

CULTURAL SUSTAINABILITY AND PRESERVATION OF WARLI ART: SYSTEMIC CHALLENGES AND COMMUNITY-CENTRED STRATEGIES FOR AN INDIGENOUS VISUAL TRADITION IN CONTEMPORARY MAHARASHTRA

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ABSTRACT

The art of the Warli tribe belongs to the Sahyadri range of Maharashtra state in Western India, and this paper attempts to analyse the threat to its sustainability as a living cultural tradition in the light of rising commercial interest in it. As such, cultural traditions are essentially systemic in nature, combining several domains of human experience, and they require a similarly systems-thinking approach to identifying threats to their sustainability. Our framework of analysis integrates Throsby' (2001, 2010) model of cultural capital with Convention for safeguarding of Intangible Cultural Heritage (UNESCO, 2003), social-ecological resilience theory (Holling, 1973; Walker & Salt, 2006) and Cultural ecosystem services with qualitative primary data collected from the fieldwork conducted at Maharashtra's Palghar district during three phases (2019-20, 2021-2022, 2022-24) and secondary data compiled through study of similar grassroots efforts towards sustainability of indigenous art from Australia and India. We outline five major issues: Decline of Ritual contexts, Demography and migration, Loss of the Sahyadri ecosystem, Lack of Institutional support, and Unsustainable commercialisation, which feed into each other. The study leads us to conclude that efforts at safeguarding or sustainable practices targeting any single domain will have limited impact unless there is a congruent effort on other fronts, such as social, ecological, institutional, educational, and economic, that feed into the cultural sustainability of the art tradition. We submit recommendations for policy changes, grassroots archival initiatives, a crowdsourcing-based approach to creating sustainable and community-owned economic opportunities, and the expansion of transmission efforts into school curricula. We place special emphasis on the primacy of community ownership of any such initiatives. We also contribute towards theoretical understanding of cultural sustainability by proposing that the survival of indigenous art traditions cannot be looked at in a silo of its social, ecological and political context that created and continues to sustain it. We also seek to develop the concept of cultural ecosystem services as an evaluative lens for governance.

Keywords: Warli art; cultural sustainability; intangible cultural heritage; indigenous visual culture; community governance; Maharashtra; biocultural diversity

1. INTRODUCTION

In recent years, the viability of indigenous art traditions has become a topic of concern in the fields of heritage studies, cultural policy, and indigenous rights. The worldwide expansion of ethnic and craft art markets coincides with rapid social and ecological transformations affecting indigenous cultures. Increasingly, art traditions face a paradoxical situation: one in which their art can become commercially successful as never before, while at the same time

the traditions themselves are severely threatened. The Warli tradition of Maharashtra, India, is facing just such a crisis. Warli painting, recognisable by its iconic images of humans as triangles and its colourful depiction of social and natural ecology, has found tremendous market success worldwide. Concurrently, the practice traditions of ritual use, ecological knowledge, and generational wisdom that sustain the richness and significance of this practice are rapidly eroding (Dalmia, 1988; Jain, 1998; Shah, 1985).

Warlis are a Scheduled Tribe residing in the Sahyadri Hills of Palghar, Nashik and Thane districts of Maharashtra. With a population of around 3,00,000, their folk painting style, practised traditionally almost exclusively by the womenfolk on the mud walls of domestic and ritual spaces, is among the most popular styles of Indian tribal art. Thus far, the recognition has not translated into sustainability. As the tradition's commercial profile expanded following its first public presentation through the work of artist Jivya Soma Mashe and ethnographer Bhaskar Kulkarni in the 1970s (Jayakar, 1980). The conditions of its production have been progressively transformed in ways that risk reducing a living cultural practice to a commercial visual style divorced from its ritual, ecological, and cosmological foundations.

The academic literature on Warli art has grown significantly since Dalmia's (1988) foundational ethnographic account, with subsequent contributions from art historians (Shah, 1985), anthropologists (Xaxa, 1999), and tribal craft policy scholars (Sawant, 2017). However, this literature has yet to develop a comprehensive, theoretically grounded analysis of the tradition's cultural sustainability challenges. This is adequate to the systemic character of those challenges. Earlier accounts have tended either to celebrate the tradition's commercial success without critically examining its cultural costs, or to document cultural erosion without providing a theoretically integrated framework for understanding. In addition to addressing the systemic causes of that erosion. The present paper seeks to fill this gap by developing an integrated framework that synthesises cultural economics, heritage studies, and social-ecological resilience theory, and applying it to a systematic empirical analysis of the sustainability of the Warli tradition.

The paper makes three principal contributions to the literature. First, it develops a theoretically integrated framework for analysing the cultural sustainability of indigenous visual traditions that goes beyond the predominantly commercial orientation of existing tribal art policy frameworks in India. Second, it provides a comprehensive empirical analysis of the systemically interconnected challenges facing Warli art's cultural sustainability, based on original multi-phase fieldwork in the Palghar district. Third, it offers detailed policy recommendations, grounded in the preceding evidence and analysis, that place agency and cultural sovereignty at the heart of sustainable, not merely commercial, "*development*" for the purposes of cultural sustainability policy. Collectively, these constitute this study's attempt to supply both conceptual frameworks and case-study grounded data that can help steer cultural sustainability policy towards more productive avenues in the case of the Warli tradition and, hopefully, analogous indigenous traditions of art both in India and around the world.

The paper proceeds as follows. Section 2 develops the integrated theoretical framework. Section 3 describes the research methodology. Section 4 analyses the five principal challenges to Warli art's cultural sustainability. Section 5 identifies and evaluates evidence-based pathways to sustainability. Section 6 discusses the findings in relation to comparative evidence and theoretical implications. Section 7 presents conclusions and policy recommendations.

