

# **METHODOLOGY FOR ASSESSING THE TOURISM CARRYING CAPACITY OF ESTUARINE ECOSYSTEMS: A CASE OF KOCHI**

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## **ABSTRACT**

The Vembanad estuary, a Ramsar-designated wetland and one of India's largest estuarine systems, sustains a gamut of traditional livelihoods intricately linked to its hydrological and lithological landscape. In recent decades, tourism has emerged as a major livelihood driver, capitalizing on the estuary's scenic beauty and cultural richness. However, the current tourism scenario is predominantly water-based and concentrated around Vembanad Lake and its backwaters. A carrying capacity evaluation conducted in the first stage of this study reveals that the region's water systems are already overburdened—manifesting in water pollution, habitat degradation, and strain on local resources. This situation is further exacerbated by tourists' limited awareness of the estuary's ecological sensitivities, as observed through an on-site survey. In response, the second stage of the study advocates for the diversification of tourism offerings by leveraging the broader land-based resources of the estuarine system. By mapping traditional livelihood clusters, the research proposes a tourism circuit that reflects the region's unique socio-economic fabric, inherently shaped by its ecological context. Within these clusters, three types of tourism zones are defined—ranging from high-impact, infrastructure-intensive zones to low-impact, eco-sensitive ones. Based on the typology of each cluster, the study identifies the specific nature of infrastructure required for tourism to sustainably flourish in each of the three zones of individual clusters. The third stage of the study develops a regionally nuanced framework for assessing Tourism Carrying Capacity (TCC). This includes the computation of Physical Carrying Capacity (PCC), Real Carrying Capacity (RCC), and Effective Carrying Capacity (ECC) [1], combined with an analysis of the state of carrying capacity derived from identified pressure and support parameters [2]. This framework facilitates the determination of permissible visitor thresholds and is intended to assist Destination Management Organizations (DMOs) in monitoring tourist numbers, issuing permits, and evaluating the future impacts of infrastructural and policy interventions on tourism potential. This research offers actionable insights for planners, policymakers, and tourism

stakeholders aiming to foster long-term, sustainable tourism in ecologically sensitive regions. It underscores the importance of embedding carrying capacity assessments within regional tourism policy, while promoting a context-based approach to identifying tourism products and guiding their spatial planning.

***Keywords: tourism carrying capacity, estuary, tourism zoning, wetland tourism***



# 1 INTRODUCTION

Tourism is a billion-dollar industry today, contributing to nearly 9.1% of the global GDP in the year 2023 as per the Economic Impact Report (WTTC, 2019). This thesis intends to explore the impact of tourism on the Vembanad Wetland region and its people, identify key challenges and propose planning interventions that can foster sustainable tourism development in the region without compromising its ecological integrity.

## 1.1 STUDY AREA

The Vembanad-Kol wetland system forms a considerable portion of the floodplains of Kerala. Designated as a Wetland of International Importance (Ramsar Site) under the Ramsar Convention in 2002, it is undoubtedly one of the largest wetland systems on the southwestern coast on India. The ecotourism circuit along the backwaters of the wetland is one of the most sought-after experiences in India, attracting tourists to its serene waterways, lush landscapes and cultural richness. The three significant stops along this circuit are Kochi, Alappuzha and Kumarakom, each with its own unique selling points.

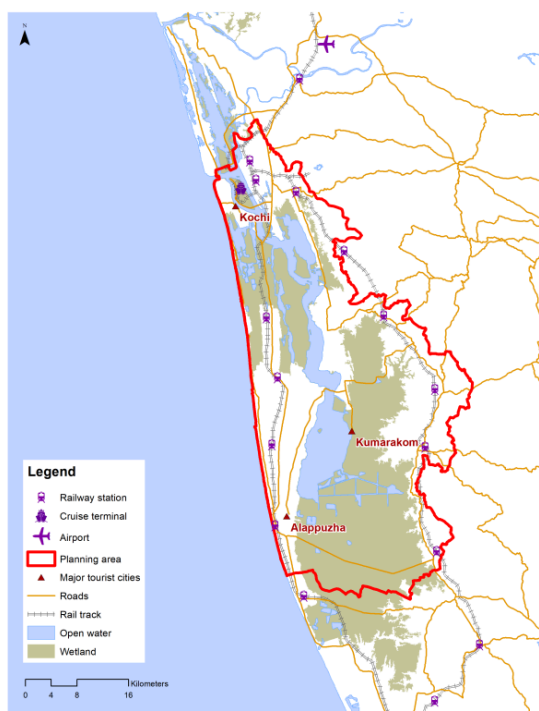


FIGURE 1: THE VEMBANAD WETLANDS

*Source: Author*

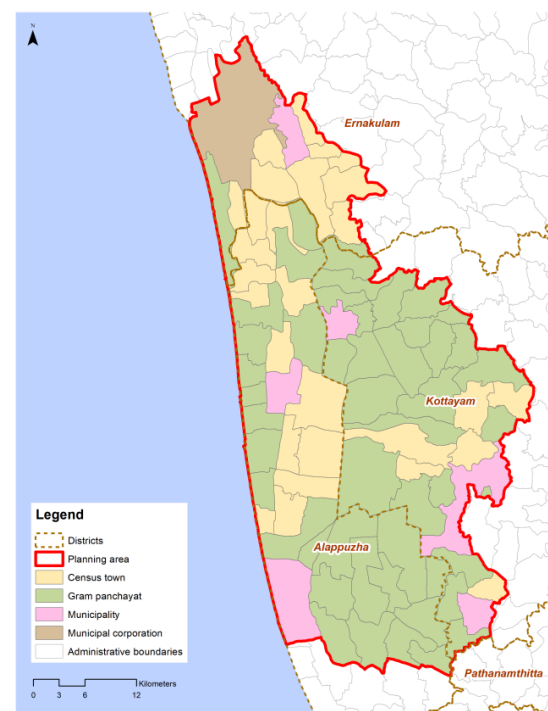


FIGURE 2: THE DELINEATED STUDY AREA

*Source: Author*

## 1.2 ISSUES

The rising pressures of tourism activities in the Vembanad has put immense pressure on the fragile environment of the estuarine ecosystem. Enumerated below are some of the pressing issues arising due to unplanned expansion of tourism:

- 1) Water pollution
- 2) Habitat destruction
- 3) Solid waste and plastic pollution
- 4) Disturbance to marine life
- 5) Limited carrying capacity

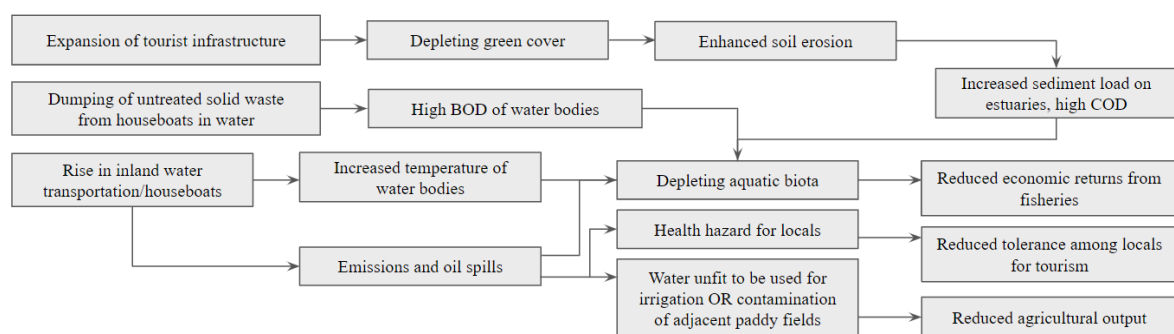


FIGURE 3: IMPACT OF TOURISM ON WETLANDS

Source: Author

## 1.3 AIM AND OBJECTIVES

This thesis aims to formulate the best-fit policy and planning interventions for the long-term sustainable growth of tourism in the Vembanad Wetlands by resolving the conflict between tourism development and its ecological limitations.

The objectives of thesis are as follows:

- 1) To identify the nature, extent and indicators of tourism development in the ecological context of estuarine ecosystems.
- 2) To analyze the tourism carrying capacity of the region and establish the strained and underdeveloped pockets.
- 3) To propose corrective measures that relieve strained systems and promote development of underdeveloped aspects of tourism.

## **1.4 SCOPE**

The study will broadly explore the following aspects:

- 1) Present an overview of the Vembanad region and its current tourism scenario.
- 2) Establish a framework to assess the region's tourism carrying capacity.
- 3) Propose interventions for sustainable tourism development in the wetlands.

## **1.5 LIMITATIONS**

While this thesis aims to provide a comprehensive analysis of the impact of tourism on the wetlands, there are several limitations that may affect the scope and depth of the findings:

- 1) Longitudinal surveys which could provide a deeper understanding of seasonal and long-term variations could not be conducted due to time and resource constraints.
- 1) Non-availability of current and localized data points of certain parameters.

## **1.6 METHODOLOGY**

A five-step methodology has been followed in the study to reach the desired aim. The figure below shows the basic workflow followed during the study and the different tasks involved at each stage.



FIGURE 4: RESEARCH METHODOLOGY

Source: Author

## 2 LITERATURE REVIEW

This chapter includes both literature reviews and case studies. Various research papers and case studies have been reviewed to understand the different tools and techniques required for achieving the outlined objectives of this study.

### 2.1 TOURISM CARRYING CAPACITY

United Nations World Tourism Organization (UNWTO, 2018) defined tourism carrying capacity as the maximum number of people that may visit a tourist destination at the same time, without causing destruction of the physical, economic and sociocultural environment and an unacceptable decrease in the quality of visitors' satisfaction. Thus, tourism carrying capacity has various dimensions and one of these dimensions will act as the limiting factor for the carrying capacity of a tourist destination.

#### 2.1.1 EVALUATION APPROACHES

There are multiple approaches by which Tourism Carrying Capacity (TCC) of a destination can be calculated. The following table lists the different evaluation approaches of TCC, their objectives and limitations (Pásková et al., 2021):

TABLE 1: EVALUATION APPROACHES OF TCC

Static TCC Concept	Limits of Acceptable Change (LAC)	Visitor Optimisation	System Dynamic
Establish maximum limits on the basis of the regenerative capacity of the destination's social and ecological systems	Establish limits considering the needs of stakeholders and their perceived acceptable level of adverse changes	Determine optimal use of destination resources as a compromise between sub-optimal visitation and maximizing benefits	A complex and adaptive system of the destination that captures the key processes including links between tourism, nature and stakeholders

## 2.1.2 ASSESSMENT DIMENSIONS

The impact factors of tourism can be broadly categorized into five dimensions as follows:

TABLE 2: INDICATOR DIMENSIONS

Perspective	Name of Methodology	Analysis frameworks
<b>Resources</b> Limits of space and infrastructure	Physical/facility carrying capacity	PCC (Physical Carrying Capacity) RCC (Real Carrying Capacity)
<b>Experience</b> Dissatisfaction to tourists and stakeholders	Psycho-social carrying capacity	Informal Interviews (Likert Scale) Social Cost-Benefit Analysis LAC framework
<b>Finance</b> Overall economic benefits/ losses	Economic carrying capacity	Visitor spending surveys Economic base models Cost- Benefit analysis
<b>Ecology</b> Negative impact on environment	Environmental carrying capacity	Driver-Pressure-State-Impact-Response (DPSIR) Model
<b>Management</b> Disruption of regulations, law and order	Administrative/political carrying capacity	ECC (Effective Carrying Capacity)

## 2.1.3 CARRYING CAPACITY ASSESSMENT

### VARIABLES

The carrying capacity in a destination is captured through predominantly two types of variables (ESPON, 2020):

- 1) Pressure factors (Pi) – Quantifies the stress on the region due to limited resources and growing footprint
- 2) Support factors (Si) – Quantifies the resilience of the region to absorb the mounting demand for resources

$$P_i = \sum_{j=1}^n P'_{ij} w_j^p \dots\dots\dots(1)$$

$$S_i = \sum_{j=1}^n S'_{ij} w_j^s \dots\dots\dots(2)$$

where,  $S'_{ij}$  and  $P'_{ij}$  are the normalized values of the  $j$ th support and pressure indicator for  $i$ th city in the region, respectively. Also,  $w_j^p$  and  $w_j^s$  are the weights of the support and pressure indicators.

## 2.2 CASE STUDIES

The case studies area selected with the purpose of understanding the predominant challenges to tourism development in estuarine areas and identify best practices in planning and management of tourism. The theoretical concepts derived from the literature study form the backdrop of the analysis of the individual cases to some extent.

