INTEGRATED FISHERIES DEVELOPMENT PLAN FOR COASTAL ZONE MANAGEMENT PLAN 2019, KERALA

REPORT

Department of Fisheries
Government of Kerala

July 2021

Preface

The Coastal Zone Management Plan 2019 (CZMP 2019) is an essential document for the implementation of Coastal Regulation Zone 2019 (CRZ 2019) notification. Almost all the developmental and conservation activities in the coastal zone will have to follow the CZMP. Upholding the concept that the coastal zone is primarily for the use of fishers and other coastal communities, the CRZ notification restricts or prohibits those activities which do not require shore frontage. It provides for conserving coastal ecosystems and morphology, facilitating sustainable development and reducing the impacts of coastal hazards and sea level rise. Still, the coastal communities felt that many of their traditional and customary rights like construction of dwelling units in their traditional settlement areas and livelihood related activities are denied or strictly controlled, which they demanded to be restored. They wanted the issues related to CZMP 2019 to be discussed before finalising the draft CZMP 2019. Considering this request, the Hon'ble Minister for Fisheries, Government of Kerala constituted a Technical Committee to address these issues and prepare an Integrated Fisheries Development Plan (IFDP) to be incorporated in the CZMP. Such an integrated plan will also has its futuristic value as Article 10 in the Code of Conduct for Responsible Fisheries proposed by FAO demands such integration so that interactions between the fisheries sector and other sectors can be taken into account in the establishment of management policy and practice with regard to coastal resources, besides catering the needs for blue growth.

The Committee evaluated the draft CZMP and CRZ 2019 from a fisher and other coastal communities' perspective, emphasising that the fisher community belongs to ecosystem people whose life and livelihood are inseparably linked with the coastal zone and coastal waters. It was observed that a proper interpretation of CRZ and appropriate inclusion of the fisher oriented components in the CZMP would address the settlement and livelihood related issues. Specific recommendations are made on CRZ categorisation, demarcation of critical zones like the beach, settlement areas, turtle nesting grounds, fishing zones, and fishery infrastructure zones. Framework of settlement plan, Pokkali/Kaipad management plan and community linked tourism plan are also part of the IFDP. The Committee has made efforts to see that the proposed recommendations are within the provisions in the CRZ 2019 notification.

The initiative taken by the Hon'ble Minister for Fisheries Sri. Saji Cherian to address the concerns of the fishers and other coastal communities is well appreciated and the Committee is grateful to him for the helpful guidance in formulating the recommendations. The Secretary, Fisheries has been keenly following the functioning of the Committee and provided timely and valuable advice. The Director of Fisheries extended all the necessary support to the Committee. The District Officers of Fisheries Department took all the efforts to provide field data. The different trade unions and organisations from the fisheries sector have given specific and very relevant comments on IFDP and draft CZMP in the meeting convened by the Hon'ble Minister. We also acknowledge KCZMA for the positive response and valuable suggestions on the draft IFDP.

The report is a collective effort of the Committee. All the members of the Committee provided the necessary input in time, which helped in bringing out the report on time.

Thiruvanathapuram
29.07.2021

Dr.K V. Thomas
Chairman, Technical Committee

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LIST OF ANNEXURES

INTEGRATED FISHERIES DEVELOPMENT PLAN FOR COASTAL ZONE MANAGEMENT PLAN, 2019

1. INTRODUCTION

Kerala has a coastline of 590 kilometers, which forms 10% of India's total coastline and the marine waters have always influenced the people of this small state in varied ways of commercial fishing, transport, tourism etc. Having a continental shelf area of 38700 square kilometers, exclusive economic zone (EEZ) of 218536 Sq Km, Kerala has a significant marine fisheries sector that has long been an important source of occupation and livelihood for the coastal population of the state besides contributing to the food and nutritional security of the state. It is estimated that about 8 lakh people earn their livelihood from capture and allied works in marine fisheries, living in the 222 fishing villages situated along the coastline of the state. In addition to this, the state is blessed with 41 rivers draining into the Arabian sea through 27 estuaries, 51 backwaters having area of more than 46000 hectares, more than 65000 hectares of brackish water 47 reservoirs, 9 fresh water lakes, and a number of ponds, irrigation tanks, streams etc. which contribute a rich resource of inland fish production which also support livelihood of more than 2 lakhs inland fishermen living in 113 inland fishing villages and thousands of fish farmers. Kerala fisheries sector contributes around 1.80% to the total GDP and its contribution to primary sector is about 14%. Export of marine products has set an ever time record of Rs 5919.02 Crores during the year 2017-18.

Any regulation which influence the livelihood of the coastal population especially fishermen has to consider the essential elements of their living like fishing, housing and associated infrastructure for landing their catch, coastal protection, coastal social infrastructure like roads, schools, hospitals, fish processing units, marketing infrastructure, etc. Along with marine capture fisheries, aquaculture is also growing fast and is widely promoted by both state and central governments to ensure the food/nutritional security of the country and to increase employment opportunities in coming years. Sustainability of fisheries in both marine and inland waters is also crucial while formulating any regulation and management plan to such areas. Coastal Regulation Zone Notifications by MoEF & CC issued originally in 1991 and subsequently reissued in 2011 and 2019 very well consider various aspects of the management of ecologically important coastal areas for its sustainable development quoted as " **with a view**

to conserve and protect the unique environment of coastal stretches and marine areas, besides livelihood security to the fisher communities and other local communities in the coastal areas and to promote sustainable development based on scientific principles".

Department of Fisheries, Kerala with its vision for "Sustainable utilization and development of fisheries sector, both marine and inland aiming to the economic growth, food & nutritional security and for socio-economic development of fisher folk", implement various schemes and projects for the welfare of fishermen and fish farmers. As per CRZ notification, 2019, a draft Coastal Zone Management Plan (CZMP) has been circulated to various departments/agencies including this department for giving inputs for inclusion in CZMP. Fisheries Department has constituted a Committee; vide G.O. (Rt.) No. 290/2021/F&PD dated 11.06.2021 (Annexure – I) to formulate the requirements of the Department from fisheries perspective. The department's view is forwarded after considering the Committee's recommendations.

1.1 DRAFT COASTAL ZONE MANAGEMENT PLAN (CZMP), 2019

The draft CZMP has been prepared for each district. It consists of land use maps, Coastal Zone Management Plan (CZMP) maps and a report of which the latter two are received in the Department. The land use maps provide information on landforms such as filtration ponds, beaches, water bodies, etc. Environmentally Sensitive Areas (ESAs) like mangroves, turtle breeding grounds, etc., infrastructure and settlements. The CZMP map is based on the land use maps. It gives spatial distribution of CRZ and associated details in map form. The report gives descriptive details on various aspects such as methodology, CRZ categories, various reference and regulation lines, etc.

The coastal areas including the banks of estuaries and backwaters where CRZ regulations are applicable are spread over 10 districts – Kasaragod, Kannur, Kozhikkode, Malappuram, Thrissur, Ernakulam, Alappuzha, Kollam, Thiruvananthapuram and Kottayam. The CZMP now circulated gives the CZMP maps and reports for each of the 10 districts. The CZMP is contained in 87 maps in 1:25,000 scale. There are 245 coastal gram panchayats, 36 coastal municipalities and 5 coastal municipal corporations where CRZ regulations are applicable. The CZMP maps consists of HTL, LTL, various regulation lines (20 m, 50 m, 100 m, 200 m and 500 m from HTL, hazard line, buffer zone for mangroves, CRZ-IA (ESAs -

mostly mangroves, turtle breeding grounds) , CRZ IB (inter tidal zones), CRZ-II (CRZ areas in developed areas where the built up area is more than 50%), CRZ-IIIA (CRZ areas in undeveloped areas such as gram panchayats with density of population > 2161), CRZ-IIIB (CRZ areas in undeveloped areas such as gram panchayats with density of population < 2161), CRZ-IVA (sea and bed up to 12 nm - Territorial waters), CRZ IVB (inland water bodies having a minimum of 5 ppt. salinity) and CRZ regulation lines. Tourism plan is also attached to each of the district CZMPs circulated.

The Committee went through the draft CZMP 2019 from the fisheries and fishers perspective to prepare an Integrated Fisheries Development Plan within the framework of CRZ 2019. This has been addressed under different sectors like Fishermen as Ecosystem people, Housing and Rehabilitation, Social and Fisheries infrastructure development, Fisheries development, Aquaculture development, Tourism and Fisheries, Ecologically sensitive/protected areas, Coastal work spaces (*Thozhilidangal*), Coastal protection, Climatic change, mitigation and adaptation, Blue economy and marine special planning, and fisheries management and Expected inter sectoral conflicts/overlaps.

1.2. FISHERMEN AS ECOSYSTEM PEOPLE

There is an umbilical cord relationship between the fisher community and coastal ecosystem consisting of the fishermen settlement areas, beach, coastal waters, backwaters and pokkali fields. Their livelihood activities are traditionally and culturally dependent on each and every sector of the coastal ecosystem and their settlement is also a part of the coastal ecosystem. The fishermen are ‘ecosystem people’ in which the people and the ecosystem are inseparable from each other. Due to the peculiar coastal geomorphological set up of the coast zone of Kerala is too narrow and in many places these are barrier systems between the backwater and the sea holding dense population of fishers. This narrow coastal stretch is further squeezed due to coastal erosion. The occupational, demographic and social set up confines the fisher settlement close to the shore line. The livelihood interaction of local communities with coastal ecosystems continues throughout the year which necessitates close proximity to the system. Fishermen settlements are generally within 500 m with maximum density within 200m from the high tide line. Immediately landward of fisher settlements, normally non fisher people with entirely different cultural and occupational nature resides. In all respects the fishing community is thus

confined and squeezed within a narrow stretch due to traditional and historical reasons. Similar situation prevails along pokkali fields which are bounded by narrow bunds where fishermen also live. Strengthening of bunds, making sluices, allowing entry of wild seeds of prawns and fishes during flood tides, trapping them inside with sluice nets, keeping vigil of the trapped seeds, filtration at regular intervals for harvesting, etc. compel the inhabitants to be present always in the pokkali wetland system. Immediately on completion of fish farming, they are fully involved in pokkali rice cultivation. Construction and strengthening of bunds prior to the monsoon, desalination of the fields, germination and replanting, keeping vigil against breaking of bunds once monsoon flooding starts, keeping vigil on diseases and pests, harvesting at the right time, etc. again pin them down to the pokkali wetland system.

2. INTEGRATED FISHERIES DEVELOPMENT PLAN

2.1 HOUSING AND REHABILITATION

The main concept behind CRZ notification is to reduce unnecessary rush to the coastal are a close to the shoreline by restricting activities which do not require shore frontage. The restrictions on construction of dwelling units in the No Development Zone (NDZ) and CRZ reflect the above concept inbuilt in the notification. Construction of dwelling units is restricted and regulated in the NDZ and other CRZ region in CRZ III which consist of coastal panchayats other than CRZ I where it is prohibited. The result is that traditional coastal inhabitants including fishermen who are ecosystem people could not construct dwelling units in the NDZ of 200 m (from High Tide Line) in CRZ III B and NDZ of 50 m. in CRZ III A along the seacoast, 100/ 50 m along backwater banks and 50/ 20 m in backwater islands. Being ecosystem people the fisher folk felt this restriction as an impingement on their traditional and customary rights. People other than local inhabitants and fishermen are prohibited from constructing dwelling units in the CRZ except in CRZ II as a precautionary measure to prevent people having no stake in the coastal zone encroaching into fishermen space. Heeding to the request of the fishermen community the CRZ 2019 notification restored fishermen right to construct houses even in NDZ by introducing a clause through para 5.3 (ii) (a) that allows ‘construction and reconstruction of dwelling units of traditional coastal communities including fisher folk, incorporating necessary disaster management provisions and proper sanitation arrangements’.

The notification also reduces NDZ to 50 m for CRZ IIIA (areas where density of population is more than 2161) along sea coast and along the banks of backwaters. The CRZ and NDZ are also reduced to 50 m and 20 m in backwater banks and backwater islands respectively.

On verifying the draft CZMP 2019, it was observed that the density of population for identifying CRZ IIIA has been carried out by taking the entire village area as against the provision in the notification to consider the CRZ III area. By definition CRZ III covers only land part. Village area consists of CRZ I, CRZ II, CRZ III and CRZ IV. It is recommended that the Environment and Climate Change Department (DoECC) may follow the direction in the Notification to consider CRZ III area (land part) alone for computation of density of population which may bring many more Grama Panchayats under CRZ IIIA. Accordingly, the NDZ will be reduced to 50 m in these panchayats also. Panchayati Raj system being very strong in Kerala it is also recommended that all the computations and other depictions in the CZMP may also be based on Panchayat, Municipality and Corporations which is imperative in the wake of 73rd and 74th Constitution amendment. A model computation has been done for Arattupuzha panchayat in Alappuzha district and attached. It is recommended that the DoECC may revisit the categorization of CRZ IIIA and CRZ IIIB by recalculating the density of population taking the land area of CRZ III for the purpose. The DoECC/ KCZMA may also provide guidelines for construction of dwelling units in the NDZ in association with different departments and expert organisations.

In the CRZ 2019, Annexure IV under Guidelines for preparation of Coastal Zone Management Plans, in para 5(iii) the State govt. is directed to prepare 'detailed plans for long term housing needs of coastal fishing communities in view of expansion and other needs, provisions for basic services, including sanitation, safety and disaster preparedness'. This approach is expected to provide safe, hygienic, clean and environment friendly settlement regions for the coastal community taking into consideration their occupational needs also. This has not been properly projected in the draft CZMP 2019. This has to be done preferably for fishing villages by the concerned LSGIs with the support of different departments including Environment and Climate Change, Town Planning and Fisheries, and in consultation with the coastal communities. The settlement plan should have a strong empirical foundation provided through rigorous compilation and analysis of baseline data. Location of safe area for housing cluster development, rehabilitation plan for rehabilitating those living very near seashore and

susceptible to hazard from sea, strategies for coastal protection have to be ensured. A stock assessment survey has to be done on all infrastructure items followed with Needs Assessment Survey. Settlement plan has to be prepared with identified parameters taking into account of the stock assessment survey and needs assessment survey.

A model draft settlement plan prepared for Arattupuzha panchayat is attached for reference as Annexure - II. Coastal areas like Arattupuzha are barrier beaches which are highly prone and vulnerable to climate change impacts and sea level rise similar to many barrier coasts along the Kerala coast. Any management plan for such coast should take into account of the climate change impacts and sea level rise. It is recommended that such settlement plans may be prepared for all marine and inland fishing villages in the State as part of CZMP 2019.

The urbanization pattern for the State in 2011 shows around 50% urbanization and this urbanization trend is more concentrated on the coastal areas (Annexure-III). The developed areas within legally designated urban areas are categorized as CRZ II provided that the area is substantially built up so that the ratio of built up plots to that of total plots being more than 50% and have been provided with drainage and approach roads and other infrastructure facilities. It seems that the present draft CZMP 2019 has not verified this condition. An assessment of urban status may be reworked. The spirit of the CRZ notification is to reduce the pressure on the coastal zone by avoiding activities which do not require shore frontage and people who do not belong to coastal systems. This may be considered while suggesting CRZ categorization.

The ‘Punargeham’ project of the Fisheries department is a resettlement programe which imbibes the spirit of CRZ notification which intends to decongest the coastal area and reduce the impacts of coastal erosion and other coastal hazards (refer Annexure XIX for details). This may be linked with settlement management plans proposed for fishing villages. The project may also be restructured and modified to allay apprehensions of traditional coastal communities and to address their concerns such as need for differential financial support taking into account of the differential land price and the ownership and future use of the surrendered land. This was also one of the major demands of coastal community as expressed during the stakeholder meeting convened by the Hon’ble Minister for Fisheries, Culture and Youth Affairs.

2.2 SOCIAL AND FISHERIES INFRASTRUCTURE DEVELOPMENT

The CRZ 2019 notification permits almost all infrastructure facilities which require shore frontage like port and harbor, jetty, quay, wharf, erosion control measure, breakwater, pipelines, lighthouse, coastal police stations, etc. Social infrastructure like dispensaries, schools, public rain shelter, community toilets, bridges, roads, water supply facilities, drainage, sewerage, crematorium, cemeteries, and electric sub stations which are required for local inhabitants are permissible in CRZ III, even in its NDZ. Similarly, fishermen specific facilities like fish drying yards, net mending yards, traditional boat building yards, ice plant, ice crushing unit, fish curing facilities and the like are permissible. If a national or state highway passes through the NDZ, temporary tourism facilities are allowed even on the seaward side of the road. In such cases tourism resorts though not belonging to fisheries infrastructure, are permissible landward of national or state highway subject to conditions.

List of existing, under construction and proposed fishing harbours and fish landing centres in the State is given in Annexure IV (A and B). Considering the adverse impacts on the adjoining shoreline, it is recommended that any new harbor construction may look for designs which may allow sand by-passing and minimize the erosion on the down drift side of the harbor breakwaters. It is also appropriate to have a fresh assessment on the need for developing new fishing harbours other than the existing and those for which work has been initiated. Considering the adverse impact on adjoining shoreline and fishing practices, strong opinion was expressed against new fishing harbours by many stakeholders participated in the stakeholder consultation, where as demand is more for modernization of existing harbour.

2.3 FISHERIES DEVELOPMENT

Fishing community in the State is a very distinct group of people geographically located in the coastal zone and solely dependent on the sea for their livelihood. Their way of life and culture are centred around fisheries and distinctly different from others. They have a special relationship with the coast, sea and the environment. Their livelihood activity is associated with catching of fish, processing and marketing. These three sectors of activity may be considered when their livelihood requirements are addressed. Different fisheries development zones discussed below are listed in annexures attached to the IFDP report. These may be included in the CZMP.

2.3.1 Settlement of Ecosystem People

CRZ (2011) Notification (para 7 (V) A (ii)) has approved a special status for Kerala coastal zone as "areas requiring special consideration for the purpose of protecting the critical coastal environment and difficulties faced by local communities". It also considers the fisher people are confined to a very narrow stretch of 50 to 100m from the High Tide Line (HTL) as those belong to 'ecosystem people' who require the coastal zone for their settlement requirements and livelihood related activities. The Coastal Zone Management Plan of Kerala (CZMP) (As per CRZ Notification 2011), also reaffirm that "considering the livelihood requirements of the ecosystem people, the high density of coastal population, unique style of their livelihood activities, the CZMP has to project the various requirements to address the difficulties faced by local communities".

In order to reaffirm the commitment, the settlement areas of the fishermen along the Kerala coast should be kept apart from the tourism and other commercial development activities and the details of such places are given as Annexure-V A and B

2.3.2 *Thozhilidangal* (Fishing zones)

The '*thozhildangal'* (fishing zones) at the coast utilized by the fisher community for securing their livelihood activities should be demarked for the same and protected from other developmental activities. The details of '*thozhildangal'* is given as Annexure-VI.

2.3.3 Protected Area

The coastal and marine ecosystems in Kerala are quite diverse, providing a wide array of ecosystem services, besides ensuring sustainable supply of fishery resources. The state has a 590 km coastal belt extending over nine coastal districts, and around 1.1 million people of the state are dependent on the fisheries industry, which contributes 3% of the state's income. Coastal Kerala is bestowed with a vast network of backwaters, lagoons, natural lakes, rivers and canals. These habitats are also rich in biodiversity, including that of threatened species and species protected under the Wildlife (Protection) Act of India. Kadalundi-Vallikunnu Community Reserve is the only marine protected area officially declared (Map with geographic co-ordinates attached as Annexure VII). However, there are several fish protected area, clam protected area, fish sanctuary in the inland waters, likewise, the artificial reef and natural

breeding ground of the fish in marine waters also need to be protected and its details are given as Annexure-VIII and IX.

There are also several initiatives taken by the local community in protecting the Olive Ridley Turtles and mangroves, all along the Kerala coast. All these initiatives for protection will provide protection for a variety of threatened species, besides offering natural protection to a variety of coastal habitats, which harbour several threatened species, from anthropogenic interventions. These areas are classified under CRZ IA (areas that are ecologically sensitive and the geomorphological features), which play a role in the maintaining the integrity of the coast. In Kerala coast, such ecologically sensitive areas include mangroves, corals (scattered and patchy corals only), Sand Dunes, community reserves, fish sanctuaries, and turtle nesting grounds.

2.3.4 Sea turtle breeding in Kerala coast

Sea turtles are one of the ancient marine reptiles, with over 150 million years of evolutionary history. These air-breathing migratory reptiles spend most of their lives at sea. During the breeding/nesting seasons, both sexes typically aggregate in the waters close to the nesting beaches, and the females lay their eggs on land, typically on sandy beaches. These areas, where they lay eggs are called turtle nesting grounds. All the sea turtles are threatened and are under a series of threats in Indian coast, including loss of nesting beaches due to increase in built-up areas and hard coastal protection structures; illumination on the coast from industries, resorts and settlements; plantations on the coast such as Casuarina; and garbage and pollution of nesting beaches and offshore waters.

Of the seven different species of sea turtles distributed in world oceans, five species occur in Indian waters and four species have been recorded from Kerala coast, which include green sea turtle, olive ridley sea turtle, hawksbill sea turtle, and leatherback sea turtle.

1. **Green Sea Turtle *(Chelonia mydas*)**: listed as endangered by the IUCN and in Appendix I of CITES; included in Schedule I of the Wildlife (Protection) Act of India (Family: Cheloniidae)
2. **Olive Ridley Sea Turtle (*Lepidochelys olivacea*)**: listed as vulnerable by the IUCN and in Appendix Iof CITES; included in Schedule I of the Wildlife (Protection) Act of India. (Family: Cheloniidae)

3. **Hawksbill Sea Turtle (*Eretmochelys imbricata*)**: listed as critically endangered by the IUCN and in Appendix I of CITES; included in Schedule I of the Wildlife (Protection) Act of India. (Family: Cheloniidae)
4. **Leatherback Sea Turtle (*Dermochelys coriacea*)**: listed as vulnerable by the IUCN andin Appendix I of CITES; included in Schedule I of the Wildlife (Protection) Act of India. (Family: Dermochelyidae)

Turtle nesting grounds have been classified as Ecologically Sensitive Area (ESA) under CRZ-I A and the activities other than traditional fishing in turtle nesting area have been prohibited and regulated.

Conservation of turtle nesting sites in Kerala

The detailed list of turtle nesting sites (based on the historical data from 2003), compiled from various sources and direct observation are given in Table 1. In the last few years there have been a declining number of turtle nesting records in Kerala coast, primarily due to the loss of beaches due to coastal erosion. However, on the positive side, there have been several initiatives in Kerala coast for conserving the turtle nesting grounds with people's involvement. In many coastal areas, fishing communities are also involved in the protection of turtle nesting sites.