2. THEORETICAL FRAMEWORK

2.1 Cultural Capital, Intangible Heritage, and Living Heritage

The economic analysis of culture has been fundamentally transformed by Throsby (2001, 2010). The concept of cultural capital, which distinguishes between tangible cultural capital (the physical stock of cultural artefacts and works) and intangible cultural capital (the knowledge, practices, values, and traditions that give tangible cultural products their meaning). When applied to Indigenous art traditions, this distinction points to the locus of greatest risk to cultural sustainability. Destruction of artefacts is less threatening than the depletion of the "intangible cultural capital" of knowledge, skills, ceremonial context, ecological understanding and community relations. This living substance of tradition, in Throsby's view, presents the greatest threat to long-term cultural viability (Throsby, 2010). For Warli art, the growing commercial corpus of paintings represents an expansion of tangible cultural capital that may be produced at the progressive cost of the intangible cultural capital that gives the tradition its deepest meaning.

The UNESCO Convention for the Safeguarding of Intangible Cultural Heritage (2003) is the main international normative instrument for the protection of living cultural heritage. The Convention understands safeguarding as "*measures aimed at ensuring the viability of the intangible cultural heritage, including identification, documentation, research, preservation, protection, promotion, enhancement, transmission through formal and non-formal education, as well as the revitalisation of the various aspects of such heritage*" (UNESCO, 2003, Article 2). Of particular significance is the Convention's insistence on community-centred safeguarding. The Article 15 specifies that communities, groups, and individuals should participate actively in the identification and management of their intangible cultural heritage. This community-centred principle represents a decisive departure from earlier, top-down heritage preservation approaches that privileged institutional and state authority over community agency (Kirshenblatt-Gimblett, 2004; Kurin, 2004; Smith & Akagawa, 2009).

The concept of "living heritage" (Smith, 2006; Harrison, 2013) reframes cultural heritage not as a static stock of artefacts and practices to be preserved in fixed form, but as a dynamic process of active cultural production, transmission, and renewal. This reframing has decisive implications for sustainability analysis. The relevant question is not how to preserve a fixed stock of cultural objects but how to maintain the social conditions and community capacities that enable a tradition to be actively created, transmitted, and renewed across generations. For Warli art, a living heritage approach directs attention to the conditions of current practice. The quality of artistic knowledge being transmitted to younger practitioners. The vitality of the ceremonial occasions that provide the tradition's ritual context. The ecological relationship between the community and the Sahyadri landscape. The economic conditions that determine whether artists can invest the time required for culturally grounded production rather than in the archive of existing works.

2.2 Social-Ecological Resilience and Biocultural Diversity

Resilience theory has been developed in ecology (Holling 1973) and adapted to human social systems by Walker and Salt (2006) and Folke (2006). Resilience theory can be a useful framework for viewing cultural sustainability. A system is resilient if it can absorb perturbations and continue as "the same kind" of system. In our case, culturally, we could view resilience as the ability to maintain core values and cultural practices while adapting to changing circumstances in creative ways. Adaptive capacity is our ability to flex. Folke (2006) describes adaptive capacity as "a key aspect of social-ecological resilience". This concept maps productively onto the tensions between continuity and adaptability. That

Throsby (2001) identifies as central to cultural sustainability. The culturally resilient tradition is one that maintains its defining values and cosmological depth while adapting its forms and contexts to contemporary conditions.

Issues of social ecology assume particular importance when we examine cultural resilience through the lens of indigenous art traditions. Berkes (1999) has shown how indigenous cultural knowledge is often embedded in relations to ecological processes and particular landscapes; damage to those landscapes thus threatens the intangible cultural heritage they help sustain. As the notion of biocultural diversity (Maffi, 2001) indicates, linguistic-cultural diversity and biological diversity are inexorably intertwined, such that the sustainability of an indigenous cultural practice is wrapped up in the ecological sustainability of the landscape on which it depends. This is undoubtedly true for Warli art, which draws its vocabulary of visual forms from particular species, seasonal cycles and ecological processes found in and around the Western Ghats. This biocultural dimension of cultural sustainability is not peripheral but foundational. The degradation of the Sahyadri ecology is simultaneously a biological and cultural loss.

2.3 Cultural Ecosystem Services and Governance Frameworks

Drawing on the ecosystem services framework of environmental economics, the concept of cultural ecosystem services provides a productive analytical tool for articulating the full range of values that a culturally sustainable indigenous art tradition provides to both the originating community and the wider society (Hawkes, 2001). Just as a healthy forest ecosystem provides services, such as carbon sequestration, water regulation, biodiversity maintenance, and recreation. These are not captured by the market value of commercial timber. A culturally sustainable Warli art tradition provides services such as the maintenance of cosmological knowledge, the preservation of ecological memory, the transmission of community values, and the aesthetic enrichment of the broader cultural landscape. These are not captured by the market value of commercial artworks. Developing accounting frameworks that make these cultural ecosystem services visible provides a basis for arguing against the exclusive use of commercial criteria in the governance and evaluation of indigenous art development programmes (Throsby, 2010; Hawkes, 2001).