### 2.2.1 SELECTION CRITERIA

The selection process ensured that, as far as possible, the cases exhibited surface similarities with area under study. The case studies have been thus selected with emphasis on the following criteria:

- 1) Similar ecological context
- 2) Varying stages of tourism development
- 3) Different cultural and socio-economic backgrounds
- 4) Reflect diverse approaches to tourism planning

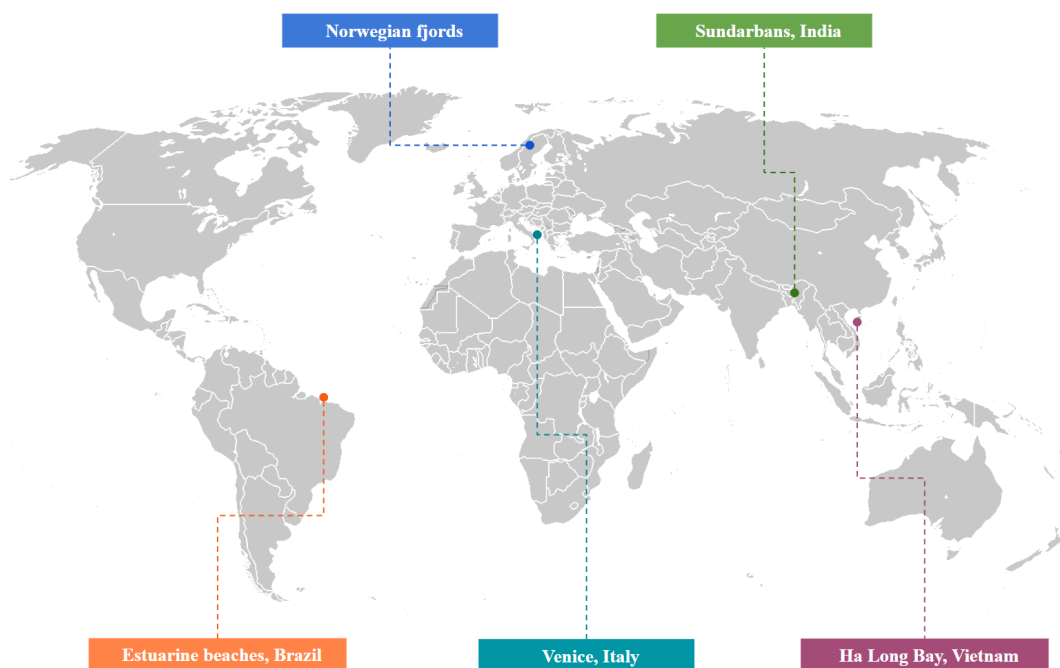


FIGURE 5: SELECTED CASE STUDIES

Source: Author

## 2.2.2 COMPARATIVE ANALYSIS

TABLE 3: COMPARATIVE ANALYSIS OF CASE STUDIES

Parameter	Venice, Italy	Ha Long Bay, Vietnam	Estuarine Beaches, Brazil	Norwegian Fjords	Sundarbans, India
<i>Tourists</i>	~ 8 million (annual)	~6 million (annual)	~5 million (annual)	~2 million (annual)	~1 million (annual)
<i>Type of Estuary</i>	Lagoonal estuary (Venetian estuary)	Karst estuary (formed by limestone formations)	Estuarine beaches (formed where river meets ocean)	Glacial fjords (formed by submerged valleys)	Tidal estuary (confluence of Ganges and Brahmaputra)
<i>Tourist Infrastructure</i>	Highly developed: diverse accommodation facilities	Well-developed: boat cruises, hotels, eco-lodges	Moderately developed: beach resorts, basic amenities	Well-developed: cruises, hotels, ports, scenic tours	Underdeveloped: eco-lodges, boat tours, basic facilities
<i>Stage of Tourism</i>	Stagnation: post-maturity	Consolidation: nearing maturity	Development: expanding	Development: steady growth	Involvement: potential underdeveloped
<i>Limiting Dimension</i>	Social carrying capacity	Ecological carrying capacity	Physical carrying capacity	Economic carrying capacity	Administrative carrying capacity
<i>Challenges</i>	Overtourism, gentrification	Pollution, coral destruction	Lack of accessibility	High-cost market	Human-wildlife conflict
<i>Intervention to boost tourism</i>	<ul style="list-style-type: none"> <li>- Diversification of accommodation facilities</li> <li>- Affordable mode of arrival</li> <li>New tourism products</li> </ul>	<ul style="list-style-type: none"> <li>- Opening up new islands to reduce pressure on hotspots</li> <li>- Developing new tourist urban centres</li> </ul>	<ul style="list-style-type: none"> <li>- Improving accessibility to underdeveloped beaches to reduce pressure on hotspots</li> </ul>	<ul style="list-style-type: none"> <li>- Government subsidies to promote development of tourist enterprises</li> </ul>	<ul style="list-style-type: none"> <li>- Voluntourism</li> <li>- Development of community-based tourism projects</li> </ul>



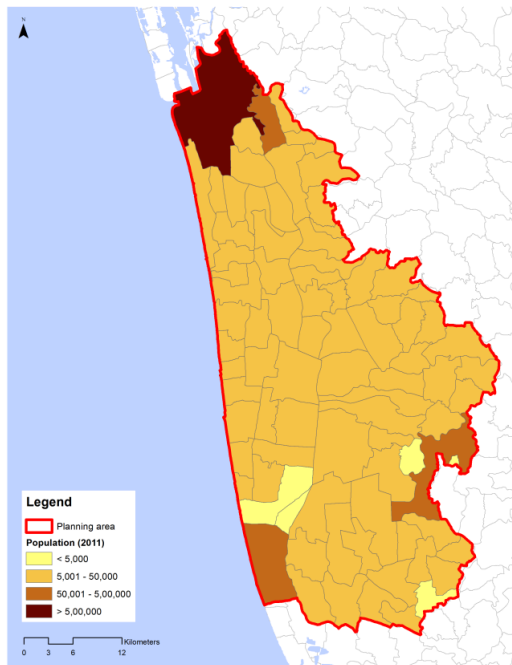
<i>Intervention to manage tourism</i>	<ul style="list-style-type: none"> <li>- Limiting the size of tourist groups</li> <li>- Tourism fee, lower in off-seasons to distribute tourism throughout the year</li> <li>- Cruise liners exceeding 25,000 tons have been prohibited from entry</li> </ul>	<ul style="list-style-type: none"> <li>- Restrictions on building in environmentally sensitive areas.</li> <li>- Limiting visitor numbers during peak seasons to reduce overcrowding.</li> </ul>	<ul style="list-style-type: none"> <li>- Tourists and private companies have to pay an</li> <li>- Environmental Preservation Fee (TPA) for maintenance of the ecosystem</li> </ul>	<ul style="list-style-type: none"> <li>- Imposition of stricter regulations on the number of boats allowed</li> <li>- Limitation of tourist activity in protected marine zones</li> <li>- Visitor caps during peak periods</li> </ul>	<ul style="list-style-type: none"> <li>- Incentives for entrepreneurship</li> <li>- Increase access/entry routes to the region</li> <li>- Livelihood clusters for skill development</li> </ul>
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### 3 BASELINE STUDY

This section deals with the analyses of the present situation of the study area pertaining to the current status of the host population and developemnt of tourism in the region. This information was finally utilized to formulate the tourism carrying capacity, which may exist at the horizon year.

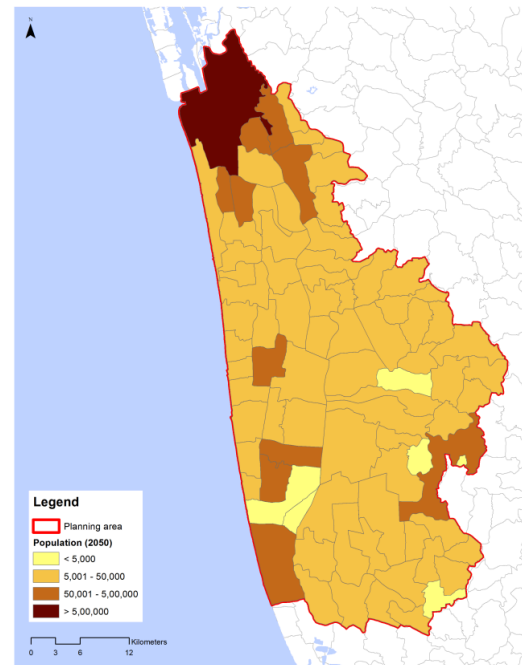
#### 3.1 DEMOGRAPHY

The region supports both urban and rural settlements with high population densities.



**FIGURE 6: POPULATION DISTRIBUTION (2011)**

*Source: Author*



**FIGURE 7: PROJECTED POPULATION (2050)**

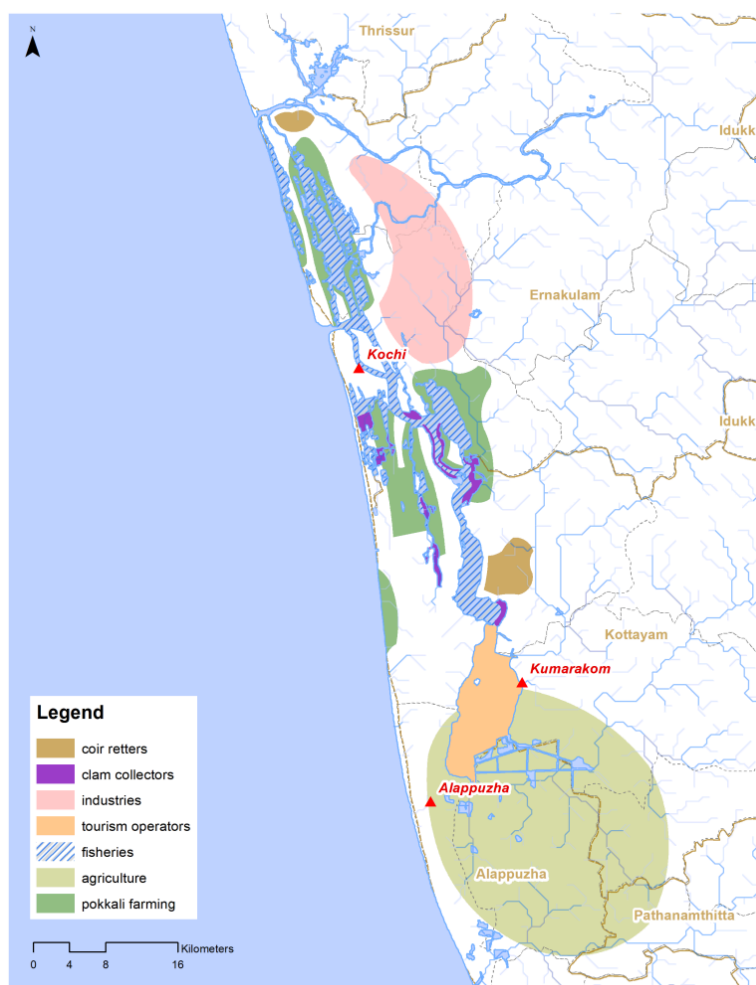
*Source: Author*

#### 3.2 LOCAL LIVELIHOODS

The Vembanad Wetlands support a diverse range of local livelihoods by virtue of its unique estuarine ecosystem. The key livelihoods include the following:

- 1) Agriculture: Predominantly paddy cultivation in the low-lying Kuttanad region which is known for its below sea-level farming.

- 2) Fisheries: Both inland and brackish water fisheries are widespread with the region seeing a rise in aquacultural activities.
- 3) Clam collection: The lake is one of the largest sources of black clam.
- 4) Tourism operators: The backwater tourism is a major livelihood with tour operators, tour guides and homestays benefiting from the region's scenic value.
- 5) Coir makers: The activity supports small-scale cottage industries in the region.
- 6) Industries: Small and medium scale industries including food processing, chemical and cement manufacturing.



**FIGURE 8: LOCAL LIVELIHOODS IN THE VEMBANAD**

*Source: Author*

#### *Agriculture*



#### *Fisheries*



#### *Tourism operators*



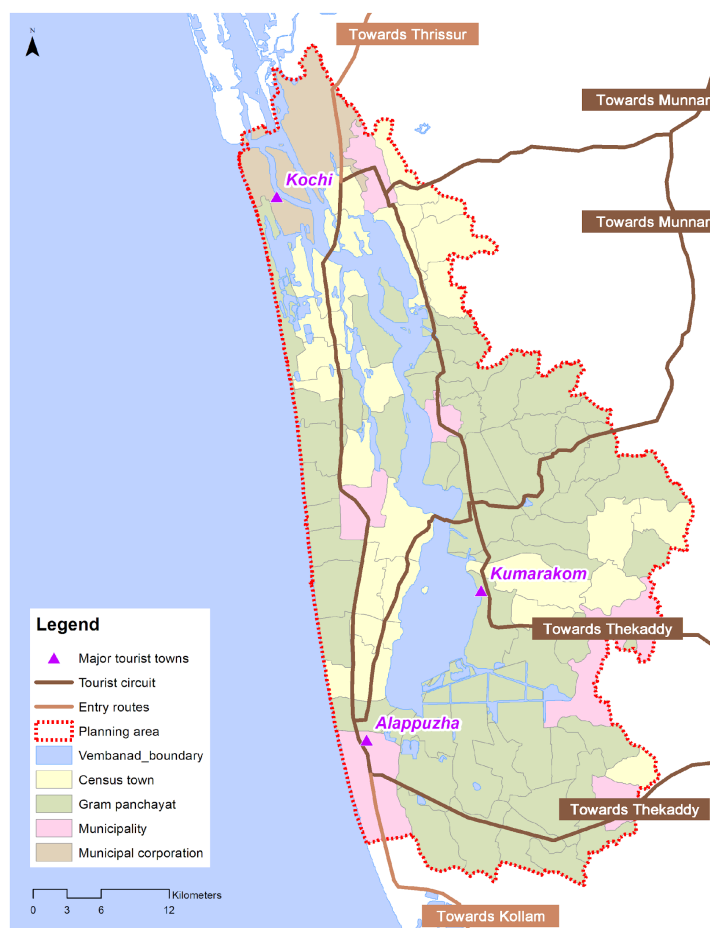
#### *Coir retters*



### 3.3 TOURISM

Tourism in the Vembanad region offers a diverse range of experiences. The three major tourism hotspots in the region are:

- 1) Kochi: It serves as the gateway to the Vembanad and is a major cultural hub, attracting visitors to its rich colonial heritage and vibrant art scene.
- 2) Alappuzha: It is famous for its intricate network of canals and backwaters, offering traditional houseboat cruises and budget homestays.
- 3) Kumarakom: It presents a more upscale tourist experience with luxury resorts, ayurvedic spas and bird-watching sanctuaries.



*Cultural tourism, Kochi*



*Houseboat tourism, Alappuzha*

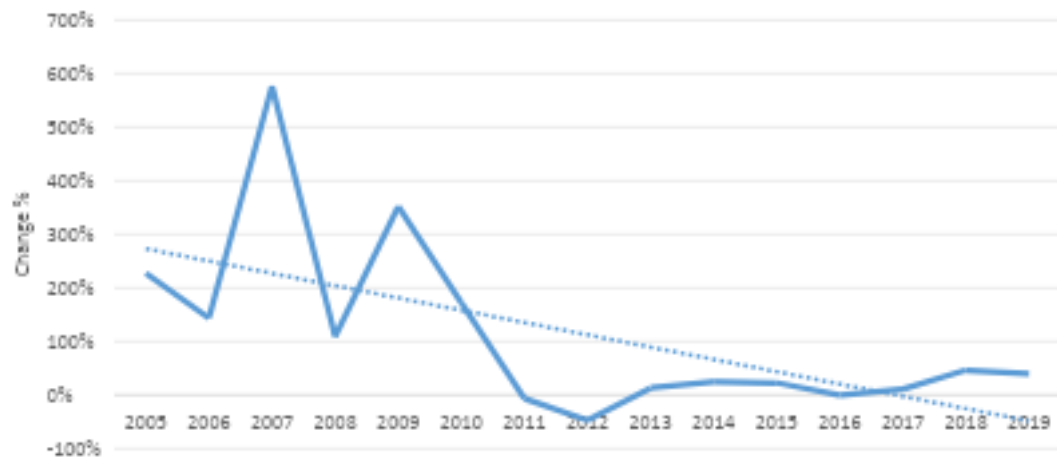


*Luxury resorts, Kumarakom*



FIGURE 9: TOURISM IN THE VEMBANAD

Source: Author



**FIGURE 10: CHANGE OF ANNUAL TOURIST GROWTH RATE**

*Source: Author*

## 4 ANALYSIS

This section deals with the analyses of the present situation of the study area pertaining to the current status of the host population and developemnt of tourism in the region. This information was finally utilized to arrive at the tourism carrying capacity, which may exist at the horizon year.