LIST OF TURTLE NESTING SITES IN KERALA

No.	District	Beach	Historical Date/ 2003	Location
1	KASARAGOD	Thalappady – Someswar Beach	Active 10 years ago now Low	Thalapady Estuary
2	KASARAGOD	Kanwatheertha Beach	Active- Low	Between Thalappady and Manjeswar
3	KASARAGOD	Manjewaram Beach	Active- Low	Majeswaram estuary
4	KASARAGOD	Uppala Beach	Active- Low	South of Manjeswar beach
5	KASARAGOD	Shiria Beach	Active- Low	Shiria river
6	KASARAGOD	Muttam-Bengara Beach	Active- Low	MuttamThode
7	KASARAGOD	Berikka-Parakkatta Beaches	Active- Low	South of Bengara beach
8	KASARAGOD	Koipady Beach	Active -	Shiria Estuary

			Frequent	
9	KASARAGOD	Kavugoly beach	Active-Low	South of Koipady
10	KASARAGOD	Nellikunnu (Adakathuvayal) – Kasaba Beach	Active - Frequent	North of Chandragiri Estuary
11	KASARAGOD	Kizhoor Beach	Active - Frequent	South of Chandragiri Estuary
12	KASARAGOD	Chembarikka – Odoth beaches	Active- Low	
13	KASARAGOD	Kottikulam-Bekalam Beaches	Active- Low	South of Odoth Beach
14	KASARAGOD	Pallikkara Beach	Active- Low	South of Baikal fort
15	KASARAGOD	Chitari-Ajanoor Beach	Active 10 years ago now Low	
16	KASARAGOD	Bella - Hosdurg Beach	Active 10 years ago now Low	Nileswaram estuary
17	KASARAGOD	Thai Kadappuram – Azhithala Beaches	Active-Low	Nileswaram estuary
18	KASARAGOD	Mavila – Padanna beaches	Active 10 years ago now Low	South of Nileswaram Estuary
19	KASARAGOD	Thrikkarippur beach (Kawai beach)	Active-Frequent	Continuation of Padanna beach
20	KANNUR	Ezhimala	Active-High	
21	KANNUR	Pudiyangadi – Choottad Beach	Active- Low	
22	KANNUR	Matool beach	Active- Low	Valapattanam estuary
23	KANNUR	Vayparambu Beach	Active- Low	South of Valapattanam Estuary
24	KANNUR	Neerkadavu Beach	Active- Low	
25	KANNUR	Ayikkara Beach (Moppila Bay)	Active- Low	
26	KANNUR	Edakkadu – Muzhipilangadu Beach	Active- Low	North of Dharmadam
27	KANNUR	Thalai	Active- Low	
28	KOZHIKODE	Payyoli – Kolavippalam Beach	Active- Low	South of Murad

29	KOZHIKODE	Thikkodi– Kodikkal beaches	Active- Low	South of Kolavipalam
30	KOZHIKODE	Kappad - Thuvappara Beaches	Active- Low	
31	KOZHIKODE	Kannan Kadavu Beach (KattilaPeedika)	Active- Low	South of Kappad
32	KOZHIKODE	Puthyappa – Elathur Beaches	Active- Low	
33	KOZHIKODE	Velliyil – Thoppiyil Beaches	Active- Low	
34	KOZHIKODE	Kappakkal Beach	Active- Low	South of Kozhikode
35	KOZHIKODE	Marad Beach	Active- Low	
36	KOZHIKODE	Chaliyam Beach	Active- Low	Between Beypore and Kadalundy
37	MALAPPURAM	Muthiyam Beach	Active 10 years ago now Low	
38	MALAPPURAM	Alungal Beach	Active - Frequent	
39	MALAPPURAM	Thevar Beach (Unniyal)	Active- Low	
40	MALAPPURAM	Kuttai Beach	Active- Low	
41	MALAPPURAM	Pandai Beach	Active- Low	
42	MALAPPURAM	Nayarthodu	Active- Low	
43	MALAPPURAM	KuttaiAzhimugam	Active-Low	Bharatapuzha estuary
44	MALAPPURAM	Veliyamcode	Active- Low	Bharatapuzha estuary
45	MALAPPURAM	Perumbadappu Beach	Active - Frequent	
46	THRISSUR	Periyambalam Beach-Andanthodu beach	Active- Low	
47	THRISSUR	Pappally Beach	Active- Low	
48	THRISSUR	Maanalamkunnu Beach	Active- Low	
49	THRISSUR	Edakkayur-Kottapuram-Thiruvatra Beach	Active- Low	
50	THRISSUR	Vadanapally Beach	Active 10 years ago now Low	

51	THRISSUR	Thalikulam Beach	Active-frequent	
52	THRISSUR	Nattika Beach	Active - Frequent	
53	THRISSUR	Kothalam Beach-Kazhimbram Beach	Active - Frequent	
54	THRISSUR	Kaipamangalam Beach	Active - Frequent	
55	THRISSUR	Azhikode Beach	Active- Low	Munambam inlet
56	ERANAKULAM	Munambam Beach	Active- Low	
57	ERANAKULAM	Cherai - Kuzhipally Beach	Active- Low	
58	ERANAKULAM	Malippuram Beach	Active - Frequent	
59	ALAPPUZHA	Thaikkal Beach	Active- Low	
60	ALAPPUZHA	Alleppey Beach	Active- Low	
61	ALAPPUZHA	Punnapra Beach	Active- Low	
62	ALAPPUZHA	Thottapally Beach	Active- Low	Pallana estuary to its south
63	ALAPPUZHA	Pallana Beach	Active- Low	
64	KOLLAM	Valiyazhikkal	Active- Low	North oFKayamkulam Estuary
65	KOLLAM	Vellanathiruthu-Ponmana-Kovilthottam	Active- Low	
66	KOLLAM	Kollam-Thangassery Beach	Active- Low	
67	KOLLAM	Kakkathope-Eravipuram-Thanni Beach	Active- Low	
68	KOLLAM	Mukkam Bay	Active- Low	
69	KOLLAM	Pozhikkara	Active- Low	Paravur Estuary
70	KOLLAM	Kappil Beach	Active-Low	Kappil Estuary
71	TRIVANDRUM	Varkala	Active	South Beach
72	TRIVANDRUM	Anjengo	Active- Low	
73	TRIVANDRUM	Thazhampally	Active- Low	Kadinamkulam Estuary
74	TRIVANDRUM	Perumathura – Mariayanad	Active- Low	

75	TRIVANDRUM	Thumba – Puthenthura	Active- Low	North of Veli Estuary
76	TRIVANDRUM	Bimapalli –Poonthura	Active- Low	
77	TRIVANDRUM	Kovalam – Vizhinjam	Active- Low	
78	TRIVANDRUM	Poovar Estuary– Pulinkudy	Active- Low	Poovar Estuary
79	TRIVANDRUM	Pozhiyoor	Active- Low	

2.3.5 Marine spatial panning

Marine spatial planning (MSP) seeks to reduce conflicts and environmental impacts, and promote sustainable use of marine ecosystems. MSP is a place-based, multi-sectoral decision-making approach that is being widely promoted for reducing the conflicts and impacts commonly encountered in conventional sector-by-sector planning. This approach would determine how to achieve target levels of ocean area for particular uses while minimizing costs and impacts, but they do not provide a framework that derives analytical solutions in order to co-ordinate siting of multiple uses while balancing the effects of planning on each sector in the system. For the development of fisheries sector, this will provide a framework for guiding offshore aquaculture (bivalve, finfish, and seaweed farming) development in relation to existing sectors and environmental concerns (wild-capture fisheries, aesthetic quality, pollution, etc.) in the area. Therefore, this report propose the need for ecosystem-based approaches to planning that can strategically and comprehensively balance the location, type, and intensity of ocean user groups, or sectors, across the seascape, through MSP. This also requires marking potential breeding areas of commercial fishery resources within 12 nautical miles of the sea, as envisaged in CZMP. The fishery related spatial zones thus marked may be included in the CZMP when these are prepared and made available.

2.3.6 Fisheries Post-harvest infrastructures

In order to keep the fish in good condition ice is required. There are 71 working ice plants within the CRZ of the State and the details are given as annexure. The head of the fish along with viscera has to be removed as soon as the catch landed at the shore to enhance the onset of period needed for the commencement of spoilage. There are 258 peeling sheds functioning within the CRZ and the details are given as Annexure- X. The fish processing units

may be freezing plant, drying unit or curing yard. The Fisheries department has to make guidelines regarding setting up and maintenance of peeling sheds, ice plants, fish processing units in the CRZ, especially in the NDZ, so that permanent hard structures are not constructed in the beach, pollution is controlled and ground water use is regulated. There are 38 fish processing units operating within the CRZ of the State and its list is given as Annexure-XI (A and B).

2.3.7 Boat Yard and Fishing accessories

Fishing boat requires routine annual maintenance and repair for which boat yards are functioning and its proximity to waters is unavoidable. There are 42 boat yard working in the CRZ of the State. The fishing accessories includes marine engine workshop, fuel bunk, net mending space etc and the list of those working within the CRZ is given as Annexure –XII (A and B) .

2.4 AQUACULTURE DEVELOPMENT

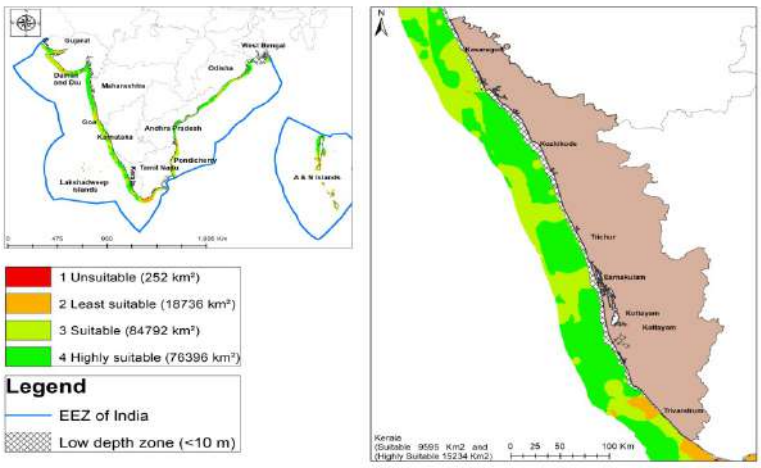
The growing demand for fishery products in the State necessitates expanding aquaculture operations, especially in the coastal areas, by fully exploring the potential of coastal aquaculture to enhance the fish production. It provides alternate livelihood to the coastal fishermen, who face several challenges to their livelihood issues due to resource depletion and climate change. As per Coastal Aquaculture Authority Act 2005, all the aquaculture and connected activities within the CRZ area are regulated by the Act. The Act provides for regulation of coastal aquaculture by prescribing guidelines, to ensure that coastal aquaculture does not cause any detriment to the coastal environment and the concept of responsible coastal aquaculture is followed in regulating coastal aquaculture activities to protect the livelihood of various sections of people living in the coastal areas.

Aquaculture in the State is still in its juvenile stage contributing a production of only 34,987 mt during the year 2020-21. The potential of having large number of lagoons, estuaries and backwaters covering almost the entire coast has to be ustilised for aquaculture in a sustainable way. As an alternative livelihood opportunity to the deprived inland fishermen, cage farming was introduced during 2008 in the State. Kerala is the foremost state in bivalve farming which includes the farming of Mussel and Oyster. Despite the enormous potential, coastal aquaculture has not yet developed into a major commercial enterprise and contributor to

fisheries production in the State. The fisheries department have initiated several proactive steps to boost up production, which include cage culture of fish and bivalve farming in brackishwater bodies, farming of fin fish and shell fish in brackishwater ponds.

The incorporation of an Integrated Fisheries Development Plan in CZMP, with an aim to ensure food and nutritional security of the state and supporting blue economy, therefore, need to map the areas suitable to coastal aquaculture. The existing and proposed coastal aquaculture zones should be included in the CZMP. In CRZ-IV notified areas, provisions for utilizing the same for cage fish farming and other kinds of aquaculture activities with fishermen community participation should be included in the CZMP. CMFRI has already identified potential areas for Sea weed farming and a list of such areas is provided as Annexure XIII (A). Similarly NIOT has identified potential Sea cage farming sites in India and list of such areas in coastal sea of Kerala is provided as Annexure XIII (B). Coastal Aquaculture activities like brackish water fish/shrimp farming in tide fed saline wetlands, rack/raft and long line farming of mussel and oysters, sea weed farming, pen and cage culture of fish etc. are major thrust areas identified for the development of aquaculture in the State. Areas and localities presently selected for the development of the coastal aquaculture activities under Pradhan *Manthri Matsya Sampradha Yojana* (PMMSY), *Janakeeya Matsya Krishi* (JMK) and *Subhiksha Keralam* programme in CRZ may be specified in the CZMP of the respective Districts. The details are given in Annexure-XIV (A to E).

Sutability of coastal waters of Kerala for cage culture



Source: NIOT Report

2.5 TOURISM AND FISHERIES

Kerala is one among the major tourist destinations for beach and backwater tourism. Even though the beaches and backwaters are the main tourist attractions, the participation of the fisherfolk and other traditional communities is negligible. It may be noticed that their traditional livelihood activity is facing challenges, non-fishing days are increasing due to extreme climatic conditions. Beaches are their dwelling place having traditional and customary rights. Still they are marginalised from the fast growing tourism economic activity. There are ample opportunities in the coastal area tourism sector for involving the local fisherfolk for additional and alternate livelihood. It needs a different approach of inclusiveness and it should be eco system-based and natural resource based.

Inclusiveness of the local fisher folk families and other traditional communities will be the focus of a fisher perspective coastal tourism. It has to be a livelihood diversification for sustainable income generation for the marginalised traditional coastal communities who are ecosystem people. It should be a community collective activity and strengthening of the local economy which should help to reduce the pressure on marine fisheries which is the main source of livelihood. There should be priority for the involvement of women and educated youth from the local community. The concept of community tourism should be based on safe and affordable tourism options. All the local livelihood areas have to be identified and marked so that others would not encroach into fishers livelihood areas.

Various coastal tourism activities such as Beach tourism, Aqua tourism, Heritage tourism, Cruise tourism, Pilgrimage tourism, Event tourism and Pesca tourism componetns may be planned for different CRZ categories such as CRZ I, CRZ II, CRZ III, CRZ IV, and pokkali/kaipad regions within the framework of ecotourism and responsible tourism ensuring ownership and active participation of traditional fishermen communities. A linkage has also to be established with traditional industries and micro-enterprises in the fisheries and coastal sectors. More details are provided in the Tourism and Fisheries sub plan attached with the IFDP report.

Considering the need and potential of tourism options emerging out of biodiversity conservation and related activities, the government of Kerala has formulated an integrated aqua park project at Puthuvypin of Ernakulam district. The proposed project site is under the CRZ zone IA. This may be developed as an ecotourism project and made sustainable through

biodiversity conservation and eco restoration activities. Further details are discussed in the Tourism and Fisheries sub plan.

Considering the huge potential of coastal tourism as an additional and alternate source of income for traditional coastal communities, there is a need for a proper governance mechanism in place for managing and guiding tourism activities. Constituting "Local level livelihood management councils" at the cluster level may be thought of. Approriate District and State level co ordination bodies are also needed. Local level bodies should have linkages with concerned LSGI, such as Gramma Panchayats.

Tourism and Fisheries sub plan attached with the IFDP report as Annexure XV elaborates the ideas presented above, and may be referred for details.

2.6. ECO- RESTORATION AND MANAGEMENT PLAN FOR POKKALI & KAIPAD IN KERALA.

Pokkali / kaipad wetlands, where saline tolerant paddy cultivation and traditional capture based aquaculture have been practiced are very popular in India and other tropical countries. These traditional 'integrated paddy-shrimp farming system' is known in the country by different names locally like *Bheries/Bhasabhada* in West Bengal, *Khazan* in Goa, *Gazani* in Karnataka, *Pokkali* in Central Kerala and *Kaipad* in North Kerala.

Kaipad or Pokkali in the State is a traditional indigenous method of cultivation and has a great role in maintaining the ecosystem of the region. The fish farming practice followed is a traditional capture based aquaculture system known as *shrimp filtration*. It is a major economic source for coastal communities. The practice of taking a paddy crop followed by prawn filtration practice provides labour and regular income to the farmers all around the year. This farming system can withstand the vagaries of climatic changes including flooding due to uneven monsoon or rise in water level due to global warming, tidal flow and moderate changes in temperature.

The rice-shrimp system of Pokkali/kaipad forms an example for eco-friendly farming system where organic or inorganic fertilizers or pesticides of any kind are never applied in this system. Similarly inputs in the form of feed, fertilizers or chemicals are not applied for aquaculture also. The soil and water maintain the fertility level to support the traditional agriculture and aquaculture. Integrated organic farming of both agriculture and aquaculture helps preserving the biodiversity of these wetlands. Thus pokkali/kaipad system could be categorized as "an integrated natural farming system". It may also be noted that the potential for

carbon sequestration capacity is enormous for these wetlands. Sea level rise due to climate change is causing changes in the spatial extent of pokkali/kaipad and plays a significant role in decreasing the impact of floods.

The area under pokkali and kaipad is declining year by year. Large areas have been converted for coconut cultivation and other purposes over the last few decades. Construction of Thottappally spill way and Thannermukkom regulator in Alappuzha districts and Kattampally regulator in Kannur district which prevented tidal influxes to these wetlands have turned some of these areas unsuitable for pokkali/kaipad farming. As rice cultivation turned out to be an uneconomical or less profitable affair, many farmers stopped the cultivation in their Pokkali and kaipad lands. This led to fallowing of pokkali/kaipad fields. The fallowing of lands results in the growth mangroves which makes it very difficult to restore pokkali/kaipad fields due to legal protection to mangroves under CRZ rules.

Among the legal frameworks the CRZ notification has a very important role in the restoration and conservation of pokkali/kaipad. The Coastal Zone Management Plan (CZMP) prepared as per CRZ 1991 notification considered pokkali/kaipad as fish breeding areas and the 100 m CRZ adjoining the pokkali fields were categorized as CRZ IA which was also a No Development Zone (NDZ). Such a categorization put the traditional coastal communities into great difficulties. This categorization continued till February 2019 when the CZMP as per CRZ 2011 was approved. The CRZ and CZMP 2011 do not categorise banks adjoining pokkali/kaipad as CRZ IA. Pokkali/kaipad are shown as intertidal zones and categorized as (CRZ IB). Many of the fishery related infrastructure are permitted on the banks of pokkali/kaipad with this recategorisation.

It may be noted that CRZ amendment for CRZ 2011 notification vide S.O. 1422 (E) dated 1st May 2020 may change the CRZ categorization of Pokkali/ Kaipad and adjoining banks significantly. It redefines HTL in case there exists a bund or a sluice gate constructed in the past, prior to the date of CRZ notification 1991, such that the HTL shall be restricted up to the line along the bund or the sluice gate and in such a case, area under mangroves arising due to saline water ingress beyond the bund or sluice gate shall be classified as CRZ-IA irrespective of the extent of the area beyond the bund or sluice gate. Such areas under mangroves shall be protected and shall not be diverted for any developmental activities. Though this has not been notified for CRZ 2019, the NCZMA has recommended in its 42nd meeting dated 05.04.2021

that this modification for CRZ 2011 may be made applicable to CRZ 2019 and hence another notification is expected soon incorporating the above modification in CRZ 2019. Hence the present draft CZMP 2019 may be modified accordingly limiting the HTL adjoining Pokkali/ Kaipad based on sluices as existed on 19 February 1991. The information on sluices as existed on 19 February 1991 may be made available for modification of the HTL in the draft CZMP 2019. This becomes meaningful with pokkali/kaipad management plan.

There is a need for scientific management of this major coastal ecosystem for its sustainable use and conservation considering the continuous decline in its extent, its importance as a major economic resource for the coastal communities, the importance as a rich biodiversity hub, and its multifaceted ecosystem services, etc. Management of climate adaptive traditional agriculture and aquaculture systems like Pokkali or Kaipad gets relevance in this context. The thrust of the management plan for Pokkali/ Kaipad is eco restoration, the details of which are given in Annexure XVI.

The major recommendations of the Pokkali/ Kaipad management plan include surveying and inventorying of Pokkali lands for preparation of a data bank, mapping of sluices/gates which existed as on 19 February 1991, demarcation of the HTL adjoining pokkali/kaipad based on CRZ amendment notification vide S.O. 1422 (E) dt 1 May 2020 and sluices/gates which existed as on 19 February 1991, preparation of specific action plans for reversal of the threats to these wetland system and restoration of habitat, sustainable development of paddy farming, aquaculture, ecotourism, traditional industries dependent on these wetland systems, establishment of an institutional mechanism for conservation and management, capacity building at all levels of stakeholders for sustainable resource utilization and ensure funding from different sources for various activities under the management plan for pokkali/kaipad.

The Pokkali/ Kaipad management plan which is attached with this report as Annexure-XVII provides the approach, parameters to be considered, and suggests an implementation mechanism for the plan. This draft model plan has to be further strengthened with meaningful interaction with the stakeholders, especially the traditional community practising Pokkali/ Kaipad for livelihood, associated departments, and the LSG institutions who will have a decisive role in implementation.

2.7 COASTAL PROTECTION, CLIMATIC CHANGE, MITIGATION AND ADAPTATION

Coastal erosion is a very serious issue affecting the sensitive ecosystems, important morphologies and life and property. Loss of beach due to many reasons which is compounded by climate change and associated sea level rise and extreme weather events is the major reason for coastal erosion. Beach being the best coastal protection measure and an important assest for traditional coastal communities, all efforts should be made to retain the present beach and regenerate beach wherever possible. An assessment of the functional performance of hard coastal protection measure like seawalls and groynes already constructed along the Kerala coast indicates that these hard structures have resulted in extending the erosion to more places and were not successful in many places. Such hard structures may not be effective to tackle the impacts of extreme weather conditions and accelerated sea level rise. It is recommended that the approach towards coastal protection and shoreline management should be based on ecosystem based solutions. All efforts should be taken to conserve and sustain the beaches and other coastal landforms as far as possible by avoiding interventions that may lead to damages to coastal landforms and ecosystems. Hard structure solutions may be adopted only when other options are ruled out and based on scientific studies and EIA to minimize the impact on adjacent beaches.

The 'Puanrgeham' project of the Fisheries Department which proposes to rehabilitate people staying within 50 m from the high tide line to safer places is one of the approaches followed to reduce the impact of coastal hazards. The idea is to give space for natural processes like waves and other forces to act upon and live with waves and the sea. This is in tune with the objectives of CRZ notification. Implementation of CRZ will also help to reduce the impacts of coastal erosion and help to provide protection to the coast by conserving and sustaining coastal ecosystems such as mangroves and important morphologies like beaches and sand dunes.

Coastal erosion sites may be shown in the CZMP 2019 so that appropriate measures could be planned and implemented for management of coastal erosion. State Disaster Management Authority, Irrigation Department and Fisheries Department may identify critical areas of erosion and assess the probable reasons for erosion in each critical location with the support of community, LSG instiyutions and experts. This will also help accurate validation of the various set of data currently available which sometimes provide conflicting reports. This

may be updated regularly since the nature and extent of erosion can change depending on the coastal processes and human interventions.

A proper methodology may be followed to select the appropriate coastal protection measure (soft, hard or hybrid) for each critically eroding location, especially those close to fishing harbours. The Central Water Commission (CWC) guidelines could be helpful in this. Accurate need based and location specific data required for planning and designing appropriate coastal protection measures is lacking for the coast. The KSCADC may take the initiative to generate such a coastal and nearshore database.

2.8 BLUE ECONOMY, MARINE SPACIAL PLANNING AND FISHERIES MANAGEMENT

The huge potential for utilization of the enormous coastal and ocean based resources of India's long coastline and the seas around it is driving the Country's Blue Economy programme as proposed by the Central government. It envisages strengthening the economy of the Country through development of strategies for exploitation of the Blue Economy, to ensure better standards and quality of life. The objective of Blue Economy is to promote smart, sustainable and inclusive growth and employment opportunities within the Indian coastal and maritime zone. The major thrust in the coastal zone and coastal waters is port based development under 'Sagaramala Project', renewable energy programme, coastal and nearshore mining, and tourism development. Another major programme is deep sea mining mainly targeting manganese nodules. Sagaramala aims at developing existing 12 major ports and developing two new major ports. It also has programmes for modernization and development of existing intermediate ports. Another major component is providing connectivity between ports through coastal highways and developing Special Employment Zones and Special Economic Units. Heavy mineral mining is proposed to be a major development sector under coastal and nearshore mining. High investment tourism projects are expected under tourism development in the coast and coastal waters. Wind mill fields along the coast and coastal waters are among the major activities planned under renewable energy sector. All the above blue economy components will have major impacts on fisheries, coastal communities and coastal ecosystems. The Environment Department, KCZMA and the Fisheries Dept. have to keep a close watch on various developments under blue economy policy so that adverse impacts on fisheries, livelihood and rights of traditional coastal communities, coastal ecosystems are minimized to an acceptable

level. Environmental rules especially CRZ rules should not be diluted for permitting activities under blue economy.

Another major action envisaged under Blue Economy is preparation of Coastal and Marine Spatial Plans. This will be an extension of the CZMP into the Territorial waters, Exclusive Economic Zone and the High Seas. It may demarcate spatial boundaries for different activities along the coast and the seas. This should not encroach on fishing and fishery zones and the living and occupational areas of traditional coastal communities. The state's right on coastal and fishery resources need to be protected. It is the responsibility of the Fisheries Department, the Environment Department and KCZMA that the livelihood rights are protected while preparing Coastal and Marine Spatial plans and implementing the projects envisaged under the blue economy.

3. INTER SECTORAL CONFLICTS/OVER LAPS EXPECTED

As the coastal area of the state is a region plying with various stake holders, overlaps of sub plan and activities might be there in the CZMP. These conflicts may be in spatial as well as functional aspects. Coastal and ocean habitats, Marine Protected Areas (MPAs) are sometimes challenged for social impacts and conflicts they may generate. Some conflicts have an economic base, which, once understood, can be used to resolve associated socio-environmental problems.

The coastal area especially, estuaries and back waters in particular are home for many 'use conflicts' in terms of competition for limited resources/space and the consequences of pollution by various sources and mechanisms. The conflicts between mariculture and seaport/shipping development, tidal land reclamation and wetland resource uses, coastal mining and protection against erosion, waste disposal and protecting ecosystem and human health, development of ports, coastal underground freshwater and lands uses, are particularly serious. The conflicts and their consequences call into question the adequacy of the existing efforts in research, monitoring, assessment and management, and in dealing with related scientific or information uncertainties, thus offering a rationale for improving the existing management systems.

The major stake-holder sub plan overlaps/conflicts expected with Integrated Fisheries Development Plan are attached as Annexure XVIII.

4. RECOMMENDATIONS

The draft CZMP 2019 requires more details to be included with respect to fisheries and fishers and their traditional rights. Some of the components to be included in the CZMP as per the CRZ notification and guidelines for preparation of CZMP are missing in the draft CZMP. These are identified and provided below as recommendations to the DoECC and KCZMA for incorporation/consideration in the CZMP 2019. There are few aspects which are to be addressed by the Fisheries Department. These are listed separately. The Integrated Fisheries Development Plan (IFDP) with its annexures provides details about all the recommendations. The report and annexures may be referred while considering the recommendations provided below.

4.1 RECOMMENDATIONS FOR INCORPORATION INTO CZMP

The draft CZMP 2019 has been reviewed from the perspective of Fisheries, Fishers and other traditional coastal communities. The most relevant issues which have direct linkage with the coastal area are listed below. These are evolved from the above dliberations.

1. The traditional communities in the coastal zone including the fisher folk belong to ecosystem people whose livelihood is closely connected with the coastal zone, its resources and processes. Their traditional and customary rights are part of their livelihood and must be protected in the CZMP.
2. The different components and recommendations in the CZMP should not have any adverse impact on livelihood and settlement plan of the coastal fisher folk. The **Integrated Fisheries Development Plan for CZMP 2019** ***(for CRZ 2019)*** details the fishermen settlement areas, its associated infrastructure facilities, model fishing village, Fishing Harbors and Fish Landing Centers, etc. The plan needs further development considering the entire fishing villages of the State. Details such as roads, hospitals, etc. are further to be mapped for addressing the long term requirements of housing and other settlement needs of the fishing community and be included in CZMP. As directed in the CRZ notification the existing authorized developments on the seaward side are also to be demarcated and included.
3. In the CRZ 2019, Annexure IV under Guidelines for preparation of Coastal Zone Management Plans, in para 5(iii) the State govt is directed to prepare ‘detailed plans for long term housing needs of coastal fishing communities in view of expansion and other

needs, provisions for basic services, including sanitation, safety and disaster preparedness'. This approach is expected to provide safe, hygienic, clean, community friendly and environment friendly settlement regions for the coastal community taking into consideration their occupational needs also. This has not been properly projected in the draft CZMP 2019. This has to be done preferably for fishing villages by the concerned local bodies with the support of different departments including Environment and Climate Change, Town Planning and Fisheries, and in consultation with the coastal communities. A draft model fishing village settlement plan for Arattupuzha detailing the parameters to be included is attached as annexure to the report. It is recommended that such settlement plans be prepared for all marine and inland fishing villages in the State to form part of CZMP 2019.

