

Appraisal of Munroe Island in Perspective of Tourism Development

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Abstract—Tourism can be defined as: “The activities of a person travelling outside his or her usual environment for a specified period of time and whose main purpose of travel is other than exercise of an activity remunerated from the place visited”. The present holistic ideas even redefines this as “Tourism was and essentially still is recreational travelling”. ((UNWTO), 2015). The Ashtamudi backwaters lies in the second position in terms of tourism activity. The study tries to identify the tourism activity of various locations alongside the backwater and promote the tourism potentials. The Munroe Islands has the most visitor inflow among these locations and has a wide range of tourism products, owing to its peculiar geographical position at the confluence zone of the Kallada River and the lake. The study aims at upbrining the tourism potential of Munroe Islands, ensuring host population participation in the envisioning process. Primary study was conducted in the field to identify the status of tourism activities and facilities and both visitor and host population surveys was conducted.

Keywords--- Tourism, Island, Sustainable, Socio- economic impact

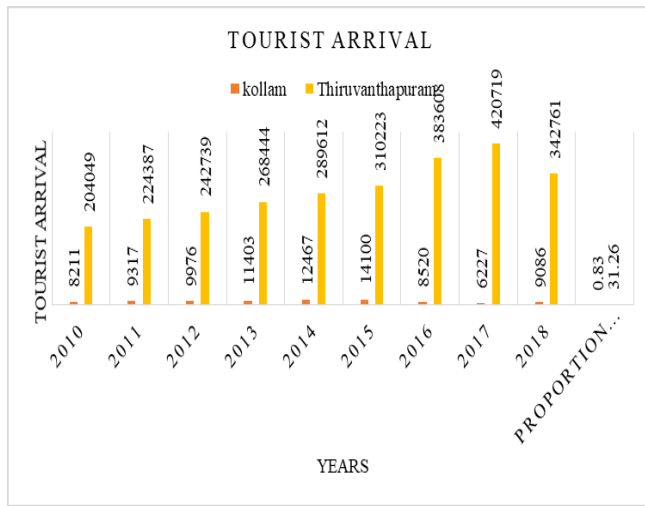
I. INTRODUCTION

Kerala Tourism is having a global presence and with its clear strategy for growth and sheer marketing activities, it has gained a lot of tourists from all over the world, especially from the UK, USA, France and Australia. Kerala tourism has bagged lots of appreciation from all-round the world some of them are enlisted. Like International travel and tourism gold award for best in responsible tourism - Kerala tourism, 2018, Lonely planet travel awards for best destination for families 2018, Best responsible Tourism project / initiative – Responsible Tourism Wayanad - 2016-17, Best Facebook page award, 2018, etc. The backwaters of Kerala are a unique feature of the State and is found nowhere else in the world. Backwaters are a network of lakes, canals, and estuaries and deltas of 44 rivers that drain into the Arabian Sea. The backwaters of Kerala are a self-supporting eco-system teeming with aquatic life. [1]

II. NEED FOR THE STUDY

The backwaters of Kerala is one of main attraction of the tourist coming to Kerala. Lake and canal boating is main activity which takes in the backwaters. To enjoy these activities, tourist mainly visit Vembanad lake of Alappuzha and Ashtamudi lake of Kollam district. Though Kollam has many tourism destinations, the tourist’s visiting the area is less when compared to other districts in Kerala, thus ranking Kollam in the 12th position (12th in terms of domestic tourist and 10th in case of foreign tourist). [1]

This is mainly because of improper planning, management and marketing efforts taken to promote the tourism destination. In Kollam, the main tourist attractions are Kollam beach, Thenmala, Mundakal Beach and Munroe Island. As mentioned in the tourism department statistics, 2018; the main attraction in Munroe Island is coir manufacturing. But as of now the main attraction in the area is canal boating and homestays. Coir manufacturing is currently declining in the area. In case of the total accommodation facility licensed in Kollam district, about 85% is in Munroe Island. “About 80% of the total tourist visiting Kollam, mainly goes to Munroe Island as a holiday destination”, says Secretary District Tourism Promotion Council, Kollam. *Graph 1: Graph showing the tourist arrival to Kollam and Thiruvanthapuram Districts in the past years and also proportionate to the whole Kerala.* Islands have tremendous unexploited potential to foster growth and achieve cohesive socio-economic development. The study is conducted in order to understand the overall socio-economic characteristics of the island and how it supports tourism sector. There is an immense potential in this island to attract tourists as an economic development and employment generation. The island is still not utilized efficiently as it has potential to bring development for the state also.