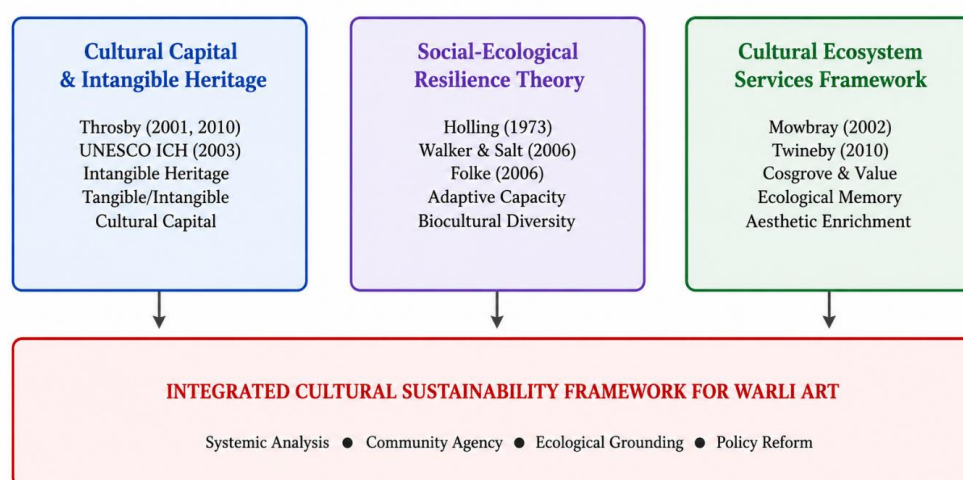
The intellectual property dimension of cultural governance has attracted growing attention in the heritage literature. Brown (2003) and Coombe (1998) demonstrate that the failure to protect indigenous communities' cultural intellectual property rights enables commercial extraction of cultural value without commensurate return to the originating community. In this process, it simultaneously erodes cultural integrity and economic welfare. The WIPO Intergovernmental Committee on Genetic Resources, Traditional Knowledge and Folklore (WIPO, 2017) has developed frameworks for the sui generis protection of traditional cultural expressions (TCEs). That goes beyond the limitations of conventional intellectual property law. The application of such frameworks to Warli art is an important component of any comprehensive cultural sustainability strategy.

Figure 1 presents the integrated conceptual framework developed for this study, showing the three theoretical pillars: cultural capital and intangible heritage, social-ecological resilience, and cultural ecosystem services. Their convergence into a comprehensive cultural sustainability framework for Warli art. The framework identifies community agency as the irreducible binding element that integrates the three theoretical perspectives into a coherent governance architecture.

Figure 1. Integrated Conceptual Framework for Cultural Sustainability of Warli Art. Source: Author's own synthesis.

3. RESEARCH METHODOLOGY

This study adopts a qualitative research design appropriate to the interpretive, context-sensitive objectives of cultural sustainability analysis. As Braun and Clarke (2006) argue, qualitative methods are epistemologically suited to research that seeks to understand the meaning and complexity of cultural phenomena within their social and institutional contexts, rather than to establish causal relationships through statistical inference. The qualitative orientation of the present study reflects both the nature of the research questions. They address the conditions for cultural sustainability at a systemic level. They also address the epistemological position of the research paradigm from a standpoint of respect for indigenous ways of knowing (Battiste, 2000; Smith, 1999).



Data Collection was carried out in 3 phases during 2019 to 2024 in Palghar district which belongs to the state of Maharashtra. This is where the tradition of Warli painting comes from. It consisted of Dahanu Taluka, Talasari Taluka, Vikramgad Taluka and Jawhar Subdivision. Fieldwork also took place in Mumbai and Nashik, including interviews with urban-migrant Warli artists and institutional leaders outside of village settings. This research was split into three cycles to allow for reflexivity in data analysis. These cycles are introductory fieldwork & immersion (2019-21), fieldwork & data collection (2021- 22) and final fieldwork for validation (2023 - 24).

Data collection employed three principal methods. Initial qualitative information was gathered through semi-structured in-depth interviews with a total of 67 informants comprising practising Warli painters (n = 31), community elders and cultural experts (n = 14), Government officers from Tribal Development departments (n = 9), NGO representatives (n = 7) and intermediaries from the art market (n = 6). Interviews were conducted in Marathi and the local Warli dialect, with the assistance of an interpreter where necessary. Interviews were audio-recorded with the consent of participants. Second, participant observation was conducted at traditional ceremonies. These include three wedding ceremonies at which ritual Lagnachauk murals were created, community cultural events, government training programmes, and commercial art exhibitions, over an aggregate period of approximately 14 months. Third, documentary analysis was conducted on government policy documents, institutional reports, programme evaluations, and the existing academic and ethnographic literature.

Data analysis followed the thematic analysis framework developed by Braun and Clarke (2006), with an additional layer of visual semiotic analysis applied to artistic works documented through systematic photographic recording. The visual analysis was based on frameworks for analysis described by Dalmia (1988) and Vatsyayan (1997) for Indian folk and tribal visual traditions. Ethical procedures followed the tenets of free, prior, and informed consent as laid out in the Declaration on the Rights of Indigenous Peoples (UN, 2007). Full disclosure of research goals was shared with community members. Participants were guaranteed anonymity if they wished, and findings were shared with members of the Warli community prior to general publication. The study follows research ethics and maintained research integrity according to institution's guidelines.

4. FIVE SYSTEMIC CHALLENGES TO CULTURAL SUSTAINABILITY

The analysis of fieldwork data identifies five principal and systemically interconnected categories of challenge to the cultural sustainability of Warli art. These are represented in Figure 2, which maps the challenges and their key interrelationships. We use the term “systemic” for a reason: as you will see below, these crises are mutually reinforcing - they do not exist in isolation but instead interact in positive feedback loops. Folke (2006) calls such phenomena in ecological systems a “regime shift” - that is, a virtuous cycle where multiple stressors force a system into a new state that it is difficult to move back from. Recognising this systemic nature is half the battle.