4. Coastal areas like Arattupuzha are barrier beaches which are highly prone and most vulnerable to climate change impacts and sea level rise similar to many other barrier coasts along the Kerala coast. Any management plan for such coast should take into account of the climate change impacts, increase in extreme events and sea level rise.
5. Considering the issues and problems arising in coastal belts due to climate change such as coastal erosion and salinity ingression in water bodies, long term projects for livelihood activities in Fisheries, Agriculture and Animal Husbandry to ameliorate and adapt to these ill effects are to be formulated and included in the CZMP in addition to safe housing.
6. Features like Pokkali/ Kaipad (filtration ponds), beaches, mudflats, etc. which are vital for fisheries and fishers, are categorized along with intertidal zones as CRZ- IB. Hence these features are not identifiable from the CZMP maps. It is suggested that these may be either incorporated in the CZMP or provide the land use maps of the coastal zone (where these are expected to be included) based on which the CZMP maps are prepared, for reference and plan management action plans. A further verification and scrutiny of the Fishery Department is needed once these are made available.
7. Beaches need to be demarcated clearly so that beach management plans could be prepared for beach conservation as directed in the CRZ notification. This will help to implement the direction in the notification (para 1.9(iii)(b)) that 'when permissible activities are taken up on the beaches if loss of beach in the neighbourhood is predicted,

necessary beach nourishment to compensate for the losses shall be undertaken by the project authorities'.

8. The CRZ notification has a very important role in the restoration and conservation of Pokkali/ Kaipad. The Coastal Zone Management Plan (CZMP) prepared as per CRZ 1991 notification considered Pokkali/ Kaipad as fish breeding areas and the 100 m CRZ adjoining the pokkali fields were categorized as CRZ IA which was also a No Development Zone (NDZ). Such a categorization put the traditional coastal communities into great difficulties. This categorization continued till January 2019 when the CZMP as per CRZ 2011 was approved. The CZMP 2011 do not categorise banks adjoining Pokkali/ Kaipad as CRZ IA. Pokkali/ Kaipad are shown as intertidal zones and categorized as (CRZ IB). Many of fishery related infrastructure are permitted on the banks of Pokkali/ Kaipad with this re-categorisation.
9. An amendment brought for CRZ 2011 notification vide S.O. 1422 (E) dt 1st May 2020 may change the CRZ categorization of Pokkali/ Kaipad and adjoining banks significantly. It redefines HTL (High Tide Line) such that 'in case there exists a bund or a sluice gate constructed in the past, prior to the date of CRZ notification 1991, such that the HTL shall be restricted up to the line along the bund or the sluice gate and in such a case, area under mangroves arising due to saline water ingress beyond the bund or sluice gate shall be classified as CRZ-IA irrespective of the extent of the area beyond the bund or sluice gate. Such areas under mangroves shall be protected and shall not be diverted for any developmental activities'. Though this has not been notified for CRZ 2019, the NCZMA has recommended in its 42nd meeting dated 23-03-2021 that this modification for CRZ 2011 may be made applicable to CRZ 2019. Hence another notification is expected soon incorporating the above modification in CRZ 2019. The present draft CZMP 2019 may be modified accordingly limiting the HTL adjoining Pokkali/ Kaipad, based on sluices as existed on 19 February 1991. The information on sluices as existed on 19 February 1991 may be mapped and made available for modification of the HTL in the draft CZMP 2019. This may be accompanied by Pokkali/ Kaipad management plan for its conservation and sustainable use.
10. Sluices/gates which existed as on 19 February 1991 have to be mapped to facilitate limiting of HTL around the outer bund of pokkali fields

11. Pokkali/ Kaipad management plan is needed for conserving this important coastal ecosystem considering its ecosystem services to the community and biodiversity. A model draft management plan is attached with this report for reference which may be further fine tuned with stakeholder consultations including coastal communities, local self government institutions, and fisheries department.
12. In many Pokkali/ Kaipad areas mangroves are growing when such fields are kept fallow for a few years. With the prevailing provisions in the CRZ notification restoration of these unused Pokkali/ Kkaipad field for its intended use is difficult. The Pokkali/ Kaipad management plan could also address this. The CZMP 2019 may mention that the mangroves grown over the years in unused pokkali fields may be permitted to be replanted in the peripheries so as to allow restoration of these for pokkali fields to its original use.
13. Many parts of coastline of Kerala are prone to severe coastal erosion. Eroding locations which may require management interventions may be shown in the CZMP or in the accompanying land use maps where appropriate shoreline management plans for the protection of the coast have to be undertaken based on scientific studies.
14. The No Development Zone (NDZ) for CRZ IIIA is 50 m while it is 200 m for CRZ IIIB. Considering the peculiar settlement pattern of fishermen in the coastal zone, the fisher community was constantly requesting to reduce the NDZ for ensuring the protection of traditional and customary rights of the fisher community who are "ecosystem people". Accordingly the re-categorisation of CRZ III into CRZ IIIA and CRZ IIIB has been introduced in CRZ 2019 notification. This categorization as given in the CRZ 2019 notification is not fully reflected in the draft CZMP. The CRZ III categorization into CRZ IIIA and CRZ IIIB as given in the draft CZMP needs a relook.

15. On verifying the draft CZMP 2019, it was observed that the density of population for identifying CRZ IIIA has been carried out by taking the entire village area as against the provision in the notification to consider the density of population of the CRZ III area. By definition CRZ III covers only land part. Village area now taken consists of CRZ I, CRZ II, CRZ III and CRZ IV. It is recommended that DoECC may follow the direction in the Notification and revisit the categorization of CRZ IIIA and CRZ IIIB by recalculating the density of population taking the area of CRZ III alone for the purpose. Such a

calculation of density of population may bring many more panchyats under CRZ IIIA. Accordingly the NDZ will be reduced to 50 m in these panchayats also without allowing people of other interest encroaching to the coastal zone.

16. Panchayati Raj system being very strong in Kerala it is recommended that all the computations and other depictions in the CZMP may also be based on panchayat, municipality and corporations (LSG Institutions) which is imperative in the wake of 73rd and 74th Constitution amendment.

17. The DoECC/ KCZMA may also provide guidelines for construction of dwelling units in the NDZ in association with fisheries and other departments, local bodies and expert organisations.

18. Construction and reconstruction of dwelling units of traditional coastal communities including fisher folk are permissible in CRZ including NDZ (as per para 5.3(ii) of the notification), incorporating necessary disaster management provisions and proper sanitation arrangements. Guidelines for the above may be incorporated in the CZMP report. Tourism plans attached with the draft report may be reworked taking this aspect also.
19. Environment Management Plans for ESAs (as listed in the CRZ 2019 notification in para 2.1.1) may be prepared and made part of the CZMP (para 2.1.1 (b) of CRZ 2019 notification). The listed ESAs include the Biodiversity rich Mangroves, Coral reefs, Fish Sanctuaries, Turtle nesting grounds, biologically active mud flats. Beach management plans required as per CRZ notification (Annexure 1 para 1.9(iii)(c)) may also be included. A timeline for these may be indicated in the CZMP
20. Mangroves areas have been categorized as those in private property, in public places, under Forest Department and a buffer zone for mangroves with area more than 1000 sq.m except in private property. This information is not readily available in the CZMP maps or reports. It is requested that these information may be provided as a table in the report. This information is very important for the Fisheries Department for managing mangroves for fisheries and biodiversity enrichment, as intended in the CRZ notification.

21. While preparing the Integrated Management Plan for Critically Vulnerable Coastal Areas (CVCA) such as Vembanad Lake which is considered as an area requiring special attention under CRZ notification, provision for fish farming and aquaculture activity, measures to prevent and mitigate pollution and measures to control reclamation of the lake should be incorporated. This may be done in consultation with the Fisheries Department. The IMP (Integrated Management Plan) for Vembanadu may be attached with CZMP or a plan for its preparation may be detailed in the CZMP report with a timeline.
22. For preparing the management plans for Vembanadu, Management Action Plan (MAP) prepared by CWRDM for Vembanadu and Ashtamudi, the Ashtamudi Management Plan by NCESS and the Kayal Commission report for Vembanadu by Kerala Sasthra Sahithya Parishat may be taken as examples, protecting all the rights of traditional communities.
23. Fishing and fishery Zones (including *thozhilidangal*), Fish Sanctuaries and Fish Breeding Grounds both in the sea and backwaters/estuaries should be incorporated in CZMP. Coastal aquaculture and mariculture zones, mussel and oysters farming zones, Sea weed farming, Pen culture of fish etc. and potential zones, Proposed zones for Marine park or bio reserves may also be shown in the CZMP. Areas suitable to mariculture and coastal aquaculture should be included in the CZMP. In CRZ-IVA and CRZ-IVB, provisions for utilizing the same for cage fish farming and other kinds of aquaculture activities with the participation of fishermen should be included in the CZMP. Coastal Aquaculture activities like brackish water fish/shrimp farming in tide fed saline wet lands, cage farming of fish, rack/raft and long line farming of mussel and oysters, Sea weed farming, Pen culture of fish etc. are major thrust areas identified for the development of aquaculture of the state. Areas and localities suitable for the development of the above mentioned farming activities may be specified in the CZMP of the respective Districts. (Details are given in the Report and attached Annexures).
24. Zones identified for Punargeham resettlement and potential zones for resettlement may be shown in the CZMP
25. Cyclone shelters, road network, etc. for enabling disaster management may be shown in the CZMP as directed in the CRZ notification

26. In the CRZ notification, 2019 several relaxations in regulations are allowed for development and promotion of coastal tourism activity. The benefits granted to tourism activity in the CRZ may be implemented with the stake of fishermen so that the income generated through tourism developmental activity will be beneficial to the downtrodden and marginalized coastal community. So provisions to implement tourism development activity with the stake of fishermen should be incorporated in the CZMP. The approach to be followed is given in the report and annexure (Tourism and Fisheries Plan).
27. Tourism development should not obstruct approach of fishermen to sea and also should not affect their settlement, fishing and fishery zones like *thozhilidangal*, landing areas, net mending centres, traditional fish processing etc. The Tourism plans now attached with the draft CZMP of each district may be reworked in consultation with the Fisheries Department so that conflicts with fishing and fishery zones, aquaculture zones, fish & turtle breeding grounds, Fish sanctuaries, settlement zones, IIMPs for islands, EMPs for ESAs, etc. are considered and conflicts avoided. Tourism plans may be attached with CZMP 2019 only after such reworking based on consultations with Fisheries Department is done.
28. Tourism plan for CZMP needs to ensure promotion of biodiversity conservation in promoting tourism potential in CRZ I through traditional local community involvement. Mangrove "safari" and guided tour projects may be implemented through traditional local community, especially fisher women as a livelihood activity. This can be extended to all possible PESCA actvities

29. Traditional fisher folk, especially educated youth with due participation of women from the fishing village may be trained for being part of urban beach tourism such as fishing village visits, adventure water sports, rescue support for near shore water sports, performing the traditional fishing methods like operation of beach seines, angling,etc. This may be extended to backwater aquaculture sites such as cage culture for high value fishes, rope culture of mussels and oysters, prawn farming, Pokkali/ Kaipad, etc. The above should reflect in the CZMP.

30. Considering the need and potential of tourism options emerging out of biodiversity conservation and related activities, the government of Kerala has formulated an integrated aqua park project at Puthuvypin of Ernakulam district. This may be

incorporated in the CZMP and shown in the CZMP map as an area for ecotourism where project components that are allowable in mangrove zone may be under taken

31. Home stay as a tourism activity is recommended in the CRZ notification, guidelines for which could be formulated and attached to the CZMP report.
32. The 20 m CRZ for backwater islands will become effective only when Integrated Island Management Plans (IIMP) are prepared. Hence there is an urgent need for preparation of IIMPs for backwater islands. This may be attached with CZMP or a plan for its preparation may be detailed in the CZMP report.
33. A common IIMP is not apt for all islands as variation of extent is there from very small to very large islands. There should be a separate or cluster based management plan for these islands.
34. Criteria for identifying islands must be redefined so as to include barrier islands and spits like Alappad, Arattupuzha, Vypin Island, Western Kochi to Chellanam stretch and Valiyaparamba gramapanchayat in Kannur, etc. An Integrated Island Management Plan (IIMP) for these should consider various livelihood needs of the local community and there should be an inbuilt mechanism in the IIMP which prohibits migration or settlement of people other than traditional coastal communities to coastal zone and which would not permit activities those do not require shore frontage. Barrier islands and spits like the ones mentioned above are highly prone and most vulnerable to climate change impacts and sea level rise. Any management plan for such coast should take into account of the climate change impacts, increase in extreme events and se level rise. Preparation of IIMP may be done in consultation with the Fisheries Department.
35. Coastal infrastructures already developed and being developed by the department are to be demarcated in the CZMP to avoid future issues with regard to implementation, maintenance, rehabilitation, up gradation and mitigation measures. There are twenty five fishing harbors and seventy three Fish Landing Centres in the state. All the major fishing harbors are expected to be developed to international standards and may be shown in the CZMP.
36. The Environment Department, KCZMA and the Fisheries Dept. have to keep a close watch on various developments under blue economy policy of the Govt. of India such as ‘Sagaramala project’ so that adverse impacts on fisheries, livelihood and rights of traditional coastal communities, coastal ecosystems are minimized to an acceptable

level. Environmental rules especially CRZ rules should not be diluted for permitting activities under blue economy.

37. Another major action envisaged under Blue Economy is preparation of Coastal and Marine Spatial Plans (CMSP). This will be an extension of the CZMP 2019 into the Territorial waters, Exclusive Economic Zone and the High Seas. The CMSP envisages ecosystem and activity based approaches to zoning that can strategically and comprehensively balance the location, type, and intensity of ocean user groups, or sectors, across the seascape. This also requires marking and zoning of potential breeding areas and habitats of commercial fishery resources within 12 nautical miles of the sea and the living and occupational areas of traditional coastal communities, as envisaged in CZMP. The fishery related spatial zones thus marked may be included in the CZMP when these are prepared and made available, and conflicts and overlaps may be avoided. It is the responsibility of the Fisheries Department, the Environment Department and KCZMA that the livelihood rights of traditional coastal communities are protected while preparing Coastal and Marine Spatial plans and implementing the projects envisaged under the blue economy.
38. Compared to survey boundary lines, the HTL lines are marked thicker. Increased thickness makes it difficult to make accurate assessment of distances from these lines and verification of HTL also becomes difficult. Hence the thickness of HTL may be reduced, similar to that of survey plot lines.
39. Local level CZMP in 1:4000/ 1:5000 with all the details as directed in the CRZ 2019 notification, is needed for the implementation of the notification which is required for the public to understand and use it for taking decisions on activities in the CRZ area. Hence time line may be given for the preparation of local level CZMP in the report.
40. In the CZMP of Kannur district (Map no 65,) Block no 8, 41 in CRZ II zone is a water logged area where sea water enters through a small creek, but it is shown as inter tidal zone in Map. Need to verify its intertidal status. Kaanamthodu in Kannur Municipal Corporation is zone is a water logged area where sea water enters through a small creek, but it is shown as inter tidal zone in map. Need to verify its inter tidal zone status. In Dharmadam, Pinarayi, Eranholi, Thalassery municipality areas High Tide line is drawn along the inner bund of the aquaculture farms whereas the tidal fluctuations is limited only up to the outer bund (bund facing creek/river) and water intake and discharge is

regulated by sluice gate and not by tide. So High Tide Line should be marked only along the outer bund of the farms (Map number KL 68). Many existing aquaculture farms are shown as in Mangrove Buffer zone which will prevent its further developmental activities.

41. In Eranholi Panchayat Block No 70, (Govt Fish Farm- ADAK) High Tide Line is marked along the inner bund of the fish farm, 50m area is marked as No Development Zone, whereas the tidal fluctuation is limited only up to the outer bund of the farm and is regulated by the sluice gate. This will adversely affect development. So High Tide Line should be marked only along the outer bund of farms (Map No KL 69).
42. In Cherukunnu, Kannapuram village areas High Tide line is drawn along the inner bund of the aquaculture farms whereas the tidal fluctuations is limited only up to the outer bund (bund facing creek/river) and water intake and discharge is regulated by sluice gate and not by tide. As a result all farms are being shown as in Inter Tidal Zone which will prevent its further developmental activities. So High Tide Line should be marked only along the outer bund of the farms. Map no KL 70). Same anomaly exists in Cherukunnu, Ezhome, Pattuvam areas and along Kuppam river High Tide line is drawn along the inner bund of the aquaculture farms whereas the tidal fluctuations is limited only up to the outer bund (bund facing creek/river) and water intake and discharge is regulated by sluice gate and not by tide. As a result all farms are being shown as in Inter Tidal Zone which will prevent its further developmental activities. So High Tide Line should be marked only along the outer bund of the farms (Map No KL74).

4.2 RECOMMENDATIONS TO FISHERIES DEPARTMENT

Many of the suggestions in the IFDP have to be carried forward with positive interventions and actions by the Fisheries Department. Some of the major recommendations are listed below:

1. As directed in the in the CRZ 2019, the State govt. (Fisheries dept.) may take initiative to prepare ‘detailed plans for long term housing needs of coastal fishing communities in view of expansion and other needs, provisions for basic services, including sanitation, safety and disaster preparedness’. This could be done for all fishing villages through agencies such as KSCADC with the support of Local Self-government institutions,

Town Planning Dept., etc. (An outline for a model fishing village and its settlement plan is provided in the annexure)

The Fisheries department together with Integrated Rural Technology Centre (IRTC), Town Planning Department and respective local bodies may take up the preparation of settlement plans for fishing villages which could be implemented by KSCADC through local bodies.

2. The settlement plan should have a strong empirical foundation provided through rigorous compilation and analysis of baseline data. Location of safe area for housing cluster development, rehabilitation plan for rehabilitating those living very near seashore and susceptible to hazard from sea, and appropriate strategies for coastal protection have to be ensured. A stock assessment survey has to be done on all infrastructure items followed with Need Assessment Survey. Settlement plan has to be prepared with identified parameters taking into account of the stock assessment survey and need assessment survey.
3. 'Punergeham' is a programme imbibing the spirit of the CRZ notification to reduce the impact of coastal erosion by moving settlements close to the shoreline to safer places. This has to be further pursued. It may require a change in its operational aspects. The financial support given to traditional coastal communities has to be modified by considering the differential land and property prices. It is required to be reworked considering the minimum area and facilities required for a reasonably comfortable dwelling unit for a four member family, with the help of experts. The community also requires an assurance that the property surrendered to the government should be used only for fishery related and community required facilities and never used for non fishery related activities. This was also the consensus in the stakeholder meeting convened by the Hon'ble Minister for Fisheries.
4. There is a need for scientific management of Pokkali/ Kaipad coastal ecosystem for its sustainable use and conservation considering the continuous decline in its extent, its importance as a major economic resource for the coastal communities, the importance as a rich biodiversity hub, the multifaceted ecosystem services, the pressure due to changes in land use, sea level rise due to climate change, etc. The Fisheries Department has to take the initiative for developing a management plan for Pokkali/ Kaipad. A model draft management plan is attached with this report for reference which may be further

strengthened with stakeholder consultations including coastal communities, local self government institutions, etc. and implemented.

The Fisheries department may provide guidelines regarding setting up and maintenance of peeling sheds, iceplant, fish processing units in the CRZ, especially in the NDZ, so that permanent hard structures are not constructed in the beach, pollution is controlled and ground water use is regulated.

5. Considering the various impacts of fishing harbours on coastal stability, coastal ecosystems and morphology and fisheries, it is imperative to make an assessment of the functional and ecological performance of fishing harbours already constructed. An assessment of the need for more fishing harbours may be made based on the performance assessment study. Department of Fisheries has to ensure ease of accessibility to each of the fishing harbours from all the fishing villages which are serviced by a particular harbour. There should also be a mechanism to solve conflicts between users of different coastal regions. Many of the stakeholders expressed the need for such an approach for new and existing fishing harbours.
6. It is observed that the construction of the breakwaters for fishing harbours have de-stabilised the adjoining shoreline causing coastal erosion on its down drift side. The Department of Fisheries, Harbour Engineering Deartment may look into the feasibility of better designs that may allow sand bypassing to the down drift side so that erosion is controlled. Such designs are being experimentally tried in Karnataka coast. Redesign of existing harbours may also be considered in this direction while modernizing existing harbours.
7. Fisheries department may identify critical areas of erosion and assess the probable reasons for erosion in each critical location with the support of respective local body and experts and community involvement. This will also help accurate validation of the various set of data currently available which sometimes provide conflicting estimates. This may be updated regularly since the nature and extent of erosion can change depending on the coastal processes and human interventions. Department of Fisheries may take initiative to generate baseline data required for coastal development plans and design of coastal protection measures in collaboration with expert institutions.
8. A proper methodology may be followed to select appropriate coastal protection measure (soft, hard or hybrid) for each critically eroding location, especially those close to

fishing harbours. The Central Water Commision (CWC) guidelines could be helpful in this.

9. Any construction on active beaches will have adverse impacts on shore stability. Care should be taken to ensure that various constructions for fish landing centres and other facilities are not carried out in active beaches.
10. The possibility of redesigning the existing fishing harbours to minimise the adverse impacts on shore stability may be considered. New harbours also need to follow a design that causes minimum impact on coastal stability.
11. Identify PESCA tourism activities suited for traditional coastal communities including fishers and empower and equip them for such activities
12. Empower traditional coastal communities, especially women to take part and manage ecotourism activities in CRZ I areas such as mangroves, beaches, fish sanctuaries, etc. and CRZ IV areas such as coastal waters and backwaters
13. Proper guidelines for facilitating home stay in CRZ areas may be worked out with input from stakeholders and tourism department.
14. The Environment Department, KCZMA and the Department of Fisheries have to keep a close watch on various developments such as 'Sagaramala Project', and mining in the coastal zone and coastal waters, under the Blue Economy policy of Govt. of India so that adverse impacts on fisheries, livelihood and rights of traditional coastal communities, coastal ecosystems are minimized to an acceptable level. Environmental rules especially CRZ rules should not be diluted for permitting activities under blue economy.
15. Another major action envisaged under Blue Economy is preparation of Coastal and Marine Spatial Plans. This will be an extension of the CZMP into the Territorial waters, Exclusive Economic Zone and the High Seas. It may demarcate spatial boundaries for different activities along the coast and the seas. This should not encroach on fishing and fishery zones and the living and occupational areas of traditional coastal communities. The state's right on coastal and fishery resources need to be protected. It is the responsibility of the Department of Fisheries, the Department of Environment and KCZMA that the livelihood rights are protected while preparing Coastal and Marine Spatial plans and implementing the projects envisaged under the blue economy are implemented.

The report and annexures may be referred while considering the above recommendations.

Annexure I

COMMITTEE CONSTITUTED FOR THE PREPARATION OF INTEGRATED FISHERIES DEVELOPMENT PLAN FOR INCORPORATION INTO THE CZMP

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File No.FandP-C2/188/2021-FandP

21/6/21

GOVERNMENT OF KERALA

Abstract

Fisheries Department – Preparation of Intergrated Fisheries Development Plan for incorporation into the Coastal Zone Management Plan (CZMP) for Kerala - Committee Constituted - Orders issued.

FISHERIES&PORTS (C)DEPARTMENT

G.O.(Rt)No.290/2021/F&P Dated,Thiruvananthapuram, 11/06/2021

Read 1 CRZ Notification, 2019

ORDER

The draft CZMP of nine coastal districts and Kottayam district, prepared by NCESS and KCZMA, has been circulated for inputs from various stakeholder departments and for public hearing. After incorporating relevant inputs received, the CZMP for Kerala has to be approved by KCZMA and the State Government will forward it to the Ministry of Environment and Climate Change (MoEF & CC) for its final approval. Thus, the State has to prepare its CZMP with Kerala specific requirements. Department of Fisheries with the fisher folk and fish farmers are a major stakeholder of the CRZ area. Required inputs are to be incorporated to the draft CZMP for easing the housing and various developmental activities for sustainable development of the coastal area and to ensure the welfare of fishermen and fish farmers. To ensure a speedy coordination and preparation of an "Integrated Fisheries Development Plan" for incorporation into the Kerala Coastal Zone Management Plan, a technical committee with following members is hereby constituted;

Sl. No.	Name	Designation
1	Dr. K.V. Thomas	Chief Scientist & Head Coastal Process Division (Retired)), NCESS-Chairman
2	Dr. Bijukumar A	Professor & Head, Dept. of Aquatic Biology & Fisheries, University of Kerala
3	Dr. Dinesan Cheruvat	Executive Director, ADAK

File No.FandP-C2/188/2021-FandP

4	Smt. Sreelu, N.S.	Additional Director of Fisheries
5	Sri. Jomon K George	Chief Engineer, HED.
6	Sri. Muhammad Anzari	CE, KSCADC
7	Sri. P.N. Rajesh,	Sr. Town Planning Officer, Dept. of Town & Country Planning.
8	Dr. N. K. Sasidharan Pillai	Deputy Director of Fisheries (Rtd.)
9	Sri. Ignatius Mandro	Joint Director of Fisheries (Aquaculture) - Convener
10	Sri. Anil Kumar S	Deputy Director of Fisheries, PME, Co-Convener

(2) The committee shall look into various aspects of the fisheries sector to be incorporated into the CZMP of Kerala as per the CRZ Notification, 2019. For this an "Intergrated Fisheries Development Plan" for incorporation into the CZMP for Kerala shall be prepared and submitted to the Department of Fisheries (GoK) within one month.

(By order of the Governor)
Tinku Biswal
Secretary

To

All Members of the Committee
The Director of Fisheries, Thiruvananthapuram
The Chief Engineer, Harbour Engineering Department, Thiruvananthapuarm
The Managing Director, KSCADC
The Principal Accountant General, Audit, Kerala, Thiruvananthapuram
The Accountant General, (A&E) Kerala, Thiruvananthapuram .
The Deputy Director II, Web and New Media, I&PRD, Thiruvananthapuram
(For uploading in the Government website)
Stock file/Office copy

Forwarded /By order
Section Officer

Copy to

PS to Minister (Fisheries)
PA to Secretary(Fisheries)

Annexure II

MODEL SETTLEMENT PLAN

-P.N. Rajesh, Sr. Town Planning Officer

INTRODUCTION

Kerala has a unique pattern of development and thus forming a different settlement pattern. The settlement pattern of Kerala is unique in the sense that it is having urban-rural continuum. Ecology plays an important role in the Kerala's economy by providing a diversified natural resource base, enabling a large degree of occupational diversification. The topography and the geographical relief features are marked by distinct changes from east to west. Geographically, Kerala is divided into three regions comprising three zones i.e. lowlands, midlands & highlands.