Graph 1: Graph showing the tourist arrival to Kollam and Thiruvananthapuram Districts

III. LOCATION AND REGIONAL SETTING OF THE STUDY AREA

The Munroe Island measures a total area of 13.4 sq.km with Pattamthuruthu, Pezhamthuruthu and Perungalam as the major islands. Before entering the lake, the river splits into many narrow and wider canals before discharging into the lake. Listed by lonely planet, Munroe Island is one among the most tourist preferred destinations in Kollam district as well as a most prominent village canal tourism zone in Kerala.

Out of the 14 districts in Kerala, Mundrothuruthu gram panchayat lies in Chittumala block of Kollam district (Fig 1). Chittumala Development Block was established on 10th September 1963. The Chittumala Block is headquartered at Chittumala in the east Kallada panchayat. Chittumala block Panchayat consists of 12 divisions. The boundaries of the Chittumala block panchayat are Kallada River on the north, chavara and Sasthamkotta blocks on the east. Kottarakkara and Mukathala block on the south, Ashtamudi Lake on the west. Most of the low lying areas are found in the Mundrothuruthu panchayat. The total area of Island – 13.2 sqkm. Fig 2 shows the connectivity map, in 10kms radius runs NH744 and 10km to 20km runs NH66. The major road connectivity to island is through Chittumala Block. And through waterbody from Peruman by Jangar services.

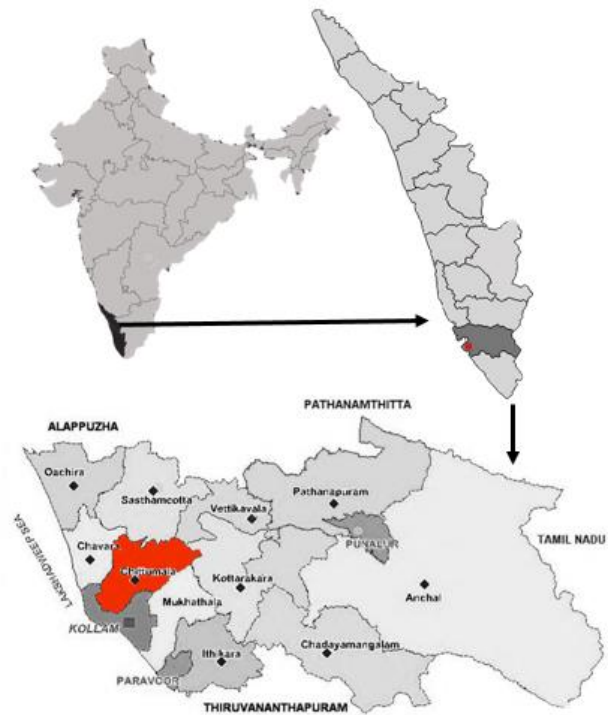


Figure 1 Location of the study area

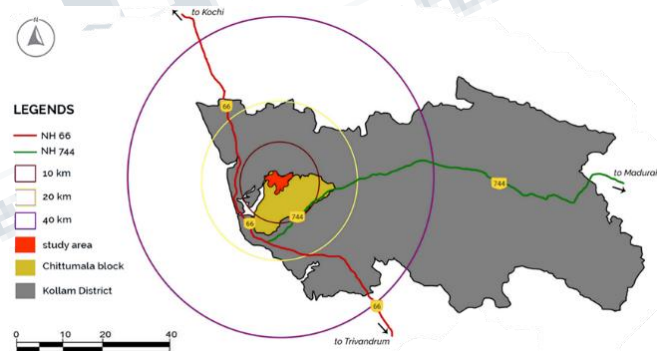


Figure 2 Map showing regional connectivity

The area surrounding the Mundrothuruthu is part of Ashtamudi estuary which forms an important geological segment of the south Indian peninsular shield, both crystalline rocks and tertiary sediments are major components of the estuary.