### 4.1 LANDUSE

The landuse analysis of the region depiscts a rising trend of area under built-up and a corresponding decrease in areas under wetland and vegetation.

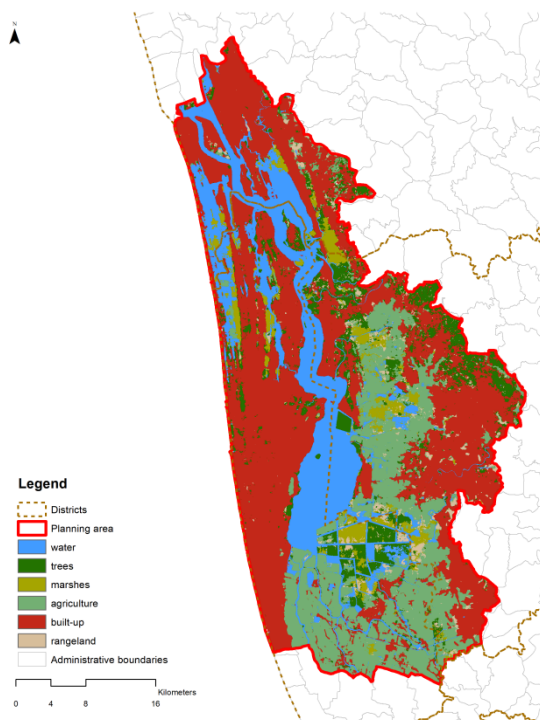


FIGURE 11: LULC (2017)

Source: Author

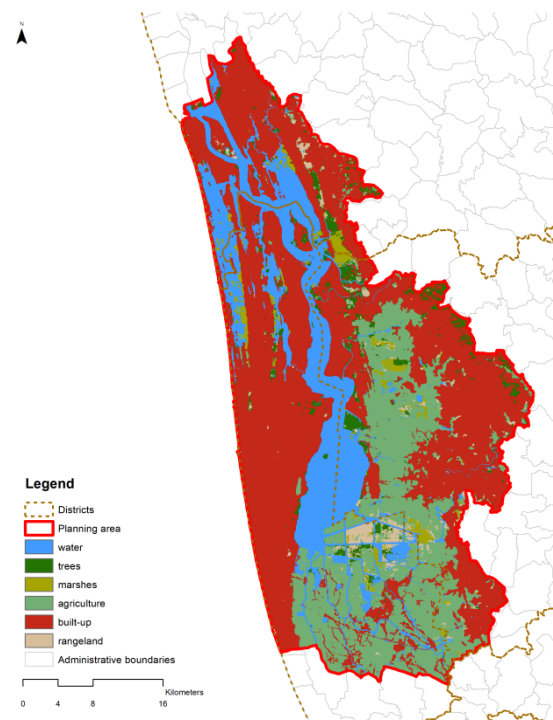


FIGURE 12: LULC (2023)

Source: Author

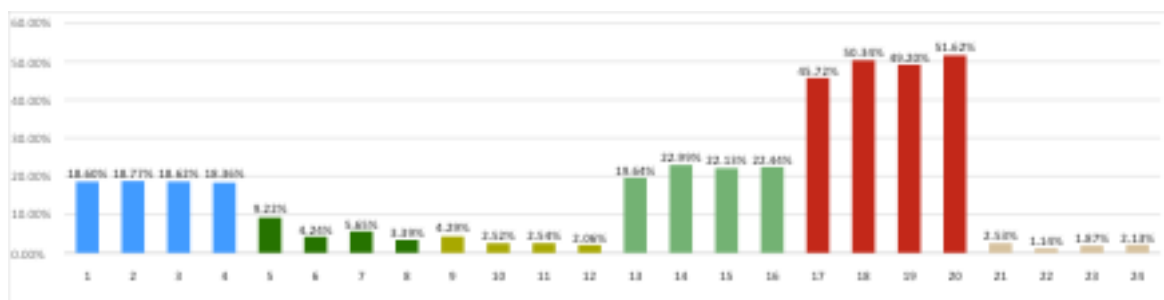


FIGURE 13: LULC ANALYSIS (2017 -2023)

Source: Author

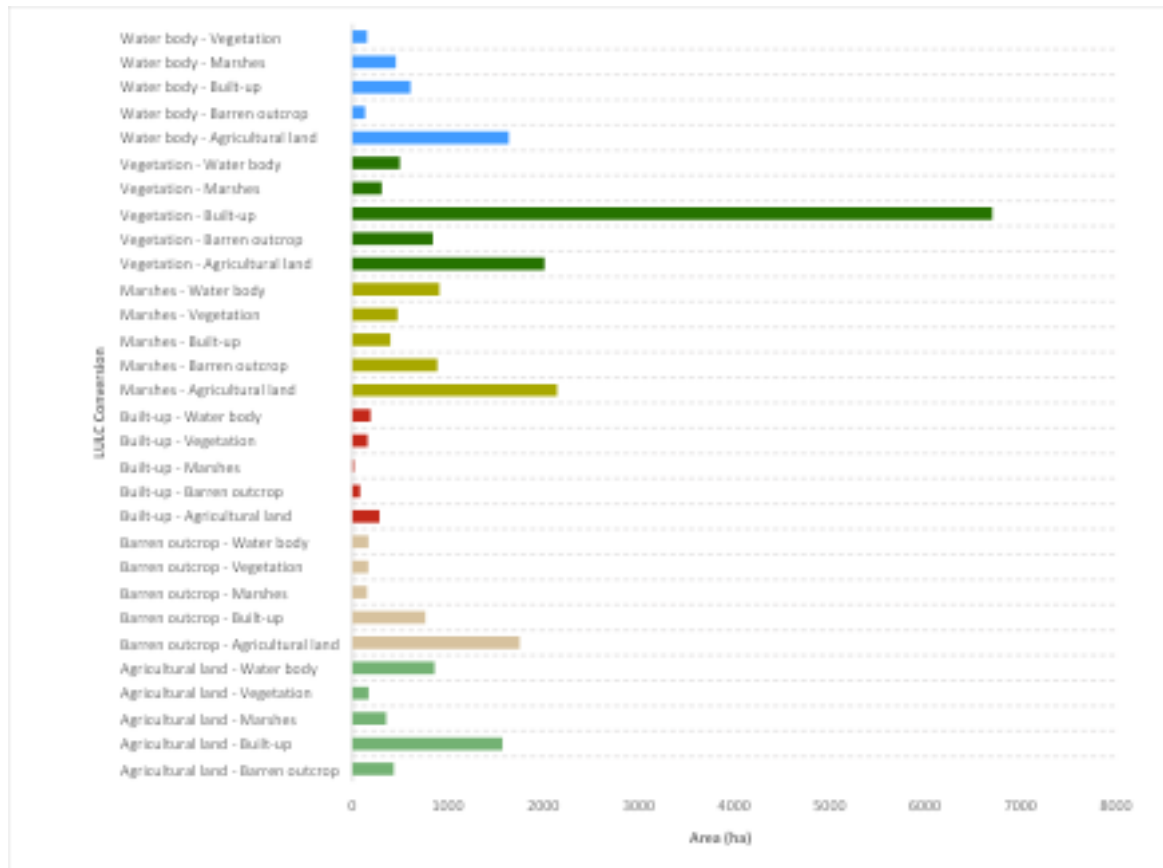


FIGURE 14: LULC CHANGE DETECTION ANALYSIS (2017 -2023)

Source: Author

## 4.2 STATE OF CARRYING CAPACITY

The pressure-support mechanism was used to ascertain state of carrying capacity of each local body within the delineated area based on the following pressure and support indicators.

TABLE 4: PRESSURE AND SUPPORT INDICATORS

Pressure		Support	
<i>Population</i> ( $P_1$ )	Total population	<i>Resources</i> ( $S_1$ )	Total land area
	Population density (persons/sqkm)		Area under wetland and vegetation
	Population growth rate (%)		Area under agriculture

Pressure		Support	
	Percentage of non-workers (%)		Percapita production of food crops
<i>Built-up</i> ( $P_2$ )	Percentage area under built-up (%)	<i>Infrastructure</i> ( $S_2$ )	Road density (km/hectare)
	Conversion to built-up (sqkm)		Households with access to treated water (%)
<i>Disaster</i> ( $P_3$ )	Flood susceptibility (index)	<i>Institutional</i> ( $S_3$ )	Budget provisions to local govt.

The following equations were used to quantify the cumulative pressure-support of each local body to arrive at its state of carrying capacity.

$$P_i = \sum_{j=1}^n P'_{ij} w_j^p \quad \dots\dots\dots(1)$$

$$S_i = \sum_{j=1}^n S'_{ij} w_j^s \quad \dots\dots\dots(2)$$

$$C_s = \frac{S_i}{P_i} \quad \dots\dots\dots(3)$$

Here,  $S'_{ij}$  and  $P'_{ij}$  are the normalized values of the  $j^{\text{th}}$  support and pressure indicator for  $i^{\text{th}}$  city in the region, respectively. Also,  $w_j^p$  and  $w_j^s$  are the weights of the support and pressure indicators. The state of carrying capacity is denoted by  $C_s$ .

#### 4.2.1 CALCULATING INDICATOR WEIGHTS

The weights of pressure and support indicators were calculated using the Entropy weight Method (EWM). Each subsystem has multiple indicators. Since not all indicators contribute equally to the overall system, EWM is used to calculate the weight of each indicator based on data variability, rather than subjective judgment.

##### 1) Data Standardization:

$$X_i = \frac{x_{ij} - x_{\min j}}{x_{\max j} - x_{\min j}}$$

##### 2) Calculate the Entropy $e_j$ for each indicator:



$$e_j = -\frac{1}{\ln n} \sum_{i=1}^n X_{ij} \ln(X_{ij})$$

Where, n is the number of towns. This measures the dispersion or uncertainty in the indicator's data. If an indicator has more variation across the regions, it has more information, so lower entropy.

**3) Calculate the Degree of Divergence  $d_j$ :**

$$d_j = 1 - e_j$$

This reflects how important the indicator depending on the variation in data across the region, the more influence it has.

**4) Determine Weights:**

$$w_j = \frac{d_j}{\sum_{j=1}^m d_j}$$

These weights are then used in calculating the composite index for each subsystem.

TABLE 5: INDICATOR WEIGHTS

Pressure indicators		$e_j$	$d_j$	$w_j$
Population	Total population	0.8436	0.1564	0.3171
	Population density (persons/sqkm)	0.9472	0.0528	0.1072
	Population growth rate (%)	0.9821	0.0179	0.0362
	Percentage of non-workers (%)	0.9713	0.0287	0.0583
Built-up	Percentage area under built-up (%)	0.9660	0.0340	0.0689
	Conversion to built-up (sqkm)	0.8783	0.1217	0.2468
Disaster	Flood susceptibility (index)	0.9185	0.0815	0.1654
Support indicators		$e_j$	$d_j$	$w_j$
Resources	Total land area	0.9552	0.0448	0.0485
	Area under wetland and vegetation	0.8492	0.1508	0.1634
	Area under agriculture	0.9147	0.0853	0.0924
	Percapita production of food crops	0.7719	0.2281	0.2470
Infrastructure	Road density (km/hectare)	0.9611	0.0389	0.0421

Support indicators		$e_j$	$d_j$	$w_j$
Institutional	Households with access to treated water (%)	0.8877	0.1123	0.1216
	Budget provisions to local govt.	0.7369	0.2631	0.2850

## 4.2.2 REGIONAL PRESSURE ANALYSIS

The pressure in the region reflects in the burgeoning population numbers, status of land under built-up and the susceptibility of the region to frequent floods.

### 4.2.2.1 POPULATION PRESSURE

The cumulative population pressure in the region arising out of the four selected indicators for each local body was quantified.

$$P_1 = \sum_{j=1}^n p_i w_j$$

Here,  $p_i$  are the normalized population parameter of  $i^{\text{th}}$  city in the region  $w_j$  corresponds to the weight of the pressure indicator.

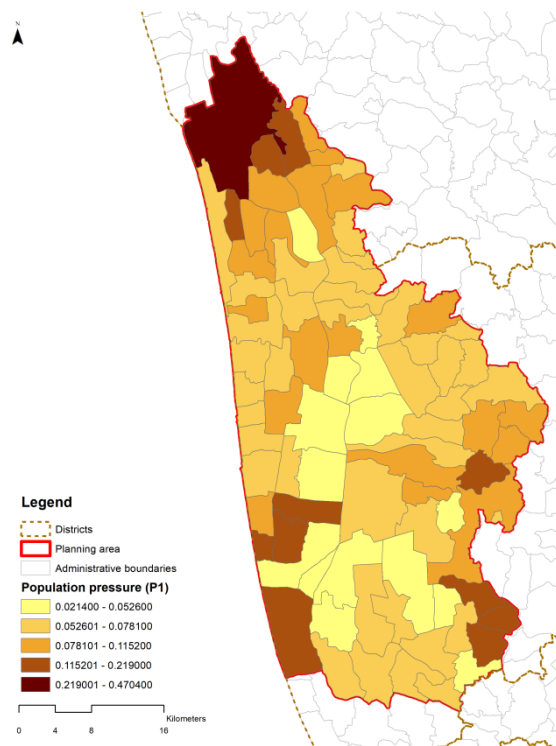


FIGURE 15: POPULATION PRESSURE ( $P_1$ )

Source: Author

#### 4.2.2.2 BUILT-UP PRESSURE

The cumulative pressure of expanding area under built-up in the region arising out of the two selected indicators for each local body was quantified.

$$P_2 = \sum_{j=1}^n b_i w_j \dots\dots\dots(1)$$

Here,  $b_i$  are the normalized built-up parameter of  $i^{\text{th}}$  city in the region  $w_j$  corresponds to the weight of the pressure indicator.