The low land, where the population density is the highest, consists of sandy and fertile soils of the river valleys, lakes and backwaters, providing the basis for fishing, rice and coconut cultivation and horticulture.

In the mid land region, coconut, rice, cassava, areca nut and cashew, along with rubber, pepper, and ginger on the slope predominate.

The high ranges, where the population density is the lowest, and which once consisted almost wholly of natural evergreen tropical forests, gave way to plantations of tea, coffee and rubber during the colonial times.

SETTLEMENT PATTERN - KERALA

Kerala is one of the most densely populated states in India. Kerala is known for its unique settlement pattern with independent houses on individual plots scattered across the habitable areas. The dispersed settlement pattern formed as a result of historical trends, a liking for homestead type development, comparatively developed infrastructure in urban and rural areas, geographical reasons, availability of sub-soil water etc can be considered as both a prospect and a problem. A clear distinction exists between the rural and urban areas elsewhere in India. But here in Kerala, one cannot clearly distinguish a rural area from an urban area. All over Kerala, it is like a large number of small and medium towns distributed in the village background. It is exceedingly difficult to demarcate the end or beginning of a town and a village. The decline in growth rate is

observed, partly by decline in fertility and partly by net out-migration. The new census figures 2011-21 shows a further decrease in population growth rate.

SOCIO – ECONOMIC PROFILE

Kerala has a good socio – economic status compared to other states in India. It has the highest quality of life index in the country with a high literacy rate at 93.91% against country's literacy rate of74.04% according to the provisional data of Census2011 with the male literacy rate 96.0 per cent and the female literacy rate 92.0 per cent.

OVERALL DEVELOPMENT

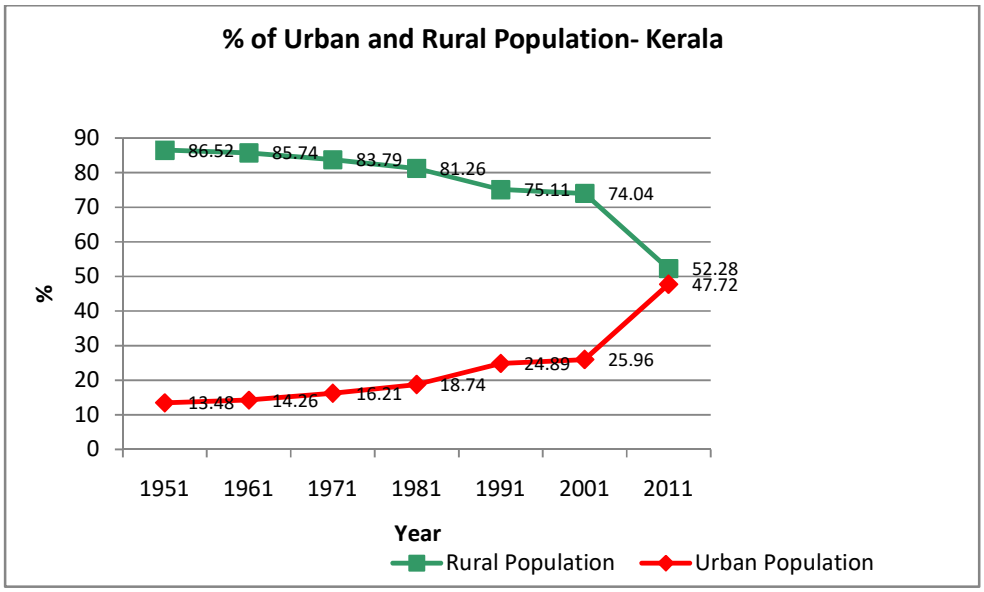
Since the formation of the state in 1956, Kerala has striven consistently to bring down the inter regional disparities, gone ahead with the progressive legislations on land tenures and agrarian relations, brought down mortality and fertility rates and arrested population growth rate, promoted educational growth with significant support to private sector initiatives and modernized the healthcare sector.

Kerala is undergoing high level of urbanisation without physical manifestation in tune to it, which is another peculiarity. The 2011 census puts the urban content of Kerala at 47.71% with a decadal growth rate of 82. 23%. A study on the intricacies of the urbanisation of Kerala is inevitable in this context.

The average population density of India as per 2011 census is 382 persons per sq km. The population density in Kerala at 859 persons per sq km is comparatively higher when compared with other States in India. The low population growth rate and comparatively higher population density are factors deciding the future growth of population of the State. In Kerala, the total fertility rate (TFR), which was 5.6 per woman in the 1950s, declined to 3.7 in the 1970s, and reached 1.7 in 2009. The natural increase in population in Kerala is only 7.9 per 1000 population as against 15.2 per 1000 population of India. The Total Fertility Rate (TFR) in Kerala, started declining from the 1960s. TFR for Kerala in 2009 is 1.70 which is the lowest among states in India.

Urban agglomeration pattern but we see in Kerala has shown a tremendous growth in the Coastal areas In Kerala, the main reason for urban population growth is not by the concentration of population into the existing urban areas, but the increase in the number of urban areas and

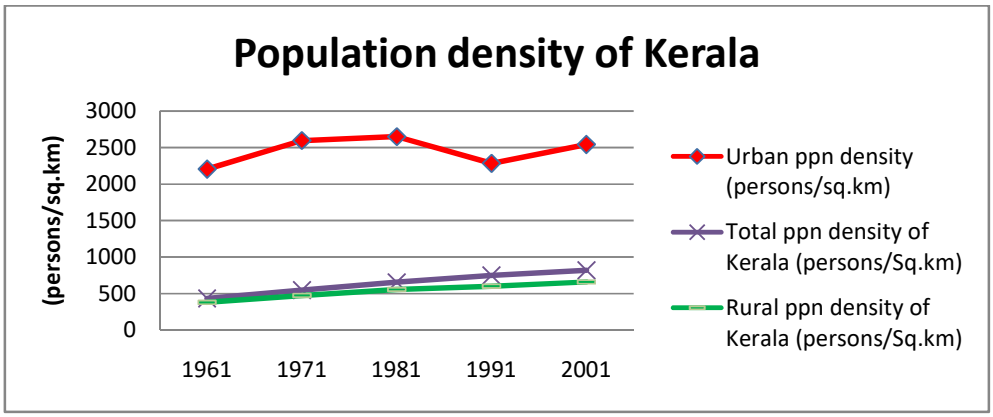
urbanisation of the peripheral areas of the existing major urban centres. Kerala is experiencing urban spread rather than concentration.



The basis of considering village as a unit is not correct on classifying the coastal areas as it doesn't have an administrative boundary and also the data base collection and analysis are all made on the basis of local bodies. Most of the data is not available at the village level. Hence village cannot be considered for the classification CRZ II and CRZ III. As per the constitutional amendments (73rd and 74th) the powers are delegated to the local bodies. The concept of considering local bodies as a unit shall be the basis of regulating development and settlement plan.

SETTLEMENT PLANNING PRINCIPLES FOR DEVELOPMENT

This section sets a series of planning principles which, when implemented through local planning policies, will provide for efficient and sustainable development of land. The local growth management strategy will need to address the following planning principles and demonstrate, where relevant, how they will be applied to assist in achieving the outcomes and actions at the district level.



PRINCIPLES OF SETTLEMENT PLAN

1. Future settlement should be located predominantly within the agreed growth areas.
2. Future settlement, where permitted based on the district plans outside the agreed growth area and must be located to minimise environmental impacts and be sustainable. Such settlement must satisfy the sustainability policies.

   Fragmented development has high infrastructure costs and is unlikely to be permitted.

   To achieve future environmental, economic and social sustainability new settlements should be able to demonstrate self reliance and an ability to maximise infrastructure efficiency and service provision. New, isolated settlements should not be considered if residents would be heavily dependent upon motor vehicles to access basic social and services infrastructure.

   Suitability of land (environment, natural resources, hazard)
3. Future development should be located on land that is suitable for the development and capable of supporting the proposed uses and minimum risk.
4. Plan for future development on land already zoned for settlement but not yet developed should identify the constraints and opportunities of the land. Development should achieve a carefully planned community, respecting environmental, resource and hazard issues.
5. Development of land should avoid areas of environmental significance, significant natural and/or economic resource, potential hazard, high landscape or cultural heritage value, or potential increased risk associated with impacts of climate change.
6. Future development adjoining land with the above values should incorporate buffers as necessary to help protect those values and to avoid future land use conflict.

   To aid Grama sabhas in the preliminary identification of land with environmental, resource, landscape value or hazard risk within their local government areas, an initial assessment has

to be undertaken. From the available data and through inputs from local governments land suitability for future development is assessed.

Settlement form and hierarchy

9. Development of fishing village should:
    - strengthen the hierarchy of settlement identified in the regional strategies, support and maintain strong multi-functional business centres, minimise urban sprawl, and maximise infrastructure and service efficiencies;
    - be planned to create communities within the hierarchy of settlement. Consideration should be given to the ultimate geographical extent and population target for each community that is to be formed or built upon, and the staging/timing by which it is proposed to reach that position
    - provide for a mix of houses, jobs and open space;
    - be appropriately located in relation to its scale, nature or type of development; the ability to provide the necessary infrastructure and services; the need for access and to ensure effective traffic management, cycle tracks pedestrian walkways, lighted avenues etc to be planned.
    - in the case of residential development, provide for a variety of dwelling types and a choice in location, form and affordability; and
    - enable mixed uses and home-based employment in residential or village zonings where appropriate.
10. Future rural residential development should be planned so any new opportunities strengthen the settlement hierarchy identified in the regional strategies. It should be located close to existing centres and away from areas that may in the future have values for urban expansion.
11. Future rural residential development should be clustered to encourage a sense of community and for the efficient provision of services. Fragmented development over the landscape will not be permitted.

Infrastructure provision

12. Future development should only be permitted where it can be provided with adequate, cost effective physical and social infrastructure to match the expected population for each settlement. In rural areas this may require the development being able to provide stand alone services.
13. Future development should be designed and located to minimise the need to travel; to maximise opportunity for efficient public transport and pedestrian access options; and to encourage energy and resource efficiency

14. Future development should not contribute to ribbon/strip development nor impacton the safety and efficiency of major or arterial roads.

Tourism opportunities

15. Future tourism development should not negatively impact on the naturaleconomic or social fabric of the area it is to be located in.
16. Future tourism development should provide for a wide range of experience opportunities from the low cost family type tourism developments. Future investment in and growth of tourism products and services should notoccur at the expense of local environmental and social values.
17. Future large scale tourism development that is located adjoining natural features such a beach, estuary, national park or reserve, etc, should maintain public access to those features.

    Staging and sequencing of residential land growth management strategy will generally identify land required for 25years expected growth.

    - a staging and sequencing program for the next ten years;
    - the land release priority areas for the next five years; and
    - annual lot release forecasts projected over five years, including expected total remaining lot yield.

AVOID IMPACTS AND HAZARDS

HIGH RISK

Planning principle: settlement should not be located in areas of high risk of environmental impact or hazard. Development should be directed to unconstrained land(s) within the release area. In the occasional and justifiable circumstance where part of a proposal will be located on land identified as high risk because of the presence of biodiversity values, natural hazard impacts or other physical limitations, the development must be planned to minimise these impacts and provide appropriate offsets.

SOCIO-ECONOMIC PLANNING

Socio-economic development plan must be formulated through participation of all members and stake holders of the fishing Village. It is especially important to ensure participation of women and youth. Fishing women are important stakeholders in marketing and allied activities in the fisheries hence, their participation to emphasize their needs, role and contribution in entire planning and implementation process shall be assured.

The 73rd and 74th amendments in the constitution mandated local planning at the village Panchayat, intermediate Panchayats and District Panchayat levels as well as in urban local governments and their consolidation into a District Plan in each district. Fisheries is the fifth subject listed in the Eleventh Schedule of the Constitution, constituted in every State at the district level a District Planning Committee to consolidate the plans prepared by the Panchayats and the Municipalities in the district and to prepare a draft development plan for the district as a whole."

Urgent need for public participation in integrated management of coastal and marine areas should be interpreted as an on-going process that brings together the technical and policy makers with citizens in a particular initiative; especially if the latter are involved or interested in any way in these areas or in the coastal-marine ecosystems and their services. It is clear therefore that the integration policies that are promoting public participation relates to the inclusion of all people, organizations and associations should help in providing innovative solutions and knowledge for advancing towards a more integrated coastal management. The functions of government in the management process should be to encourage development participatory models on social and economic development.

PLANNING IN FISHING VILLAGES

Every plan shall start with a vision of the fishing village planning. This vision must have astrong empirical foundation provided through rigorous compilation and analysis of base line data, which needs to be as institutionalised and strong as the planning system itself. It is especially important to ensure participation of women in general and those from the disadvantaged sections fishermen community. In the absence of adequate participation of fishing women, fishing community's view of many important issues may remain highly biased in favour of the male population. Moreover, fishing women are important stakeholders in marketing and allied activities of fishing hence, their participation in fishing village planning is very important

Such participation can be highly empowering for the women and can also engender a balanced vision of community development. This would reduce conflicts of interest and benefit sharing of coastal resources. Various important infrastructure and welfare facilities essentially required for fishermen sustainable livelihood would need to be discussed. To prioritise the needs, it is necessary to be classified as immediate and long run requirement of the fishing village.

STOCK ASSESSMENT

The existing assessment needs to be done on all infrastructure items such as roads, schools, hospitals, banks, religious places public transport facilities Public offices, harbours, lakes etc. The scattered housing areas and housing clusters also has to be identified.

NEED ASSESSMENT

After the stock assessment, the Need Assessment Survey (NAS) shall be conducted. NAS ofa fishing village is the outcome of the stock assessment where the indicators of welfare and infrastructure are essentially required for development. The NAS shall provide information about the needs of the fishermen and the village they are living as well as the future needs for fishermen community development for a time horizon of five / ten years. While doing the need assessment the requirement for roads, walkways, water supply, public facilities, waste management facilities etc has to be identified and settlement plan has to be prepared based on the 17 principles of settlement mentioned above.

Houses constructed for fishermen should have the capacity to withstand coastaldisasters. Under GoI – UNDP Disaster Risk Management Programme, the Ministry of Home Affairs has developed 'guidelines for development and building constructions including safety provisions for natural hazards in rural areas. The guidelines shall be applied to the construction of houses in fisher folk villages. The guidelines provide detailed understanding of the role and responsibility of various institutions for addressing disaster risk for buildings in rural areas

REGULATIONS AS PER CRZ NOTIFICATION

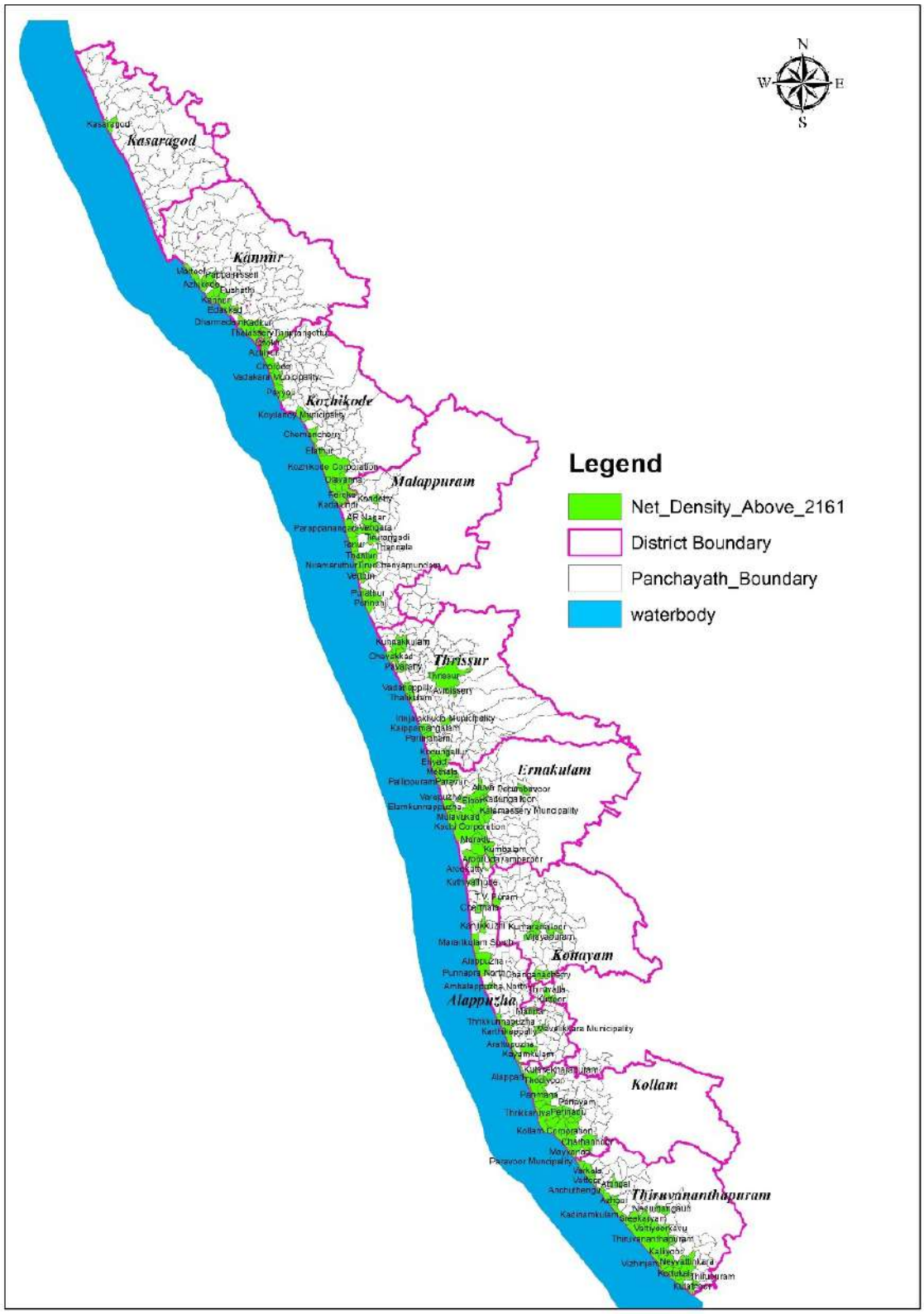
As per CRZ notification 2008, relatively undisturbed rural areas and those do not fall under CRZ-II, shall constitute CRZ –III. CRZ-III shall be further classified into **CRZ-III A and CRZ-III B** .

CRZ-III A is such densely populated CRZ-III areas, where the population density is more than 2161 per sq km as per 2011 census base, shall be designated as CRZ –III A. In CRZ-III A, area up to 50 mts from the HTL on the landward side shall be earmarked as the No Development Zone (NDZ), provided the CZMPs as per this Notification, framed with due consultative process, have been approved, failing which, a NDZ of 200 mts shall continue to apply.

CRZ-III B is all other CRZ-III areas with population density of less than 2161 per sq km, as per 2011 census base, shall be designated as CRZ-III B. In CRZ-III B, the area up to 200 mts from the HTL on the landward side shall be earmarked as the No Development Zone (NDZ).

On initial analysis on the coastal panchayats the gross population density should not be the criteria for delineating CRZ III A and B. Considering the gross population density of 2161, 139 coastal local bodies fall under the category of CRZ III A. Most of these areas have large areas under water bodies hence the net population density has to be considered for classifying CRZ III A and B. If we consider net population density, 161 local bodies would come under CRZ III A.

Local bodies haning density of population more than 2161



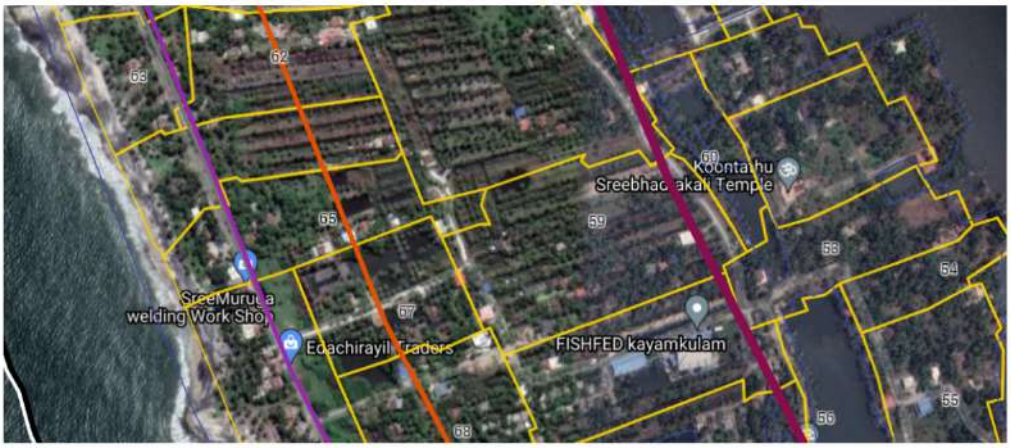
ARATTUPUZHA PANCHAYAT

Arattupuzha Panchayat falls in Alappuzha district and has a population of 29,876 this panchayat is a classical example of large area having water bodies. It is having a narrow strip of land with one side sea and other side as a lake. The width of the strip is very narrow and is highly vulnerable.

If we consider done gross population density of this panchayat its only 1335 persons per sq km, it doesn't fall under the criteria of CRZ III A, but if you take the net population density the population density come to 2298 persons per sq km and hence can be classified as CRZ III B.

Generally the housing is scattered throughout the Panchayat. Some concentration of clusters is seen near the KC Kayal and on the northern part of the Panchayat. The Northern part of Panchayat is more and safer area for forming housing clusters and next order facilities.

One of the location in Arattupuzha indicating space availability for new settlement



100 m, 200 m and 500 m lines are visible in the above figure. The type of the development in these areas is to be planned with local participation. The stock assessment and needs to be studied and necessary planning interventions has to be made to provide better facilities for the area based on the principles of settlement mentioned above.

PREPARATION OF SPATIAL PLAN FOR THE FISHING VILLAGE

ACTIVITIES INVOLVED

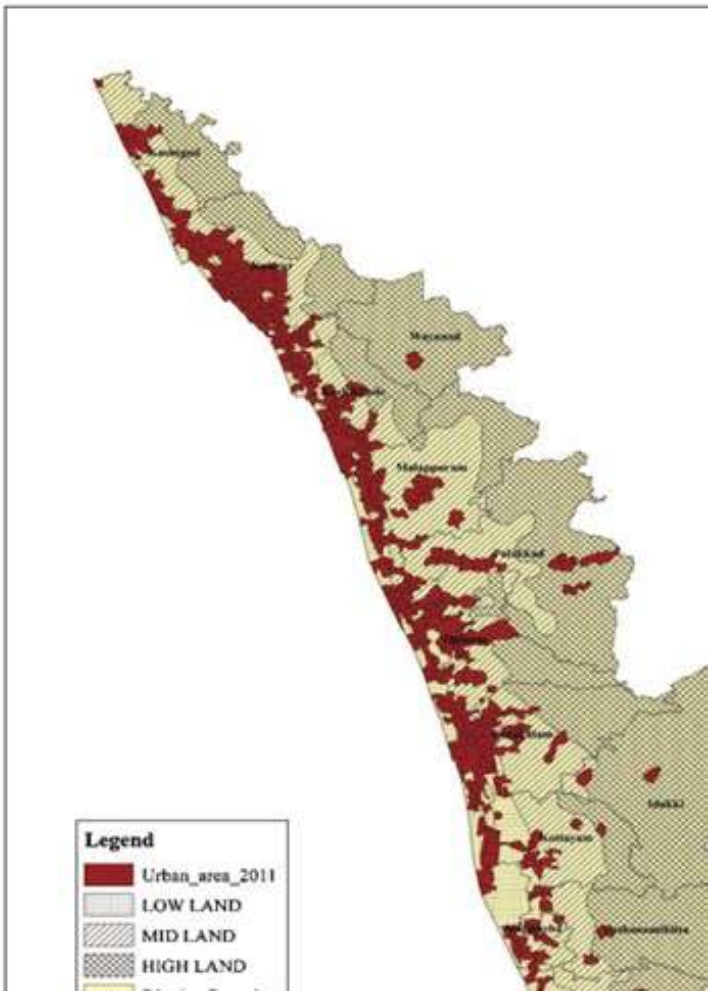
1. *Mapping of the settlement*
2. *Mapping of the facilities including infrastructure and fishing activites*
3. *Collection of other socio economic data*
4. *Stake holder consultation to identify date gaps*
5. *Draft proposal on shelter modification, provisions of facilities, road net work etc within the CRZ notification*
6. *Discussion of the Draft proposal and finalisation*
7. *Final map and report*

Annexure III

TREND OF THE URBANIZATION IN COASTAL AREAS

The urbanisation pattern for the state in 2011 shows around 50% urbanisation and this urbanisation trend is more concentrated on the coastal areas. The figure shows the spatial distribution of urban areas. As per the census classification most of the area has been classified as urban hence these areas has to be included in the CRZ II. The remaining area has to be categorised CRZ III A and CRZ III B based on the population density of the local bodies.

