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# Cultural Ecosystem Services and the Role of Local Knowledge in Shaping Vietnam's Coastal Cultural Industries: Insights from Red River Delta Communities

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## ABSTRACT

This study examines the role of Cultural Ecosystem Services and local knowledge in shaping coastal cultural industries in Vietnam's Red River Delta. Employing a mixed-methods design, comprising Participatory Ecosystem Framework surveys and stakeholder interviews conducted across three coastal provinces, the research demonstrates how Cultural Ecosystem Services - including aesthetic appreciation, spiritual values, and ecological knowledge - are deeply embedded in community life and sustain diverse cultural practices. The findings indicate that local knowledge is central to climate adaptation, fisheries management, and heritage conservation, despite increasing pressures from environmental degradation, out-migration, and infrastructure constraints. The study identifies both resilience and vulnerability in Cultural Ecosystem Services dynamics and proposes an integrative framework that bridges indigenous knowledge, cultural policy, and ecosystem-based planning. Policy implications call for the incorporation of Cultural Ecosystem Services into national development strategies, investment in human capital and digital infrastructure, and sustained support for community-led cultural enterprises. By centering Cultural Ecosystem Services and local knowledge, this research advances a pathway toward culturally grounded and ecologically resilient development in Vietnam's coastal regions.

**Keywords:** Cultural Ecosystem Services, Local Knowledge, Coastal Cultural Industries, Red River Delta, Vietnam, Climate Adaptation, Participatory Framework

## INTRODUCTION

In an era marked by accelerating urbanization, climate change, and cultural homogenization driven by globalization, the sustainable development of cultural industries has emerged as a strategic priority for countries aiming to preserve identity while fostering innovation-led growth. In Vietnam, cultural industries - defined by Decision No. 1755 (2016) as sectors engaged in the creation, production, and commercialization of cultural goods and services that rely on creativity and intellectual property—are increasingly recognized for their potential to promote inclusive development and strengthen cultural sovereignty. However, national policies and planning frameworks often overlook the cultural ecosystem services (CES) and local knowledge systems that underpin much of Vietnam's intangible heritage and community resilience, especially in ecologically sensitive and culturally rich coastal regions such as the Red River Delta (RRD).

The RRD, one of Vietnam's most densely populated and agriculturally productive regions, is not only a center for economic and political activity but also a repository of diverse cultural landscapes. These include village festivals, spiritual sites, traditional crafts, and livelihoods closely tied to natural resources such as mangroves, estuaries, and marine ecosystems. CES - non-material benefits derived from ecosystems including aesthetic

enjoyment, cultural identity, spiritual enrichment, and sense of place - play a crucial yet underexplored role in sustaining these coastal communities (Millennium Ecosystem Assessment (MEA, 2005; Chan et al., 2012). In Viet Nam, despite their significance, CES remain largely marginalized in coastal planning and development strategies, which tend to prioritize infrastructure expansion, tourism growth, and industrialization.

Recent policy developments, such as Decision No. 368/QD-TTg (2024) by the Prime Minister of Vietnam, signal a gradual shift toward more integrated models of development. This decision emphasizes a holistic approach that encompasses economic growth, social equity, and environmental sustainability, while explicitly acknowledging the importance of safeguarding cultural and natural heritage in areas such as Ha Long Bay, Cat Ba, and Do Son - key coastal destinations where cultural landscapes are deeply intertwined with ecosystem functions. It also creates institutional and regulatory space for operationalizing CES in alignment with sustainable tourism, marine spatial planning, and cultural revitalization. However, it still lacks concrete mechanisms to systematically incorporate community knowledge, local values, and CES considerations into the design and governance of cultural industries at the grassroots level.

In particular, major Vietnamese cultural industry development policies - such as the 2016 Decision No. 1755/QD-TTg, issued by the Prime Minister, which approves the Strategy for Developing Vietnam's Cultural Industries through 2020 with a vision to 2030, and the 2024 Directive No. 30/CT-TTg, also issued by the Prime Minister, on the development of Vietnam's cultural industries - do not reference the role of CES, nor do they emphasize the imperative of raising community awareness to support the sustainable development of cultural industries in general and specific sectors such as cultural tourism, performing arts and traditional handicrafts.

Globally, the integration of CES into sustainable development frameworks has gained momentum since the (MEA, 2005), which underscored the interdependence between ecosystems and human well-being. Scholars such as Daniel et al. (2012) have emphasized the role of cultural services in shaping social identity, mental health, and community resilience. At the same time, research on local and traditional knowledge - particularly the concept of traditional ecological knowledge (TEK) - has illuminated how Indigenous and local communities manage ecosystems through culturally embedded practices (Berkes et al., 2020). In Vietnam, various studies have explored dimensions of cultural heritage, community-based tourism, and local adaptation to environmental change. For example, community-based tourism has been documented as fostering social capital and cultural continuity, while Tran et al. (2023) analyzed the relationship between ecological conservation and the preservation of ritual landscapes in coastal zones. Phan Phuong Anh, (2024) examined the transmission of intangible heritage within fishing communities. Nonetheless, an integrative framework that brings together CES, local knowledge systems, and Vietnam's cultural industries policy remains underdeveloped. This presents a critical gap in both theory and practice, particularly in Vietnam's coastal contexts where socio-ecological interactions are deeply rooted in cultural identity.

This study addresses this gap by proposing a conceptual model that integrates four key perspectives: CES, Local Knowledge Systems, Cultural Industries, and Participatory Governance. Drawing on the Millennium Ecosystem Assessment (2005), CES are defined as the non-material benefits that people obtain from nature, including aesthetic inspiration, spiritual meaning, recreational experiences, and knowledge systems. Local knowledge is conceptualized through the lens of traditional ecological knowledge (TEK), characterized by experiential, adaptive, and context-specific understandings of the environment (Berkes et al., 2020). The cultural industries framework draws on Potts & Cunningham (2008) economic-institutional model and classification of creative sectors, emphasizing symbolic value and cultural expression. Finally, participatory governance and social capital theories Putnam (2000) offer a lens to explore how grassroots engagement and collective memory shape the formation of resilient cultural economies.