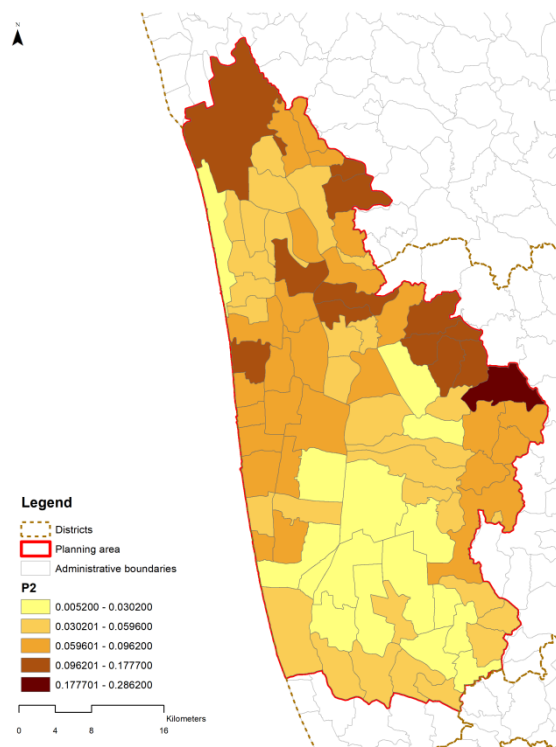


FIGURE 16: BUILT-UP PRESSURE ( $P_2$ )

Source: Author

#### 4.2.2.3 FLOOD SUSCEPTIBILITY

The flood susceptibility of the region was quantified through a Flood Susceptibility Index using two parameters, percentage area inundated under floods with returns periods and 10 years, 25 years, and 50 years and the corresponding flood depth. The percentage

area captures the extent of the disaster and the flood depth captures the severity of the same.

$$FSI = \sum_{r=1}^3 w_r P_r D_r \dots\dots\dots(1)$$

Here,  $P_r$  is the percentage of village area inundated under flood return period  $r$  (for 10, 25, and 50 years),  $D_r$  is the normalized flood depth for return period  $i$  (scaled from 0 to 1, using max depth observed), and  $w_i$  is weight assigned to return period to reflect severity (1 for 10 years return period, 2 for 25 years return period and 3 for 50 years return period).

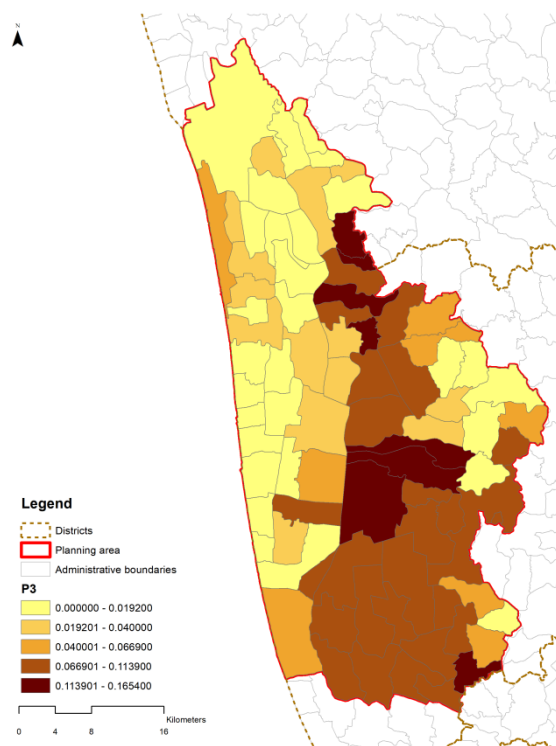


FIGURE 17: FLOOD SUSCEPTIBILITY ( $P_3$ )

Source: Author

### 4.2.3 REGIONAL SUPPORT ANALYSIS

The strenght of the support systems in the region reflects in the available resources, developmental infrastructure and instituional support.

#### 4.2.3.1 RESOURCE AVAILABILITY

The cumulative resource availability in the region is quantified by analysing available land for development, wetlands and vegetation for carbon sequestration, and agriculture and food productivity that ensures regional food security.

$$S_1 = \sum_{j=1}^n r_i w_j$$

Here,  $r_i$  are the normalized resource parameter of  $i^{\text{th}}$  city in the region and  $w_j$  corresponds to the weight of the pressure indicator.

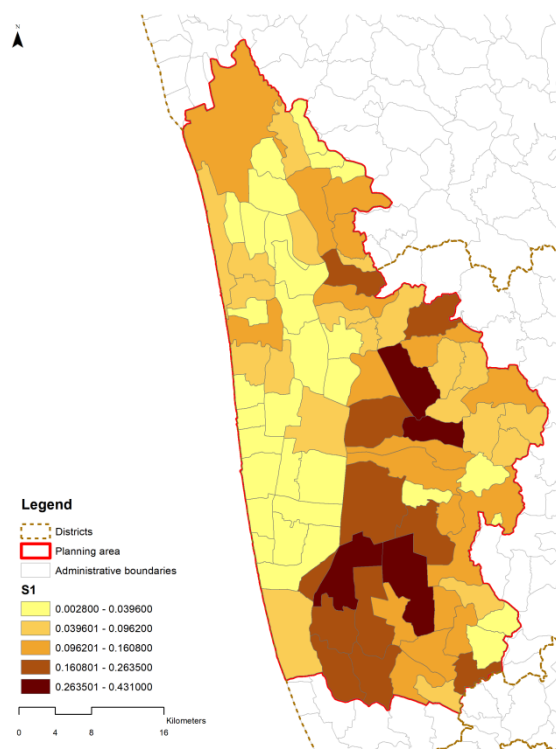


FIGURE 18: RESOURCE AVAILABILITY ( $S_1$ )

Source: Author

#### 4.2.3.2 INFRASTRUTURE DEVELOPMENT

The cumulative infrastructure support in the region is quantified by extent of road infrastructure and availability of water treated drinking water to households.

$$S_2 = \sum_{j=1}^n d_i w_j$$

Here,  $d_i$  are the normalized infratructure parameter of  $i^{\text{th}}$  city in the region and  $w_j$  corresponds to the weight of the pressure indicator.

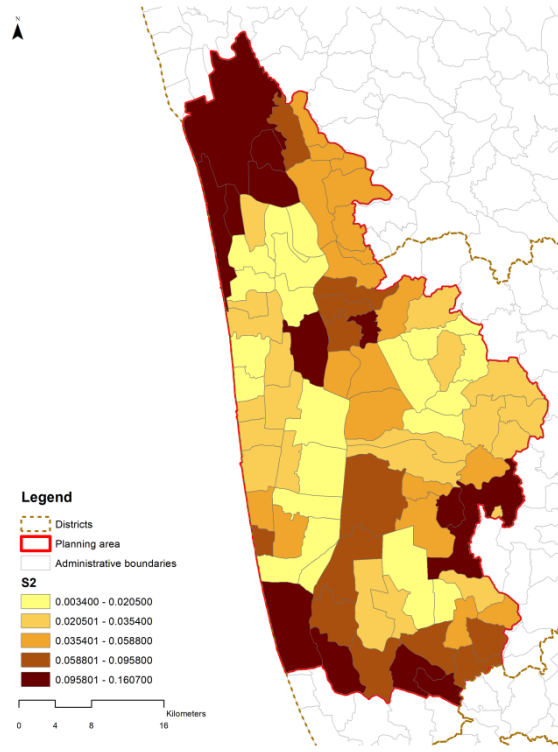


FIGURE 19: INFRASTRUCTURE DEVELOPEMENT (S<sub>2</sub>)

Source: Author

#### 4.2.3.3 INSTITUTIONAL SUPPORT

The institutional support in the region is quantitified by analysis budget provisions and grants provided to each local body by international, central and state authorities for maintenance and construction of developemental assets in the financil year 2024-2025.

$$S_3 = \sum_{j=1}^n m_i w_j$$

Here,  $m_i$  are the normalized budget grants received by the  $i^{\text{th}}$  city in the region and  $w_j$  corresponds to the weight of the pressure indicator.

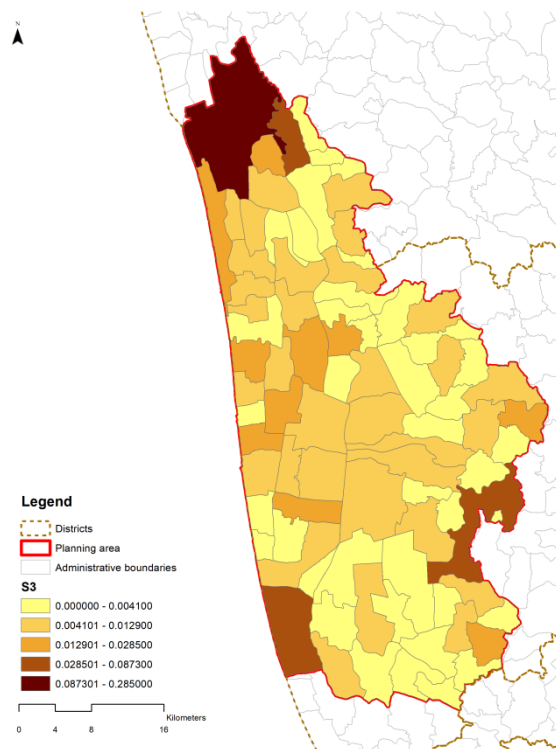


FIGURE 20: INSTITUTIONAL SUPPORT (S<sub>3</sub>)

Source: Author

#### 4.2.4 CUMULATIVE PRESSURE-SUPPORT

##### ANALYSIS

The state of carrying capacity is determined by the ration of support to pressure. Areas with higher support and low pressure has a higher state of carrying capapcity compared to those with higher pressure and low support.

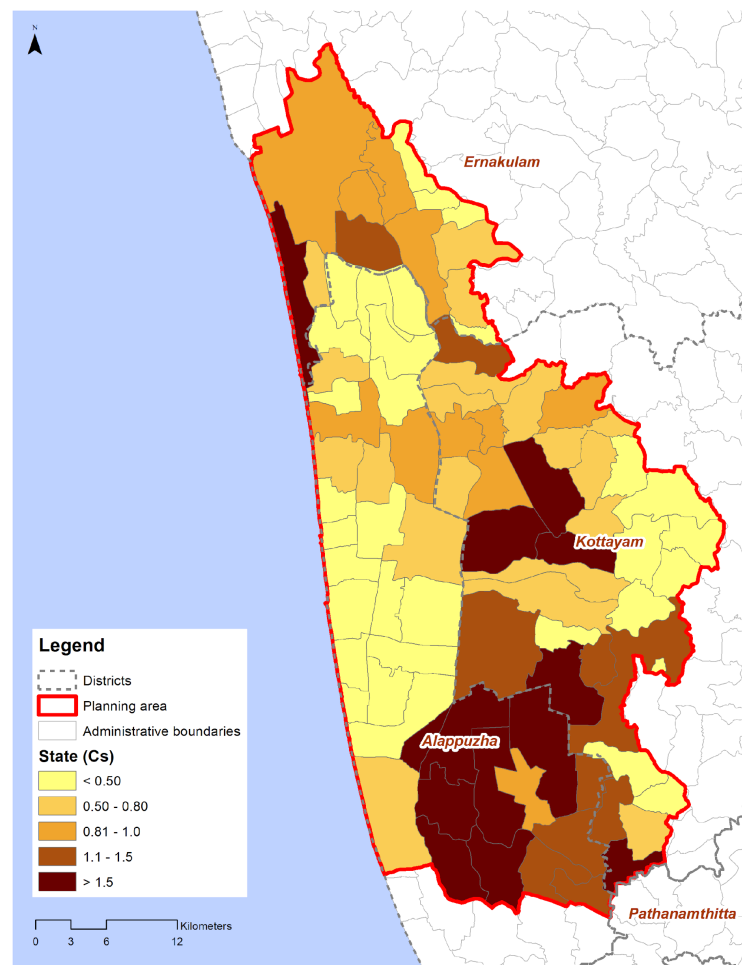


FIGURE 21: CARRYING CAPACITY STATE ( $C_s$ )

Source: Author

### 4.3 PHYSICAL CARRYING CAPACITY

Physical carrying capacity (PCC) calculations give an estimate of the maximum number of people that can be accommodated in the region based on various parameters like water availability, availability of accommodation units, and so on. Here, PCC has been calculated taking into consideration the available developable land and acceptable density norms as per URDPFI.

$$PCC_i = \frac{\text{Total developable land}}{\text{Gross density (as per settlement type based on population)}} \dots\dots\dots(4)$$



Here,  $PCC_i$  denotes Physical Carrying Capacity or the maximum population the town can support depending on the available developable land. Thus, the region has pockets with high or low PCC and balanced or imbalanced state of carrying capacity.