Spatial distribution of urban areas 2011



Annexure IV

FISHERIES & AQUACULTURE DEVELOPMENT

-Dr. A. Bijukumar, Professor & Head, Dept. of Aquatic Biology & Fisheries, KU
-Ignatious Mandro, Joint Director of Fisheries

Annexure- IV A			
Fishing harbour/ fish landing cetres/ Auction hall (Marine)			
Sl. No.	**Name of fishing village/ FH/FLC**	**Name of the district**	**Position of FH/FLC/AH**
1	Paruthiyoor	Thiruvananthapuram	08°18' 8.8596"N
			77°05'06.4536"E
2	Poovar	Thiruvananthapuram	08°19'2.0784"N
			77°03'55.1340"E
3	Karumkulam	Thiruvananthapuram	08°19'27.2784"N
			77°03'24.2568"E
4	Kochuthura	Thiruvananthapuram	08°19'40.7136"N
			77°03'09.1332"E
5	Puthiyathura	Thiruvananthapuram	08°19'58.6200"N
			77°02'47.1552"E
6	Pallom	Thiruvananthapuram	08°20'12.2758"N
			77°02'29.8013"E
7	Pulluvila	Thiruvananthapuram	08°20'43.0332"N
			77°01'54.4620"E
8	Adimalathura	Thiruvananthapuram	08°20'57.4044"N
			77°01'31.8576"E
9	Vizhinjam south (FH)	Thiruvananthapuram	08°22'22.7036"N
			76°59'18.2136"E
10	Vizhinjam north	Thiruvananthapuram	08°22'36.6996"N
			76°59'14.1432"E
11	Poonthura	Thiruvananthapuram	08°26'06.3672"N
			76°56'59.4132"E
12	Beemapally	Thiruvananthapuram	08°27'01.7928"N
			76°56' 12.3360"E
13	Cheriyathura	Thiruvananthapuram	08°27'23.6952"N
			76°55'53.3712"E
14	Valiyathura	Thiruvananthapuram	08°27'52.0020"N
			76°55'31.4004"E
15	Maryanadu	Thiruvananthapuram	08°35'56.0111"N
			76°48'49.0390"E
16	Puthukurichi	Thiruvananthapuram	08° 36' 38.8656" N
			76°48'25.3404" E
17	Perumathura	Thiruvananthapuram	08° 37' 58.3968"N

			76° 47' 21.4296"E
18	Muthalapozhi FH	Thiruvananthapuram	08° 38' 10.4388"N
			76° 47' 08.9376"E
19	Paravoor south	Kollam	08°47'49.9920"N
			76°39'36.0756"E
20	Paravoor North	Kollam	08°48'27.4104"N
			76°39'08.1972"E
21	Mayyanad-1	Kollam	08°49'05.9772"N
			76°38'43.4688"E
22	Mayyanad-2	Kollam	08°50'07.3536"N
			76°37'59.7396"E
23	Eravipuram south-1	Kollam	08°50'31.5780"N
			76°37'37.4484"E
24	Eravipuram south-2	Kollam	08°50'41.6520"N
			76°36'29.9592"E
25	Port Kollam	Kollam	08°52'50.0880"N
			76°34'52.2480"E
26	Moodakkara-1	Kollam	08°52'52.7952"N
			76°34'42.7908"E
27	Moodakkara-2	Kollam	08°52'54.1272"N
			76°34'35.7024"E
28	Vady	Kollam	08°52'53.7708"N
			76°34'27.4260"E
29	Thangassery FH	Kollam	08°52'56.4708"N
			76°34'20.3556"E
30	Kannimel-1	Kollam	08°54'45.5976"N
			76° 32' 34.6020"E
31	Kannimel-2	Kollam	08°54'15.8544"N
			76°32'48.2712"E
32	Sakthikulangara FH	Kollam	08°55'54.7068"N
			76°32'51.6732"E
33	Neendakara	Kollam	08°56'20.8320"N
			76°32'23.1648"E
34	Puthenthura	Kollam	08°57'46.9872"N
			76°31'49.5012"E
35	Kovilthottam	Kollam	08°59'26.2140"N
			76°31'26.2848"E
36	Ponmana	Kollam	09°00'38.3400"N
			76°31'13.1664"E
37	Cheriyazheekkal	Kollam	09°03'18.4752"N
			76°30'03.2868"E
38	Azheekkal FH	Kollam	09°07'55.2576"N
			76°28'01.8732"E
39	Azheekkal-1	Kollam	09°07'03.4104"N

			76°28'35.9148"E
40	Azheekkal-2	Kollam	09°07'50.4516"N
			76°28'07.8060"E
41	Valiyazheekkal	Alappuzha	09°08'21.2676"N
			76°27'55.6272"E
42	Thottappally FH	Alappuzha	09°19'08.2488"N
			76°22'46.5456"E
43	Ambalappuzha	Alappuzha	09°22'31.9008"N
			76°21'15.9400"E
44	Punnappra South	Alappuzha	09°25'26.4936"N
			76°20'11.6700"E
45	Punnapra North	Alappuzha	09°26'28.0968"N
			76°20'14.9928"E
46	Vadackal South	Alappuzha	09°26'56.6088"N
			76°19'41.3832"E
47	Chethy	Alappuzha	09°37'15.9276"N
			76°17'44.0484"E
48	Chennaveli	Alappuzha	09°37'49.8252"N
			76°17'46.3524"E
49	Arthunakal	Alappuzha	09°40'37.6248"N
			76°17'50.0352"E
50	Thiackal	Alappuzha	09°40'24.8160"N
			76°17'30.2100"E
51	Azheekal	Alappuzha	09°44'51.2340"N
			76°17'05.5860"E
52	Chellanam FH	Ernakulam	09º58'53.5632"N
			76º16'28.8192"E
53	Kandakkadavu	Ernakulam	09º50'44.8692"N
			76º16'08.7312"E
54	Kannamaly-1	Ernakulam	09º52'31.4436"N
			76º15'56.3112"E
55	Kannamaly-2	Ernakulam	09º52'47.2800"N
			76º15'53.0856"E
56	Kannamaly-3	Ernakulam	09º53'01.3344"N
			76º15'45.1404"E
57	Cheriyakadavu-1	Ernakulam	09º 53'22.1172"N
			76º 15' 40.6944"E
58	Cheriyakadavu-2	Ernakulam	09º 53'40.9488"N
			76º 15' 32.1516"E
59	Azheekkal	Ernakulam	09º58'56.4204"N
			76º14'33.3348"E
60	Munambam FH	Ernakulam	10°10'48.6408"N
			76°10'06.4272"E

61	Azhikode-1	Thrissur	10°11'20.9040"N
			76°10'25.9440"E
62	Azhikode-2	Thrissur	10°11'26.4948"N
			76°10'07.3025"E
63	Azhikode-3	Thrissur	10°11'17.0832"N
			76°10'07.1515"E
64	Eriyad	Thrissur	10°13'30.0000"N
			76°08'57.0000"E
65	Edavilang-1	Thrissur	10°14'00.9336"N
			76°08'46.6712"E
66	Edavilang-2	Thrissur	10°44'43.0001"N
			76°08'01.0003"E
67	P. Vemballur	Thrissur	10°15'22.2983"N
			76°08'20.7721"E
68	Koolimuttam	Thrissur	10°17'37.4035"N
			76°07'45.1992"E
69	Pernjanam	Thrissur	10°18'07.0314"N
			76°07'35.0958"E
70	Kaippamanagalam	Thrissur	10°19'13.0776"N
			76°07'14.0304"E
71	Chendrapini	Thrissur	10°20'52.1349"N
			76°06'36.8053"E
72	Nattika	Thrissur	10°24'46.35601"N
			76°05'07.0079" E
73	Vadanapally	Thrissur	10°27'28.0800"N
			76°03'58.6800"E
74	Chettuva FH	Thrissur	10°30'54.8040"N
			76°02'29.4360"E
75	Kadappuram	Thrissur	10°31'39.8160"N
			76°01'51.5340"E
76	Blangad-1	Thrissur	10°34'10.5183"N
			76°0'34.18148"E
77	Blangad-2	Thrissur	10°34'17.4749"N
			76°00'30.9333"E
78	Blangad-3	Thrissur	10°34'17.0289"N
			76°00'30.9454"E
79	Blangad-4	Thrissur	10°34'19.5896"N
			76°00'29.8558"E
80	Blangad-5	Thrissur	10°34'20.4925"N
			76°00'29.9636"E
81	Manathala-1	Thrissur	10°35'28.4780"N
			75°59'55.0775'"E
82	Manathala-2	Thrissur	10°35'30.1168"N
			75°59'54.2447"E

83	Edakkazhiyur-1	Thrissur	10°36'72.2740"N
			75°59'19.9866"E
84	Edakkazhiyur-2	Thrissur	10°36'49.5321"N
			75°59'16.7398"E
85	Edakkazhiyur-3	Thrissur	10° 36'51.61425"N
			75°59'15.41755"E
86	Mannalamkunnu-1	Thrissur	10° 39'36.1116"N
			75°58'22.7748"E
87	Mannalamkunnu-2	Thrissur	10° 40'5.1168"N
			75°57'54.2988"E
88	Mannalamkunnu-3	Thrissur	10° 40'27.7824"N
			75°57'43.776"E
89	Palappetty	Malappuram	10˚41'18.9116"N
			75˚57'42.6678"E
90	Ponnani FH	Malappuram	10˚47'12.9142"N
			75˚55'10.1364"E
91	Purathur	Malappuram	10°47'50.8751"N
			75°54'67.5637"E
92	Koottayi-1	Malappuram	10°51'27.4190"N
			75°53'78.5519"E
93	Koottayi-2	Malappuram	10°51'26.7090"N
			75°53'79.6684"E
94	Paravanna-1	Malappuram	10°54'72.7517"N
			75°53'01.3184"E
95	Paravanna-2	Malappuram	10°54'64.4831"N
			75°53'02.8835"E
96	Paravanna-3	Malappuram	10°54'16.8483"N
			75°53'13.5171"E
97	Thevarkadappuram-1	Malappuram	10°55'01.5135"N
			75°52'94.6477"E
98	Thevarkadappuram-2	Malappuram	10°54'84.9569"N
			75°53'00.7129"E
99	Puthiyakadappuram	Malappuram	10°55'67.7109"N
			75°52'82.0447"E
100	Ossankadappuram	Malappuram	10°58'79.1455"N
			75°51'55.3465"E
101	Parappanangadi	Malappuram	11°02'89.9694"N
			75°51'01.3718"E
102	Arayankadappuram-1	Malappuram	11°03'08.3568"N
			75°50'77.6725"E
103	Arayankadappuram-2	Malappuram	11°03'31.0122"N
			75°50'91.3497"E
104	Arayankadappuram-3	Malappuram	11°03'24.4278"N
			75°50'92.8303"N

105	Alungal beach-1	Malappuram	11°04'16.6801"N
			75°50'68.8594"E
106	Alungal beach-2	Malappuram	11°04'36.8408"N
			75°50'62.6695"E
107	Kadalundi beach-1	Malappuram	11°06'60.6444"N
			75°49'97.2162"E
108	Kadalundi beach-2	Malappuram	11°07'43.2683"N
			75°49'59.1959"E
109	Beypore FH	Kozhikode	11°9'49.6908"N
			75° 48' 10.2096" E
110	Thekkekadappuram	Kozhikode	11° 14'18.5712"N
			75° 46' 29.964" E
111	Vellayil FH	Kozhikode	11° 15'58.14"N
			75° 46' 10.7364" E
112	Puthiyappa FH	Kozhikode	11° 19'40.2672"N
			75° 44'27.474"E
113	Elathure	Kozhikode	11° 18'14.9688"N
			75° 45' 55.1196" E
114	Quilandy FH	Kozhikode	11° 27'16.6716"N
			75° 41' 55.4916"E
115	Vanmugghaom	Kozhikode	11° 28'4.5840"N
			75° 38' 52.6020"E
116	Melady	Kozhikode	11° 30'55.1340"N
			75° 37' 19.4952"E
117	Vadakara (s)	Kozhikode	11°34'15.7944"N
			75° 35' 22.1640"E
118	Kuriyadi	Kozhikode	11°36'25.0056"N
			75° 34' 30.4644'E
119	Chompala FH	Kozhikode	11°39'43.7220"N
			75° 33' 4.8960"E
120	Kurichiyil-1	Kannur	11°42'38.6460"N
			75°32'21.7680"E
121	Kurichiyil-2	Kannur	11°43'56.2068"N
			75°30'26.2656"E
122	Chalil Gopalpetta-1	Kannur	11°44'00.0024"N
			75°29'55.0248"E
123	Chalil Gopalpetta-2	Kannur	11°44'48.0912"N
			75°29'12.8616"E
124	Pallissery-1	Kannur	11°46'10.9236"N
			75°28'15.6324"E
125	Pallissery-2	Kannur	11°46'35.2164"N
			75°27'24.4512"E
126	Pallissery-3	Kannur	11°46'10.6320"N
			75°27'24.0084"E

127	Edakkad-1	Kannur	11°47'01.4820"N
			75°26'51.1548"E
128	Edakkad-2	Kannur	11°48'56.1888"N
			75°25'22.4148"E
129	Thayyil FH	Kannur	
130	Kannur City FLC	Kannur	11°51'26.9640"N
			75°22'33.7008"E
131	Kannur Mopila Bay FH	Kannur	11°51'34.0776"N
			75°22'27.7320"E
132	Azheekkal FH	Kannur	11°56'36.4200"N
			75°18'36.9756"E
133	Azheekode-2	Kannur	11°56'35.7612"N
			75°18'37.4076"E
134	Mattool	Kannur	11°57'07.6320"N
			75°18'15.6780"E
135	Puthiyangadi-1	Kannur	12°00' 05.4444"N
			75°14'30.8040"E
136	Puthiyangadi-2	Kannur	12°01'39.8424"N
			75°13'58.7928"E
137	Palakode-1	Kannur	12°01'37.5708"N
			75°13'30.6300"E
138	Palakode-2	Kannur	12°00'38.7648"N
			75°12'54.0972"E
139	Cheruvathur FH	Kasargode	12°13'14.0592"N
			75°07'00.8760"E
140	Hosdurg kadappuram	Kasargode	12°18'44.0748"N
			75°04'30.6732"E
141	Ajanoor	Kasargode	12°20'09.2400"N
			75°03'54.9144"E
142	Pallikara	Kasargode	12°23'28.8348"N
			75°02'15.1008"E
143	Kottikulam	Kasargode	12°24'43.1784"N
			75°01'20.7840"E
144	Keezhur	Kasargode	12°28'14.6568"N
			74°59'25.7172"E
145	Kasargode FH	Kasargode	12°28'38.8524"N
			74°59'40.1280"E
146	Kasaba-2	Kasargode	12°28'42.9708"N
			74°59'11.1840"E
147	Kasaba-3	Kasargode	12°28'39.7272"N
			74°59'13.1280"E
148	Koyipadi	Kasargode	12°35'47.9000"N
			74°56'30.9000"E

149	Shiriya	Kasargode	12°42'18.8568"N
			74°53'15.7200"E
150	Manjeswaram FH	Kasargode	12°42'42.0264"N
			74°53'11.6520"E

Annexure- IV B

Fish landing cetres/ Auction hall (Inland)

Sl. No.	Name of LSGI/ FLC/AH	Name of the district	Position of Inland FLC/AH
1	Paravoor M	Kollam	08º49'01.8336"N
			76°38'47.6448" E
2	Poothakkulam-1	Kollam	08°47'39.7860" N
			76°40'35.9004" E
3	Poothakkulam-2	Kollam	08°47'27.3228" N
			76°40'38.5644" E
4	Poothakkulam-3	Kollam	08°47'32.5320" N
			76°40'51.4560" E
5	Mayyanad	Kollam	08º49'21.4140"N
			76°38'46.6008" E
6	Kollam C 1 thuruth	Kollam	08°55'28.4232" N
			76°34'15.3912" E
7	Chavara	Kollam	08°58'21.1188"N
			76°33'02.6460"E
8	Panmana	Kollam	08°58'44.4108"N
			76°33'35.4744"E
9	Perinad	Kollam	08° 58' 11.1576" N
			76° 37' 47.2260" E
10	Panayam-1	Kollam	08°58'14.6748" N
			76°36'28.8792" E
11	Panayam-2	Kollam	08°57'30.9528"N
			76°36'29.8872"E
12	Thrikkaruva-1	Kollam	08°59'38.4936"N
			76°36'45.2484"E
13	Thrikkaruva-2	Kollam	08°57'03.9348"N
			76°35'42.6840" E
14	Thrikkaruva-3	Kollam	08°55'22.4364" N
			76°33'28.9260" E
15	Devikulangara	Alappuzha	09°08'10.5396"N
			76°28'58.5516"E
16	Muthukulam	Alappuzha	09°14'02.2416"N
			76°26'24.8568"E
17	Chingoly	Alappuzha	09°14'43.0728"N
			76°26'14.1576"E
18	Arattupuzha-1	Alappuzha	09°14'16.1196"N
			76°25'45.7428"E
19	Arattupuzha-2	Alappuzha	09°12'16.1964"N
			76°26'17.7720"E
20	Thrikunnappuzha	Alappuzha	09°16'03.1152"N

			76°24'24.5988"E
21	Mannanchery	Alappuzha	09°32'43.7892"N
			76°21'14.7672"E
22	Muhamma	Alappuzha	09°36'38.5272"N
			76°21'58.3020"E
23	Vaikom (M)	Kottayam	9°45'18.0216"N
			76°23'17.7828"E
24	Udayanapuram	Kottayam	9°46'33.3048"N
			76°23'19.4244"E
25	Chempu	Kottayam	9°49'17.8896"N
			76°23'20.3928"E
26	Maradu-1	Ernakulam	09° 55'16.0752"N
			76 ° 19' 43.5792"E
27	Maradu-2	Ernakulam	09° 55'58.2708"N
			76 ° 18' 16.5420"E
28	Maradu-3	Ernakulam	09° 55'52.4136"N
			76 ° 18' 19.5804"E
29	Maradu-4	Ernakulam	09° 55'48.9000"N
			76 ° 18' 22.2156"E
30	Udayamperoor-1	Ernakulam	09°51'22.1976"N
			76°22'45.4908"E
31	Udayamperoor-2	Ernakulam	09°52'04.4476"N
			76°22'32.0052"E
32	Udayamperoor-3	Ernakulam	09°53'13.7112"N
			76°21'57.5388"E
33	Udayamperoor-4	Ernakulam	09°53'27.2688"N
			76°21'53.5752"E
34	Udayamperoor-5	Ernakulam	09°53'37.0356"N
			76°21'48.4776"E
35	Udayamperoor-6	Ernakulam	09°53'55.5684"N
			76°21'39.4344"E
36	Udayamperoor-7	Ernakulam	09°54'18.1152"N
			76°21'28.4292"E
37	Udayamperoor-8	Ernakulam	09°54'32.3144"N
			76°21'20.0556"E
38	Udayamperoor-9	Ernakulam	09° 54'39.5532"N
			76°54'39.5532"E
39	Thripunithura-1	Ernakulam	09°57'15.5196"N
			76°19'48.4716"E
40	Thripunithura-2	Ernakulam	09°52'52.8348"N
			76°16'46.9200"E
41	Kumbalam-1	Ernakulam	09° 53' 38.9976"N
			76° 17' 45.4956"E
42	Kumbalam-2	Ernakulam	09°52'42.9708"N

			76°18'46.4040"E
43	Kumbalam-3	Ernakulam	09°53'43.8000"N
			76°19'01.0000"E
44	Kumbalam-4	Ernakulam	09°53'16.9584"N
			76°18'36.7524"E
45	Ezhikkara	Ernakulam	10°04'29.1036"N
			76°14'23.3124"E
46	Varapuzha	Ernakulam	10°04'45.0012"N
			76°15'27.0738"E
47	Chellanam	Ernakulam	09° 52' 31.3356"N
			76° 15' 56.1672"E
48	Elamkunnapuzha	Ernakulam	10°00'52.7004"N
			76°13'38.8596"E
49	Narakkal	Ernakulam	10°02'52.70001"N
			76°13'02.0001"E
50	Nayarambalam	Ernakulam	10°04'01.0001"N
			76°12'47.30010"E
51	Edavanakkad	Ernakulam	10°06'12.4000"N
			76°12'15.5001"E
52	Kadamakudy-1	Ernakulam	10º 03' 46.0116" N
			76º 12' 05.8940" E
53	Kadamakudy-2	Ernakulam	10º 03' 09.5472" N
			76º 15' 15.4080" E
54	Mulavukad	Ernakulam	09°59'55.9824"N
			76°15'52.0128"E
55	Cochin corporation-1	Ernakulam	09º 54' 18.0962" N
			76º 17' 22.6252" E
56	Cochin corporation-2	Ernakulam	09º 54' 42.0605" N
			76º 17' 45.6410" E
57	Cochin corporation-3	Ernakulam	09º 55' 32.0480" N
			76º 17' 46.1871" E
58	Cochin corporation-4	Ernakulam	09º 55' 31.4580" N
			76º 16' 45.0941" E
59	Cochin corporation-5	Ernakulam	09º 55' 36.2216" N
			76º 18' 16.4428" E
60	Cochin corporation-6	Ernakulam	09º 55' 39.1185" N
			76º 18' 04.5574" E
61	Cochin corporation-7	Ernakulam	10º 00' 17.0215" N
			76º 16' 31.1924" E
62	Cochin corporation-8	Ernakulam	10º 01' 10.8146" N
			76º 16' 12.1494" E
63	Engandiyur	Thrissur	10° 30' 55.2456" N
			76° 02' 31.0812"E

64	Venkitangu	Thrissur	10° 30' 13.0608" N
			76° 04' 53.3784"E
65	Kadalundi	Malappuram	11°09'47.5945" N
			75°48'55.9758"E
66	Kozhikode C	Kozhikode	11°21'28.6865"N
			75°44'38.2855"E
67	Atholi	Kozhikode	11°24'65.3535"N
			75°44'97.5810"E
68	Payyoli M	Kozhikode	11°33'82.2234"N
			75°36'57.8572"E
69	Valiyaparamba-1	Kasargode	12°11'18.4020"N
			75°07'50.9628"E
70	Valiyaparamba-2	Kasargode	12°11'37.0068"N
			75°07'38.4348"E
71	Cheruvathur-1	Kasargode	12°12'24.1740"N
			75°07'43.7376"E
72	Cheruvathur-2	Kasargode	12°12'37.1448"N
			75°07'45.1956"E

Annexure V

Annexure- V A				
Housing settlements-Marine				
Sl. No.	**Name of fishing village**	**Name of the District**	**GPS position of south west end**	**GPS position of north west end**
1	South Kollenkode	Thiruvananthapuram	08°17'35.0412"N	08°17'56.6232"N
			77°05'48.8112"E	77°05'20.8284"E
2	Paruthiyoor	Thiruvananthapuram	08°17'56.6232"N	08°18'06.8904"N
			77°05'20.8284"E	77°05'07.4256"E
3	Poovar	Thiruvananthapuram	08°18'49.0068"N	08°19'14.2464"N
			77°04'13.0872"E	77°03'39.6540"E
4	Karumkulam	Thiruvananthapuram	08°19'15.2292"N	08°19'38.2965"N
			77°03'40.5612"E	77°03'09.2899"E
5	Kochuthura	Thiruvananthapuram	08°19'38.7948"N	08°19'51.1212"N
			77°03'11.1672"E	77°02'57.2424"E
6	Puthiyathura	Thiruvananthapuram	08°19'51.4902"N	08°20'10.7232"N
			77°02'56.9806"E	77°02'34.9152"E
7	Pallom	Thiruvananthapuram	08°20'13.8910"N	08°20'16.7102"N
			77°02'31.8012'E	77°02'29.3966"E
8	Pulluvila	Thiruvananthapuram	08°20'16.9476"N	08°20'49.8984"N
			77°02'28.2156"E	77°01'47.3160"E
9	Adimalathura	Thiruvananthapuram	08°20'51.8967"N	08°20'52.2708"N
			77°01'41.8974"E	77°01'44.2776"E
10	Chowara	Thiruvananthapuram	08°21'30.8628"N	08°21'11.4408"N
			77°00'49.7448"E	77°01'39.6876"E
11	Vizhinjam south	Thiruvananthapuram	08°22'42".3984"N	08 °22'42.8520" N
			76°59'28.3488"E	76° 59'26.0412"E
12	Vizhinjam north	Thiruvananthapuram	08°22'50.6172"N	08°22'50.9376" N
			76°59'04.0272"E	76°59'03.3432"E
13	Kovalam	Thiruvananthapuram		
14	Panathura	Thiruvananthapuram	08°24'37.3572" N	08°25'28.6392"N
			76°58'03.3096"E	76°57'28.6020"E
15	Poonthura	Thiruvananthapuram	08°26'06.6264"N	08°26'40.2792"N
			76°56' 59.136"E	76°56'29.7672"E
16	Beemapally	Thiruvananthapuram	08°26'43.6236"N	08°27'20.7072"N
			76°56'27.0492"E	76°55'55.7040"E
17	Cheriyathura	Thiruvananthapuram	08°27'20.5740"N	08°27'35.7660"N
			76°55'55.7688"E	76°55'42.8952"E
18	Valiyathura	Thiruvananthapuram	08°27'23.6952"N	08°28'8.2668"N
			76°55'53.3712"E	76°55'14.9700"E

19	Kochuthope	Thiruvananthapuram	08°28'8.9004"N	08°28'22.8000"N
			76°55'14.4768"E	76°55'02.6256"E
20	Valiyathope	Thiruvananthapuram	08°28'23.0124"N	08°28'37.7976"N
			76°55'2.5464"E	76°54'49.5432"E
21	Shanghumugham	Thiruvananthapuram	08°28'47.7588"N	08°28'50.6244"N
			76°54'42.2280"E	76°54'38.1528"E
22	Kannamthura	Thiruvananthapuram	08°29'08.2248"N	08°29'21.2460"N
			76°54'10.9800"E	76°54'10.9836"E
23	Vettukad	Thiruvananthapuram	08°29'21.5664"N	08°29'48.6960"N
			76°54'10.2312"E	76°53'46.7016"E
24	Kochuveli	Thiruvananthapuram	08°29'49.8192"N	08°30'26.0316"N
			76°53'45.6720"E	76°53'16.6956"E
25	Valiyaveli	Thiruvananthapuram	08°30'35.1180"N	08°31'21.7884"N
			76°53'08.4156"E	76°52'32.2212"E
26	Pallithura	Thiruvananthapuram	08°32'30.7248"N	08°32'49.3476"N
			76°51'37.2276"E	76°51'22.3452"E
27	Vettuthura st.anderews	Thiruvananthapuram	08°32'57.4044"N	08°32'57.404"N
			76° 51' 21.4812" E	76° 50' 23.3592" E
28	Puthenthope	Thiruvananthapuram	08° 34'2.784" N	08° 35'0.0276 " N
			76° 50' 23.3592 E	76° 49' 35.7744" E
29	vettiyathura	Thiruvananthapuram	08° 35' 0.0276" N	08° 35' 36.4452" N
			76° 49' 35.7744 E	76° 49' 13.3608" E
30	maryanadu	Thiruvananthapuram	08° 35' 36.4452" N	08° 36' 5.2848" N
			76° 49' 13.3608" E	76° 48' 43.5384"E
31	Puthukurichi	Thiruvananthapuram	08° 36'5.2848" N	08° 37' 2.7372"N
			76° 48' 43.5384" E	76° 47'57. 732" E
32	Perumathura	Thiruvananthapuram	08°22'54.3000"N	08°37'49.5552"N
			76°46' 58.6900"E	76°47'18.6972"E
33	Thazhampally	Thiruvananthapuram	08°38'09.4272"N	08°38'31.3044"N
			76°47'07.8108"E	76°46'47.9712"E
34	Poothura	Thiruvananthapuram	08°39'23.3136"N	08°39'50.1912"N
			76° 46' 06.5604"E	76° 45' 44.1576"E
35	Anjengo	Thiruvananthapuram	08°39' 50.1912"N	08°40'19.3872"N
			76°45' 44.1576"E	76°45'23.6736"E
36	Mampally	Thiruvananthapuram	08°40'22.7676"N	08°40'43.5432"N
			76°45'17.0640"E	76°44' 59.784"E
37	Kayikkara	Thiruvananthapuram	08°40' 28.6824"N	08°41'02.7996"N
			76°45' 58.8492"E	76°44'48.1272"E
38	Arivalam-nedumganda	Thiruvananthapuram	08°41' 43.3248"N	08°41'30.7400"N
			76°44'11.8032"E	76°44'14.7900"E
39	Vettoor	Thiruvananthapuram	08°42'40.0750 "N	08°42'40.0750"N
			76°43'30.9900"E	76°43'30.9900"E