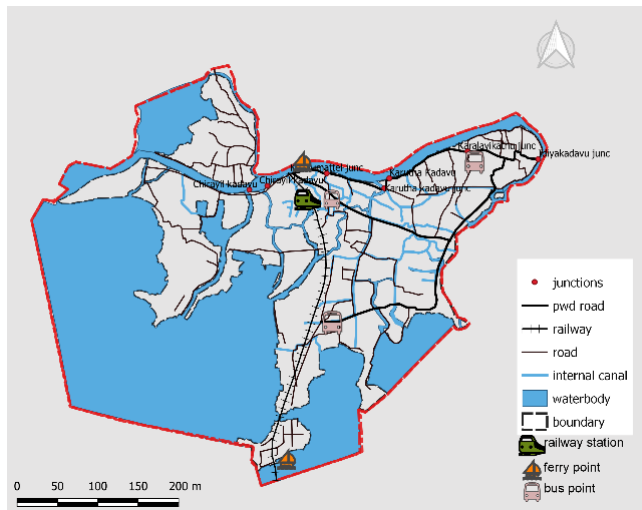


Figure 3 Base map of the study area

The island village has different types of tourism activities like see coir weaving, coconut farms on the lakeshore, fishing, prawn farming, narrow canals and waterways, lagoons, mangrove plants and the beautiful tiny islands. Latitude is 9°0'0"N and longitude is 76°37'0"E and 3.32 m height above mean sea level. Munroe Island has a geographical area of 13.4sq.kms and the population of 9440

as per 2011 census. Kallada River runs along northern side of the Island and remaining sides by Ashtamudi Lake. Munroe Island has a geographical area of 13.4sq.kms. Fig 3 shows the base map of the island with major junctions, roadways, bus stops, and railway station and ferry points.

IV. DATA COLLECTION

The complete data was divided into four different pillars based on the priority of the study. Each pillar has a set of dimensions which focus on the main factors of sustainability. All dimensions has different element included in it. The table below shows the pillars, its dimensions, elements included and the method of collection of such data.

DEMOGRAPHY

As per 2011 India census data, the administrative village of Mundrothuruth has a total population of 9440, consisting of 4493 males and 4947 females and the population density of this area is 776/km². Population growth rate for Mundrothuruth is -0.57 as per 2011 census. In 2001 it was -0.36. Population Growth Rate of Mundrothuruth shows a decreasing trend. [2]

	Dimensions	Element	Method of data collection
Environmental pillar	Natural resource management	Energy, water, climate change, disaster management	Secondary surveys— KSEB, Water authority, panchayat officials
	Waste management	Solid waste Residual water waste	Primary & secondary survey— host population survey, officials interview- panchayat, municipality
	Land management	land use variation	Remote sensing and GIS map
	Bio-diversity management	Habitat Species- Protection, Preservation	Kerala wildlife and forestry department
Transversal pillar	Infrastructure services	Transportation services Access to facilities Commonly used medium	Primary survey --host survey and visitors survey
Economic pillar	Tourist satisfaction & tourist seasonality	Tourism seasonality Tourism satisfaction Tourist accommodation	DTPC, primary surveys—tourist survey
Socio-Cultural pillar	Socio- Economic Employment	Socio-economic characteristics Occupational structure Employment	Primary survey Census data Employment pattern