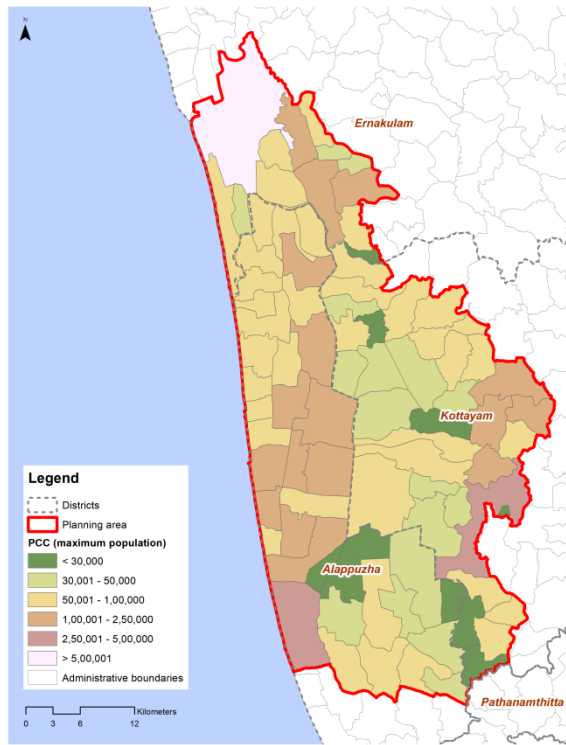


FIGURE 22: MAXIMUM PERMISSIBLE POPUALTION (PCC)

Source: Author

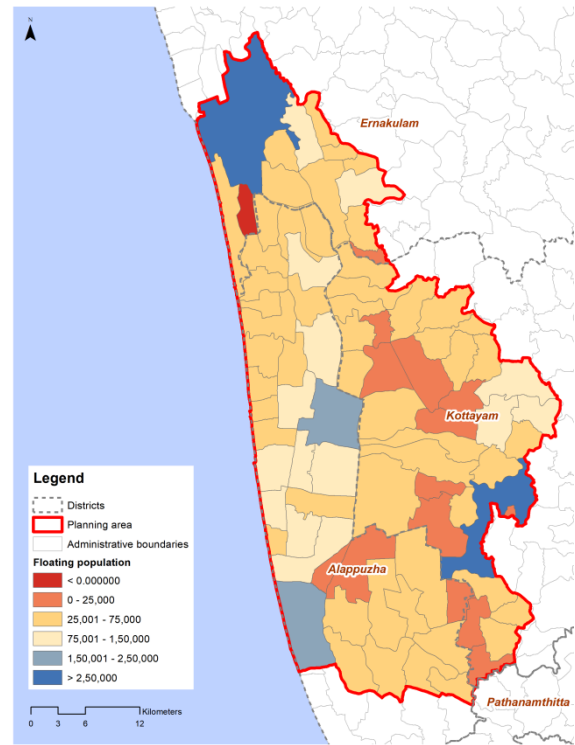


FIGURE 23: MAXIMUM PERMISSIBLE FLOATING POPULATION

Source: Author

## 5 PROPOSALS

The proposals seeks to take inputs from the carrying capacity evaluations of the region. By doing so, it aims to support the formulation of sustainable tourism strategies that are context-sensitive. The study will investigate the nature and distribution of tourism in the region, identify key stakeholders, assess current tourism pressures, and explore the balance between visitor experience and community resilience.

### 5.1 VISION AND STRATEGIES

The broad vision of for tourism development in the region is to *capitalise on the unique social and cultural ecosystem that exist in the wetland without crossing the carrying capacity thresholds*. This calls for a departure from the mass tourism model the Kerala followed in the early 20<sup>th</sup> century and move towards a form of niche tourism.

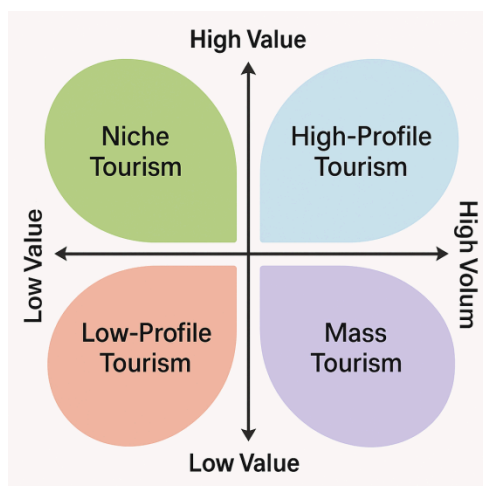


FIGURE 21: CONCEPT OF NICHE TOURISM

Source: Ebrary

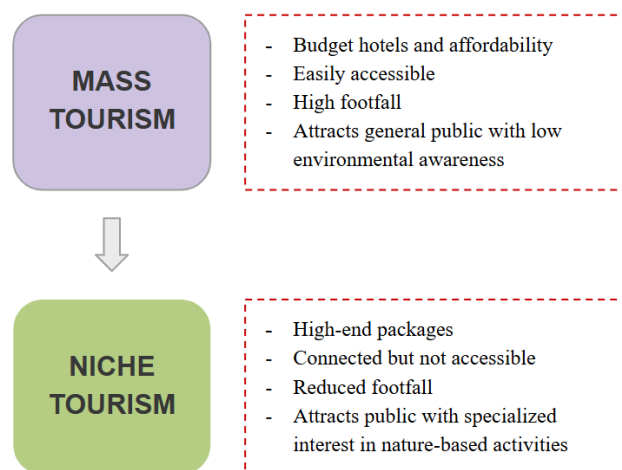


FIGURE 22: TOURISM DEVELOPEMNT STRATEGY

Source: Author

Thus, the vision is to create a sustainable, inclusive, and immersive tourism experience in the Vembanad region by creating a culturally rooted and ecologically sensitive circuit that

connects diverse livelihood landscapes, empowers local communities, and enriches visitor engagement—while ensuring the long-term resilience of the estuarine ecosystem.

**TABLE 6: MISSION STATEMENTS AND KEY STRATEGIES**

<b>Mission theme</b>	<b>Key strategies</b>
<b>1) Diversify tourism products offered in the region</b>	<ol style="list-style-type: none"> <li>1. Define tourism districts based on dominant socio-economic landscapes.</li> <li>2. Establish secondary anchor points/gateway towns in the region.</li> <li>3. Formulate an integrated regional tourism circuit.</li> </ol>
<b>2) Enhance tourism-based livelihood alternatives</b>	<ol style="list-style-type: none"> <li>1. Promote opportunities for local and cooperative-led tourism projects.</li> <li>2. Create an annual calendar of cultural festivals.</li> <li>3. Plan for haats/markets for selling of local products.</li> </ol>
<b>3) Catalyze responsible tourism growth within carrying capacity limits</b>	<ol style="list-style-type: none"> <li>1. Offer tax breaks and subsidies for eco-tourism facilities.</li> <li>2. Impose auctioning of tourist permits</li> <li>3. Allow for tourist holidays to make way for ecological rejuvenation</li> </ol>

*Source : Author*

## **5.2 REGIONAL INTERVENTIONS**

### **5.2.1 NEW TOURISM DISTRICTS**

The primary contribution of the carrying capacity analysis and baseline analysis is the delineation of new tourism districts based on dominant local livelihoods and cultural landscapes, with the objective to promote more equitable and sustainable tourism in the Vembanad region. Rather than relying solely on conventional geographic or administrative boundaries, these livelihood-based districts would reflect the unique socio-economic fabric of the estuary—such as fishing communities, coir-making clusters, farming zones, and artisanal craft villages.

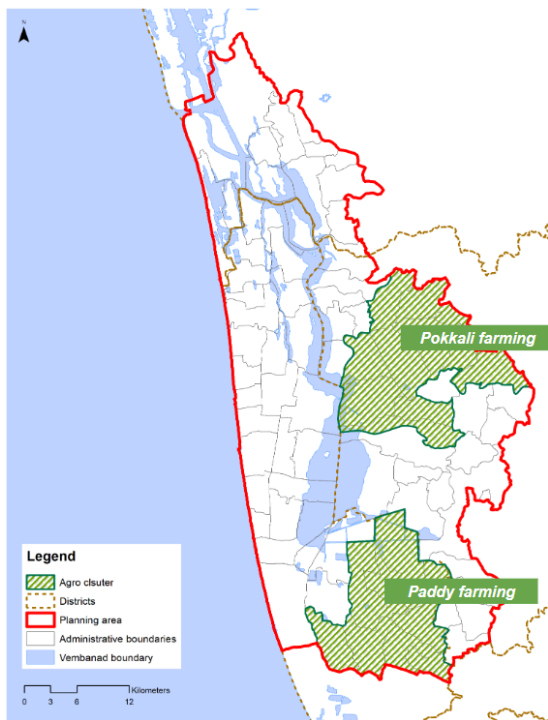


FIGURE 23: POTENTIAL AGRO CLUSTER

Source: Author

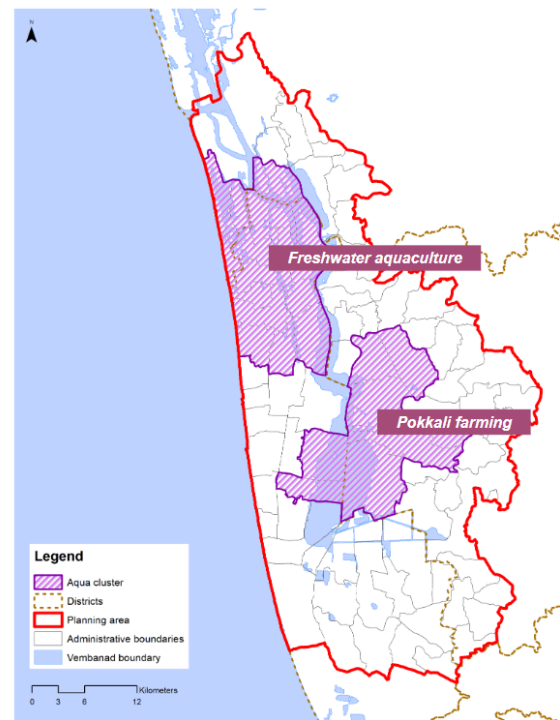


FIGURE 24: POTENTIAL AQUA CLUSTER

Source: Author

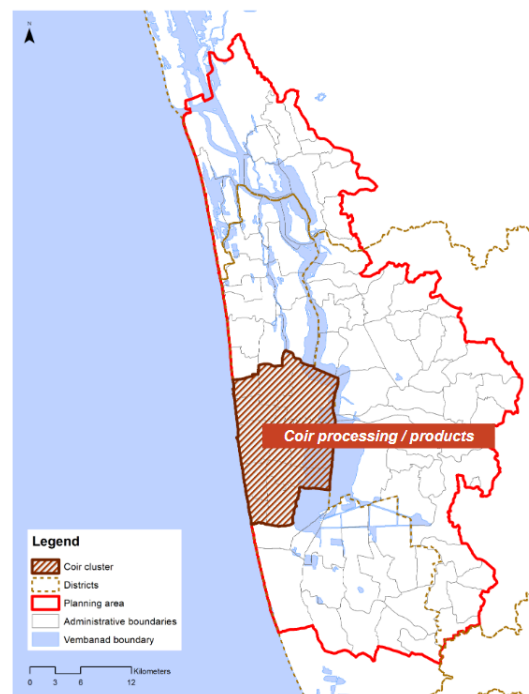


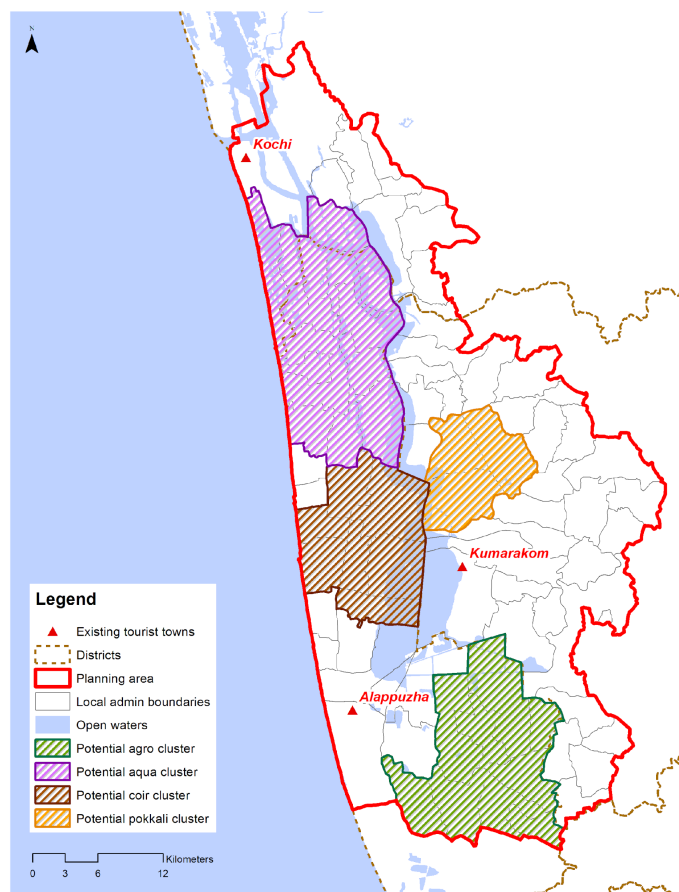
FIGURE 25: POTENTIAL COIR AND BOAT-MAKING CLUSTER

Source: Author

The potential clusters within the Vembanad region have been regrouped and re-delineated based on two primary criteria:

- 1) Geographical contiguity
- 2) Predominant livelihood landscapes

This approach recognizes the organic patterns of land use, cultural practices, and economic activity that shape the region. Clusters have been delineated to reflect areas where specific livelihoods—such as inland fishing, paddy cultivation, toddy tapping, coir production, or boat-making—are spatially concentrated and form the dominant socio-economic identity of the landscape. By doing so, the proposed clustering framework allows for more targeted tourism strategies that are aligned with the character and capacity of each area, enabling the development of niche tourism circuits that support both conservation and community-based economic development.



**FIGURE 26: PROPOSED TOURISM DISTRICTS**

*Source: Author*

## 5.2.2 REGIONAL TOURISM CIRCUIT

The creation of a new tourism circuit that weaves together the distinct livelihood-based clusters across the Vembanad estuary. The proposed circuit is designed to offer a holistic journey through the cultural and ecological mosaic of the region. The circuit is integrated with the major regional tourist routes of central Kerala and passes through the coir-making villages of Alappuzha, moving through the paddy cultivation belts and traditional toddy-tapping hamlets, continuing to the inland fishing communities round Chellam, and culminating in the artisanal boatyards and heritage hotspots near Kochi. This interconnected route would allow tourists to engage with the everyday rhythms of local life while distributing tourism benefits more evenly across the landscape. The circuit also has the potential to diversify tourism offerings—from backwater cruises and farm-stay experiences to cultural workshops and guided ecological tours—thereby fostering sustainable livelihoods and deepening tourist appreciation for the region’s heritage and environmental significance.