40	Chilakkoor	Thiruvananthapuram	08°43'13.8036 "N	08°43'01.3656"N
			76°43'01.3656"E	76°43'01.6212"E
41	Odayam	Thiruvananthapuram		
42	Edava	Thiruvananthapuram	08°45'46.8072"N	08°45'46.8432"N
			76°41'07.7136"E	76°41'07.9584"E
43	Paravoor south	Kollam	08°47'16.2384"N	08°47'47.5224"N
			76°40'06.4956"E	76°39'37.8864"E
44	Paravoor North	Kollam	08°47'52.6200"N	08°49'03.8136"N
			76°39'37.5408"E	76°38'46.2228"E
45	Mayyanad	Kollam	08°50'08.0376"N	08°49'06.7116"N
			76°37' 57.4644"E	76°38' 43.6524"E
46	Eravipuram south	Kollam	08°47'16.2384"N	08°51'47.0772"N
			76°40'06.4956"E	76°36'23.9004"E
47	Eravipuram North	Kollam		
48	Pallithottam	Kollam	08°51'47.9340"N	08°52'36.2712"N
			76°36'23.3028"E	76°35'19.6296"E
49	Port Kollam	Kollam	08°52'37.3044"N	08°52'53.7420"N
			76°35'18.5424"E	76°34'48.3888"E
50	Moodakkara	Kollam	08°52'53.7852"N	08°52'58.2024"N
			76°34'48.0576"E	76°34'31.5840"E
51	Vady	Kollam	08°52'57.6444"N	08°52'59.0520"N
			76°34'29.8920"E	76°34'21.9360"E
52	Thangassery	Kollam	08°51'57.5712"N	08°53'19.2696"N
			76°36'10.7568"E	76°33'38.4192"E
53	Kannimel	Kollam	08°54'47.2788"N	08°53'47.6052"N
			76°32'33.8856"E	76°33'13.8096"E
54	Sakthikulangara	Kollam	08°55'45.1632"N	08°54'47.9232"N
			76°32'24.8208"E	76°32'33.5724"E
55	Neendakara	Kollam	08°56'20.0760"N	08°57'19.8576"N
			76°32'13.4304"E	76°31'58.0080"E
56	Puthenthura	Kollam	08°57'21.0420"N	08°58'20.7984"N
			76°31'57.4680"E	76°31'38.7480"E
57	Karithura	Kollam	08°58'23.5668"N	08°58'42.4740"N
			76°31'39.1620"E	76°31'33.8880"E
58	Kovilthottam	Kollam	08°59'45.4164"N	08°59'11.4468"N
			76°31'19.9812"E	76°31'27.4872"E
59	Ponmana	Kollam		
60	Vellanathuruth	Kollam	09°01'20.6760"N	09°01'45.3360"N
			76°31'80.2956"E	76°31'44.4168"E
61	Pandarathuruth	Kollam	09°01'45.0372"N	09°02'24.0792"N
			76°30'43.6752"E	76°30'25.5816"E

62	Cheriyazheekkal	Kollam	09°02'25.5084"N	09°03'34.5348"N
			76°30'26.0208"E	76°29'56.0328"E
63	Alappad	Kollam	09°03'34.9236"N	09°04'19.1964"N
			76°29'56.2920"E	76°29'35.3436"E
64	Kuzhithura	Kollam	09°04'19.6284"N	09°04'55.9884"N
			76°29'36.0600"E	76°29'19.6152"E
65	Parayakadav	Kollam	09°04'56.2692"N	09°05'23.1180"N
			76°29'20.20740"E	76°29'06.6264"E
66	Shrayikkadu	Kollam	09°05'23.6652"N	09°06'12.4164"N
			76°29'07.4616"E	76°28'44.0760"E
67	Azheekkal	Kollam	09°06'12.5568"N	09°08'06.5364"N
			76°28'43.0860"E	76°27'50.7096"E
68	Valiyazheekkal	Alappuzha	09°08'23.8754"N	09°09'03.4956"N
			76°27'43.4020"E	76°27'25.0236"E
69	Tharayilkadavu	Alappuzha	09°08'36.3681"N	09°11'27.5460"N
			76°27'48.0884"E	76°26'17.0088"E
70	Kallikadu	Alappuzha	09°08'36.3681"N	09°12'40.9464"N
			76°27'48.0884"E	76°25'44.5692"E
71	Arattupuzha	Alappuzha	09°12'41.6016"N	09°14'18.7188"N
			76°25'44.3388"E	76°24'59.8464"E
72	Pathiyankara	Alappuzha	09°14'25.1880" N	09°15'17.8452" N
			76°24'55"4976"E	76°24'31.0320"E
73	Thrikunnappuhzha	Alappuzha	09°15'17.8344"N	09°17'505 .896"N
			76°24'31.1940"E	76°23'42.8820"E
74	Pallana	Alappuzha	09°17'05.5896"N	09°18'22.6080"N
			76°23'42.8820"E	76°23'05.9028"E
75	Thottappally	Alappuzha	09°18'53.08380"N	09°19'46.1964"N
			76°23'55.6512"E	76°22'34.3524"E
76	Punthala	Alappuzha	09°19'46.1964"N	09°21'39.4596"N
			76°22'34.3524"E	76°21'39.3516"E
77	Purakkad	Alappuzha	09°21'39.4596"N	09°22'31.4328"N
			76°21'39.3516"E	76°21'16.0056"E
78	Ambalappuzha	Alappuzha	09°23'48.9048"N	09°22'31.9008"N
			76°20'44.2536"E	76°21'15.9120"E
79	Neerkkunnam	Alappuzha	09°24'48.0240"N	09°23'48.9840"N
			76°20'15.0600"E	76°20'44.2428"E
80	Punnappra South	Alappuzha	09°25'56.4924"N	09°24'48.0240"N
			76°20'01.4684"E	76°20'23.1504"E
81	Punnapra North	Alappuzha	09°25'56.4456"N	09°26'56.6664"N
			76°20'01.2048"E	76°19'44.0454"E
82	Vadackal South	Alappuzha	09°26'56.6664"N	09°27'48.4164"N
			76°19'44.1444"E	76°19'32.2824"E
83	Vadackal North	Alappuzha	09°27'48.1968"N	09°29'15.7128"N
			76°19'28.7112"E	76°19'09.2856"E

84	Kanjiramnchira	Alappuzha	09°29'32.3592"N	09°30'29.8908"N
			76°19'05.6640"E	76°18'50.3244"E
85	Thumpoli South	Alappuzha	09°30'29.9124"N	09°31'12.6120"N
			76°18'50.9580"E	76°18'43.2396"E
86	Thumpoli North	Alappuzha	09°31'12.4968"N	09°31'15.3588"N
			76°18'43.3188"E	76°18'42.9660"E
87	Chettikad	Alappuzha	09°31'27.4116"N	09°32'36.8700"N
			76°18'41.0832"E	76°18'29.5632"E
88	Kattoor	Alappuzha	09°32'39.4152"N	09°34'19.8408"N
			76°18'29.6892"E	76°18'13.0068"E
89	Pollethai	Alappuzha	09°34'22.0476"N	09°35'38.6448"N
			76°18'11.8440"E	76°18'00.0864"E
90	Chethy	Alappuzha	09°35'38.7744"N	09°37'18.9516"N
			76°18'00.1332"E	76°17'48.8040"E
91	Chennaveli	Alappuzha	09°38'19.2264"N	09°37'49.8540"N
			76°17'43.1376"E	76°17'46.5324"E
92	Arthunakal	Alappuzha	09°38'11.1696"N	09°40'17.2668"N
			76°17'32.6760"E	76°17'30.7320"E
93	Thiackal	Alappuzha	09°40'17.2668"N	09°41'17.2668"N
			76°17'30.7320"E	76°17'30.7320"E
94	Ottamassery	Alappuzha	09°41'09.5604"N	09°43'03.8460"N
			76°17'24.3816"E	76°17'13.6868"E
95	Azheekal	Alappuzha	09°42'45.0756"N	09°45'02.9268"N
			76°17'20.4072"E	76°17'06.8388"E
96	Pallithodu South	Alappuzha	09°45'07.5384"N	09°46'32.6352"N
			76°17'00.9348"E	76°16'47.3052"E
97	Pallithodu North	Alappuzha	09°46'32.5211"N	09°47'24.1217"N
			76°16'48.4010"E	76°16'38.3100"E
98	Chellanam	Ernakulam	09º47'24.4392"N	09º49'30.3312"N
			76º16'37.8516"E	76º16'14.9124"E
99	Maruvakkad	Ernakulam	09º49'30.2520"N	09º50'36.1752"N
			76º16'14.6928"E	76º16'03.9072"E
100	Kandakkadavu	Ernakulam	09º50'36.1536"N	09º51'59.0004"E
			76º16'03.9648"E	76º15'47.7468"E
101	Kannamaly	Ernakulam	09º51'59.1156"N	09º53'08.9232"N
			76º15'47.1240"E	76º15'34.1352"E
102	Cheriyakadavu	Ernakulam	09º53'09.0492"N	09º55'06.6432"N
			76º15'34.0092"E	76º15'04.5432"E
103	Manassery	Ernakulam	09º54'35.5716"N	09º55'48.9936"N
			76º15'12.5784"E	76º14'49.5384"E
104	Saudi	Ernakulam	09º55'49.7928"N	09º56'15.8172"N
			76º14'49.1784"E	76º14'40.0776"E
105	Fortkochi	Ernakulam	09º56'23.2944"N	09º56'41.4852"N
			76º14'38.7528" E	76º14'30.4580"E

106	Azheekkal	Ernakulam	09º58'23.1204"N	09º59'14.7696"N
			76º14'23.9748"E	76º13'31.9512"E
107	Ochanthuruth	Ernakulam	09º59'16.9188"N	10º00'28.9908"N
			76º13'30.5976"E	76º13'04.5084"E
108	Malippuram	Ernakulam	10º00'29.0376"N	10º01'09.1236"N
			76º13'04.0692"E	76º12'52.2072"E
109	Elamkunnappuzha	Ernakulam	10º01'12.8424"N	10º01'40.4076"N
			76º12'51.5052"E	76º12'38.1312"E
110	Njarakkal	Ernakulam	10º01'40.4436"N	10º02'49.6608"N
			76º12'37.9836"E	76º12'19.1412"E
111	Nayarambalam	Ernakulam	10º02'50.7264"N	10º04'27.4548"N
			76º12'20.5344"E	76º11'47.5548"E
112	Edavanakad	Ernakulam	10°04'21.6768"N	10°05'20.8968"N
			76°11'48.8652"E	76°12'28.4256"E
113	Pazhangad	Ernakulam	10°06'66.7608"N	10°05'06.3348"N
			76°11'22.0992"E	76°11'35.9772"E
114	Kuzhuppilly	Ernakulam	10°06'08.1828"N	10°06'35.1216"N
			76°11'21.9048"E	76°11'16.0548"E
115	Ayyampilly	Ernakulam	10°06'38.7936"N	10°07'10.4376"N
			76°11'15.0288"E	76°11'06.9612"E
116	Cherai	Ernakulam	10°07'20.9352"N	10°09'09.0108"N
			76°11'04.0488"E	76°10'29.3772"E
117	Pallipuram	Ernakulam	10°09'12.5712" N	10°09'39.0276"N
			76°10'28.9128"E	76°10'18.1956"E
118	Munambam	Ernakulam	10°09'39.1284"N	10°10'49.1808"N
			76°10'15.3648"E	76°10'06.0636"E
119	Azhikode	Thrissur	10°11'13.6964"N	10°12'26.1531"N
			76°09'40.3643"E	76°09'15.7498"E
120	Eriyad	Thrissur	10°12'28.8647"N	10°13'28.5153"N
			76°09'14.1629"E	76°08'57.4731"E
121	Edavilang	Thrissur	10°13'28.5153"N	10°14'25.2698"N
			76°08'55.8874"E	76°08'38.2022"E
122	P. Vemballur	Thrissur	10°14'30.0110"N	10°16'17.6916"N
			76°08'36.5551"E	76°08'04.6239"E
123	Koolimuttam	Thrissur	10°16'25.9152"N	10°17'43.9892"N
			76°08'03.6051"E	76°07'41.5105"E
124	Pernjanam	Thrissur	10°17'46.0008"N	10°18'42.0996"N
			76°07'41.0082"E	76°07'25.0038"E
125	Kaippamanagalam	Thrissur	10°18'46.0296"N	10°20'35.0934"N
			76°07'27.0069"E	76°06'47.0394"E
126	Chendrapini	Thrissur	10°20'37.9582"N	10°21'03.8348"N
			76°06'46.6241"E	76°06'37.8914"E
127	Chapallipuram	Thrissur	10°21'12.3821"N.	10°23'09.4159"N.
			76°06'34.9127"E	76°05'47.1301"E

128	Nattika	Thrissur	10°23'57.1591" N	10°25'08.3484" N
			76°05'29.8772"E	76°04'59.5694" E
129	Thalikulam	Thrissur	10°25'29.7829"N.	10°27'16.8035"N.
			76°04'55.1546"E	76°04'03.1716"E
130	Vadanapally	Thrissur	10°27'28.0800" N	10°29'06.3600"N
			76°04'00.8400"E	76°03'08.6400" E
131	Engandiyur	Thrissur	10°29'56.0400"N	10°30'20.8260"N
			76°03'34.9200"E	76°02'27.8940"E
132	Kadappuram	Thrissur	10°30'40.9020"N	10°33'35.9760"N
			76°02'11.6100"E	76°05'02.1580"E
133	Blangad	Thrissur	10°34'11.9076"N	10°35'09.0971"N
			76°00'34.9738"E	76°00'8.7999"E
134	Manathala	Thrissur	10°35'08.9397"N	10°36'35.7757"N
			76°00'08.8895"E	75°59'29.1054"E
135	Edakkazhiyur	Thrissur	10°36'35.6146"N	10°39'30.1851"N
			75°59'27.5475"E	75°598'36.0867"E
136	Mannalamkunnu	Thrissur	10°39'52.1388"N	10°41'20.7888"N
			75°58'00.0084 "E	75°957'29.7288"E
137	Palappetty	Malappuram	10˚41'20.2421"N	10˚42'60.8752"N
			75˚57'44.7881"E	75˚56'80.0611"
138	Veliyancode	Malappuram	10˚42'66.4417"N	10˚43'40.0867"N
			75˚56'78.5825"E	75˚56'40.4938"E
139	Puthuponnani	Malappuram	10˚43'97.2431"N	10˚45'44.4026"N
			75˚56'12.7341"E	75˚55'51.2507'E
140	Thekkekadavu	Malappuram	10˚45'66.1201"N	10˚46'07.7527"N
			75˚55'42.8902"E	75˚55'28.2916"E
141	Mukkadi	Malappuram	10˚46'09.7598"N	10˚46'29.3246"N
			75˚55'29.7380"E	75˚55'21.0577"E
142	Marakkadavu	Malappuram	10˚46'29.3125"N	10˚46'54.8332"N
			75˚55'21.0959"E	75˚55'21.0959"E
143	Meentheruvu	Malappuram	10˚46'54.7106"N	10˚46'83.3394"N
			75˚55'13.9223"E	75˚55'01.9590"E
144	Purathur	Malappuram	10°47'54.4222"N	10°50'07.0928"N
			75°54'61.5408"E	75°54'03.6313"E
145	Pallivalappu	Malappuram	10°50'07.2819"N	10°50'66.0755"N
			75°53'90.1411"E	75°53'91.3762"E
146	Koottayi	Malappuram	10°50'66.2810"N	10°52'01.0900"N
			75°53'91.6498"E	75°53'91.3762"E
147	Paravanna	Malappuram	10°52'05.4778"	10°54'77.7570"N
			75°53'61.0566"E	75°53'02.8533"E
148	Thevarkadappuram	Malappuram	10°54'77.8421"N	10°55'66.4191"N
			75°53'02.9941"E	75°52'89.9264"E
149	Puthiyakadappuram	Malappuram	10°55'72.1313"N	10°56'77.2015"N
			75°52'83.3724"E	75°52'57.3335"E

150	Cheerankadappuram	Malappuram	10°56'78.2858"N	10°57'09.1334"N
			75°52'56.5087"E	75°52'27.9533"E
151	Edakadappuram	Malappuram	10°57'74.7587"N	10°58'31.6916"N
			75°52'32.2984"E	75°52'18.2531"E
152	Ossankadappuram	Malappuram	10°58'35.2247"N	10°58'80.4785"N
			75°52'16.8268"E	75°52'05.4106"E
153	Elarankadappuram	Malappuram	10°58'84.6750"N	10°59'06.1531"N
			75°52'03.9924"E	75°52'00.1803"E
154	Pandarakadappuram	Malappuram	10°59'08.8743"N	10°59'26.5033"N
			75°51'95.8633"E	75°51'93.2200"E
155	Kormankadappuram	Malappuram	10°59'27.9330"N	11°01'01.3949"N
			75°51'94.7650"E	75°51'50.7720"E
156	Parappanangadi	Malappuram	11°01'39.3736"N	11°03'09.0832"N
			75°51'37.7868"E	75°50'09.5534"E
157	Arayankadappuram	Malappuram	11°03'50.2203"N	11°03'52.4552"N
			75°50'87.3204"E	75°50'86.4151"E
158	Alungal beach	Malappuram	11°03'06.1381"N	11°04'08.7899"N
			75°50'82.9209"E	75°50'48.9078"E
159	Kadalundi beach	Malappuram	11°04'42.0724"N	11°07' 03.9137"N
			75°50'61.1869"E	75°49'59.4574"E
160	Chaliyam	Kozhikode	11° 7'31.8288" N	11° 9'41.3964" N
			75° 49' 32.1708" E	75° 48' 25.0380" E
161	Beypore	Kozhikode	11° 9'49.6404"N	11° 11'3.8472"N
			75° 48' 10.6236" E	75° 47' 43.7388" E
162	Marad	Kozhikode	11° 11'25.0080"N	11° 12'36.5832"N
			75° 47' 35.1168" E	75° 47' 7.9044" E
163	Kappakkal	Kozhikode	11° 12'44.2944"N	11° 13'42.0204"N
			75° 47' 15.8676" E	75° 46' 50.7144" E
164	Thekkekadappuram	Kozhikode	11° 13'44.1660"N	11° 14'27.6576"N
			75° 46' 46.9812" E	75° 46' 27.5808" E
165	Vellayil	Kozhikode	11° 19'4.3500"N	11° 15'50.0184"N
			75° 44' 56.2560" E	75° 46' 6.8916" E
166	Puthiyakadav	Kozhikode	11° 15'50.0184"N	11° 16'9.9300"N
			75° 46' 6.8916" E	75° 45' 59.0256" E
167	Thoppayil	Kozhikode	11° 16'14.178"N	11° 16'27.1992"N
			75° 45' 53.9712" E	75° 46' 4.2744" E
168	Kamburam	Kozhikode	11° 16'40.0512"N	11° 17'46.6104"N
			75° 45' 47.2716" E	75° 45' 40.7304" E
169	Puthiyangadi	Kozhikode	11° 17'29.0400"N	11° 17'56.5368"N
			75° 45' 31.5756" E	75° 45'17.9064"E
170	Pallikkandi	Kozhikode	11° 19'4.3500"N	11° 18'21.7080"N
			75° 44' 56.2560" E	75° 45'8.4132"E
171	Puthiyappa(s)	Kozhikode	11° 18'21.7080"N	11° 18'55.8288"N

			75° 45'8.4132"E	75° 44'58.2576"E
172	Puthiyappa (n)	Kozhikode	11° 18'55.8288"N	11° 19'40.2672"N
			75° 44'58.2576"E	75° 41' 27.4740" E
173	Elathure	Kozhikode	11° 19'40.2672"N	11° 18'14.9688"N
			75° 41' 27.4740" E	75° 45' 55.1196" E
174	Kannankadavu	Kozhikode	11° 22'48.8172"N	11° 21'40.1184"N
			75° 43' 17.5260" E	75° 43' 53.2704" E
175	Edakkadavu	Kozhikode	11° 24'6.2352"N	11° 22'48.8172"N
			75° 42' 35.1864' E	75° 43' 17.5260" E
176	Ezhukudikkal	Kozhikode	11° 25'25.4964"N	11° 24'6.2352"N
			75° 41' 55.4316' E	75° 42' 35.1864' E
177	Valiyamangadu	Kozhikode	11° 25'27.8148"N	11° 25'25.4964"N
			75° 41' 53.1132"E	75° 41' 55.4316' E
178	Cheriyamangadu	Kozhikode	11° 25'39.1476"N	11° 25'27.8148"N
			75° 41' 46.5648"E	75° 41' 53.1132"E
179	Virunnukandy	Kozhikode	11° 25'51.0888"N	11° 25'39.1476"N
			75° 41' 37.8564"E	75° 41' 46.5648"E
180	Quilandy	Kozhikode	11° 26'28.2804'N	11° 25'51.0888"N
			75° 41' 14.5464"E	75° 41' 37.8564"E
181	Kollam-Mudady	Kozhikode	11° 27'51.8292"N	11° 26'28.2804"N
			75° 40' 10.9884"E	75° 41' 14.5464"E
182	Vanmugghaom	Kozhikode	11° 28'39.4896"N	11° 27'51.8292"N
			75° 37' 3.0828"E	75° 40' 10.9884"E
183	Thekody	Kozhikode	11° 29'44.3616"N	11° 28'39.4896"N
			75° 36' 56.1528"E	75° 37' 3.0828"E
184	Melady	Kozhikode	11° 31'18.9336"N	11° 29'44.3616"N
			75° 36' 21.0888"E	75° 36' 56.1528"E
185	Iringal	Kozhikode	11° 33'39.1320"N	11° 31'18.9336"N
			75° 35' 27.7764"E	75° 36' 21.0888"E
186	Vadakara (s)	Kozhikode	11°35'43.5640"N	11° 34'9.5592"N
			75° 34' 44.3424"E	75° 35' 18.4164"E
187	Kuriyadi	Kozhikode	11°36'51.0768"N	11°36'14.7024"N
			75° 34' 19.7688"E	75° 33.0132"E
188	Vadakara(N)	Kozhikode	11°36'14.5692"N	11°35'43.4148"N
			75° 34' 19.7688"E	75° 34'44.3388"E
189	Muttungal	Kozhikode	11°38'2.8788"N	11°36'51.1164"N
			75° 33' 51.0228"E	75° 34' 19.6896"E
190	Madappally	Kozhikode	11°38'51.3600"N	11°38'2.8968"N
			75° 33' 30.2724'E	75° 33' 51.0696"E
191	Madakkara	Kozhikode	11°39'30.0888N	11°38'51.4680"N
			75° 33' 13.2840"E	75° 33' 30.3516"E
192	Chompala	Kozhikode	11°40'47.6616"N	11°39'43.7221"N
			75° 33' 35.6532"E	75° 33' 4.8960"E
193	Azhiyoor	Kozhikode	11°41'35.6136"N	11°40'47.5680"N

			75° 32' 11.6808"E	75° 32' 35.7288"E
194	Kurichiyil	Kannur	11°42'15.5520"N	11°44'00.0276"N
			75°31'52.8312"E	75°30'21.0708"E
195	Chalil Gopalpetta	Kannur	11°44'00.0276"N	11°44'23.1648"N
			75°30'21.0708"E	75°29'40.0812"E
196	Pallissery	Kannur	11°44'43.8516" N	11°46'31.6128"N
			75°28'28.9992"E	75°27'19.6920"E
197	Edakkad	Kannur	11°46'59.6280"N	11°49'11.7228"N
			75°26'51.0216"E	75°25'06.2472"E
198	Thayyil	Kannur	11°49'11.7228"N	11°51'27.1692"N
			75°25'06.2472"E	75°22'58.0440"E
199	Kannur City	Kannur	11°51'27.1692"N	11°51'21.5388"N
			75°22'58.0440"E	75°22'19.7832"E
200	Azheekode	Kannur	11°53'13.3128"N	11°56'32.2116"N
			75°19'28.9848"E	75°17'49.5744"E
201	Mattool	Kannur	11°57'06.7140"N	11° 57' 6.6708"N
			75°18'16.6680" E	75°18'16.7148"E
202	Puthiyangadi	Kannur	12°00'01.3572"N	12°01'15.1824"N
			75°15'20.4192"E	75°13'53.9256"E
203	Palakode	Kannur	12°01'15.2760"N	12°00'59.8068"N
			75°13'28.2360"E	75°13'17.8788"E
204	Thrikkaripur kadappuram	Kasargode	12°03'08.2008"N	12°03'08.2944"N
			75°10'49.8864"E	75°10'49.8180"E
205	Valiyaparamba	Kasargode	12°09'26.5104"N	12°06'23.4360"N
			75°08'22.1496"E	75°09'29.9448"E
206	Padanna kadappuram	Kasargode	12°12'01.3176"N	12°09'49.4640"N
			75°08'00.8124"E	75°08'16.5768"E
207	Thaikadappuram	Kasargode	12°12'15.3972"N	12°16'23.5308"N
			75°07'14.3436"E	75°05'30.5988"E
208	Punjavi	Kasargode	12°16'23.2212"N	12°17'39.6240"N
			75°05'31.9776"E	75°05'00.4668"E
209	Hosdurg kadappuram	Kasargode	12°17'24.6948"N	12°18'51.0552"N
			75°05'03.8400"E	75°04'27.5160"E
210	Ajanoor	Kasargode	12°19'18.3396"N	12°21'42.8328"N
			75°04'16.1652"E	75°03'11.5920"E
211	Pallikara	Kasargode	12°21'42.4944"N	12°24'33.5556"N
			75°03'11.3400"E	75°01'23.7936"E
212	Kottikulam	Kasargode	12°24'33.5772"N	12°25'49.6560"N
			75°01'24.2724"E	75°00'33.6672"E
213	Keezhur	Kasargode	12°26'56.9472"N	12°28'12.1224"N
			75°00'00.1152"E	74°59'26.4480"E
214	Kasaba	Kasargode	12°29'43.0332"N	12°31'03.9828"N
			74°58'35.5080"E	74°58'02.6400"E