Table 1 Primary and secondary data collected and method of collection

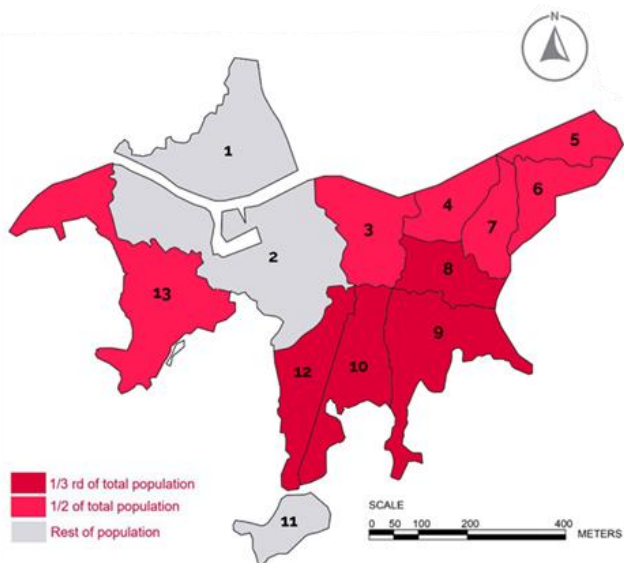


Figure 4 Population Concentration Index

Population density for Mundrothuruth panchayat according to 2011 census is 776 per square kilometers. Density of population of Mundrothuruth panchayat is higher, still comparable with nearby panchayats. Sex ratio for Mundrothuruth is 1101 as per 2011 census. The ratio increased from 1070 in 2001 and to 1101 in 2011. Fig 3 shows the population concentration index in the panchayat. Population concentration index gives the amount of people concentrated in an area comparing to the total population.

EMPLOYMENT PATTERN

In Mundrothuruth Panchayat 63% of working population is contributed by male workers and remaining 37% by female workers. There is a gradual decrease in female working population from 1515 in 2001 to 1417 in 2011. [2] Work Force Participation Ratio (WPR) shows increase from 1981 to 2011. WPR in Mundrothuruth Panchayat area is 41.3. There is an increase in WPR from 1981 to 2011 i.e., from 38.34 to 41.3. WPR of Mundrothuruth Panchayat area is greater than nearby panchayats. WPR evaluate working-age population in an economy. Total number of workers in Mundrothuruth Panchayat area is 3836 according to 2011 which was 4136 and 4044 in 2001 and 1991 respectively. Due to the significance of water bounded areas through the wards. The population is more concentrated in the broad-upper central part of Mundrothuruth, which constitute about half of the population of the area

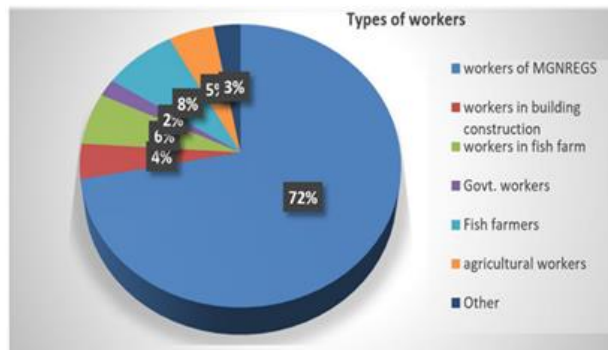


Figure 5 Types of Workers in the Panchayat

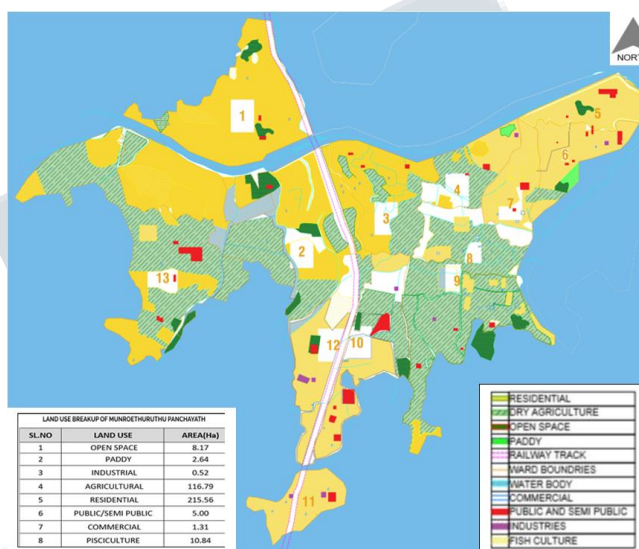


Figure 6 Land Use Map of the Panchayat

LANDUSE

Settlements interspersed with coconut gardens and mixed crops are dominant in the elevated part of the island. The area that lies to the west of railway track is mostly low lying having numerous water bodies and tidal creeks with coconut and natural species, mainly mangroves, on the banks. [6]

Aquaculture is practiced in such areas where traditional and modern aqua farms are seen. The area had large-scale coir retting practice in earlier periods, which are now limited to very few locations.

- Residential are more concentrated in ward 5 and 6, followed by ward 1,3,12 and 11.
- Though ward 12 have no roads they are easily accessible from the main road and railway line.
- Agricultural land use are more concentrated in ward 4, 6, 8, 9 and 13. ward 13 is highly effected by the high tides, thus reducing the productivity
- Pisciculture is more concentrated in ward 1, 2 and 13. As they share boundary with both lake and river, presence of more internal water channel is seen.