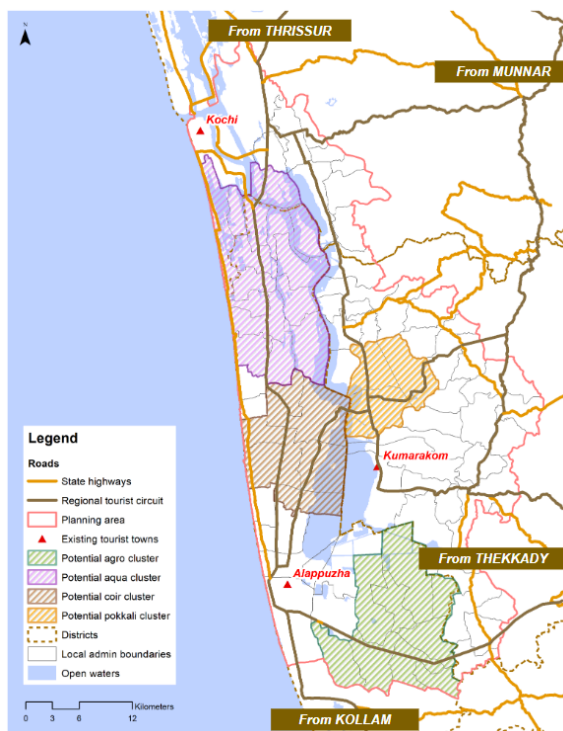


FIGURE 27: EXISTING TOURIST CIRCUIT

Source: Author

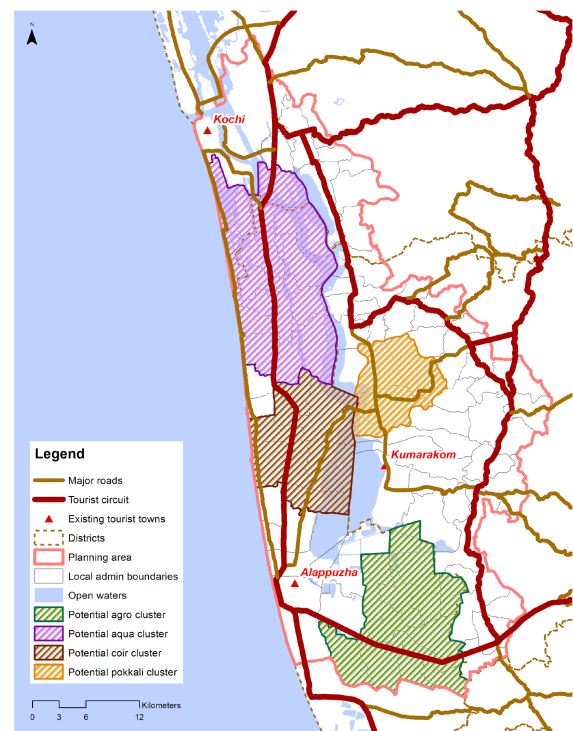


FIGURE 28: PROPOSED TOURIST CIRCUIT

Source: Author



### 5.2.3 GATEWAY TOWNS

To effectively manage the flow of tourists and ensure a balanced distribution of visitor pressure across the Vembanad region, the concept of gateway towns has been introduced. These towns serve as strategic entry points that intercept and channel tourists arriving from adjoining regional landscapes. The identification of these gateways is based on:

- 1) spatial analysis of major transport nodes
- 2) connectivity assessment using the beta index

The beta index, which measures the degree of network connectivity by comparing the number of links to nodes, has been employed to evaluate accessibility and centrality within the regional transport network. Towns with higher connectivity scores and nodal importance emerge as optimal locations for these gateways.

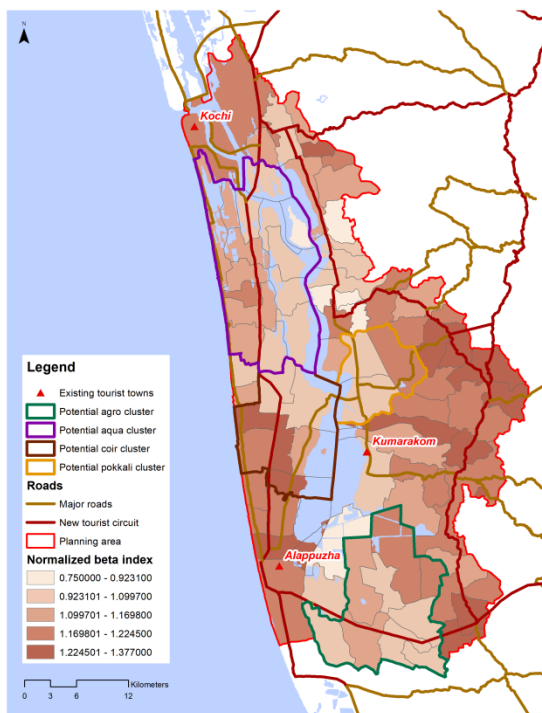


FIGURE 29: EXISTING CONNECTIVITY MAP

Source: Author

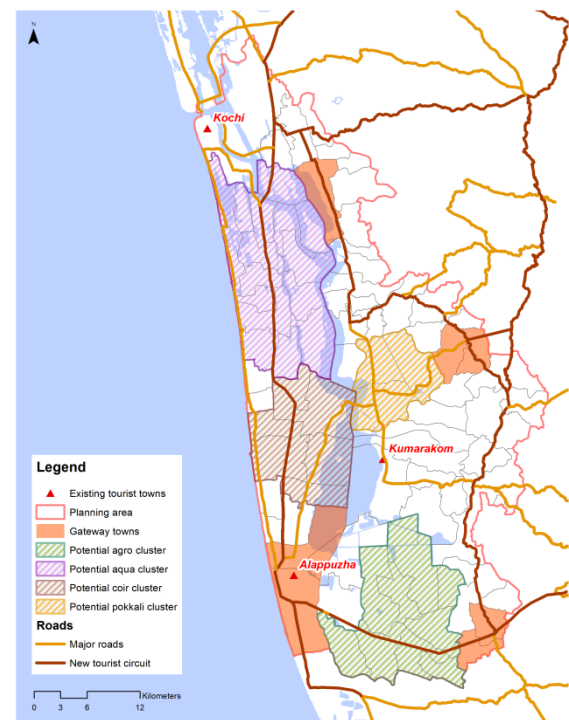


FIGURE 30: PROPOSED GATEWAY TOWNS

Source: Author

To ensure that gateway towns can effectively serve as transition zones between regional landscapes and the core tourism clusters of the Vembanad estuary, it is essential to strengthen their physical and service infrastructure. These towns must be equipped to handle high volumes of visitors while also offering meaningful orientation and facilitating

smooth dispersal into the surrounding clusters. The following table outlines key infrastructure interventions necessary to support the gateway towns in fulfilling their role as entry points and anchors of the proposed tourism circuit.

TABLE 7: INFRASTRUCTURE REQUIREMENTS FOR GATEWAY TOWNS

Category	Intervention	Description
<b>Transport Infrastructure</b>	Multimodal Transit Hubs	Integrated hubs connecting rail, road, and water-based transport with last-mile connectivity options.
<b>Visitor Orientation</b>	Tourist Interpretation Centres	Facilities providing curated information on the ecology, culture, and tourism circuits of the region.
<b>Tourist Services</b>	Digital & Physical Tourist Kiosks	Equipped with interactive maps, brochures, QR codes for bookings, and multilingual assistance.
<b>Retail &amp; Local Economy</b>	Local Craft and Produce Markets	Dedicated retail spaces showcasing local handicrafts, food products, and eco-souvenirs.
<b>Wayfinding &amp; Signage</b>	Smart Signage Systems	Multilingual digital and static signage offering real-time travel updates, maps, and safety info.
<b>Public Amenities</b>	Washrooms & Rest Areas	Well-maintained, accessible, gender-inclusive facilities with shaded seating and child-friendly zones.
<b>Mobility &amp; Access</b>	Bicycle/E-Bike Rental Zones	Eco-mobility options for local exploration, with parking stations and repair support.
<b>Cultural Infrastructure</b>	Performance & Exhibition Spaces	Small open-air stages or galleries for cultural events, art exhibitions, and community interaction.
<b>Accommodation Interface</b>	Booking Desks for Accommodation	Help desks to assist tourists in booking locally run accommodations within various clusters.
<b>Safety &amp; Health</b>	First Aid & Emergency Information Booths	Staffed booths offering basic medical assistance and emergency contact points.
<b>Green Infrastructure</b>	Landscaping & Green Corridors	Tree-lined walkways, bioswales, and shaded paths along the route at key sites.
<b>Waste Management</b>	Segregated Waste Disposal Units	Clearly marked and regularly serviced units promoting zero-waste tourism practices.

Source : Author



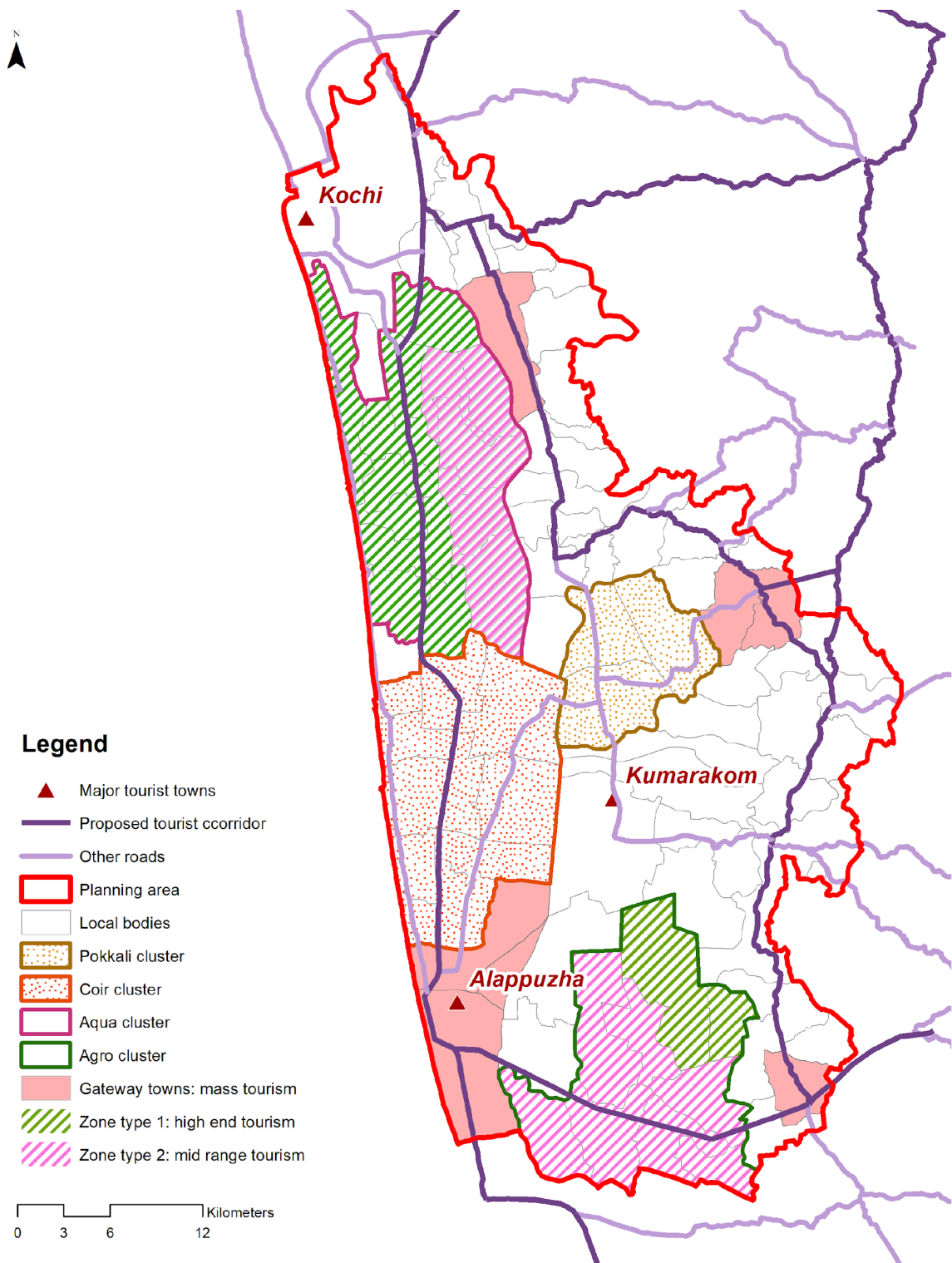


FIGURE 31: PROPOSED TOURISM DISTRICTS AND CIRCUITS

Source: Author

#### 5.2.4 ADMINISTRATIVE RESTRUCTURING

The Destination Management Unit in each of the chosen destinations would be an entity with a balanced board with the District Collector as the Chairman. The Tourism Manager would act as the CEO of the entity.

TABLE 8: DESTINATION MANAGEMENT MODELS

Ownership	Investment	Operations
Govt. / Community	CSR + NGO + Govt + Private	Private + Community

Source : Author

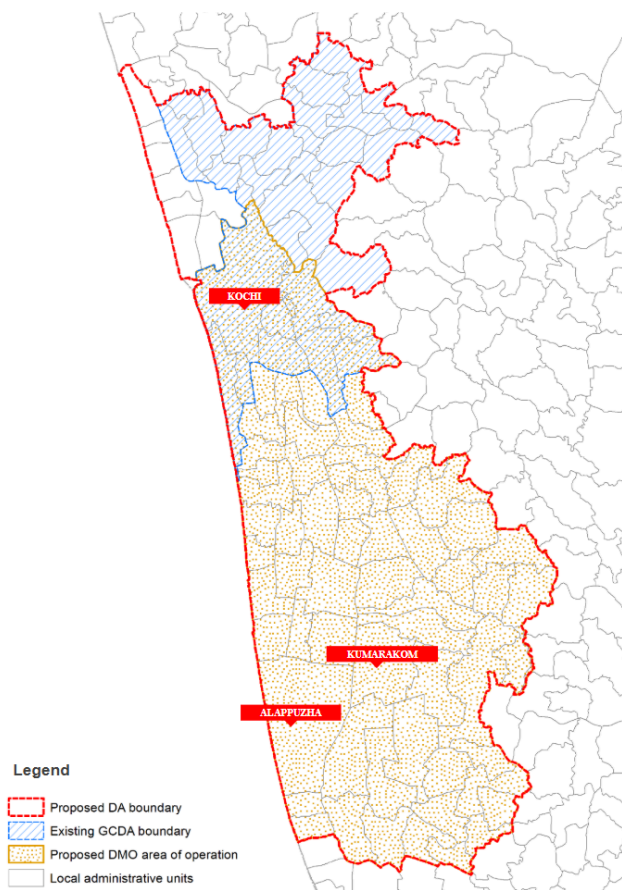


FIGURE 32: DMA AND DA JURISDICTION BOUNDARIES

Source: Author

## **5.3 CLUSTER BASED INTERVENTIONS**

This segment presents cluster-specific proposals aimed at establishing the nature of tourism within the zone, infrastructure requirements for the same, and the estimated cost. These interventions are designed to align with the landscape's carrying capacity, celebrate local heritage, and support sustainable economic development at the grassroots level.