The empirical foundation of this paper draws on qualitative fieldwork using the Participatory Exercise Framework conducted in selected coastal communities of the RRD. This approach elicited local perceptions of cultural landscapes, ecosystem values, and development aspirations, providing a basis for assessing how CES and local knowledge can inform policies for culturally grounded, ecologically sensitive, and economically viable cultural industry development.

The theoretical model proposed in this study (see *Figure 1*) illustrates the interlinkages among CES, local knowledge, and cultural industries, how these elements coalesce to support sustainable development. By centering community perspectives and recognizing CES as core assets, the model offers a new approach to cultural industry policy in Vietnam's coastal zones - one that is inclusive, place-based, and ecologically conscious.

 

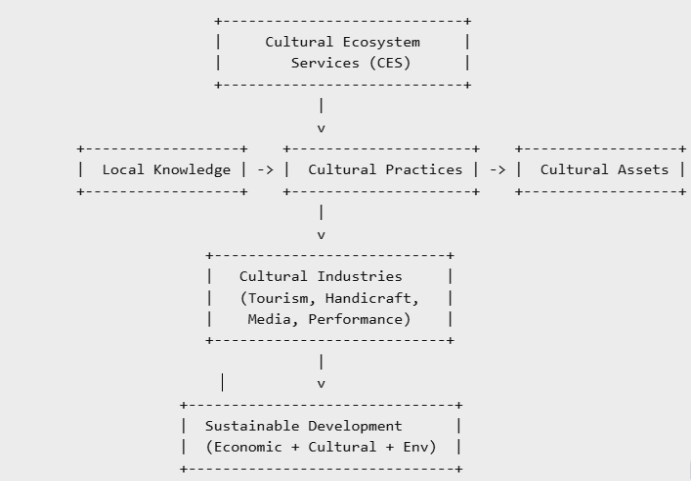


**Figure 1.** The interlinkages among CES, local knowledge, and cultural industries (Source: Author's elaboration based on MEA (2005); Berkes et al. (2020); Potts & Cunningham (2008) and Putnam (2000)

## MATERIAL AND METHODS

### Study Area

This research was conducted across three provinces of the RRD in Northern Vietnam: Thai Binh, Nam Dinh, and Ninh Binh. As of July 1, 2025, these administrative units have been merged into a single province - Ninh Binh - as part of national territorial restructuring (*Figure 2*).

The sites selected for this study were prioritized over other coastal regions of Vietnam because they exemplify the country's coastal agro-cultural systems - characterized by high ecological diversity and rich cultural heritage, encompassing traditional festivals, coastal livelihoods, and spiritual landscapes. These areas have experienced considerable socio - ecological transformation due to climate change, urbanization, and development policies, making them idea for investigating the interrelationships between CES and local knowledge systems.

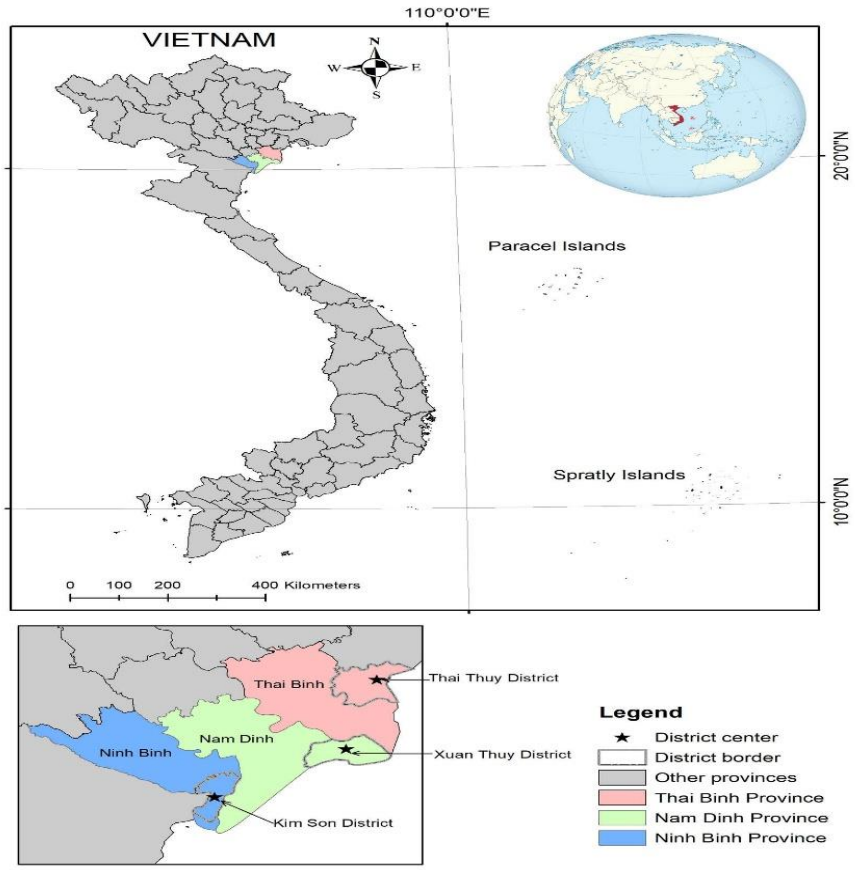


**Figure 2.** Study Sites

 

**Research Design**

This study employs a qualitative case study approach, using the Pluralistic Evaluation Framework (PEF) proposed by Gunton et al. (2022) as its guiding framework. The PEF is a participatory methodology designed to elicit diverse stakeholder perceptions of value and meaning in relation to environmental and cultural systems. It is particularly suited for contexts where development interventions intersect with multiple value domains—biotic, aesthetic, economic, spiritual, and symbolic. The PEF consists of three interlinked stages:

- ***Stakeholder Identification:*** Identifying functional stakeholder groups and relevant ecosystem-cultural processes.
- ***Value Elicitation:*** Engaging stakeholders to express value judgments and perceptions regarding cultural landscapes and environmental change.
- ***Synthesis and Appraisal:*** Interpreting the data to assess community visions, priorities, and implications for cultural industry development.