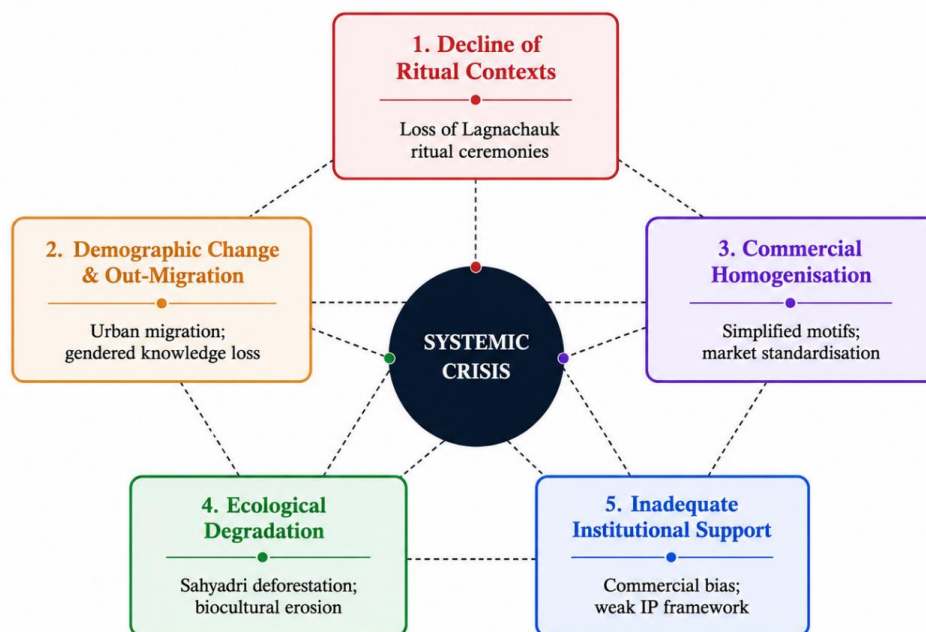


Figure 2. Five Systemic Challenges to Cultural Sustainability of Warli Art and Their Interrelationships. Source: Author's own fieldwork analysis, Palghar District (2019-2024).

4.1 Decline of Ritual Contexts

The most culturally fundamental threat to the Warli art tradition is the progressive decline of the ritual occasions that provide the tradition's original context and deepest meaning. As Jayakar (1980) observed in her foundational analysis of Indian ritual art, the traditional Warli mural is not an aesthetic object created for contemplation. However, a ritual instrument created for specific sacred purposes: calling ancestral and natural forces to witness and bless the household at marriage ceremonies (the *Lagnachauk* mural), celebrating the agricultural harvest through the *Tarpa* festival paintings, or propitiating forest deities during transitions of

community vulnerability. The separation of the visual form from its ritual function, which the process of commercialisation has progressively affected since the 1970s, represents a fundamental transformation of the object's cultural identity (Dalmia, 1988; Jain, 1998).

Fieldwork observation and data indicate that the frequency of traditional ritual mural creation in actual ceremonial contexts has declined significantly over the past three decades in the more urbanised and commercially integrated parts of the Warli community, particularly in the peri-urban talukas adjacent to the Mumbai Metropolitan Region. The displacement of the traditional lunar-agricultural calendar by the rhythms of the wage economy and the formal education system has reduced the occasions for ritual mural creation, while the progressive adoption of commercial synthetic paints and paper or canvas substrates in place of traditional rice-paste pigments on mud walls has altered the material character of the practice even in communities where the ceremonial tradition is nominally maintained.

Several senior community members interviewed described a further, more insidious form of ritual decline: the maintenance of the mural form without the full ritual knowledge and cosmological engagement that historically gave the practice its sacred character. This “*form without substance*” phenomenon, in which younger practitioners reproduce the visual conventions of the *Lagnachauk* without the deep iconographic knowledge, ecological symbolism, and ritual protocols that animate the traditional practice, creates the illusion of cultural continuity while the substantive intangible cultural capital of the tradition is hollowed out (UNESCO, 2003; Smith & Akagawa, 2009). It is among the most difficult challenges to address precisely because it is not visible to the external commercial audience that consumes the tradition's products.

4.2 Demographic Change and Out-Migration

The demographic transformation of the Warli community, driven primarily by out-migration to urban employment centres in the Mumbai Metropolitan Region, constitutes a second major challenge to cultural sustainability. As Xaxa (1999) has argued in the broader context of tribal transformation in India, the integration of tribal communities into the urban-industrial economy typically involves the progressive severance of community members from the ecological, social, and ceremonial contexts within which indigenous cultural knowledge has its living meaning. For the Warli community, this demographic transformation is particularly acute given its geographical proximity to one of the world's largest megacities: the peri-urban economy of Greater Mumbai extends deep into the Sahyadri foothills, and the wage differentials between urban employment and rural agricultural income provide powerful economic incentives for out-migration that are difficult to counteract through cultural programming alone.

The gender dimensions of out-migration are particularly significant for the Warli art tradition, given that the tradition's most culturally central practice, the ritual mural, has historically been the exclusive domain of women (Dalmia, 1988). The progressive incorporation of Warli women into the urban wage labour market, combined with the introduction of commercial materials and simplified production methods into domestic ritual contexts, creates conditions in which the deep cultural knowledge historically transmitted through the female line of the community is at serious risk of being lost within a generation. The full iconographic programme of the *Lagnachauk*, the ecological symbolism of specific natural motifs, and the ritual protocols governing the creation of the sacred mural have been transmitted from mother to daughter through immersive participation in community ceremonial life (Rogoff, 1990; Lave & Wenger, 1991). A transmission mechanism that is systematically disrupted by the out-migration of Warli women.

4.3 Ecological Degradation

The Sahyadri ecology, the primary source of the Warli tradition's visual vocabulary and ecological knowledge base, is under acute and accelerating pressure. As Gadgil and Guha (1992) demonstrate in their ecological history of India, the relationship between indigenous communities and their natural environments is not merely economic but profoundly cultural: the degradation of that environment destroys not only material resources but the cultural knowledge and meaning systems whose development required centuries of immersive human-ecological co-evolution. For the Warli tradition, this biocultural dimension of ecological degradation (Maffi, 2001) is direct and serious. The trees, animals, birds, and plants depicted in traditional murals are drawn from the community's lived ecological experience, carrying knowledge about specific species' roles in forest ecology, their seasonal behaviour, their utility in village life, and their cosmological significance accumulated over generations of intimate engagement with the Sahyadri landscape (Berkes, 1999).