- Commercials are mainly concentrated in ward 3, 7, 8 and 9. Because of more connectivity comparing to other inner areas. They are mostly seen along the main road.
- There is a scope for revival of agricultural sector in the study area.
- Barren land areas can be restored to its original uses by appropriate legislations to enhance agricultural and tourism activities. Riverside can be developed into parks and recreational area.
- Improves focus on agricultural productivity, so that inland farming can be increased.

ENVIRONMENTAL FACTORS

Mundrothuruth Island, also known as Munroe Island in Kollam District is an island within the Ashtamudi backwater system. This island attracts tourists due to its natural beauty with disposition of numerous interconnecting canals. [7][8]

- Inundation Of Land And Houses – In low-lying Pattamthuruthu, one of the islets in the island’s mid-western part, the houses are inundated by the sea water.
- Scarcity Of Drinking Water – Another problem on the island is the scarcity of drinking water. During high tide, the public water supply system stops functioning and water has to be transported in canoes.
- Environmental Refugee – There has been a steady exodus from mundrothuruth, which currently has only 2200 families, and is dotted with abandoned houses in varying stages of decay.
- Tidal Surge – The threat of tidal surge became aggravated after the Indian Ocean Tsunami in 2004. The whole island called Ekkappuram is completely submerged. As NCESS study has found that the total water – holding capacity of Ashtamudi Lake has decreased by 15% in the last 17 yrs.
- Construction of Thenmala Dam- It is located 70km away and constructed in the 1960s under the Kallada Irrigation Project. The dam blocked the flow of fresh water as result sediments from the Kallada River was also stopped. It was the main determinant of the land’s fertility. Now, the whole area has turned saline. *Figure 7 Map showing the most environmentally affected wards in the panchayat*
- Mangroves: There has been 85% reduction in mangrove area during 1967-2016. Floristic study of different sites in Kollam revealed the occurrence of 12 species belonging to six families. Mangroves, their distribution of species is determined by salinity, competition and other physical factor.
- Coastal regulation zone: This coastal regulation zone is the environmentally most critical area. It has been further classified as CRZ - 1A and CRZ - 1B.

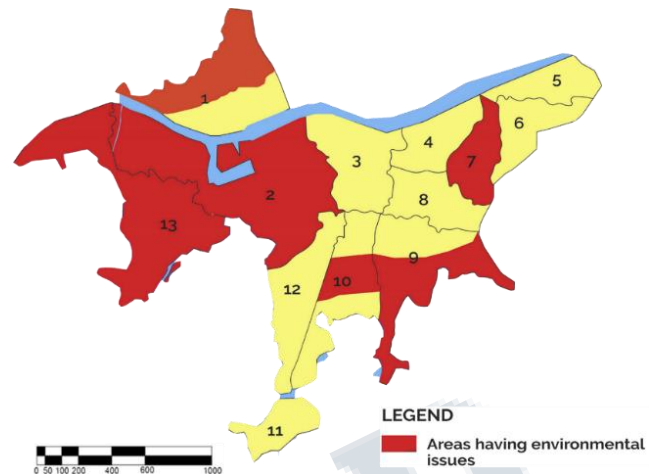


Figure 7 Map showing the most environmentally affected wards in the panchayat

SPECIES

Backwater fishing is one of the major income sources. Freshwater prawns, lobster, crabs, clams and oysters which find a ready market overseas are caught from these backwaters. Important fishes: Pearl-spot, milk fish, mullets, Tilapia, Murrels etc. Low lying area of the panchayat have greater potential for fish cultivation especially shrimp, pearl spot etc. Initial cost for farming maybe higher this can be tackled by group cultivation.

MALA- A TYPE OF FISH FOUND ONLY IN MUNDROTHURUTH

- There are certain type of flora and fauna fully restricted to certain areas.
- Mala fish is an invisible fish to fishing nets and it lives in the deep mysterious locations not easy to find.
- A freshwater fish, its pure vegetarian and hides inside the pits of immersed rocks.
- It lives on grass, water needs and mosses.