The methodology allows for a grounded, multi-dimensional understanding of local meanings and how these can inform inclusive planning processes.

**Data Collection: Participatory Exercise Framework**

Fieldwork was conducted between April and June 2025 with six community groups (male and female separately) across the three provinces. Each group participated in four participatory exercises designed to elicit insights into CES, identity, environmental change, and future visions of development. Exercises were conducted in the local language by trained facilitators using visual tools (A0 sheets, sticky notes, and relational diagrams), and all sessions were recorded and transcribed for thematic analysis.

***Exercise 1: Personal Relationship with the Delta Landscape:*** Participants were asked to reflect on their personal connection to the Red River Delta over time - childhood, present, and future - focusing on how the delta shaped their identity, culture, and well-being. Using a visual timeline and color-coded notes, they represented shifts in these relationships due to both environmental changes (e.g., salinization, erosion) and socio-economic transformations (e.g., migration, tourism development).

***Exercise 2: Valuing the Delta - Cultural Ecosystem Services and Relational Perspectives:*** This two-part exercise explored different modes of valuing the delta: Part 1 involved mapping perceptions across nine CES dimensions - aesthetic, symbolic, ethical, formative, analytic, sensory, jural, biotic, and economic - adopted from the MEA (2005) and further refined by Chan et al. (2012). Participants discussed how each aspect contributes to their lives and livelihoods. Part 2 used the Nature Futures Framework (NFF) triangle of IPBES (2023) to elicit relational values. Participants positioned themselves within the triangle, choosing between "nature for nature," "nature for society," or "nature as culture," using colored dots to represent both current and projected future relationships.

***Exercise 3: Lived Experience of Environmental and Developmental Change:*** Using a matrix of twelve societal dimensions - health care, education, livelihoods, land and ownership, infrastructure, information technology, migration, natural disasters, saline intrusion, water resources, food culture, and electricity - participants discussed perceived changes over time and adaptive responses. Each group used colored markers (green = strong change, yellow = moderate, red = minimal) to score and prioritize areas of concern and adaptation needs.

***Exercise 4: Envisioning a Sustainable and Flourishing Delta:*** This scenario-based discussion focused on co-creating positive futures for the delta under three themes:

- ***Technology and Infrastructure:*** Imagining a modernized delta with improved connectivity and built environments.
- ***Environment and Climate:*** Envisioning a greener delta emphasizing ecosystem health, climate resilience, and biodiversity.
- ***Livelihoods and Community:*** Focusing on community resilience, traditional livelihoods, and social cohesion.

These discussions aimed to identify locally relevant indicators of sustainability and aspirations for a culturally vibrant delta.

**Data Analysis**

All field data—visual diagrams, transcripts, and field notes-were subjected to thematic coding using a grounded theory approach (Charmaz, 2006). Codes were derived both inductively from participant narratives and deductively from the CES framework. Data were triangulated across gender groups and provinces to identify shared patterns and localized distinctions.

The coded data were organized according to the nine CES domains and mapped against broader policy themes relevant to cultural industry development (e.g., tourism, heritage preservation, creative production). This

 

interpretive process facilitated an understanding of how lived experiences, value systems, and relational perspectives intersect with development trajectories.

### Analytical Tools

Quantitative representations of qualitative responses (e.g., dot plots, CES domain frequency) were processed using the R statistical computing environment (version 4.4.0) (R Core Team, 2024). Data visualization and aggregation were conducted using the following packages: ggplot2 for data visualization (Wickham, 2016); dplyr for data manipulation (Wickham & François, 2014)

## RESULTS

### Temporal Perceptions of Key Criteria Related to CES and Local Knowledge

A total of 180 responses were collected for each time period (Past, Present, Future), covering 12 criteria evaluated across six community groups (men and women in Thai Binh, Nam Dinh, and Ninh Binh). The stacked bar charts (*Figure 2 and Figure 3*) reveal evolving perceptions over time, reflecting the shifting significance of environmental, social, and infrastructural dimensions that underpin CES.