As specific plant and animal species disappear from the community's everyday experience due to forest clearance, agricultural intensification, and industrial development in the Western Ghats foothills, the living ecological knowledge that animates their depiction in the visual vocabulary is progressively lost. Young artists who have not grown up in sustained engagement with the Sahyadri ecology cannot bring to their work the ecological specificity and knowledge-density that characterise the finest traditional Warli paintings. The ongoing implementation of the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act (2006) offers significant potential to address this ecological dimension by recognising community land and forest rights that protect the Warli community's access to the landscape that constitutes both the material and the visual-cultural substrate of their tradition (Sahu, 2009). However, implementation in Palghar district remains incomplete, contested, and insufficiently integrated with cultural heritage objectives.

4.4 Inadequate Institutional Support

Structurally speaking, Warli Art suffers from an institutional imbalance that favours commercial growth over cultural preservation. Maharashtra's Tribal Development Department, Tribal Research and Training Institute (TRTI) and Tribal Cooperative Marketing Development Federation (TRIFED) focus mainly on monetary concerns; they count their returns in Rupees earned, litres sold, and markets reached, not in richness of tradition carried forward, lessons taught to new artists, and paintings used for ritual purposes (Sawant, 2017; TRIFED, 2019). This institutional orientation creates systematic structural effects that inadvertently undermine cultural sustainability while improving commercial indicators.

Training programmes teach commercial production skills without addressing the cosmological and ecological knowledge that constitutes the cultural substance of the visual vocabulary. Marketing creates demand for generic standardised products rather than culturally rich ones. Documentation efforts archive visual forms without reference to the social and ritual functions. The existing Geographical Indication (GI) registration for Warli painting from Maharashtra provides only limited intellectual property protection, inadequate to prevent the large-scale unauthorised commercial appropriation of Warli visual motifs by non-community enterprises (WIPO, 2017). As Coombe (1998) demonstrates, this failure to protect indigenous communities' cultural intellectual property enables the systematic commercial extraction of cultural value without commensurate return to the originating community, simultaneously eroding cultural integrity and economic welfare.

The multiplicity of institutional actors involved in Warli art governance, state and national government departments, the Lalit Kala Akademi, the Crafts Council of India, numerous

NGOs, and a growing number of private commercial enterprises, creates a governance environment characterised by overlapping mandates, inconsistent approaches, and inadequate coordination (Crafts Council of India, 2018). The absence of a single authoritative governance body means that critical decisions about the tradition's commercial development, quality standards, and intellectual property protection are made on an ad hoc basis by individual institutions without reference to a coherent overall cultural sustainability strategy.

4.5 Commercial Homogenisation

The commercialisation of Warli art since the 1970s has generated a fifth category of challenge that operates by distorting the character of cultural production rather than directly eroding its material conditions. The powerful economic incentives created by commercial market demand drive a progressive simplification and standardisation of the visual vocabulary, producing what might be described as a “*commercial dialect*” of Warli art. A reduced, decontextualised version of the tradition’s visual language that retains formal recognisability while losing the iconographic density, ecological specificity, and cosmological depth that give the finest works of their cultural significance (Jain, 1998). This process creates a paradox of simultaneous commercial success and cultural impoverishment. A tradition that appears commercially healthy even as its intangible cultural capital is progressively liquidated.

The dynamics of commercial homogenisation in Warli art mirror processes documented in other indigenous art markets. Myers (2002), in his analysis of the Aboriginal acrylic painting movement in Australia, demonstrates how market forces systematically privilege formal qualities, such as visual simplicity, aesthetic accessibility, and decorative appeal. At the expense of the cultural complexity and iconographic density that give indigenous art its deepest cultural significance. Smith (2006) and Winter (2013) argue, in the broader context of heritage commodification, that the transformation of living cultural practice into a heritage product for consumption systematically privileges exchange value over use value, with consequences for cultural authenticity. That cannot be addressed within a purely commercial governance framework. The Madhubani painting tradition of Bihar provides a historically proximate Indian precedent. The rapid commercialisation in the 1970s and 1980s led to cultural impoverishment until community-based governance mechanisms were developed to maintain cultural standards (Jain, 1998).

5. PATHWAYS TO CULTURAL SUSTAINABILITY

The systemic analysis of the challenges presented in Section 4 implies the need for systemic responses. Figure 3 presents the community-centred cultural sustainability model developed from the study’s empirical and comparative analysis. The model places community governance, a formally constituted, democratically accountable Warli Cultural Heritage Council, at the centre of the sustainability architecture, with five interconnected intervention domains radiating outward. This architecture reflects the study’s central finding that community agency is the irreducible foundation of genuine cultural sustainability. The external institutions can support, resource, and enable community-based sustainability efforts, but they cannot substitute for the community's own active cultural agency (Battiste, 2000; Smith & Akagawa, 2009).