CLIMATE CHANGE

There are many secondary effects of climate change and sea level rise to the island. Continued increases in air and water surfaces temperature. This climatic effects brings changes to the small diverse and isolated ecosystems. As sea level rises, water intrusion occurs on low lying regions as well as salinification. As a result, becomes become very difficult for the agricultural and commercial sectors mainly coir manufacturing, which reduces the quality of the coir. The increase in temperature level causes extinction of fish species as well as migratory species. When the temperature level rises, the pH level of water decreases, which causes the fish species to move out of their normal habitat.

ENERGY

- **COOKING FUEL:** The fuel predominantly used in the area is LPG and only 1% uses firewood.
- **STREETLIGHT:** Streetlight is unavailable in 46% of the area. There is a lack of lighting in internal roads and gullies, near railway line etc.
- Efficient streetlight network required, as there is absence of the same in most areas
- Usage of alternatives like solar, biogas can be promoted.
- The only obstacle for the transmission in certain areas is the extensive vegetation.

SOLID WASTE MANGEMENT

Solid waste management is one among the basic essential provided by municipal authorities in the country to keep urban centers clean. SWM is a major problem for many urban local bodies in India, where urbanization, industrialization and economic growth have resulted in increased municipal solid waste generation per person.

BIODEGRADABLE SWM: from the socio-economic survey, 100% of people in Mundrothuruth panchayat are having own house management.

NON-BIODEGRADABLE SWM: from the socio-economic survey, 77% of the respondent's area covered with door to door solid waste collection. Seepage of leachate into nearby drinking water wells during rainy season. Waste collection is irregular about the effects of burning non-biodegradable waste on site and segregation of both organic and inorganic waste, impacts of unscientific waste disposal. Infrequent non-biodegradable waste collection by the authority. Unscientific on site bio degradable waste disposal by the residents.

WATER SUPPLY

Munroe Island is a typical backwater peninsula and quality of drinking water is very low. The only source of water is water supply by KWA. Water harvesting is not done in any of the houses. Water supply to homes during high tide is complicated.

TRANSPORTATION

The transportation system of Munroe Island consists of 3 mode

1. by road
2. by waterway
3. by railway

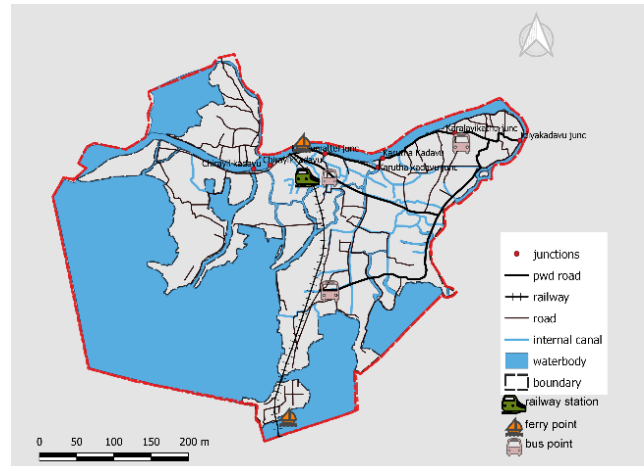


Figure 8: Map showing the accessibility and major junctions in the Island

Figure 8: Map showing the accessibility and major junctions in the Island Shows transportation facilities available inside the island. The village is divided into 2 by the 3.4 km long railway line. The left side of the railway line is mainly occupied by the pedestrian paths whereas on the right side, vehicular entry is more. Ward 13, 12 & 2 don't have any vehicular entry early development area like Dutch church spaces because of the invasion railway track there is no access over there. Railway cross is the main issue over the west side of Munroe Island.

INDUSTRIES

The site has organically spread industrial sector with a minimal coverage, the industries running through are cashew factories, saw mills, brick kilns, country boats making factories and coir industries. Out of all these small scale industry takes up a major core of the industrial occupancy.

There are:

1. Cashew factory- 1
2. Brick factory- 1
3. Saw mills – 2
4. Coir society- 5
5. Commercials – 16 (small shops, bakery, textiles).

Early means of income was coconut plantation and coir spinning, by the decline of these they started fishing as an income generation. There are 2 types of inland fish cultivation: 1) Ashtamudi lake fish cultivation, 2) Kallada river fish cultivation. Pearl spot cultivation is only possible at the places near Ashtamudi Lake. Main cultivations in fresh water are crabs, lobster, prawns, clams, pearl spot, mullets, tilapia etc. During the flood the fish pond were flooded and they lost their fishes. The no: of ponds are less when compared to past years.