### **5.3.1 AQUA CLUSTER**

The aqua cluster represents a network of communities within the Vembanad region whose lives and livelihoods are intimately tied to the estuary's aquatic ecosystems. Comprising traditional inland fishing settlements, clam and mussel harvesters, and backwater navigators, this cluster embodies the dynamic relationship between people and water. It is characterized by its rich aquatic biodiversity, vibrant fishing culture, and knowledge systems rooted in sustainable water use practices. As a tourism node, the Aquaccluster holds immense potential for promoting responsible water-based tourism experiences—such as guided fishing tours, estuarine ecology trails, and interactive sessions with local fishers.

#### **5.3.1.1 TOURISM ZONES AND TYPE**

The aqua cluster was delineated based on the extent of aquatic livelihoods and backwater access. The cluster was further divided into three primary tourism zones, based on a connectivity analysis and landscape capacity.

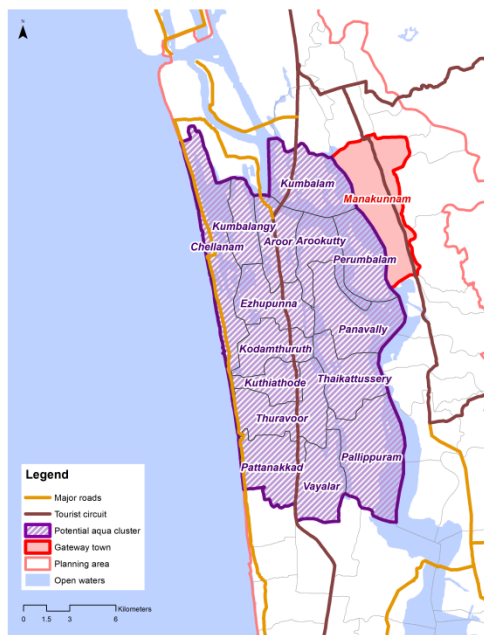


FIGURE 33: AQUA CLUSTER VILLAGES

Source: Author

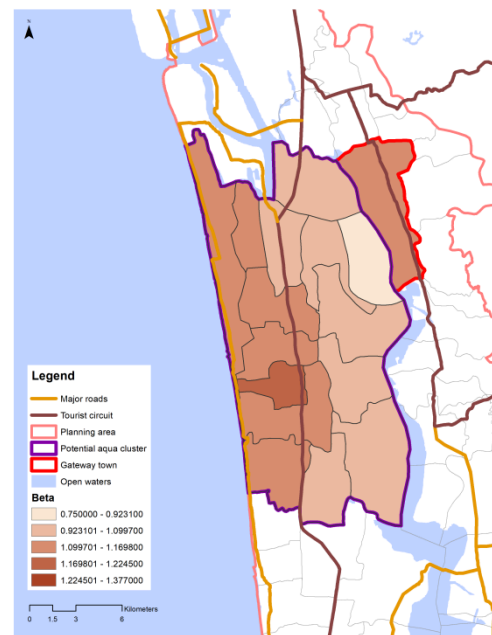


FIGURE 34: AQUA CLUSTER CONNECTIVITY MAP

Source: Author

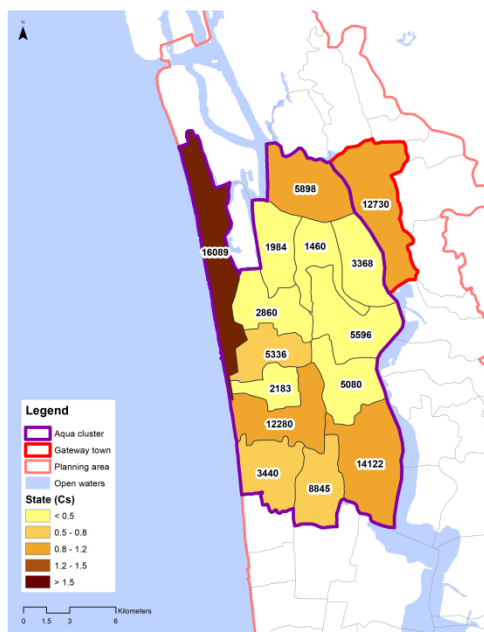


FIGURE 35: AQUA CLUSTER TCC NUMBERS

Source: Author

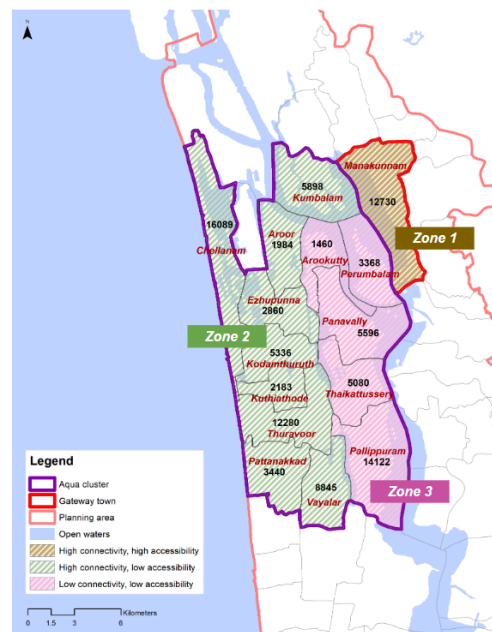


FIGURE 36: AQUA CLUSTER TOURISM ZONES

Source: Author

Given the accessibility and the carrying capacity criteria, the specific nature of tourism in each of the zones has been outlined.

TABLE 9: PROPOSED ZONES AND INFRASTRUCTURE REQUIREMENTS FOR AQUA CLUSTERS

Tourist zone	Nature of tourism	Length of stay	Proposed Activities	Required infrastructure
<b>Zone 1: Gateway &amp; Transit Zone (High Connectivity)</b>	Transit-oriented, information-rich hub for short visits	Less than a day	<ul style="list-style-type: none"> <li>- Orientation tours</li> <li>- Cultural exhibitions</li> <li>- Quick boat rides</li> <li>- Shopping &amp; café hopping</li> </ul>	<ul style="list-style-type: none"> <li>- Multimodal transport hubs</li> <li>- Interpretation centre</li> <li>- Tourist info kiosks</li> <li>- Retail outlets &amp; cafés</li> <li>- Offices for tour operators</li> </ul>
<b>Zone 2: Experiential Aquaculture Zone (Fish Farm Tourism)</b>	Immersive, experiential tourism with a focus on aquaculture	1–2 days	<ul style="list-style-type: none"> <li>- Farm tours</li> <li>- Fishing experiences</li> <li>- Cooking demos</li> <li>- Dining at fish-based restaurants</li> <li>- Participating in seasonal fish festivals</li> </ul>	<ul style="list-style-type: none"> <li>- Fish farms integrated with tourism amenities</li> <li>- Stationary houseboats</li> <li>- Niche waterfront restaurants</li> <li>- Open grounds for festivals</li> <li>- Homestays or eco-lodges</li> </ul>
<b>Zone 3: Eco-Camping Zone (Remote Stay Experience)</b>	Nature-centric, rustic stay in eco-sensitive locations	Overnight (1 day)	<ul style="list-style-type: none"> <li>- Kayaking or canoeing</li> <li>- Birdwatching</li> <li>- Night camping &amp; stargazing</li> <li>- Guided nature walks</li> </ul>	<ul style="list-style-type: none"> <li>- Elevated or floating campsites</li> <li>- Basic sanitation &amp; water facilities</li> <li>- Solar lighting</li> <li>- Nature trails &amp; watch towers</li> <li>- Trained eco-guides</li> </ul>

Source : Author

### 5.3.1.2 DEVELOPMENT POLICIES

A set of mix regulatory tools, financial incentives, and urban design strategies have been proposed for each zone to foster sustainable tourism, empower local communities, and ensure environmental stewardship. The following section outlines zone-specific proposals to guide development, manage tourist flows, and enhance the overall visitor experience.

**TABLE 10: DEVELOPMENTAL POLICIES FOR AQUA CLUSTERS ZONE 1**

Category	Policy intervention
<b>Investment Model</b>	Public-Private Partnership (PPP) model for development of multimodal transport hubs, interpretation centres, and retail zones. Municipal facilitation of single-window clearance for investors.
<b>Subsidies</b>	Capital subsidies (up to 30%) for local entrepreneurs establishing information centres, cafés, or retail kiosks with local products.
<b>Tourist Permits</b>	Flexible short-term access permits, possibly via digital kiosks or mobile apps, to streamline day-visits and prevent overcrowding.
<b>Urban Design Schemes</b>	Transit-Oriented Development (TOD) guidelines with pedestrian-first design, shaded walkways, and water-taxi integration. Interactive signage and cultural QR-code based trails.
<b>Capacity Management</b>	Establish a real-time monitoring system (e.g., app dashboard) to track footfall and manage daily visitor load.

*Source : Author*

**TABLE 11: DEVELOPMENTAL POLICIES FOR AQUA CLUSTERS ZONE 2**

Category	Policy intervention
<b>Investment Model</b>	Co-operative models involving local fishers and SHGs (Self Help Groups) to co-manage tourism and aquaculture. Government-backed Aquatourism Development Fund.
<b>Subsidies</b>	50% subsidy on retrofitting stationary houseboats with solar panels, bio-toilets, and safety equipment. Support for setting up small fish-based restaurants using local produce.
<b>Tourist Permits</b>	Limited entry permits via seasonal auctioning system, with preference given to eco-conscious operators and community-run enterprises.
<b>Urban Design Schemes</b>	Designated aquatourism clusters with floating boardwalks, interpretation signage, and integrated public spaces for fish festivals and cultural showcases.
<b>Skill Development</b>	Launch of Aquatourism Training Institutes offering capacity-building programs for locals on hospitality, language, and fish-based culinary arts.

*Source : Author*

TABLE 12: DEVELOPMENTAL POLICIES FOR AQUA CLUSTERS ZONE 3

Category	Policy intervention
<b>Investment Model</b>	Eco-concession models where private eco-tour operators bid for rights to operate low-impact campsites under government-set environmental standards.
<b>Subsidies</b>	Subsidies on green infrastructure – compost toilets, solar panels, rainwater harvesting systems for eco-campsites.
<b>Tourist Permits</b>	Strict carrying capacity-based permits with daily visitor caps and dynamic pricing to control peak loads. E-permits with GPS tracking for responsible tourism.
<b>Urban Design Schemes</b>	Implementation of Low-Impact Development (LID) zoning to limit permanent construction. Eco-trails, nature interpretation points, and viewing decks to be pre-approved under a design codebook.
<b>Ecological Monitoring</b>	Mandate biodiversity audits and carbon-footprint assessments for all operators; establish eco-score cards to monitor zone health.

Source : Author

### 5.3.2 AGRO CLUSTER

The agro cluster is located in the heart of the fertile agricultural landscapes of the area. This cluster includes small-scale farmers, rice producers, and local artisans who maintain age-old traditions of farming, harvesting, and producing agro-based goods. Characterized by its lush paddy fields and traditional farming practices, the agro cluster reflects a rich cultural and ecological heritage. As a tourism node, it offers immense potential for showcasing sustainable agriculture and offering immersive experiences, such as staying with farmers, participating in harvest festivals, and engaging in hands-on workshops in traditional paddy processing.

#### 5.3.2.1 TOURISM ZONES AND TYPE

The extent of farmlands, the diversity in agricultural products and the percentage polutaion involved in agricultural pursuits helped delineate the cluster extent. Based on a connectivity analysis and landscape capacity, the cluster was further divided into three primary tourism zones, each with its unique brand od tourism .