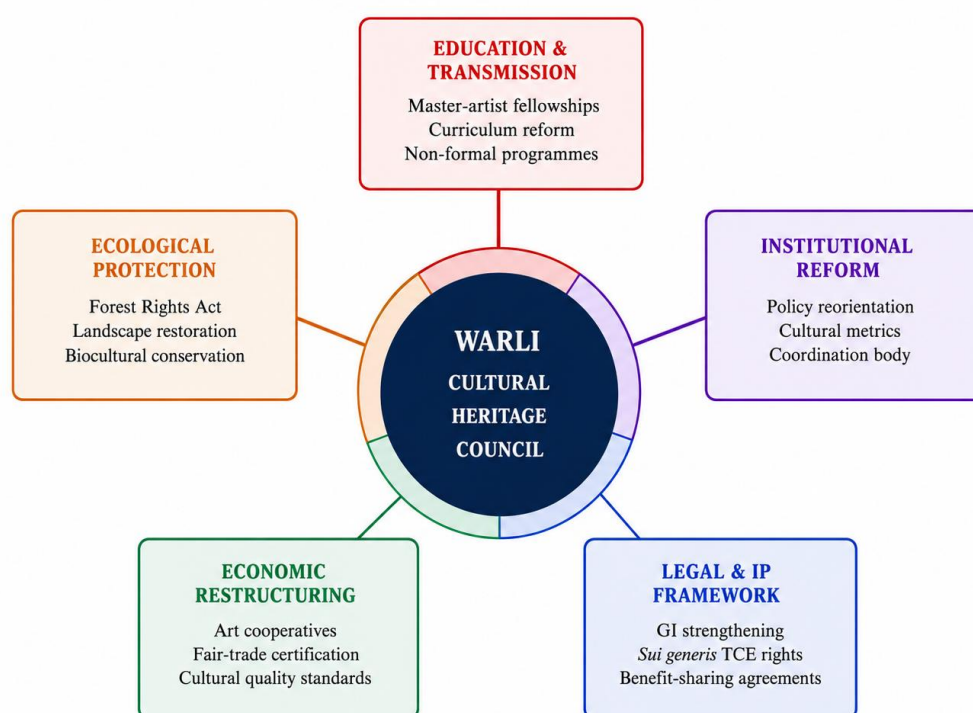


Figure 3. Community-Centred Cultural Sustainability Model for Warli Art. Source: Author's own synthesis from fieldwork and comparative analysis (2019–2024).

5.1 Education and Intergenerational Transmission

The intergenerational transmission of the tradition's intangible cultural capital is simultaneously the most critical dimension of cultural sustainability and the most urgently underfunded in the current institutional framework. Fieldwork evidence indicates that the generation of senior Warli practitioners who hold the most complete knowledge of the tradition's cosmological, ecological, and ritual dimensions is passing, and the mechanisms for transmitting this knowledge to younger practitioners are currently inadequate to the scale of the loss. The risk is not merely that specific visual conventions will be forgotten, but that the knowledge system. The cosmological framework, the ecological literacy, the ritual protocols, and the oral literary connections. That gives those visual conventions their cultural meaning, which will become irretrievable (UNESCO, 2003).

The most effective transmission programmes identified through the fieldwork and comparative analysis are those that combine master-artist mentorship with sustained cultural immersion, following what Lave and Wenger (1991) describe as "situated learning", learning that occurs through legitimate peripheral participation in actual communities of practice rather than through the decontextualised transmission of abstracted skills. Several NGO-run programmes in Palghar have developed approaches along these lines, creating mentorship arrangements in which senior Warli artists with deep cultural knowledge work with groups of younger artists over extended periods (six months to one year), combining technical instruction with cultural education, ceremonial participation, and ecological field engagement. This apprenticeship model parallels the guru-shishya transmission approach proven in classical performing arts preservation (Rogoff, 1990) and provides a template for a formal Master Artist Fellowship programme, a priority recommendation of this study, that would provide senior artists with economic support sufficient to dedicate substantial time to cultural transmission without the financial sacrifice this currently requires.

The integration of Warli art into the formal school curriculum requires substantive reform beyond the current provision of technical drawing instruction. The most effective formal education programmes, as identified through fieldwork evaluation, are those that combine technical instruction with study of the tradition's cosmological and ecological dimensions, exposure to actual ritual contexts, and engagement with the community's oral literary traditions. Teacher training in these cultural dimensions is a critical infrastructure investment that the existing framework has not adequately supported. As Agrawal (1995) argues more broadly in the context of indigenous knowledge systems, the integration of indigenous knowledge into formal educational frameworks requires epistemological as well as curricular reform: it requires recognition of the validity and depth of indigenous ways of knowing, not merely the inclusion of indigenous content within externally determined curricula.

5.2 Institutional Policy Reform

The most important policy reform identified by this study is the reorientation of institutional mandates and performance metrics from an exclusively commercial orientation towards a genuinely cultural-economic framework that measures success across both commercial and cultural dimensions. This reorientation requires government agencies to develop and deploy cultural quality indicators alongside commercial ones. The proportion of active artists possessing detailed knowledge of the tradition's iconographic programme and cosmological vocabulary. The number of traditional ritual murals created in actual ceremonial contexts. The ecological specificity of natural imagery in contemporary artworks. In addition, the vitality of the ceremonial occasions provides the tradition's cultural context (Throsby, 2010). Developing such indicators in genuine partnership with the Warli community, based on community-defined cultural values rather than externally imposed standards, is a research and policy priority of considerable urgency.

An effective intellectual property framework for Warli art requires coordinated action at multiple levels. At the national level, amendments to India's intellectual property legislation should establish *sui generis* protection for traditional cultural expressions (TCEs) and align with the frameworks developed by the WIPO Intergovernmental Committee (WIPO, 2017). At the state level, Maharashtra should develop protocols that require commercial users of Warli visual elements to obtain prior community consent, provide cultural attribution, and channel economic benefits to the Warli community through a democratically governed benefit-sharing fund. The Geographical Indication registration currently held by Warli painting from Maharashtra provides only the most limited protection against large-scale commercial appropriation; its strengthening and extension, in combination with *sui generis* TCE protection, is necessary for adequate intellectual property governance.

The establishment of a formal coordination mechanism, a Warli Art Development Council with representation from the major institutional actors, the Warli community, and independent cultural experts, is a structural governance reform that could significantly improve the coherence and effectiveness of the existing institutional framework without requiring the creation of entirely new institutions. Such a coordinating body could establish shared standards, align funding priorities, coordinate documentation efforts, and serve as a legitimate institutional interlocutor for the Warli community's cultural governance interests.