V. TOURISM

After the decline of agriculture in the island, residents started to focus on tourism as their livelihood. In the form of homestays, restaurants, boating etc., as local guides, stakeholders.

Figure 9 depicts the present canal boating circuit in the island. Different types of packages are available by the tourism department and also private resorts to move around the island.

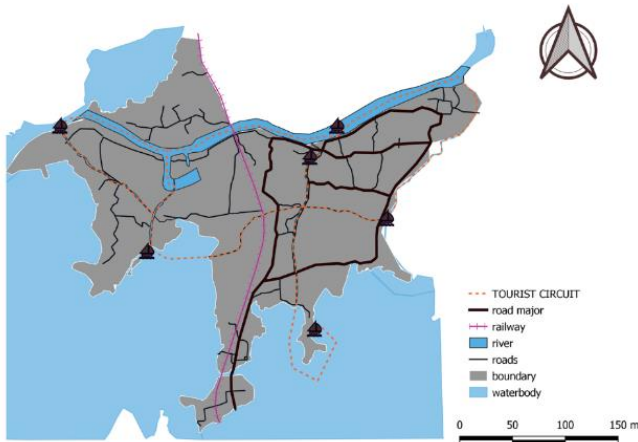


Figure 9 Canal boating circuit in the island

Department of tourism has allocated about 3 crore for the development of tourism infrastructure and many projects are on the way for the development of the island. The natural estuaries is one of the best aspect of tourism in the area. Canal boat trip is one of the major tourism activity in the island. Small canopy boat takes the tourist throughout the island as per the interest of the tourist.

TOURISM INFRASTRUCTURE

Of total of 35 homestays in Kollam district, 25 of them is at Munroe Island. All of them are licensed with diamond and gold category certification by department of tourism. [5] Foreign tourist mainly prefer to stay in homestays. Fig 10 position the location of homestays in the island. Homestays are mainly to Centre core of the area with accessibility by road.

VISITORS SURVEY ANALYSIS

About 30 visitors including both domestic and international tourist were surveyed. A convenience sampling method was incorporated.

Visitors are fond of the natural beauty, canal boat ride, the village walk, cycling through the village etc. The visitors mainly prefer to stay in homestays rather than resorts in the village. The homestays cost around 1000-2000 per person per night including food. All the visitors evaluate their accommodation to be excellent in all aspects. Homestays provide the visitors with all the experience in island. They

try to provide better experiences for the foreigners.

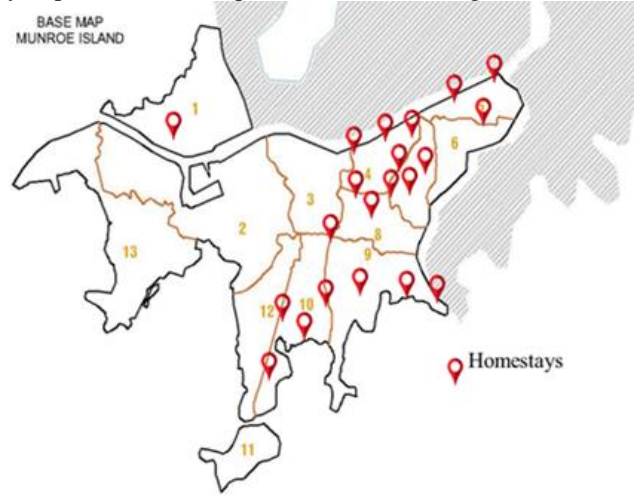


Figure 10 Location of homestays

Cycles are provided to the visitors by the homestays to move around the village and experience the beauty of the island. They provide the stayers with local cuisine as requested by the visitors. From the visitors survey conducted it was identified that almost all the visitors are seeking more environmentally friendly and cultural experiences and also they are willing to pay for it to have more fruitful experience on the island. From the survey it was identified that the destination is not overcrowded with visitors. The main suggestion made by the visitors are categorized to 4 groups: Restaurants/drinking water facilities, waste management, mobility and infrastructure.