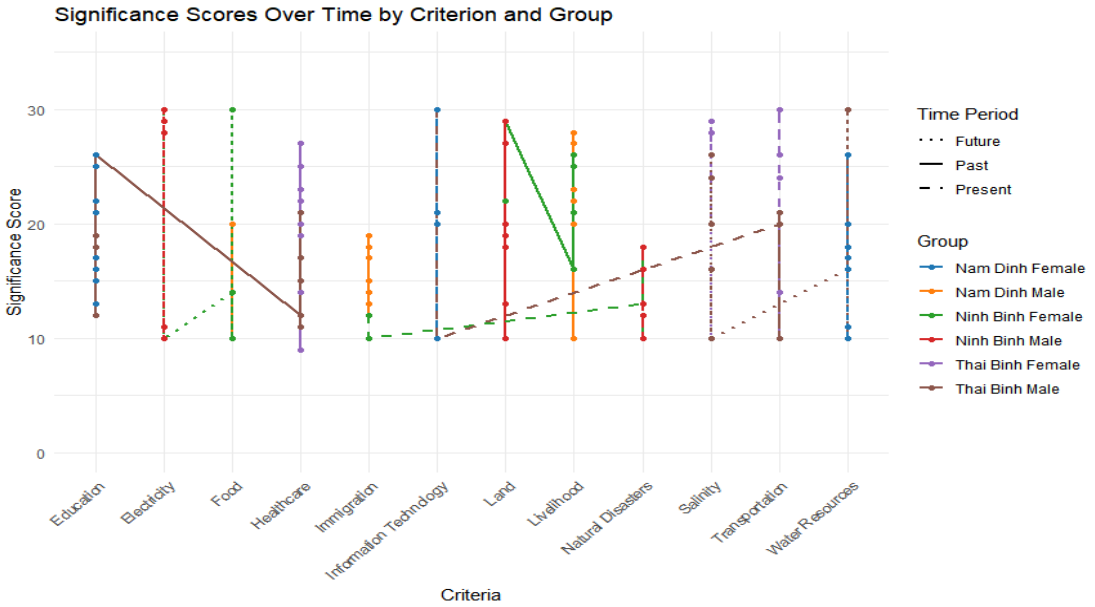


**Figure 3.** Significance Scores Over Time by Criterion and Group

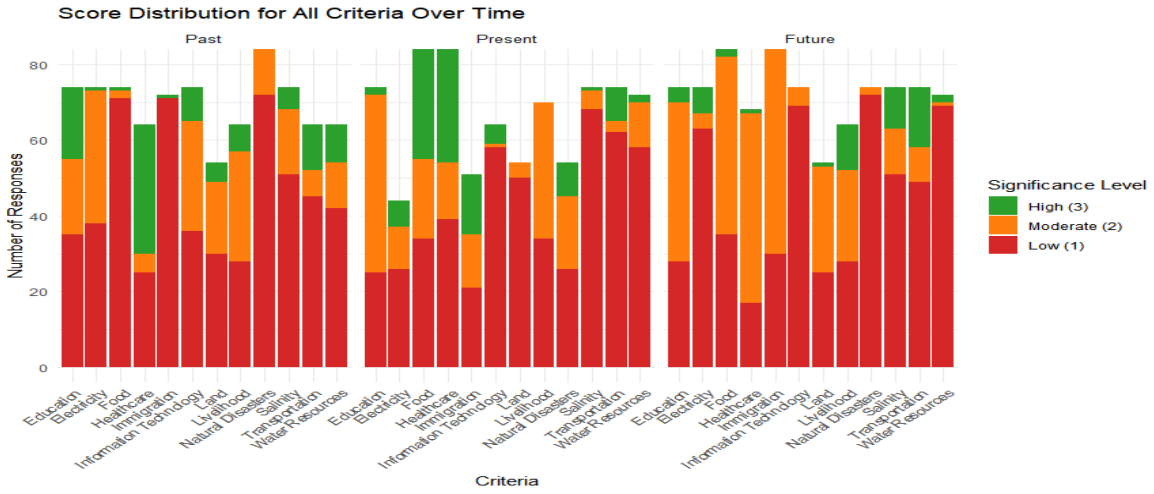


**Figure 4.** Score Distribution for All Criteria Over Time

**Past Period (Blue, Solid Bars):**

- ***High Perceptions:*** Education (30 High) and Salinity (12 High) were emphasized, highlighting the traditional value placed on formal knowledge and water management—core elements of heritage-based resilience.

 

- ***Moderate Perceptions:*** Livelihood (50 Moderate) and Natural Disasters (36 Moderate) suggest relative socio-ecological stability in the past, maintained through localized practices.
- ***Low Perceptions:*** Food (50 Low) and Information Technology (28 Low) reflect self-sufficiency and minimal reliance on digital tools.

**Present Period (Orange, Dashed Bars):**

- ***High Perceptions:*** Natural Disasters (49 High) and Immigration (30 High) dominate, signaling acute awareness of environmental disruptions and social flux, partly due to recent typhoons and out-migration.
- ***Moderate Perceptions:*** Salinity (54 Moderate) and Water Resources (19 Moderate) indicate ongoing local efforts to manage environmental risks.
- ***Low Perceptions:*** Electricity (72 Low) and Information Technology (69 Low) reveal infrastructure gaps, challenging cultural industry development.

**Future Period (Green, Dotted Bars):**

- ***High Perceptions:*** Natural Disasters (29 High) and Immigration (30 High) remain concerns, though slightly lower, implying cautious optimism or expected adaptation.
- ***Moderate Perceptions:*** Salinity (47 Moderate) and Food (35 Moderate) suggest stabilized perceptions.
- ***Low Perceptions:*** Education (68 Low), Electricity (63 Low), and IT (69 Low) reflect anticipated vulnerability in human capital and technological readiness

  The temporal comparison indicates a shift from traditional knowledge reliance (Past), through climate-responsive adaptation (Present), to a more uncertain, fragmented outlook (Future), particularly concerning infrastructure and education - key enablers of cultural industry development.

**Distribution of CES Themes Across Provinces and Genders**

The analysis of PEF data shows how CES themes vary across location and gender *(Table 1)*. Six dominant CES categories were identified across the 12 PEF aspects (e.g., Ultimate, Aesthetic, Symbolic):

**Table 1.** Summarizing the Frequency of CES Themes by Province and Gender

| CES Theme | Thai Binh (Men) | Thai Binh (Women) | Nam Dinh (Men) | Nam Dinh (Women) | Ninh Binh (Men) | Ninh Binh (Women) | Total |
|---|---|---|---|---|---|---|---|
| Spiritual Connection | 2 | 2 | 1 | 1 | 2 | 1 | 9 |
| Aesthetic Appreciation | 2 | 2 | 1 | 1 | 2 | 1 | 9 |
| Cultural Heritage | 2 | 1 | 2 | 1 | 1 | 1 | 8 |
| Social Cohesion | 2 | 2 | 2 | 2 | 2 | 1 | 11 |
| Environmental Knowledge | 2 | 2 | 2 | 1 | 2 | 1 | 10 |
| Sensory Experiences | 2 | 2 | 2 | 1 | 2 | 1 | 10 |

Social cohesion and environmental knowledge are the most frequently mentioned CES dimensions, especially by both men and women in Thai Binh and Nam Dinh, highlighting the collective nature of ecosystem interactions and place-based learning traditions.

