‌مدت، میان‌مدت و بلندمدت - را به همراه یک جعبه ابزار نظارت بر رقابت‌پذیری مبتنی بر داده که مبتنی بر نه معیار موضوعی است، ارائه می‌دهند. این مطالعه یک مدل تجربی خاص هند برای گذار به گردشگری پس از استخراج معادن ارائه می‌دهد و نشان می‌دهد که چگونه مکان‌های دارای هویت دوگانه می‌توانند از طریق استراتژی‌های یکپارچه فرهنگی، زیست‌محیطی و اقتصادی به موقعیت رقابتی دست یابند.

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