STAKEHOLDER SURVEY ANALYSIS

There are different type of stakeholders in the island like homestays, restaurants, teashops, homely food services, coir weaving, fish farmers, small juice outlets etc. All they have different point of view as the work they are involved in is different.

Tourism season is from November to April. All homestays will be fill in these seasons. They take their bookings both directly and mainly through online booking site like booking.com and agoda. According to the seasonality, charges may from 1200 to 1700 per person per night. Homestays provide the visitors with bicycles for exploring the village life and all major destination will be shown to them. About 90% of the homestays present in the island don't have the facilities for disabled people. Homestays market their venture in terms of tourism. They are not directly involved in any type of tourism marketing efforts. From the opinion of the survey conducted it was identified that water and nature tourism can be focused mainly for marketing. All business establishments are open all the year. Creating awareness, educating the tour operators/guides, providing daily wages to the operators,

involving community participation in all sectors etc. were certain opinion given by the stakeholders to improve their involvement in the development of tourism in the island. Island is not vulnerable to any sort of tourism influences because till now the visitors count has not exceeded the threshold level/carrying capacity of the island, also the tourists are very keen to keep the nature as such without harming it. Tourist avoid the use of plastics to a maximum extend, they don't get on to the natural environment and habitat of the island. Waste management till now is not an issue in the island, they dispose the biodegradable waste in house and non-biodegradable waste will be collected by governmental agencies.

VI. DISCUSSION AND FINDINGS

The major findings and conclusions obtained from the study are listed out

Major problems of the panchayat are:

- The work participation ratio shows an increasing rate. The working population is decreasing because of decline in the agriculture field after the effect of Tsunami 2004. The panchayat main occupation was agriculture.
- Commercial activities are less in this area. Most of the residents depends on daily wages jobs such as building construction workers, workers of national rural employment guarantee scheme, workers in fish farm.
- Mundrothuruth is an area highly vulnerable to natural disasters due to the physical and geographical characteristics of the area. Most houses area in dilapidated condition, due to harsh effects of flood. Salt water intrusion in low lying areas. The economic condition is very poor, which calls for immediate measures to boost their economy. Poor hygienic conditions causing skin infections.
- Scarcity of clean drinking water. Lack of proper sanitation has impact on the water quality and has led to health problems.
- Alarming depletion in mangrove forest cover due to human intervention in the pretext of taking up new developmental activities.
- Residents lack awareness about segregation of biodegradable and non- biodegradable waste, impacts of unscientific waste disposal.
- Sand mining in the river bed has caused the river bed to lower at a rate of 11cm/year, making the region unstable.
- Tourism products and facilities are not marketed properly and maintained.
- Lack of transportation network in low-lying area
- Decline of agriculture

Potentials of the panchayat are:

- Abundant mangroves, their strong deep roots held the soil tightly and saved the land from erosion.

- Have great potential for village tourism
- Scope for fish cultivation and duck farm.
- Public are more interested to get involved in the tourism based activity, which provides them with a reasonable amount of daily income.

VII. CONCLUSION

Mundrothuruth panchayat is an area having village beauty and many potentials to develop. Along with this panchayat have many problem related to environment and are of serious issues such as settlement of building, salinity of soil, agricultural decline, connectivity and no sustainable income for residents.

To protect the Island and its population-need of the hour is to formulate location specific protocols for constructing buildings of high adaptability to the given situation. To ensure the livelihood of the local community adaptable methods of agriculture, aquaculture and allied activities have to be introduced. And utilizing the potential of tourism through responsible tourism can increase the local economy of the panchayat. Thereby the out ward migration from the panchayat can be reduced.

Tourism can be made as the main economic source of the panchayat all throughout the year with proper planning and guidance.

REFERENCES

- 1] Kerala tourism statistics, 2018
- 2] Kerala Census report 1991, 2001 and 2011
- 3] Development report of Mundrothuruth panchayat.
- 4] Asset register of Mundrothuruth panchayat
- 5] District Tourism Promotion Council report of Kollam
- 6] Kerala State Land Use Board land resource information system for Land use map
- 7] Krishibhavan report of 2014, Mundrothuruth Gram panchayat
- 8] Mundrothuruth Island environmental issues by Kerala state council for science and technology.
- 9] Integrated development plan Kollam