**Environmental Challenges**

Environmental degradation was reported by all six groups, with Thai Binh participants expressing the highest concern (6 mentions). Reported issues included: *Pollution*: Waste burning, polluted water from aquaculture, and factory discharge; *Biodiversity Loss*: Decline in birds and seafood (e.g., fewer crabs and fish); *Salinity Changes*: Linked to mangrove degradation and seawater intrusion.

These concerns were particularly prominent in discussions about the sustainability of cultural industries, such as ecotourism, traditional fisheries, and seafood processing.

**Migration and Social Disruption**

Migration emerged as a key socio-cultural theme influencing CES and local economies:

- ***Thai Binh (Men):*** Migration to the South and abroad (Japan and Korea).
- ***Nam Dinh (Men):*** Estimated 30% of labor force migrates seasonally.
- ***Ninh Binh:*** Migration from and within province observed in both genders.

 

Migration disrupts community cohesion and intergenerational knowledge transfer, weakening cultural industries rooted in place-specific traditions.

**Qualitative Insights on CES and Local Knowledge**

Drawing from narratives across groups, five core domains illustrate the embeddedness of CES in local life:

1. ***Aesthetic and Symbolic Values:*** Communities attribute high aesthetic and cultural value to mangroves, dike roads, and coastal landscapes. Symbols like dried onions, storks, and seasonal rhythms (tides, moon phases) serve as branding elements for cultural industries like ecotourism, folk arts, and gastronomy.
2. ***Environmental Knowledge and Observation:*** Traditional knowledge of environmental cues - such as crab behavior, dragonflies before storms, or the moon's role in fishing - is actively used in aquaculture and farming decisions. Women's groups in Ninh Binh integrate salinity observations into shrimp breeding, showcasing climate-adaptive strategies.
3. ***Ethical and Jural Norms:*** Strong community norms, e.g., sharing harvests, coordinating storm preparation, environmental protection - support CES maintenance. This includes moral obligations to protect mangroves and resist harmful waste practices, as reported by Thai Binh women.
4. ***Economic Dimensions of CES:*** Place-based livelihoods (fishing, rice, clam farming, handicrafts) directly link ecosystems to cultural industries. Ninh Binh shows signs of knowledge modernization (e.g., hi-tech aquaculture), while Nam Dinh maintains 'ao dai' tailoring villages rooted in local tradition.
5. ***Sensory and Biotic Experiences:*** Communities reported both loss (e.g., fewer birds, factory smells) and preservation (fresh air, sea breeze) of sensory landscapes. These biotic and sensory experiences are potential assets for creative and cultural industries (e.g., scent-based tourism, traditional foods, eco-films).

The findings highlight how RRD communities derive a wide range of CES - from spiritual connection and aesthetic appreciation to local knowledge systems that support climate resilience and cultural identity. However, these services face threats from environmental degradation, out-migration, and declining infrastructure. The interplay between tradition and modernity, especially the use of local knowledge in adapting to change, is central to sustaining coastal cultural industries in the region.

## DISCUSSIONS

This study reveals the critical role of local knowledge and CES in shaping the development trajectory of coastal cultural industries in the RRD, Vietnam. By integrating PEF data and community-based perceptions, the findings underscore both current adaptive strengths and emerging vulnerabilities. This section discusses key themes - CES implications, the role of local knowledge, cultural industry dynamics, and policy contexts—situated them within broader academic and policy discourses.

**CES Implications:** The stacked bar chart illustrating the evolution of 12 CES-related criteria highlights significant shifts in community priorities and perceptions. The decline in Healthcare (45 Low) and Livelihood (49 Low) during the Present period points to weakened social cohesion - an essential CES - consistent with Van Der Geest et al. (2014), who observed similar patterns in the Mekong Delta due to migration. The elevated Immigration score (30 High) corroborates this trend, further supports Tran et al. (2023) assertion that out-migration disrupts community networks and erodes cultural ties. In contrast, the resurgence of Food as a valued CES (26 High Present; 35 Moderate Future) aligns with the Millennium Ecosystem Assessment (2005), emphasizing the aesthetic and sensory dimensions of local food systems. This also mirrors Hue et al. (2022)'s findings on the spiritual and cultural values of coastal food resources in Xuan Thuy National Park. However, future stabilization at moderate levels suggests environmental vulnerability, particularly in light of declining fish stocks linked to salinity intrusion (Tran et al., 2021).

**Role of Local Knowledge in Climate Adaptation:** High Present scores for Natural Disasters (49 High) and Salinity (54 Moderate) underscore the enduring relevance of local knowledge in climate adaptation. PEF data record community practices such as tidal and salinity monitoring (Tran et al., 2021), supporting Berkes et al. (2020)'s argument on the centrality of indigenous knowledge to resilience. Similarly, Bwambale et al. (2018) found that Rwenzori communities effectively utilized traditional flood mitigation techniques. Hue (2022) also demonstrated how communities employed traditional ecological knowledge to manage changing hydrological regimes in biosphere reserves. This issue is further affirmed in a study by Thanh et al. (2025), which examines the role of local communities and indigenous knowledge in the development of Vietnam's cultural industry.

Nevertheless, the anticipated decline in Salinity (High Future = 2) and Natural Disasters (High Future = 29) suggests that communities may perceived limits of traditional adaptation under accelerating climate threats-a concern also voiced by the IPCC (2021).