5.3 Community Cultural Governance and Documentation

The establishment of a formally recognised, democratically governed Warli Cultural Heritage Council, with adequate institutional resources and legal standing, is the most important structural recommendation of this study. Aboriginal artists' communities elsewhere provide comparative evidence that community-controlled governance works well: Papunya Tula

Artists Co-operative Ltd in Australia was set up in 1972 and has managed commercial participation in the market while maintaining integrity for over fifty years using governance structures that accommodate both economic well-being and the cultural protocols around art making (Myers, 2002). The Aboriginal arts corporation model internationally demonstrates the capacity for governance that is community-controlled and culturally and economically sustainable. A model that the Madhubani art cooperatives in Bihar are beginning to replicate in the Indian context (Jain, 1998).

Community-led documentation is a critical component of cultural governance that remains underdeveloped in the Warli context. Existing documentation of the tradition has been produced primarily by external researchers whose documentation choices reflect institutional and academic priorities rather than community concerns (Smith, 1999; Battiste, 2000; Harrison, 2013). A community-led documentation programme would give Warli community members, particularly the senior women who hold the most detailed knowledge of the tradition's ritual and symbolic dimensions, meaningful agency in determining what knowledge is documented, how it is framed, and how documentation is stored, accessed, and protected. Community-controlled digital archives, with appropriate access protocols that enable the community to protect sensitive or restricted knowledge from inappropriate external access, are a technically achievable and culturally essential element of this programme.

5.4 Cooperative Economic Models and Digital Strategy

The development of cooperative economic models, in which Warli artists collectively manage market relationships, establish cultural quality standards, and share economic benefits, addresses several of the structural market failures identified in Section 4. Drawing on precedents from the Aboriginal Arts cooperative movement (Myers, 2002) and the Madhubani Art Collective in Bihar (Jain, 1998), community-controlled Warli art cooperatives can reduce information asymmetry between artists and commercial buyers, create collective bargaining capacity against market intermediaries who currently exercise considerable price-setting power over individual artists, and provide governance structures for community-based cultural standards that resist the homogenising pressures of commercial demand. Fair-trade certification, developed in partnership with the cooperative movement, would create market demand for culturally grounded production by enabling culturally literate buyers to identify and purchase artworks that meet community-defined cultural quality standards.

Digital technology offers significant opportunities for cultural preservation and transmission, alongside serious risks of accelerated commercial appropriation. Community-controlled digital archives can provide diaspora community members with access to cultural resources that might otherwise be inaccessible, support cultural education in formal schooling, and enable networks of practice among geographically dispersed community members. High-resolution digital documentation of traditional ritual murals can preserve detailed visual records of physically fragile compositions subject to deterioration. Well-designed immersive digital experiences, virtual-reality reconstructions of ritual contexts, and interactive multimedia programmes explaining iconographic and cosmological significance can build cultural literacy among commercial audiences, thereby creating greater market demand for culturally complex and contextually grounded production (Mishra, 2018). On the other hand, the significant dangers posed by digital appropriation, how easily Warli imagery can be downloaded and used commercially without permission from the community, need to be met with active and robust digital governance plans. Developing this capability through training and institutional backing is a key priority for government and NGO collaborators.

6. DISCUSSION

6.1 Systemic Interconnection and Policy Sequencing

The most fundamental analytical finding of this study is the systemic interconnection of the five challenges identified in Section 4. These challenges are not independent problems amenable to independent solutions but dynamically interacting components of a systemic crisis: ritual context decline is exacerbated by demographic change, which is driven by economic marginalisation, which is deepened by inadequate institutional support, which in turn reflects the commercial homogenisation of the tradition's profile. Ecological degradation removes the visual-cultural substrate that sustains iconographic depth. Each challenge reinforces the others in a self-reinforcing dynamic (Folke, 2006). This systemic character has the critical policy implication that isolated, single-domain interventions will not achieve genuine cultural sustainability. What is required is coordinated, simultaneous action across social, ecological, institutional, educational, and economic dimensions, sustained over timescales significantly longer than the typical two- to three-year project cycles that characterise current institutional support programmes.

The study's findings also challenge the conventional sequencing of cultural and economic development interventions in tribal development policy. The conventional assumption that economic development should precede cultural investment is mistaken in the Warli context because the cultural and ecological conditions that sustain the tradition's vitality are being eroded faster than economic development can compensate for them. Commercial market development interventions that prioritise economic return over cultural sustainability are therefore self-undermining in the long run: they liquidate the intangible cultural capital that provides the market value of the tradition's products. A more effective sequencing would first establish the cultural and ecological foundations of sustainability, protecting community forest rights, supporting the ceremonial calendar, establishing community-based cultural governance, and building commercial market development on this sustainable cultural foundation. This sequencing reversal requires institutional actors to accept longer time horizons and lower initial commercial returns, but represents the only path to genuine and durable cultural sustainability (Throsby, 2010).

6.2 Comparative Evidence and Theoretical Implications

The comparative evidence from indigenous art sustainability initiatives in other contexts reinforces and extends the study's principal findings. The experience of the Papunya Tula Artists cooperative in Australia (Myers, 2002) demonstrates that community-controlled governance structures can successfully combine commercial viability with cultural integrity over extended periods, provided that adequate resources are available for cultural governance functions, the maintenance of cultural protocols, the oversight of iconographic appropriateness, and the documentation of cultural knowledge that do not generate commercial returns. The Madhubani Documentation Initiative in Bihar (Jain, 1998) provides a more proximate Indian precedent, demonstrating that the systematic recovery of cultural depth through community-led documentation is possible even after significant commercial homogenisation. The Dhrupad Sansthan model for classical music transmission (Rogoff, 1990) offers structural precedents for intensive master-disciple transmission programmes that create sustained learning communities capable of maintaining profound traditional knowledge across generations.