215	Kavugoli	Kasargode	12°31'34.1184"N	12°34'13.4796"N
			74°57'50.7132"E	74°56'48.8328"E
216	Koyipadi	Kasargode	12°34'17.1120"N	12°35'23.8524"N
			74°56'46.6980"E	74°56'19.1220"E
217	Shiriya	Kasargode	12°36'44.4276"N	12°42'26..2512"N
			74°55'43.5180"E	74°53'18.7872"E
218	Manjeswaram	Kasargode	12°42'30.8556"N	12°45'14.0436"N
			74°53'08.5668"E	74°52'04.6200"E

Annexure- V B				
Housing settlements of (Inland)				
Sl. No.	**Name of LSGI/ Cluster**	**Name of the district**	**GPS position of one end**	**GPS position of another end**
1	Elakamon	Thiruvananthapuram	08°47'11.8392"N	08°47'11.2776"N
			76°42'23.0004"E	76°42'26.8488"E
2	Paravoor M	Kollam	08º47'16.4112"N	08°49'03.8136" N
			76°40'09.2568" E	76°38'46.2228" E
3	Poothakkulam	Kollam	08°48'40.1508" N	08°47'10.1760" N
			76°40'36.2496" E	76°41'31.3008" E
4	Chirakkara	Kollam	08°50'00.1576" N	08°50'44.4984" N
			76°37'47.2260" E	76°41'17.8548" E
5	Mayyanad	Kollam	08º49'35.3280"N	08º49'21.4140"N
			76°39'20.1456" E	76°38'46.6008" E
6	Kollam C 1 thuruth	Kollam	08°56'02.7123" N	08°56'03.4237" N
			76°33'45.1652" E	76°33'46.6650" E
7	Kollam C 2 Fathima island	Kollam	08°55'56.7580" N	08° 55' 52.6487" N
			76° 33' 38.1789" E	76° 33' 53.2234" E
8	Kollam C 3 St.Thomas island	Kollam	08° 55' 40.1147" N	08° 55' 46.7850" N
			76° 33' 52.3425" E	76° 33' 53.3833" E
9	Neendakara	Kollam	08°56'15.3960"N	08°58'20.2116"N
			76°32' 51.5976"E	76°31'54.7824"E
10	Neendakara-Neeleswaram Island	Kollam	08°56'35.4444"N	08°56'29.3928"N
			76°32' 48.8292"E	76°32'48.9192"E
11	Chavara	Kollam	08°58'22.6920"N	08°59'35.2644"N
			76°31'59.5272"E	76°31'29.7444"E
12	Edathuruth Island	Kollam	08°58'22.4400"N	08°58'41.1852"N
			76°31'59.6820"E	76°31'45.5340"E
13	Panmana	Kollam	08°59'35.2824"N	08°59'35.3508"N
			76°31'28.2432"E	76°31'28.5456"E
14	Thekkumbhagom	Kollam	08º56'52.8864"N	08º58'38.9208"N
			76º32'55.5288"E	76º34'27.5664"E
15	Thekkumbhagom-Kochuthuruthu Island	Kollam	08º57'27.6012"N	08º57'31.2840"N
			76º32'40.1820"E	76º32'35.1420"E
16	Thekkumbhagom-St Sebastian Island	Kollam	08º57'28.4040"N	
			76º32'52.7784"E	
17	Karunagappally M-1	Kollam	09°01'22.8972"N	09°03'36.6696"N
			76°31'14.0628"E	76°30'06.6960"E
18	Karunagappally M-2	Kollam	09°01'22.8972"N	09°02'32.6004"N
			76°31'14.0628"E	76°32'15.4464"E

19	Thodiyoor	Kollam	09°03'07.5888"N	09°05'18.4560"N
			76°32'47.2848"E	76°34'42.3444"E
20	Kulasekharapuram	Kollam	09°03'59.6160"N	09°05'31.4880"N
			76°29'52.3284"E	76°29'17.5344"E
21	Clappana	Kollam	09°07'35.3064"N	09°07'08.5548"N
			76°28'47.0784"E	76°29'11.3568"E
22	Alappad 1	Kollam	09°01'22.9236"N	09°08'06.4788"N
			76°31'10.7472"E	76°27'50.7672"E
23	Alappad 2	Kollam	09°03'38.9016"N	09°03'59.5620"N
			76°30'01.7352"E	76°29'52.8504"E
24	Alappad 3	Kollam	09°05'29.4432"N	09°07'36.7104"N
			76°29'13.2720"E	76°28'24.6180"E
25	Alappad Edachira island 1	Kollam	09°07'24.7551"N	09°07'30.4284"N
			76°28'27.8328"E	76°28'24.7008"E
26	Alappad Edachira island 2	Kollam	09°07'30.3852"N	09°07'18.0336"N
			76°28'25.5216"E	76°28'23.5164"E
27	Alappad Edachira island 3	Kollam	09°07'29.6184"N	09°07'19.9524"N
			76°28'23.2644"E	76°28'29.5680"E
28	Mynagappally	Kollam	09°02'52.0116"N	09°02'05.1864"N
			76°34'13.4652"E	76°34'05.7144"E
29	Thevalakkara	Kollam	09°02'58.3548"N	08°58'40.3284"N
			76°33'44.5320"E	76°34'21.1872"E
30	West Kallada	Kollam	09°00'24.4764"N	09°00'04.4784"N
			76°37'52.1472"E	76°36'30.2472"E
31	Mundrothuruth 1-Pezhumthuruth	Kollam	08°58'23.7531"N	08°58'33.7420"N
			76°36'22.1938"E	76°36'38.4178"E
32	Mundrothuruth 2	Kollam	08°58'39.6420"N	08°58'58.9521"N
			76°36'27.5428"E	76°36'26.4578"E
33	Mundrothuruth 3	Kollam	08°58'44.44780"N	08°58'45.6452"N
			76°36'38.5428"E	76°36'42.2288"E
34	Mundrothuruth 4	Kollam	08°58'42.2279"N	08°58'46.5621"N
			76°36'58.6689"E	76°36'07.1469"E
35	East Kallada	Kollam	08°59'47.1576"N	08°52'32.7420"N
			76°38'25.2260"E	76°39'16.3888" E
36	Perayam	Kollam	08°58'45.4548"N	08°59' 57.9192"N
			76°40'02.7876"E	76°38'21.7500"E
37	Perinad	Kollam	08°57'06.1668"N	08°58'14.0484"N
			76°37'49.2240"E	76°39'13.4100"E
38	Panayam	Kollam	08°58'11.6796"N	08°56' 58.5204"N
			76°36'36.9216"E	76°37'47.2260" E
39	Thrikkaruva	Kollam	08°56'10.4676"N	08°57'42.7572"N
			76°36' 05.6664"E	76°36'49.2840"E
40	Devikulangara	Alappuzha	09°08'09.3912"N	09°10'12.7740"N
			76°28'58.7892'E	76°28'36.5124"E

41	Kayamkulam	Alappuzha	9°10'12.1656"N	09°10'12.1656"N
			76°28'42.0924"E	76°28'42.0924"E
42	Arattupuzha-1	Alappuzha	09°08'22.8048"N	09°14'29.5656"N
			76°27'58.0248"E	76°25'13.9764"E
43	Arattupuzha-2	Alappuzha	09°14'02.1120"N	09°14'43.0728"N
			76°26'24.4392"E	76°26'14.1576"E
44	Thrikunnappuzha	Alappuzha	09°14'39.1416"N	09°18'27.7992"N
			76°25'17.1912"E	76°23'28.7736"E
45	Karthikapally	Alappuzha	09°15'10.9872"N	09°14'01.4316"N
			76°25'15.8016"E	76°25'11.8992"E
46	Kumarapuram	Alappuzha	09°17'43.7388"N	09°17'43.6632"N
			76°24'51.4800"E	76°24'51.6924"E
47	Purakkad-1	Alappuzha	09°18'27.0900"N	09°19'07.3740"N
			76°23'33.0864"E	76°23'24.4608"E
48	Purakkad-2	Alappuzha	09°19'22.0044"N	09°19'06.8664"N
			76°23'19.0248"E	76°23'06.9828"E
49	Alappuzha M-1	Alappuzha	09°30'53.8661"N	09°31'10.1028"N
			76°21'18.2628"E	76°21'22.9356"E
50	Alappuzha M-1	Alappuzha	09°31'31.2168"N	09°31'31.4076"N
			76°21'31.4460"E	76°21'30.6720"E
51	Alappuzha M-3	Alappuzha	09°31'16.4016"N	09°31'16.2720"N
			76°22'08.0756"E	76°22'44.2560"E
52	Alappuzha M-4	Alappuzha	09°31'25.0716"N	09°31'29.6328"N
			76°21'46.6056"E	76°22'08.7664"E
53	Alappuzha M-5	Alappuzha	09°31'18.8832"N	09°31'31.1916"N
			76°21'06.0312"E	76°21'31.9212"E
54	Aryad	Alappuzha	09°31'05.7156"N	09°31'05.7156"N
			76°21'11.1312"E	76°21'11.1312"E
55	Mannanchery-1	Alappuzha	09°35'23.9568"N	09°35'23.9568"N
			76°21'50.2848"E	76°21'50.2848"E
56	Mannanchery-2	Alappuzha	09°35'23.9568"N	09°35'2.7384"N
			76°21'50.2848"E	76°21'58.9536"E
57	Mannanchery-3	Alappuzha	09°35'02.7384"N	09°32'38.2020"N
			76°21'58.9536"E	76°21'14.9796"E
58	Mannanchery-4	Alappuzha	09°32'38.2020"N	09°32'36.7872"N
			76°21'14.9796"E	76°21'16.1532"E
59	Muhamma	Alappuzha	09°35'30.483"N	09°38'19.7300"N
			76°21'40.0068"E	76°22'44.2660"E
60	Thanneermukkam	Alappuzha	09°42'00.5688"N	09°38'19.7340"N
			76°21'37.3176"E	76°22'44.2632"E
61	Thycattussery	Alappuzha	09°46'13.5696"N	09°49'4.4004"N
			76°20'11.7924"E	76°18'59.7420"E
62	Pallippuram	Alappuzha	09°42'35.7516"N	09°45'55.8540"N
			76°21'54.8208"E	76°22'4.7856"E

63	Panavally-1	Alappuzha	09°49'04.4004"N	09°50'59.1108" N
			76°18'59.742" E	76°20'19.8528" E
64	Panavally-2	Alappuzha	09°48'58.752" N	09°49'8.0688" N
			76°21'43.9488" E	76°21'50.2776" E
65	Panavally-3	Alappuzha	09°49'04.5408"N	09°49'16.2280" N
			76°2146.6704" E	76°21'47.4588" E
66	Perumbalam	Alappuzha	09°49'50.3400" N	09°52'20.5500" N
			76°21'39.7728" E	76°20'52.9404" E
67	Kuthiyathode-1	Alappuzha	09°47'17.7144" N	09°46'36.3648" N
			76°17'07.4580" E	09°46'36.3648" E
68	Kuthiyathode-2	Alappuzha	09°46'36.3108" N	09°47'27.9024" N
			76°17'11.9652" E	76°16'52.5828" E
69	Thuravoor	Alappuzha	09°47'17.7144" N	09°45'09.9432" N
			76°17'07.4580" E	76°17'11.3388" E
70	Kodamthuruth	Alappuzha	09°48'30.7152" N	09°47'37.1580" N
			76°19'17.7564" E	76°19'16.5720" E
71	Ezhupunna	Alappuzha	09°48'34.1856" N	09°51'00.3960" N
			76°18'28.1664" E	76°17'39.8256" E
72	Aroor-1	Alappuzha	09°53'21.0272" N	09°50'06.2916" N
			76°17'48.2712" E	76°18'10.1808" E
73	Aroor-2	Alappuzha	09°53'21.0516" N	09°52'29.2224" N
			76°17'49.4916" E	76°19'07.2272" E
74	Arookutty	Alappuzha	09°52'11.4960" N	09°50'59.1108" N
			76°19'09.6672" E	76°20'19.8528" E
75	Thalayazham-1	Kottayam	9°42'03.5892"N	9°41'41.7732"N
			76°24'12.2940"E	76°25'08.1372"E
76	Thalayazham-2	Kottayam	9°41'47.2524"N	9°41'46.3200" N
			76°24'10.2672"E	76°24'04.0428"E
77	Thalayazham-3	Kottayam	9°42'07.3584"N	9°42'02.9592"N
			76°24'23.8176"N	76°24'10.8900"E
78	Vaikom (M)-1	Kottayam	9°44'19.1076"N	9°45' 32.4468"N
			76°23'26.0412"E	76°23'10.9680"E
79	Vaikom (M)-2	Kottayam	9°45'32.4468"N	9°45'37.8180"N
			76°23'10.9680"E	76°23'06.6336"E
80	Vechoor	Kottayam	9°38'55.4316"N	9°41'23.6904"N
			76°25'49.6020"E	76°02'11.8992"E
81	Aymanam	Kottayam	9°38'18.9672"N	9°38'26.8476"N
			76°25'46.3872"E	76°25'15.5532"E
82	Kumarakom	Kottayam	9°37'58.3356"N	9°33' 55.9836"N
			76°25'08.6952"E	76°25'01.1164"E
83	Arpookara	Kottayam	9°38'18.7656"N	9°38'24.8892"N
			76°25'47.0784"E	76°25'29.9496"E
84	TV Puram-1	Kottayam	9°42'04.5648"N	9°44'19.1079"N

			76° 24' 8.9460"E	76° 23'26.0412"E
85	TV Puram-2	Kottayam	9°42'11.5668"N	9°42'12.3444"N
			76°22'58.6128"N	76°22'57.9864"E
86	Udayanapuram-1	Kottayam	9°45'37.7244"N	9°47'37.5036"N
			76°23'06.5868"E	76°23'24.4320"E
87	Udayanapuram-2	Kottayam	9°46'10.9668"N	9°46'14.9880"N
			76°22'48.1188"E	76°22'51.4560"E
88	Udayanapuram-3	Kottayam	9°46'46.7040"N	9°46'33.3048"N
			76°28'31.0812"E	76°23'19.4244"E
89	Maravanthuruth-1	Kottayam	9°47'10.2372"N	9°47'49.0272"N
			76°22'13.3068"E	76°22'37.9668"E
90	Maravanthuruth-2	Kottayam	9°47'44,0304"N	9°47'50.8848"N
			76°22'17.1480"E	76°22'10.9128"E
91	Chempu-1	Kottayam	9°48'24.4692"E	9°50'38.2920"N
			76°23'09.0240"E	76°23'13.4700"E
92	Chempu-2	Kottayam	9°48'43.5276"N	9°49'22.7316"N
			76°23'39.4584"E	76°23'21.1092"E
93	Chempu-3	Kottayam	9°49'48.0432"N	9°49'48.0432"N
			76°23'27.7404"E	76°23'27.7404"E
94	Chempu-4	Kottayam	9°49'48.5940"N	9°49'40.4004"N
			76°23'38.5440"E	76°23'38.7348"E
95	Chempu-5	Kottayam	9°50'41.3232"N	9°50'29.2560"N
			76°23'09.0168"E	76°22'47.1936"E
96	Chempu-6	Kottayam	9°49'41.3184"N	9°50'39.6816"N
			76°23'01.5108"E	76°23'09.7152"E
97	Chempu-7	Kottayam	9°50'29.2560"N	9°49'48.7920"N
			76°22'47.1936"E	76°22'58.5048"E
98	Chempu-8	Kottayam	9°49'46.5816"N	9°49'46.2540"N
			76°22'57.8260"E	76°23'14.1108"E
99	Maradu-1	Ernakulam	09° 55' 00.9948"N	09° 55'58.9008"N
			76° 19' 00.7356"E	76° 19' 05.9484"E
100	Maradu-2	Ernakulam	09°54'38.7504"N	09° 55'07.9176"N
			76°19'26.7924"E	76°19'28.1496"E
101	Maradu-3	Ernakulam	09° 55'13.9728"N	09° 56 '05.7696"N
			76° 18' 39.2904"E	76° 18'24.2568"E
102	Maradu-4	Ernakulam	09° 56'10.4532"N	09° 56'23.6904"N
			76° 18' 50.0076"E	76° 18'50.0076"E
103	Amballor-1	Ernakulam	09°51'10.2456"N	09°50'41.1720"N
			76°23'14.2152"E	76°23'28.7628"E
104	Amballor-2	Ernakulam	09°50'22.5240"N	09°50'07.1628"N
			76°23'27.3552"E	76°23'34.8324"E
105	Udayamperoor-1	Ernakulam	09°51'47.8944"N	09°51'56.7250"N
			76°22'42.3408"E	76°22'39.3420"E
106	Udayamperoor-2	Ernakulam	09°52'02.6256"N	09°53'02.3012"N

			76°22'32.2536"E	76°22'31.2276"E
107	Udayamperoor-3	Ernakulam	09°52'21.2844"N	09°53'04.3012"N
			76°22'21.6048"E	76°22'42.0224"E
108	Udayamperoor-4	Ernakulam	09°54'18.2088"N	09°53'56.8248"N
			76°21'28.4580"E	76°21'38.7720"E
109	Thripunithura-1	Ernakulam	09°57'15.6528"N	09°57'30.7548"N
			76°19'48.7128"E	76°19'53.2056"E
110	Thripunithura-2	Ernakulam	09°57'26.3620"N	09°57'26.3628"N
			76°20'01.7692"E	E 76°20'03.9060"
111	Thripunithura-3	Ernakulam	09°57'45.7740"N	N 09°57'42.1956"
			76°19'36.0768E	E 76°19'39.3780"
112	Puthenvelikkara-1	Ernakulam	10°11'52.1520"N	N 10° 11'37.7628"
			76°12'58.4136"E	E 76° 13' 36.2208"
113	Puthenvelikkara-2	Ernakulam	10°11'52.1520"N	N 10° 10' 31.6776"
			76°12'58.4136"E	E 76° 14' 58.6860"
114	Kumbalanghi-1	Ernakulam	09°54'00.9504"N	N 09°51'40.1940"
			76°17'10.9212"E	E76°17'38.0580"
115	Kumbalanghi-2	Ernakulam	09°53'38.6016"N	N 09°51'30.2508"
			76°16'33.9312"E	E76°17'30.8868"
116	Kumbalam-1	Ernakulam	09° 55'46.5348"N	N 09° 52' 42.9708"
			76° 18' 8.3736"E	E 76° 18' 46.404"
117	Kumbalam-2	Ernakulam	09° 54' 39.924"N	N 09° 52' 57.8208"
			76° 19' 25.4892"E	E 76° 20' 48.858"
118	Kottuvally	Ernakulam	10°06'06.0696"N	10°06'05.9904"N
			76°1514.5332"E	76°15'13.9464"E
119	Chendhamangalam-1	Ernakulam	10°10'39.7776"N	10°10'44.5296"N
			76°14'03.0786"E	76°14'5.1972"E
120	Chendhamangalam-2	Ernakulam	10°10'29.3808"N	10°10'47.8704"N
			76°14'17.9376"E	76°14'01.0428"E
121	Chendhamangalam-3	Ernakulam	10°10'33.2724"N	10°10'45.5088"N
			76°14'13.4304"E	76°13'23.1852"E
122	Vadakkekara-1	Ernakulam	10°11'33.0054"N	10°09'59.1444"N
			76°12'09.3672"E	76°11'12.3864"E
123	Vadakkekara-2	Ernakulam	10°11'05.6148"N	10°11'08.0196"N
			76°12'17.0658"E	76°11'22.9308"E
124	Chittatukara	Ernakulam	10°08'55.0112"N	10°14'45.0023"N
			76°12'06.0516"E	76°12'14.0004"E
125	Varapuzha-1	Ernakulam	10°05'12.0084"N	10°05'12.0084"N
			76°15'25.8012"E	66°15'25.8012"E
126	Varapuzha-2	Ernakulam	10°03'50.0976"N	10°03'59.0544"N
			76°15'33.6096"E	76°16'27.0102"E
127	Chellanam-1	Ernakulam	09°54'09.8784"N	09° 55' 04.2060"N
			76° 16' 42.6144"E	76° 15' 49.6692"E
128	Chellanam-2	Ernakulam	09°47'26.3436"N	09°52"00.2424"N

			76° 16' 43.9752"E	76° 15' 47.7864"E
129	Elamkunnapuzha	Ernakulam	10°02'11.2010"N	09°58'35.8248"N
			76°14'02.6015"E	76°14'35.1672"E
130	Narakkal	Ernakulam	10°02'22.4132"N	10°03'17.1823"N
			76°13'59.1231"E	76°13'33.3124"E
131	Nayarambalam	Ernakulam	10°50'01.36887"N	10°03'34.9019"N
			76°13'10.29467"E	76°13'46.8662"E
132	Edavanakkad	Ernakulam	10°05'01.3681"N	10°04'28.4488"N
			76°13'10.3076"E	76°11'00.4708"E
133	Kuzhupilly	Ernakulam	10°06'49.3011"N	10°07'07.49388"N
			76°12'17.3118"E	76°12'29.89188"E
134	Pallipuram	Ernakulam	10°09'53.2015"N	10°17'47.1792"N
			76°11'10.4012"E	76°12'24.0840"E
135	Kadamakudy-1	Ernakulam	10º 02' 47.1516" N	10º 02' 23.2056" N
			76º 15' 12.5784" E	76º 15' 16.8815" E
136	Kadamakudy-2	Ernakulam	10º 02' 41.2052" N	10º 02' 44.4216" N
			76º 15' 46.3218" E	76º 15' 56.2994" E
137	Kadamakudy-3	Ernakulam	10º 02' 34.5264" N	10º 01' 58.6226" N
			76º 16' 01.1860" E	76º 16' 04.2252" E
138	Kadamakudy-4	Ernakulam	10º 02' 49.2018" N	10º 03' 28.3214" N
			76º 15' 59.3015" E	76º 16' 12.4218" E
139	Kadamakudy-5	Ernakulam	10º 03' 30.5216" N	10º 03' 34.1812" N
			76º 16' 15.2630" E	76º 16' 43.3215" E
140	Kadamakudy-6	Ernakulam	10º 03' 34.5844" N	10º 02' 56.2034" N
			76º 16' 44.4218" E	76º 16' 46.5810" E
141	Kadamakudy-7	Ernakulam	10º 02' 48.4812" N	10º 02' 49.5288" N
			76º 16' 30.7615" E	76º 16' 30.7615" E
142	Kadamakudy-8	Ernakulam	10º 02' 43.7482" N	10º 02' 45.5642" N
			76º 15' 42.2096" E	76º 15' 48.1674" E
143	Kadamakudy-9	Ernakulam	10º 02' 45.5642" N	10º 03' 02.6638" N
			76º 15' 53.8648" E	76º 15' 53.9642" E
144	Kadamakudy-10	Ernakulam	10º 03' 01.1268" N	10º 03' 14.6815" N
			76º 15' 54.2688" E	76º 15' 41.3578" E
145	Kadamakudy-11	Ernakulam	10º 03' 14.5682" N	10º 03' 13.6684" N
			76º 15' 41.7214" E	76º 15' 31.8224" E
146	Kadamakudy-12	Ernakulam	10º 03' 16.8814" N	10º 03' 20.2045" N
			76º 15' 24.9245" E	76º 15' 11.1232" E
147	Kadamakudy-13	Ernakulam	10º 03' 33.4056" N	10º 04' 15.3242" N
			76º 14' 45.2035"E	76º 14' 45.2035" E
148	Kadamakudy-14	Ernakulam	10º 04' 09.6446" N	10º 04' 20.7242" N
			76º 14' 42.4857" E	76º 14' 32.5812" E
149	Kadamakudy-15	Ernakulam	10º 03' 48.2964" N	10º 03' 35.3274" N
			76º 15' 55.8528" E	76º 15' 46.1082" E
150	Kadamakudy-16	Ernakulam	10º 03' 35.7294" N	10º 03' 21.4517" N