 

**Challenges and Opportunities in Coastal Cultural Industries:** The low Future scores for Infrastructure (Electricity = 63 Low) and Information Technology (69 Low) highlight structural barriers to modernizing cultural industries such as eco-tourism, digital heritage platforms, and online crafts markets. This finding diverges from Rena & Mbukanma (2021), who reported success in infrastructure-driven tourism development in central Vietnam, suggesting regional disparities. Runeckles et al. (2023) similarly noted that the impact of extractive industries and infrastructure conflicts have shaped cultural landscapes and local resistance in the Red River region.

Meanwhile, sustained Food (35 Moderate) and Water Resources (38 Low) scores indicate that fisheries and aquaculture remain cultural - economic mainstays, consistent with Betcherman & Marschke (2016). Hue et al. (2021) highlighted similar livelihood patterns among wetland communities in Ben Tre, where traditional knowledge supports fisheries and aquaculture. However, declining scores in Livelihood (51 Low Future) and Land (42 Low Future) suggest an erosion of traditional practices, a trend consistent with World Bank Group (2022) regarding land loss due to sea-level rise.

**Policy Integration and Recommendations:** This study's findings support the integration of CES mapping and local ecological knowledge into national and provincial cultural industry policies. Decision No. 368/QĐ-TTg (2024) identifies coastal zones such as Tra Co, Đo Son, Cat Ba for tourism and aquaculture development, aligning with community narratives from Thai Binh and Nam Dinh that emphasize the aesthetic and symbolic value of mangrove forests and marine spaces. The importance of policy recognition for CES is also supported by Hue (2022), who applied the DPSIR framework to ecosystem service planning in wetland reserves**.** Similarly, this research recommends that CES and local knowledge be explicitly integrated into the formulation of the forthcoming '*Strategy for the Development of Vietnam's Cultural Industries to 2030, with a Vision toward 2045*.' This strategic policy - mandated by the Prime Minister - has been assigned to the Ministry of Culture, Sports and Tourism for prompt development.

Investments should prioritize:

- ***Capacity Building:*** Environmental education and heritage conservation should be embedded in training programs for artisans, eco-tourism operators, and entrepreneurs.
- ***Innovative Enterprises:*** Support for community-led initiatives combining biodiversity knowledge with cultural industries, e.g., eco-cultural tourism, eco-inspired design, folklore storytelling.
- ***Monitoring Frameworks:*** Develop indicators linking CES health to cultural industry outputs, with community-based monitoring.

**Infrastructure and Knowledge-Based Development**

National development plans emphasize modernizing irrigation, port systems, and digital infrastructure (e.g., 5G, IoT) to support economic growth (Decision No.368/QD-TTg, 2024). These initiatives must incorporate cultural sustainability principles. For instance, ports in Thai Binh and Nam Dinh could integrate features that support traditional fishing practices. Local knowledge on tide levels and salinity - applied by Thai Binh women in shrimp farming—should inform irrigation planning, aligning with recommendations from the Vision (2021). Hue et al. (2021) also warned that polluted coastal infrastructure (e.g., fishmeal factories) can negatively affect cultural perceptions and resource use in clam-producing communities.

**Environmental Challenges and CES Sustainability**

The study identifies a convergence between environmental degradation (e.g., biodiversity loss, salinization) and CES decline. Storm shelters and fishing ports (e.g., Diem Dien, Hai Thinh), if informed by local experience, could enhance adaptive capacity. Planting casuarina trees for wind protection, as practiced in Thai Binh, exemplifies this synergy. Aligning traditional ecological knowledge with climate adaptation strategies strengthens CES and underpins cultural industries. This is consistent with findings from Hue et al.(2022), who emphasized that spiritual and symbolic connections to landscapes are central to maintaining ecosystem service sustainability.

**Socio-Economic Development and Cultural Cohesion**

With high population density (1,087 people/km$^2$) and urbanization pressures (37.1%), retaining human capital is critical. According to the PEF data from this research, labor migration (to countries such as Japan and Korea) undermines CES like community cohesion and intergenerational knowledge transfer. Hue et al. (2025) observed that these migration patterns often trigger everyday resistance to environmental change, highlighting the importance of cultural rootedness. Policy targets such as achieving 90% rural modernization by 2030 can be leveraged to strengthen education, rural livelihoods, and infrastructure, thereby reducing migration pressures and preserving local CES.

 

**Mobilizing Resources and Preserving Cultural Heritage**

Vietnam's development vision identifies the RRD as both a cultural and economic center, with Hanoi as the cultural capital and the coast as a tourism and aquaculture hub. Some surveys such as PEF data confirm that cultural assets - like 'ao dai' – long dress tailoring in Nam Dinh and mangrove forests - serve dual roles in heritage preservation and economic functions. Therefore, resource mobilization should prioritize cultural safeguarding, e.g., protecting craft villages and promoting ecosystem-based tourism. Similarly Runeckles et al. (2023) noted that communities' resistance to external exploitation (e.g., sand mining) is deeply rooted in symbolic meanings attached to local landscapes, further reinforcing the need for culturally sensitive development.

RRD communities are actively leveraging local knowledge to sustain CES and adapt to immediate environmental and socio-economic challenges. However, potential future threats - particularly those related to infrastructure gaps and cultural erosion - demand targeted policy responses. A hybrid development model that integrates indigenous knowledge with modern infrastructure and planning is essential to for sustainable cultural industry growth in coastal Vietnam.

This approach not only aligns with UNESCO's goals on intangible cultural heritage but also supports Vietnam's target of increasing cultural industry contributions to 7% of GDP by 2030 (Vietnam Government, 2016).