At a theoretical level, the study's findings contribute to the cultural sustainability literature in three ways. First, they demonstrate that the concept of cultural ecosystem services offers a productive governance framework for articulating the full range of values of a sustainable

indigenous art tradition, going beyond the limitations of purely commercial evaluation frameworks. Second, they reinforce and specify the UNESCO ICH Convention's community-centricity principle, demonstrating through empirical analysis that community agency is not merely procedurally desirable but functionally necessary: external institutional actors lack the cultural knowledge, community trust, and motivational foundation to maintain cultural depth in the absence of strong community governance. Third, they develop the proposition, grounded in the specific case of Warli art but with broader theoretical applicability, that the cultural sustainability of an indigenous visual tradition is inseparable from the social, ecological, and political conditions of the community that sustains it. A proposition that implies the radical insufficiency of narrowly cultural policy interventions in the absence of broader social justice.

6.3 Limitations

This study has several limitations that should be acknowledged. The fieldwork, while conducted over an extended multi-phase period, was necessarily selective in its coverage of a geographically and socially diverse community, and perspectives from the most geographically remote communities in northern Palghar district are underrepresented in the sample. The study's comparative dimension, drawing on evidence from Australian and Indian indigenous art sustainability initiatives, is necessarily a summary treatment of complex and contested literatures; the transferability of specific institutional models from other contexts to the Warli case requires careful contextual adaptation. The rapidly evolving commercial and digital contexts in which the tradition operates mean that some specific findings, particularly regarding digital appropriation risks and market dynamics, may quickly date, even as the structural analysis retains its relevance. Finally, the present study's policy recommendations, while evidence-based, require resource commitments and institutional transformations that exceed the capacity of any single institutional actor; their realisation depends on the kind of sustained political will and cross-institutional coordination that is difficult to achieve in practice.

7. CONCLUSION

In this paper, we present a holistic, theoretically grounded, and empirically rich account of the current threats to Warli art as a living indigenous visual culture tradition in Maharashtra. We argued that unless one can sustain the full cultural system of which this tradition is a part, not just the imagery, not just developing its market economics but the lived practices of ritual life, the intactness of the environmental matrix, the continuity of generational learning and the autonomy of community decision making that grounds this tradition,... such conservation efforts can only produce cultural sustainability in name only (Smith 2006, Harrison 2013, Throsby 2010).

Five principal conclusions emerge from the study. One, threats to Warli art's sustainability operate as a system, so no solution can focus on only one domain. Two, solutions must engage all domains, social, ecological, institutional, educational and economic, at once. Three, community self-determination and cultural autonomy lie at the root of sustainability. Institutions may partner with communities, but cannot dictate. Four, market development cannot be the first step in ensuring sustainability. It must come after the creation of cultural and ecological infrastructure. Five, Warli art's sustainability is inseparable from the Warli's struggle for social justice and self-determination with respect to their land, livelihood, governance, political voice and culture.

The senior generation, who possess the deepest knowledge of living traditions, is ageing out, and systems of passing their knowledge down to younger generations have proven ineffective

or insufficient: this is the most pressing practical implication of our research findings. Combatting this intergenerational transfer crisis with long-term Master Artist Fellowship programs, community-driven documentation, revitalisation of ceremonies, and protection of sacred landscapes must be the foremost focus in the coming years. What is at stake in this loss of intangible cultural heritage is truly unique: the millennia of cosmological knowledge, intricate ecological understanding, ceremonial protocol, and community histories encoded in the Warli painting tradition cannot be replaced once the living archives of the pre-commercial generation are lost. The ability and desire to act exists in the community; we must now bring to bear the political will and means to make it happen, urgently.

The sustainability of Warli art is ultimately a question not only of the future of a specific visual tradition but of the kind of society India aspires to be: whether it genuinely values the cultural sovereignty and self-determination of its tribal communities, recognises the irreplaceable cultural wealth contained in indigenous visual traditions, and is willing to invest the social, economic, and political resources necessary to ensure the long-term vitality of that wealth. The present study has sought to provide the analytical foundation and empirical evidence on which effective sustainability strategies can most credibly be built. The translation of this foundation into effective action requires the political will, the institutional capacity, and above all the active leadership of the Warli community itself.

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Table 1. <i>Summary of Challenges and Recommended Responses for Warli Art Cultural Sustainability</i>			
Challenge	Category	Recommended Responses	Lead Actors
Decline of ritual contexts	Cultural/Social	Ceremonial life support funding; eco-cultural tourism development that incentivises ritual maintenance; income support for ceremonial participation	State Govt. & Community Organisations
Demographic change/migration	Social/Economic	Rural livelihood diversification programmes; creation of cultural diaspora networks; digital platforms for dispersed community connection	State Govt. & NGOs
Ecological degradation	Ecological	Forest Rights Act full implementation; Sahyadri landscape restoration; protection of sacred groves; biocultural conservation integration	Forest Dept., Revenue Dept. & Community
Inadequate institutional support	Institutional	Policy mandate reorientation; development of cultural quality metrics; establishment	State & National Govt.

		of Warli Art Development Council; funding reallocation	
Commercial homogenisation	Economic/Cultural	Community-controlled cooperatives; fair-trade certification; community-based cultural quality standards; market literacy development	Community Organisations & NGOs
IP appropriation	Legal/Economic	GI registration strengthening; sui generis TCE protection legislation; community consent protocols; benefit-sharing agreements	National Govt. & WIPO
Intergenerational knowledge loss	Cultural/Educational	Master Artist Fellowship programme; community-led documentation centre; curriculum reform with cultural immersion component	State Govt. & Community
Gender marginalisation	Social/Cultural	Women's cultural leadership programmes; gendered benefit-sharing mechanisms; recognition of women's cultural authority in governance	NGOs & Community Organisations
<i>Note. Source: Author's own synthesis from fieldwork and comparative analysis.</i>			

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