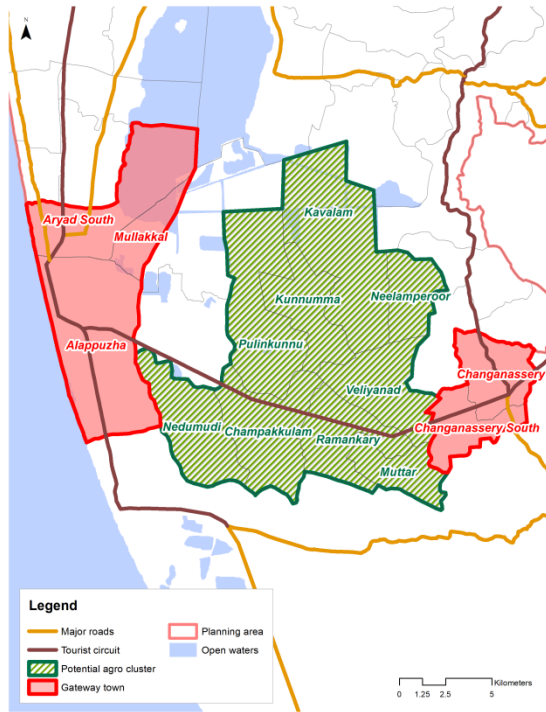


FIGURE 37: AGRO CLUSTER VILLAGES

Source: Author

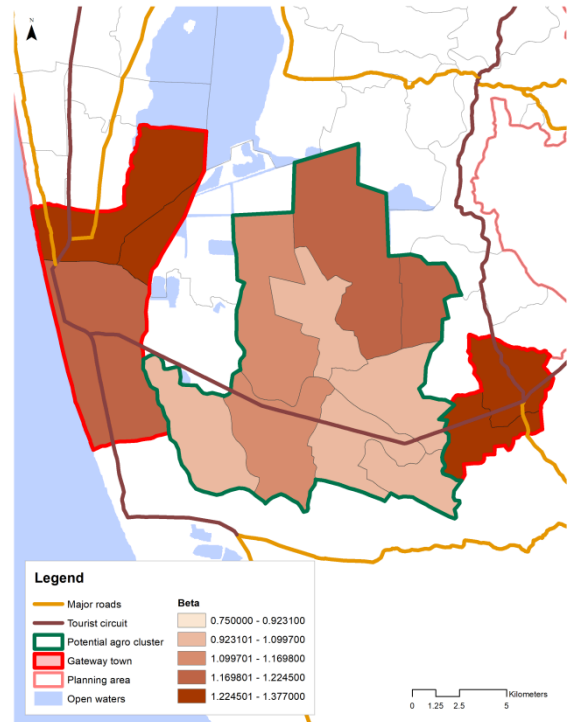


FIGURE 38: AGRO CLUSTER CONNECTIVITY MAP

Source: Author



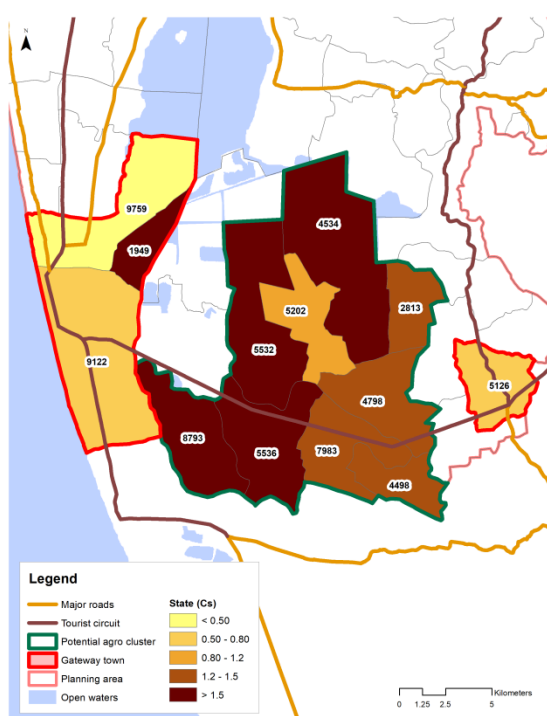


FIGURE 39: AGRO CLUSTER TCC NUMBERS

Source: Author

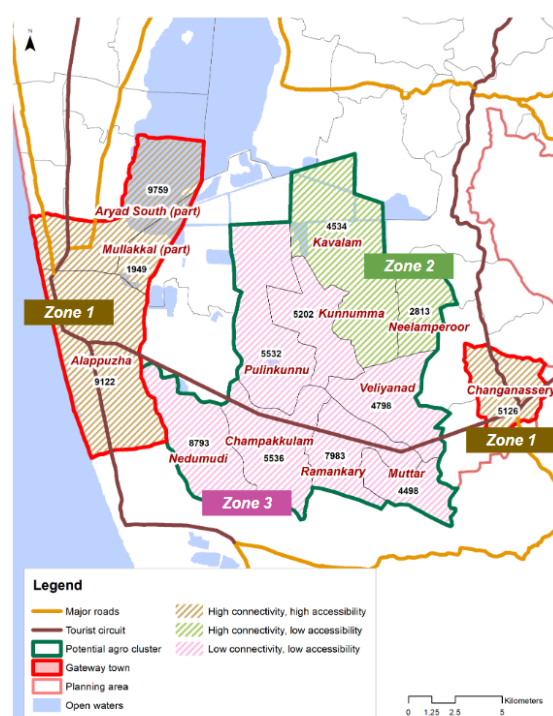


FIGURE 40: AGRO CLUSTER TOURISM ZONES

Source: Author

Given the accessibility and the carrying capacity criteria, the specific nature of tourism in each of the zones has been outlined.

TABLE 13: PROPOSED ZONES AND INFRASTRUCTURE REQUIREMENTS FOR AGRO CLUSTERS

Tourist zone	Nature of tourism	Length of stay	Proposed Activities	Required infrastructure
<b>Zone 1: Gateway &amp; Orientation Hub (High Connectivity Zone)</b>	Transit-based, orientation and short visits	Less than 1 day (Half-day or day trips)	<ul style="list-style-type: none"> <li>- Guided introductions to the agricultural ecosystem</li> <li>- Booking day tours or onward stays</li> <li>- Purchase local agro-products</li> <li>- Attend short interactive displays or AV shows</li> </ul>	<ul style="list-style-type: none"> <li>- Interpretation Centre</li> <li>- Retail outlets for local crafts and agro-products</li> <li>- Multimodal transport hubs (boats, buses, auto-rickshaws)</li> <li>- Tour operator offices</li> <li>- Public amenities (toilets, rest areas, Wi-Fi)</li> </ul>

<b>Zone 2: Immersive Rural Experience (Homestays with Farmers)</b>	Experiential and participatory agro-tourism	2–3 days	<ul style="list-style-type: none"> <li>- Participate in harvest festivals</li> <li>- Cooking traditional meals</li> <li>- Engage in farming activities</li> <li>- Shop at haats</li> <li>- Nature walks and village trails</li> </ul>	<ul style="list-style-type: none"> <li>- Farmer-run homestays</li> <li>- Festival grounds</li> <li>- Farmer haats/markets</li> <li>- Temporary food courts/traditional kitchens</li> <li>- Signage and local guides</li> </ul>
<b>Zone 3: Heritage Agro-Industry Retreat (Rural Retreats with Traditional Processing)</b>	Heritage and cultural agro-tourism	2–4 days	<ul style="list-style-type: none"> <li>- Learn paddy processing (manual and mechanical)</li> <li>- Workshop on making rice-based products</li> <li>- Stay in eco-conscious accommodations</li> <li>- Agro-wellness experiences (e.g., rice bran scrubs, herbal baths)</li> </ul>	<ul style="list-style-type: none"> <li>- Rural eco-resorts with decentralized facilities</li> <li>- Small-scale paddy processing units</li> <li>- Paddy-based product workshops</li> <li>- Interpretation spaces within the resorts</li> <li>- Walking paths, observation decks</li> </ul>

Source : Author

### 5.3.2.2 DEVELOPMENT POLICIES

The required mix of regulatory tools, financial incentives, and urban design strategies have been proposed for each zone to foster. The following section outlines zone-specific proposals to guide development, manage tourist flows, and enhance the overall visitor experience.

TABLE 14: DEVELOPMENTAL POLICIES FOR AGRO CLUSTERS ZONE 1

Category	Policy intervention
<b>Subsidized Infrastructure Development Grants</b>	Provide capital grants to local panchayats and cooperatives for setting up interpretation centres, retail clusters, signage systems, and multimodal connectivity hubs.
<b>Public-Private Partnership (PPP) Investment Model</b>	Encourage private investments through PPPs in exchange for lease rights on retail spaces and interpretation kiosks under Design-Build-Operate models.

Category	Policy intervention
<b>Zoning for Transit-Tourism Uses</b>	Designate specific land-use zones near transport corridors (boat jetties, bus terminals) for tourism support functions, easing development permissions and providing FAR incentives.
<b>Auction-Based Tourist Guide Licenses</b>	Issue a limited number of annual licenses for certified tour operators through competitive auctioning, with preference given to local youth trained under skill development schemes.
<b>Urban Design Guidelines</b>	Enforce a cohesive design language for facades, kiosks, wayfinding signage, and pedestrian-friendly streetscapes, promoting a unified visitor experience.

Source : Author

TABLE 15: DEVELOPMENTAL POLICIES FOR AGRO CLUSTERS ZONE 2

Category	Policy intervention
<b>Subsidies for Homestay Upgradation</b>	Offer financial incentives and soft loans for farmers to upgrade rooms into tourist-compliant homestays with sanitation and safety standards.
<b>Harvest Tourism Permit Scheme</b>	Introduce short-term tourism permits for individual farms participating in festival and seasonal tourism events (e.g., Harvest Trails), ensuring regulatory oversight and quality control.
<b>Cluster-Based Cooperative Model</b>	Form local tourism cooperatives to manage bookings, share revenues, and conduct collective training in hospitality, ensuring local ownership.
<b>Agro-Education Integration</b>	Promote partnerships between universities/agriculture colleges and the local community for agro-tourism curriculum, research internships, and joint knowledge events.
<b>Temporary Rural Pop-up Zones</b>	Permit temporary but regulated “pop-up” haats, cuisine stalls, and performance spaces during festivals using flexible zoning and modular infrastructure.

Source : Author

TABLE 16: DEVELOPMENTAL POLICIES FOR AGRO CLUSTERS ZONE 3

Category	Policy intervention
<b>Artisanal Tourism Incentive Scheme</b>	Provide grants for setting up traditional small-scale rice milling, processing, and value-addition units as tourism attractions, especially by SHGs and women's groups.
<b>Eco-Resort Zoning Policy</b>	Introduce an "Agro-Eco-Tourism Zone" land-use classification with guidelines on maximum buildable area, low-carbon materials, water use, and landscape integration.
<b>Carbon Offset Certification for Resorts</b>	Mandate or incentivize certification of eco-resorts as carbon-neutral through local offsetting initiatives like paddy methane capture or tree planting in buffer zones.
<b>Heritage Permit Auction System</b>	Auction a limited number of annual "heritage-tourism permits" for resorts operating traditional processing units open to tourists—ensuring exclusivity and quality standards.
<b>Design Review Boards</b>	Set up local design review panels to assess resort and infrastructure proposals for vernacular architecture, landscape integrity, and visitor capacity thresholds.

Source : Author

## 5.4 TOURISM EVENT CALENDAR

The event calendar is a cultural celebration framework designed to align with the key agricultural and aquacultural cycles of a region, promoting traditional livelihoods through festivals. It brings together various community clusters—Agro (Paddy), Pokkali, Coir, and Aqua—to celebrate the peaks of production and the rhythms of nature.





EVENTS CALENDAR													
MONTHS		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
						TOURIST HOLIDAY							
Agro cluster (paddy)	Vrippu				sowing					harvest			
	Mundakan	harvest							sowing				
	Puncha				harvest							sowing	
		FESTIVAL				TOURIST HOLIDAY						HARVEST	
						TOURIST HOLIDAY							
Pokkali cluster	Prawn-paddy	prawn cultivation				sowing	paddy cultivation			harvest	prawn cultivation		
	Toddy production	best quality				normal production							
			PRAWN-TODDY FESTIVAL				TOURIST HOLIDAY						
						TOURIST HOLIDAY							
Coir cluster	Coir products	peak yield			normal production								
	Boat making	normal activity							peak in activity				
		CRAFTS FESTIVAL				TOURIST HOLIDAY						BOAT RACING	
						TOURIST HOLIDAY							
Aqua cluster	Natural freshwater		peak yield			normal production							
	Cage aquaculture		full harvest		rearing and growing						partial harvest		
	Clam collection	peak yield			normal production								
			FISH FESTIVAL			TOURIST HOLIDAY							

FIGURE 41: PROPOSED TOURIST CALENDAR

*Methodology for assessing the Tourism Carrying Capacity of estuarine ecosystems: A case of Kochi*

*Source: Author*



## **5.5 BRANDING AND MARKETING**

The event calendar is a cultural celebration framework designed to align with the key agricultural and aqua cultural cycles of a region, promoting traditional livelihoods through festivals. It brings together various community clusters—Agro (Paddy), Pokkali, Coir, and Aqua—to celebrate the peaks of production and the rhythms of nature.

### **5.5.1 BRAND NARRATIVE**

The new tourism brand will prioritize nature and community. For too long, tourism here has been framed through the lens of leisurely houseboats and luxury retreats, often divorced from the land, the life, and the legacy that this region holds. The narrative will promote the wetland as a living ecosystem and shed limelight onto its culture, community and biodiversity. The brand will champion the following themes:

- 1) Sustainability
- 2) Community-driven
- 3) Slow, immersive experiences
- 4) Cultural authenticity
- 5) Eco-conscious luxury

### **5.5.2 BRAND IDENTITY ELEMENTS**

The brand identity elements reinforce the brand values and play a key role in disseminating awareness among tourists, reinforcing eco-sensitive tourist behaviour.

#### ***1) Logo and tagline:***

The logo should maintain minimalism with earthy colors (greens, browns, and blues) and organic forms, resonating with an eco-conscious, slow tourism ethos.



FIGURE 42: WETLAND TOURISM LOGO (SAMPLE)

Source: Author



FIGURE 43: PRODUCT BRANDING

Source: Author

## 2) *Strategic partnerships*

Partnerships will help forge collaborations that enhance conservation-driven tourism while empowering local communities. These partnerships would ensure:

- Economic incentives are aligned with conservation
- Marketing and visibility extend to ecologically sensitive travel segments
- Policy advocacy is backed by community voices and data.

TABLE 17: PROPOSED STRATEGIC COLLABORATIONS

Partner type	Organisations	Role in partnership	Expected outcomes
<b>Academic &amp; Research Institutions</b>	CUSAT, KUFOS, SICON	Provide scientific input for environmental monitoring, capacity studies, and sustainable tourism guidelines.	- Data-driven decision-making, ongoing ecosystem assessment - Academic validation
<b>Eco-Certification Bodies</b>	Green Globe, Kerala RT Certification	Certify and validate responsible practices followed by tourism operators and stakeholders.	- Build credibility and attract eco-conscious travelers.
<b>Non-Governmental Organizations (NGOs)</b>	ATREE, MS Swaminathan Foundation, WWF-India	Facilitate community mobilization, conservation awareness, and livelihood training.	- Empowered local communities - Assist in grassroots-level implementation - strengthened conservation-tourism linkage

Source : Author

### 3) *Community-led ambassadors*

The idea is to position local communities as ambassadors of their own heritage, this initiative fosters a tourism model deeply rooted in authenticity, lived experience, and ecological stewardship. Their involvement ensures that tourism revenues are equitably distributed, skills are locally developed, and the region's fragile ecosystem is respected through collective custodianship.

**TABLE 18: TOURISM AMBASSADORS AND KEY ROLES**

Ambassador group	Role description
<b>Fisherfolk</b>	Sharing stories of backwater life, traditional fishing techniques, and the rhythm of the tides.
<b>Farmers</b>	Guiding visitors through pokkali fields and explaining saline-resistant rice cultivation practices.
<b>Coir Artisans</b>	Hosting interactive workshops on coir-making and promoting sustainable, heritage crafts.
<b>Youth Groups</b>	Leading eco-guiding activities, bird watching tours, and mangrove interpretation for biodiversity awareness.
<b>Women's Self-Help Groups (Kudumbashree)</b>	Running eco-stays, cooking classes, and homestays to provide authentic local hospitality experiences.

*Source : Author*

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