## CONCLUSIONS

This study has demonstrated that CES and local knowledge are foundational to sustaining and transforming Vietnam's coastal cultural industries. Drawing on rich empirical data from communities in the RRD, the findings reveal that CES, especially those related to spiritual connection, aesthetic appreciation, and environmental knowledge, are not only valued but actively maintained and adapted by local people. These services underpin place-based identity, climate resilience, and cultural continuity, forming the socio-ecological backbone of coastal livelihoods and creative expressions.

However, CES and local knowledge systems are increasingly vulnerable to environmental degradation, migration, and the erosion of intergenerational transmission. Challenges such as salinity intrusion, loss of biodiversity, and inadequate infrastructure threaten both the material and symbolic foundations of cultural industries. While traditional knowledge continues to inform adaptive practices, such as shrimp farming, storm response, and ecological rituals, its future viability hinges on formal recognition, policy support, and integration with modern development frameworks.

The study proposes a hybrid development model that merges community-based knowledge, cultural ecosystem values, and cultural industry policies into a cohesive framework for sustainable growth. This model emphasizes participatory governance, place-based planning, and CES mapping as tools for enhancing cultural vitality, economic opportunity, and ecological stewardship.

To move forward, national and local authorities must embed CES and local knowledge into cultural industry policies, invest in capacity building and digital infrastructure, and establish indicators to monitor the cultural-ecological nexus. Vietnam's strategic ambition for cultural industries to contribute 7% of GDP by 2030, as stipulated in Decision No. 1755 (2016) and Directive No. 30 (2024), will depend not only on innovation and investment but also on safeguarding intangible heritage rooted in ecological landscapes. The RRD stands as a living laboratory - where tradition and modernity can coalesce to foster a culturally rich, environmentally resilient, and economically inclusive future. Significantly, the integration of CES and local knowledge ought to be formally institutionalized within both national and subnational policy frameworks governing the development of Vietnam's cultural industries, thereby ensuring timely and effective implementation.

## LIMITATIONS AND FUTURE RESEARCH

This study has several limitations that suggest opportunities for future research. Firstly, the survey was conducted in three coastal provinces of the RRD, which may not fully capture the heterogeneity of CES perceptions and local knowledge systems across Vietnam's diverse coastal regions. Broader comparative studies, including central and southern coastal provinces, could offer a more comprehensive understanding of regional variations in CES dynamics. Secondly, while PEF provided rich qualitative and semi-quantitative insights, it is important to recognize that relying on community perceptions introduces subjectivity and susceptibility to temporal influences, such as recent climate events or policy changes. Future research should consider longitudinal study designs or triangulate with ecological and economic datasets to assess CES trends over time more robustly. Thirdly, the conceptual integration of CES into Vietnam's policy frameworks remains inadequate. Further

 

interdisciplinary research is needed to design actionable tools, such as CES-based indicators or digital participatory platforms for embedding cultural and ecological values within policy making processes. Moreover, future studies should explore the role of youth and diaspora communities in sustaining CES and cultural heritage under conditions of migration and globalization.

Addressing these gaps would enable future research to advance both the theoretical foundation and practical applications of CES, thereby reinforcing the sustainable development of coastal cultural industries.

## REFERENCES


368/QD-TTg. (2024). *Decision No. 368/QD-TTg dated May 4, 2024, approving the Master Plan for the Red River Delta Region for the 2021–2030 period, with a vision to 2050, issued by the Prime Minister.*

30/CT-TTg. (2024). *Directive No. 30/CT-TTg dated August 29, 2024 , Directive on the Development of Cultural Industries in Vietnam, issued by the Prime Minister.*

Betcherman, G., & Marschke, M. (2016). Coastal livelihoods in transition: How are Vietnamese households responding to changes in the fisheries and in the economy? *Journal of Rural Studies*, *45*, 24–33. https://doi.org/10.1016/j.jrurstud.2016.02.012

Bwambale, B., Muhumuza, M., & Nyeko, M. (2018). Traditional ecological knowledge and flood risk management: A preliminary case study of the Rwenzori. *Jamba: Journal of Disaster Risk Studies*, *10*(1). https://doi.org/10.4102/jamba.v10i1.536

Chan, K. M. A., Satterfield, T., & Goldstein, J. (2012). Rethinking ecosystem services to better address and navigate cultural values. *Ecological Economics*, *74*, 8–18. https://doi.org/10.1016/j.ecolecon.2011.11.011

Charmaz, K. (2006). Constructing Grounded Theory: A Practical Guide Through Qualitative Analysis. In *Introducing Qualitative Methods* (Vol. 1).

Daniel, T. C., Muhar, A., Arnberger, A., Aznar, O., Boyd, J. W., Chan, K. M. A., Costanza, R., Elmqvist, T., Flint, C. G., Gobster, P. H., Grêt-Regamey, A., Lave, R., Muhar, S., Penker, M., Ribe, R. G., Schauppenlehner, T., Sikor, T., Soloviy, I., Spierenburg, M., … Von Der Dunk, A. (2012). Contributions of cultural services to the ecosystem services agenda. *Proceedings of the National Academy of Sciences of the United States of America*, *109*(23), 8812–8819. https://doi.org/10.1073/pnas.1114773109

Fikret Berkes, Johan Colding, A. C. F. (2020). Rediscovery of Traditional Ecological Knowledge as Adaptive Management. *Ecological Applications*, *10*(5), 1251–1262.

Gunton, R. M., Hejnowicz, A. P., Basden, A., van Asperen, E. N., Christie, I., Hanson, D. R., & Hartley, S. E. (2022). Valuing beyond economics: A pluralistic evaluation framework for participatory policymaking. *Ecological Economics*, *196*(March), 107420. https://doi.org/10.1016/j.ecolecon.2022.107420

Hue, H. T. T. (2022). Using DPSIR model to analyze wetland ecosystem services at Xuan Thuy National Park, Nam Dinh Province, Vietnam. 15th International Conference Socio-Economic and Environmental Issues in Development 2022 proceeding, Finance Publishing House, Ha Noi 16th, june 2022, pp (2497-2510), ISBN: 978-604-79-3205-4.

Hue, H. T. T., Dong, L. K., Hien, T. T., Nguyen, T. N., & Pradt, S. (2021). Assessment of Microplastics Contamination in Commericial Clams in The Coastal Zone of Vietnam. *Applied Ecology and Environmental Research, 19*(6), 4977–4991. https://doi.org/http://dx.doi.org/10.15666/aeer/1906_49774991

Hue, T. T. H., Thang, V. H., & Dong, L. K. (2021). Why Local People Do Not Want to Conserve Wetland Nature Reserve: Community Perceptions of Livelihood Impacts, Governance, and Management in Border Belt Thanh Phu District, Ben Tre Province, Vietnam. *Ecology , Environment and Conservation, 27*(4), 1443–1451.

Hue, T. T. H., Thang, V. H., Huynh, N. D & Hai, Q. L. (2022). The Community Perception of Mangrove Cultural Services in Xuan Thuy National Park Vietnam. *PEOPLE: International Journal of Social Sciences, 8*(2), 21–39. https://doi.org/10.20319/pijss.2022.82.2139

Hue, T. T. H; Tuyen, N. T. P; Huong, V. D; Hung, U. S. (2025). Island Community Awareness of Ecosystem Services in The World Biosphere Reserve , Cu Lao Cham. *Applied Ecology and Environmental Research 23*(1), 305-323. *DOI: 10.15666/Aeer/2301_305323*

IPBES. (2023). The Nature Futures Framework, a flexible tool to support the development of scenarios and models of desirable futures for people, nature and Mother Earth and its methodological guidance. *Rolling draft*, 1–14. https://doi.org/10.5281/zenodo.8171338

MEA. (2005). Ecosystems and Human Well-Being: Synthesis. Millennium Ecosystem Assessment. *World Resources Institute*.

IPCC. (2021). Climate Change 2021: Impacts, Adaptation and Vulnerability. Intergovernmental Panel on Climate Change. https://www.ipcc.ch

Phan Phuong Anh, V. C. T. (2024). Intangible cultural heritage in the context of disaters and climate change: A


 

case study of fishing communities in Vietnam. *Intangible Cultural Heritage and Fishing Communities in Vietnam*.

Potts, J., & Cunningham, S. (2008). Four models of the creative industries. *International Journal of Cultural Policy*, *14*(3), 233–247. https://doi.org/10.1080/10286630802281780

Putnam, R. D. (2000). Bowling alone: The collapse and revival of American community. *Touchstone Books/Simon & Schuster*. https://doi.org/https://doi.org/10.1145/358916.361990

R Core Team. (2024). R: A language and environment for statistical computing (Version 4.4.0). R Foundation for Statistical Computing. https://www.R-project.org/

Rena, R., & Mbukanma, I. (2021). The Effect of Tourism Growth on Local Economic Development: A Conceptual Review of Vietnam Concept BT - Future of Tourism in Asia. *In: Sharma, A., Hassan, A. (eds) Future of Tourism in Asia Springer Singapore*. https://doi.org/10.1007/978-981-16-1669-3_10

Runeckles, H., Hackney, C. R., Le, H., Hue, T, T, H., H., Bui, L., Do, T. N., & Large, A. (2023). "Local people want to keep their sand: Variations in community perceptions and everyday resistance to sand mining across the Red River, Vietnam". *Extractive Industries and Society*, *15*, 101336. https://doi.org/10.1016/j.exis.2023.101336

Thanh, T. D., Anh, Ng. T. Ng, Hoa, V. D, Tuan, D. V, & Minh, N. V (2025). Strategies and policies for sustainable development of Vietnam's cultural industries using SWOT, AHP and QSPM approaches: A case study of the cultural tourism sector. *Decision Science Letters*, *14*(4), 909-918. https://doi.org/10.5267/j.dsl.2025.7.007

Tran, D. D., Dang, M. M., Du Duong, B., Sea, W., & Vo, T. T. (2021). Livelihood vulnerability and adaptability of coastal communities to extreme drought and salinity intrusion in the Vietnamese Mekong Delta. *International Journal of Disaster Risk Reduction*, *57*(July 2020), 102183. https://doi.org/10.1016/j.ijdrr.2021.102183

Tran, D. D., Nguyen, T. D., Park, E., Nguyen, T. D., Pham Thi Anh Ngoc, Vo, T. T., & Nguyen, A. H. (2023). Rural out-migration and the livelihood vulnerability under the intensifying drought and salinity intrusion impacts in the Mekong Delta. *International Journal of Disaster Risk Reduction*, *93*(May). https://doi.org/10.1016/j.ijdrr.2023.103762

Van Der Geest, K., Khoa, N. V., & Thao, N. C. (2014). Internal migration in the Upper Mekong Delta, Viet Nam: What is the role of climate-related stressors? *Asia-Pacific Population Journal*, *29*(2), 25–41. https://doi.org/10.18356/7b7d7273-en

Vietnam Government. (2016). Decision No. 1755/QĐ-TTg dated September 8, 2016, Approving the Development Strategy of Vietnamese Cultural Industry by 2020 and with a vision to 2030, issued by the Prime Minister.

Vision, W. (2021). Climate resilient coastal livelihoods capacity statement. *Gemanwatch Global Climate Risk Index*, 1–6. http://counsenuth-tz.org/our-approaches

Wickham, H. (2016). ggplot2: Elegant Graphics for Data Analysis. *Springer Nature*, 3–20. https://doi.org/10.5771/9781578869886-3

Wickham, H., & François, R. (2014). *dplyr: A Grammar of Data Manipulation*.

World Bank Group. (2022). *Vietnam Country Climate and Development Report*. https://doi.org/10.1596/38361

 