			76º 15' 46.6092" E	76º 15' 49.4219" E
151	Kadamakudy-17	Ernakulam	10º 03' 51.6873" N	10º 03' 45.7821" N
			76º 15' 54.8452" E	76º 15' 37.1145" E
152	Kadamakudy-18	Ernakulam	10º 03' 08.1352" N	10º 03' 21.9315" N
			76º 15' 56.9652" E	76º 16' 00.1145" E
153	Kadamakudy-19	Ernakulam	10º 03' 25.8641" N	10º 03' 30.7516" N
			76º 16' 01.2158" E	76º 16' 07.7144" E
154	Kadamakudy-20	Ernakulam	10º 03' 29.1867" N	10º 03' 45.3687" N
			76º 15' 49.5278" E	76º 16' 15.1985" E
155	Kadamakudy-21	Ernakulam	10º 04' 21.0956" N	10º 04' 13.8753" N
			76º 14' 32.2084" E	76º 14' 40.3685" E
156	Kadamakudy-22	Ernakulam	10º 04' 20.4056" N	10º 04' 15.5688" N
			76º 14' 31.0962" E	76º 14' 26.0862" E
157	Kadamakudy-23	Ernakulam	10º 03' 10.9942" N	10º 03' 12.0955" N
			76º 15' 58.1152" E	76º 15' 03.0672" E
158	Cheranaloor	Ernakulam	10º 02' 17.1132" N	10º 01' 32.8440" N
			76º 16' 10.1604" E	76º 16' 27.8580" E
159	Cochin corporation-1	Ernakulam	09º 53' 36.2650" N	09º 55' 00.5175" N
			76º 17' 48.3782" E	76º 17' 42.9472" E
160	Cochin corporation-2	Ernakulam	09º 55' 08.9412" N	09º 55' 17.8046" N
			76º 17' 39.3840" E	76º 17' 22.0186" E
161	Cochin corporation-3	Ernakulam	09º 53' 35.9920" N	09º 53' 50.1186" N
			76º 17' 44.9420" E	76º 17' 31.0824" E
162	Cochin corporation-4	Ernakulam	09º 54' 05.4488" N	09º 54' 22.7586" N
			76º 17' 22.4425" E	76º 17' 21.4424" E
163	Cochin corporation-5	Ernakulam	09º 54' 26.4830" N	09º 54' 30.3628" N
			76º 17' 21.2744" E	76º 17' 20.6218" E
164	Cochin corporation-6	Ernakulam	09º 54' 04.5642" N	09º 54' 04.0756" N
			76º 16' 49.2718" E	76º 16' 44.0892" E
165	Cochin corporation-7	Ernakulam	09º 54' 01.2847" N	09º 53' 59.5674" N
			76º 16' 29.4820" E	76º 16' 24.1278" E
166	Cochin corporation-8	Ernakulam	09º 53' 59.7782" N	09º 54' 08.9942" N
			76º 16' 24.4452" E	76º 16' 19.5622" E
167	Cochin corporation-9	Ernakulam	09º 54' 10.1842" N	09º 54' 28.0488" N
			76º 16' 18.7520" E	76º 16' 10.8544" E
168	Cochin corporation-10	Ernakulam	09º 55' 39.7780" N	09º 55' 33.7652" N
			76º 18' 05.3852" E	76º 18' 15.5549" E
169	Cochin corporation-11	Ernakulam	09º 56' 36.5541" N	09º 56' 32.4428" N
			76º 17' 32.4032" E	76º 17' 33.6640" E
170	Cochin corporation-12	Ernakulam	09º 56' 29.5588" N	09º 56' 27.7710" N
			76º 17' 34.1185" E	76º 17' 36.1387" E
171	Cochin corporation-13	Ernakulam	09º 55' 39.7748" N	09º 55' 33.1892" N
			76º 18' 05.2232" E	76º 18' 15.2455" E

172	Cochin corporation-14	Ernakulam	09º 55' 34.2388" N	09º 55' 48.8212" N
			76º 18' 15.5844" E	76º 18' 09.8056" E
173	Cochin corporation-15	Ernakulam	09º 56' 09.8874" N	09º 56' 23.0922" N
			76º 18' 11.4468" E	76º 17' 59.4285" E
174	Cochin corporation-16	Ernakulam	10º 00' 05.1885" N	10º 00' 23.1852" N
			76º 16' 35.4680" E	76º 16' 29.1127" E
175	Cochin corporation-17	Ernakulam	10º 00' 58.5582" N	10º 01' 49.1187" N
			76º 16' 16.2341" E	76º 16' 00.2428" E
176	Cochin corporation-18	Ernakulam	10º 01' 12.6740" N	10º 01' 47.4654" N
			76º 16' 48.2428" E	76º 16' 11.3051" E
177	Cochin corporation-19	Ernakulam	09º 59' 47.4829" N	10º 00' 10.1891" N
			76º 16' 04.2150" E	76º 15' 59.0648" E
178	Cochin corporation-20	Ernakulam	09º 59' 47.6624" N	10º 00' 01.0640" N
			76º 16' 06.1186" E	76º 16' 10.5090" E
179	Paravur	Ernakulam	10º 09' 05.8896" N	10º 09' 05.8896" N
			76º 16' 02.9244" E	76º 13' 02.9244" E
180	Eriyad	Thrissur	10°11'13.6964"N	10°11'34.1287"N
			76°09'40.3643"E	76°13'05.9484'E
181	Kodungallur Municipality	Thrissur	10°11'43.5418"N	10°15'24.6653"N
			76°13'05.9484"E	76°12'17.1485"E
182	Sreenarayanapuram	Thrissur	10°24'05.4432"N	10°01'66.9660"N
			76°19'94.3330"E	76°10'44.8740"E
183	Mathilakam	Thrissur	10°28'37.4269"N	10°29'44.6632"N
			76°17'63.6279"'E	76°17'14.6216"E
184	Poyya	Thrissur	10°12'10.2000"N	10°13'12.0000"N
			76°14'02.1000"E	76°14'08.0000"E
185	Puthenchira	Thrissur	10°13'45.19884"N	10°13'45.19884"N
			76°13'21.8809."E	76°13'21.8809."E
186	Perinjanam	Thrissur	10°18'16.7580"N	10°19'30.6788"N
			76°09'57.2652"E	76°09'19.9152"E
187	Kaipamangalam	Thrissur	10°19'31.3104"N	10°20'21.4440"N
			76°09'20.8682"E	76°09'16.9812"E
188	Edathiruthy	Thrissur	10°22'54.2604"N	10°23'07.9368"N
			76°08'57.7212"E	76°08'37.3200"E
189	Kattoor	Thrissur	10°21'10.4616"N	10°22'42.3624"N
			76°09'34.6284"E	76°08'57.6276"E
190	Nattika	Thrissur	10°24'07.7940"N	10°28'08.5440"N
			76°07'16.6944"E	76°05'55.7952"E
191	Thalikkulam	Thrissur	10°27'00.3348"N	10°27'57. 0836"N
			76°05'41.0136"E	76°05'32.4708"E
192	vadanappilly	Thrissur	10°27'58.1652"N	10°28'42.9384" N
			76°05'32.5932" E	76°05'23.7804" E
193	Engandiyur	Thrissur	10°30'02.3400"N	10°30'02.3400"N
			76° 04' 31.0008" E	76°04'31.0008" E

194	Venkitangu	Thrissur	10° 30' 33.3612"N	10°30'2.3400"N
			76° 05' 07.6704" E	76° 05' 7.6704" E
195	Manalur	Thrissur	10° 30' 11.5884"N	10°30'12.0888"N
			76° 05' 25.0224" E	76° 05' 17.8656" E
196	Gurvayur M	Thrissur	10°36'35.3268"N	10°36'35.2620"N
			76° 00'46.4364" E	76°00'46.3536"E
197	Chavakkad M-1	Thrissur	10°34'43.7808"N	10°34'37.7868"N
			76°01'20.6184"E	76°01'22.0512"E
198	Chavakkad M-2	Thrissur	10°34'30.9432"N	10°34'31.2312"N
			76°01'36.5138"E	76°01'20.3376"E
199	Chavakkad M-3	Thrissur	10°34'34.0572"N	10°34'30.3312"N
			76°01'17.5152"E	76°01'17.9724"E
200	Chavakkad M-4	Thrissur	10°34'26.7852"N	10°34'27.1056"N
			76°01'19.2288"E	76°01'19.0380"E
201	Chavakkad M-5	Thrissur	10°34'45.5160"N	10°34'48.1476"N
			76°01'15.2004"E	76°01'15.7044"E
202	Chavakkad M-6	Thrissur	10°34'49.8216"N	10°34'50.2500"N
			76° 1'15.2256"E	76°01'14.9736"E
203	Chavakkad M-7	Thrissur	10°34'54.2496"N	10°34'59.2068"N
			76°01'37.6766"E	76°01'08.4061"E
204	Chavakkad M-8	Thrissur	10°35'50.5536"N	10°35'12.0192"N
			76°01'05.4876"E	76°01'36.6290"E
205	Chavakkad M-9	Thrissur	10°35'17.3256"N	10°35'18.2796"N
			76°01'03.2556"E	76°01'03.1188"E
206	Chavakkad M-10	Thrissur	10°35'20.5836"N	10°325'21.2496"N
			76°01'03.1224"E	76°01'02.7840"E
207	Chavakkad M-11	Thrissur	10°35'24.9324"	10°35'25.5912"N
			76°01'59.7024"E	76°00'59.4576"E
208	Chavakkad M-12	Thrissur	10°35'14.4276"N	10°35'15.2520"N
			76°01'07.1869"E	76°01'08.0112"E
209	Chavakkad M-13	Thrissur	10°35'03.0768"N	10°35'00.0132"N
			76°00'09.0660"E	76°01'10.5888"E
210	Chavakkad M-14	Thrissur	10°35'48.5988"N	10°35'48.9840"N
			76°00'48.5832"E	76°00'45.3672"E
211	Chavakkad M-15	Thrissur	10°35'43.6452"N	10°35'44.0376"N
			76°04'08.9996"E	76°04'08.7549"E
212	Chavakkad M-16	Thrissur	10°36'19.3428"N	10°36'19.7748"N
			76°00'48.6396"E	76°00'48.4884"E
213	Chavakkad M-17	Thrissur	10°35'40.6752"N	10°35'14.8992"N
			76°00'47.7972"E	76°01'07.6080"E
214	Chavakkad M-18	Thrissur	10°35'06.2855"N	10°35'08.5672"N
			76°01'07.9640"E	76°01'09.1524"E
215	Orumanayoor-1	Thrissur	10°34'09.8904"N	10°34'09.6132"N
			76°01'26.5800"E	76°1'26.6088"E

216	Orumanayoor-2	Thrissur	10°33'45.8712"N	10°33'45.1764N
			76°02'21.2712"E	76°02'21.5160"E
217	Orumanayoor-3	Thrissur	10°33'54.5904"N	10°33'53.7012"N
			76°02'12.8976"E	76°02'13.5348"E
218	Orumanayoor-4	Thrissur	10°33'41.9292"N	10°33'41.0040"N
			76°02'22.3728"E	76°02'22.5420"E
219	Orumanayoor-5	Thrissur	10°33'21.7044"N	10°33'20.3292"N
			76°02'33.4320"E	76°0233.9432"E
220	Orumanayoor-6	Thrissur	10°33'54.9328"N	10°33'07.3080"N
			76°02'37.2120"E	76°02'37.1328"E
221	Orumanayoor-7	Thrissur	10°32'47.3136"N	10°32'46.7088"N
			76°02'51.0360"E	76°02'50.9856"E
222	Orumanayoor-8	Thrissur	10°34'10.0272"N	10°34'09.7320"N
			76°01'26.6880"E	76°1'26.6268"E
223	Orumanayoor-9	Thrissur	10°33'8.9964"N	10°33'08.3952"N
			76°1'56.9424"E	76°1'26.6088"E
224	Orumanayoor-10	Thrissur	10°33'40.8960"N	10°33'39.9960"N
			76°02'21.2748"E	76°02'22.1280"E
225	Orumanayoor-11	Thrissur	10°33'38.1600"N	10°33'37.2276"N
			76°01'54.7824"E	76°01'53.8752"E
226	Orumanayoor-12	Thrissur	10°33'40.3452"N	10°33'38.3256"N
			76°01'49.3176"E	76°01'49.4760"E
227	Orumanayoor-13	Thrissur	10°33'38.0880"N	10°33'36.4860"N
			76°01'54.6852"E	76°01'54.6276"E
228	Orumanayoor-14	Thrissur	10°33'36.5688"N	10°33'36.2437"N
			76°01'54.2064"E	76°01'53.8320"E
229	Orumanayoor-15	Thrissur	10°34'09.6132"N	10°33'35.0316"N
			76°01'49.2924"E	76°1'26.6088"E
230	Orumanayoor-16	Thrissur	10°33.40.3380"N	10° 33'38.2140N
			76°01'50.5344"E	76°01'49.7172"E
231	Kadappuram-1	Thrissur	10°32'05.136"N	10°32'06.4248"N
			76°02'47.4108"E	76°02'45.5640"E
232	Kadappuram-2	Thrissur	10°32'06.4248"N	10°32'11.7852"N
			76°02'45.564"E	76°02'07.7388"E
233	Kadappuram-3	Thrissur	10°33'15.2028"N	10°32'13.9920"N
			76°01'45.9876"E	76°02'43.2960"E
234	Kadappuram-4	Thrissur	10°32'05.7912"N	10°32'05.1360"N
			76°02'47.4216"E	76°02'47.4108"E
235	Kadappuram-5	Thrissur	10°33'54.3204"N	10°33'54.4500"N
			76°01'48.6048"E	76°01'48.6048"E
236	Kadappuram-6	Thrissur	10°33'28.7892"N	10°33'28.2564"N
			76°1'44.0328"E	76°01'43.8632"E
237	Punnayur-1	Thrissur	10°39'40.1544"N	10°38'49.974"N
			75°58"52.4352"E	75°59'14.7984"E

238	Punnayur-2	Thrissur	10°38'49.9740"N	10°38'55.6728"N
			75°59'14.7984"E	75°58'58.0404"E
239	Punnayur-3	Thrissur	10°38'49.2252"N	10°39'40.1688"N
			75°59'14.7192"E	75°58'51.7188"E
240	Punnayur-4	Thrissur	10°38'49.0164"N	10°38'49.8192"N
			75°59'14.5716"E	75°59'14.7372"E
241	Punnayur-5	Thrissur	10°38'48.8868"N	10°38'49.9048"N
			75°59'14.4672"E	75°59'14.6544"E
242	Punnayur-6	Thrissur	10°38'48.7932"N	10°38'49.4052"N
			75°59'14.1684"E	75°59'14.7840"E
243	Punnayur-7	Thrissur	10°38'47.2812"N	10º38'43.9300"N
			75°59'15.1296"E	75°59'14.2872"E
244	Punnayur-8	Thrissur	10°38'47.2488"N	10°38'45.0924"N
			75°59'15.2014"E	75º59'16.2456"E
245	Punnayur-9	Thrissur	10°38'45.9240"N	10º36'53.6688"N
			75°59'15.7344"E	76º00'40.9392"E
246	Punnayur-10	Thrissur	10°38'47.2128"N	10°38'49.5492"N
			75°59'15.1872"E	75°57'56.4012"E
247	Punnayur-11	Thrissur	10°38'47.1588"N	10º38'49.5348"N
			75°59'15.2340"E	75°59'15.1512"E
248	Punnayur-12	Thrissur	10°38'47.2128"N	10º8'49.6572"N
			75°59'15.1620"E	75°57'56.4012"E
249	Punnayurkulam-1	Thrissur	10°39'42.462"N	10°39'48.5643"N
			75°58"53.3748"E	75°56'40.5975"E
250	Punnayurkulam-2	Thrissur	10°41'31.0272"N	10° 41'32.0172"N
			75°57'56.4012"E	75°57'56.7972"E
251	Punnayurkulam-3	Thrissur	10°41'21.9084"N	10° 41'28.9248"N
			75°58"0.192"E	75°57'57.5748"E
252	Punnayurkulam-4	Thrissur	10°41'21.9588"N	10° 41'27.7044"N
			75°58"53.0.2532"E	75°57'58.2336"E
253	Punnayurkulam-5	Thrissur	10°41'23.964N	10° 41'26.4156"N
			75°57'59.1156"E	75°57'59.0256"E
254	Punnayurkulam-6	Thrissur	10°41"30.1956"N	10° 41'24.8316"N
			75°57'57.006"E	75°57'59.1912"E
255	Punnayurkulam-7	Thrissur	10°41'24.4716"N	10° 40'58.0728"N
			75°57'59.1228"E	75°57'53.5032"E
256	Punnayurkulam-8	Thrissur	10°41'30.1956"N	10° 40'35.7643"N
			75°57'57.0060"E	75°57'45.6897"E
257	Punnayurkulam-9	Thrissur	10°41"28.7700"N	10° 39'42.3612"N
			75°57'57.0672"E	75°58'53.3064"E
258	Pavaraty-1	Thrissur	10°32'37.8924"N	10° 32'37.8204"N
			76°03'39.3264"E	76°03'39.1572"E
259	Pavaraty-2	Thrissur	10°33'28.3824"N	10° 32'41.6688"N
			76°02'40.8552"E	76°04'06.2832"E

260	Pavaraty-3	Thrissur	10°33'58.3596"N	10° 34'38.1144"N
			76°02'31.1604"E	76°02'50.4384"E
261	Mullassery-1	Thrissur	10°32'20.3352"N	10° 32'27.8880"N
			76°04'02.1936"E	76°02'42.6264"E
262	Mullassery-2	Thrissur	10° 32'21.1452"N	10° 32'16.0836"N
			76°04'01.794"E	76°04'17.9148"E
263	Mullassery-3	Thrissur	10°32'41.2980"N	10° 32'36.6720"N
			76°02'38.7096"E	76°04'07.9500"E
264	Purathur	Malappuram	10°47'72.9478"N	10°50'09.3849"N
			75°55'19.2371"E	75°54'47.3285"E
265	Purathur	Malappuram	10°47'55.8094"N	10°50'10.2681"N
			75°54'67.6864"E	75°54'32.2028"E
266	Thalakkad	Malappuram	10°52'58.9855"N	10°53'66.9978"N
			75°54'09.9877"E	75°54'96.7267"E
267	Tirur	Malappuram	10°53'08.9695"E	10°55'90.9309"N
			75°54'76.4271"E	75°55'68.5992"E
268	Mangalam-1	Malappuram	10°50'17.4817"N	10°52'57.3439"N
			75°54'40.1267"E	75°55'00.1003"E
269	Mangalam-2	Malappuram	10°50'18.7482"N	10°51'47.0017"N
			75°54'28.1956"E	75°54'15.8702"E
270	Parappanangadi	Malappuram	11°01'12.0804"N	11°01'24.2979"N
			75°51'93.9804"E	75°52'95.0388"E
271	Moonniyur	Malappuram	11°04'98.8772"N	11°05'97.4668"N
			75°53'05.8185"E	75°52'19.9066"E
272	Thenhipalam	Malappuram	11°05'98.5762"N	11°07'73.8668"N
			75°52'12.2885"E	75°51'90.2226"E
273	Vallikunnu	Malappuram	11°05'91.1144"N	11°07'73.5964"N
			75°52'09.9872"E	75°49'88.6828"E
274	Vettom	Malappuram	10º52'04.6508"N	10º51'39.4194"N
			75º54'34.0518'E	75º54'27.6162"E
275	Niramaruthur	Malappuram	10º55'05.08724"N	10º55'56.8928"N
			75º53'23.8732"E	75º53'35.9128"E
276	Tanur	Malappuram	10°59'09.9382"N	11°01'02.9906"N
			75°51'00.9777"E	75°52'19.9166"E
277	Kadalundi	Kozhikkode	11°08'14.0081"N	11°08'49.6069" N
			75°50'18.2823"E	75°50'55.7293"E
278	Feroke M	Kozhikkode	11°09'45.0485"N	11°09'58.9784"N
			75°48'74.3020"E	75°48'96.3880"E
279	Kozhikode C-1	Kozhikkode	11°11'81.0062"N	11°12'45.9860"N
			75°49'98.1959"E	75°50'26.1761"E
280	Kozhikode C-2	Kozhikkode	11°13'11.9874"N	11°13'17.8340"N
			75°48'78.6251"E	75°48'89.1140"E
281	Kozhikode C-3	Kozhikkode	11°21'29.1066"N	11°21'51.7542"N
			75°44'31.9890"E	75°44'90.1057"E

282	Olavanna	Kozhikkode	11°13'47.2662"N	11°13'68.6099"N
			75°49'85.6915"E	75°50'30.6620"E
283	Perumanna	Kozhikkode	11°14'38.3654"N	11°14'54.4518"N
			75°53'89.2258"E	75°55'28.4988"E
284	Mavoor	Kozhikkode	11°15'73.2947"N	11°16'38.4156"N
			75°55'84.1171"E	75°55'66.7786"E
285	Peruvayal	Kozhikkode	11°16'43.5825"N	11°16'00.5918"N
			75°55'62.0633"E	75°55'84.9077"E
286	Thalakalathur	Kozhikkode	11°20'21.0991"N	11°20'96.3802"N
			75°44'89.4379"E	75°46'35.8523"E
287	Chelannur	Kozhikkode	11°20'89.9130"N	11°21'28.7832"N
			75°47'43.8259"E	75°46'64.6391"E
288	Chemanchery-1	Kozhikkode	11°21'48.4586"N	11°22'24.2252"N
			75°44'17.2315"E	75°44'58.3397"E
289	Chemanchery-2	Kozhikkode	11°23'23.9392"N	11°23'83.1413"N
			75°44'54.1695"E	75°44'63.2099"E
290	Chemanchery-3	Kozhikkode	11°23'18.3287"N	11°24'25.8205"N
			75°44'53.0471"E	75°44'77.3921"E
291	Atholi	Kozhikkode	11°23'17.8199"N	11°24'41.6216"N
			75°44'83.8937"E	75°45'12.2822"E
292	Chengottukavu	Kozhikkode	11°25'03.8523"N	11°25'46.2387"N
			75°44'78.0941"E	75°44'20.9410"E
293	Koyilandy M	Kozhikkode	11°26'29.2869"N	11°27'54.9803"N
			75°43'68.1792"E	75°42'85.5383"E
294	Ulliyeri	Kozhikkode	11°26'64.0496"N	11°27'09.0936"N
			75°43'81.1745"E	75°44'09.3759"E
295	Moodadi	Kozhikkode	11°29'22.8264"N	11°30'04.2023"N
			75°40'70.4983"E	75°40'06.6543"E
296	Thikkodi	Kozhikkode	11°29'94.8821"N	11°30'52.8407"N
			75°38'56.1422"E	75°38'50.7308"E
297	Keezhariyoor	Kozhikkode	11°30'40.2722"N	11°29'04.7076"N
			75°40'14.7553"E	75°41'39.8783"E
298	Thurayur	Kozhikkode	11°30'66.0556"N	11°30'70.4593"N
			75°39'08.7068"E	75°39'67.0508"E
299	Maniyoor-1	Kozhikkode	11°32'19.0312"N	11°32'87.9148"N
			75°38'21.7569"E	75°40'62.6689"E
300	Maniyoor-2	Kozhikkode	11°33'47.8006"N	11°34'13.7405"N
			75°37'96.2531"E	75°38'44.7602"E
301	Payyoli M-1	Kozhikkode	11°32'62.5684"N	11°33'11.8733"N
			75°36'01.0057"E	75°35'90.7543"E
302	Payyoli M-2	Kozhikkode	11°33'80.9739"N	11°33'85.7157"N
			75°37'09.2550"E	75°36' 77.0866"E
303	Thalassery	Kannur	11°45'42.0012'N	11°45'37.0008"N
			75°28'27.9984"E	75°31'26.0004"E

304	Dharmadam	Kannur	11°46'52.8432"N	11°46'15.5412"N
			75°28'3.9792"E	75°28'18'.3544"E
305	Eranholi	Kannur	11°47'22.9992 " N	11° 46' 31.0008" N
			75°30'42.0012 " E	75° 31' 32.9988" E
306	Pinarayi	Kannur	11°47'23.0023"N	
			75°30'44.0342"E	
307	Muzhappilangad	Kannur	11°48'30.1392" N,	11°47 ' 0.1104" N
			75°25' 57.5436 " E	75° 26 ' 51.3672" E
308	Peralassery	Kannur	11°56'38.0004" N ,	11° 57' 2.0016" N
			75° 20' 60.0034" E	75° 19' 36.9984" E
309	Panoor	Kannur	11°41'22.4808" N ,	11° 41' 20.2416" N ,
			75° 35' 41.2836" E	75° 35' 30.7320" E
310	Narath-1	Kannur	11°56'54.6901 " N,	11° 56' 55.2588" N
			75°22'57.9288 "E	75 °22' 54.1596" E
311	Narath-2	Kannur	11°56' 37.8168 " N ,	11° 56' 38.4252" N
			75°22' 48.3420 " E	75° 22' 46.9560" E
312	Narath-3	Kannur	11°56'48.2103 " N	11° 56' 48.8256" N
			75°22'48.3420 " E	75° 22' 48.5004" E
313	Narath-4	Kannur	11°56'43.5408" N ,	11° 56' 43.6848" N
			75°22' 32.8116" E	75 °22' 32.7864"E
314	Mayyil-1	Kannur	11° 59' 55.2120" N	
			75° 26' 57.0480" E	
315	Mayyil-2	Kannur	11° 59' 31.8480"N	
			75° 27' 8.0712 " E	
316	Pappinissery	Kannur	11°56'38.5440" N ,	11°57'2.9628"N
			75° 20' 6.5436" E	75° 19' 37.488"E
317	Kalyassery	Kannur	11° 57' 2.754" N ,	11° 58' 36.2748" N ,
			75° 19' 36.7932" E	75° 19' 5.0772" E
318	Kannapuram-1	Kannur	11°58'42.9168" N ,	11°59' 9.9852" N ,
			75° 18' 51.462" E	75° 17' 31.9344" E
319	Kannapuram-2	Kannur	11°58'42.9168" N	
			75° 18' 51.4620" E	
320	Cherukunnu-1	Kannur	12 °1' 23.9160" N ,	
			75°16' 23.9952 " E	
321	Cherukunnu-2	Kannur	12°1' 20.7408 " N,	12°1' 21.972 "N ,
			75° 16' 32.5128"E	75° 16' 28.3512" E
322	Cherukunnu-3	Kannur	12° 0' 30.5676" N	12° 0 ' 49.6656" N ,
			75°17' 17.7432" E	75° 17' 5.7840" E
323	Cherukunnu-4	Kannur	11°59 ' 15.4392 "N	12° 0 ' 41.3604" N
			75° 17' 27.9312" E	75° 16' 4.7136" E
324	Pattuvam	Kannur	12 °0 ' 44.7516 " N	12° 0' 54.8388 " N
			75°19' 49.7532 "E	75°19' 2.3268" E
325	Pariyaram	Kannur	12° 3' 9.7632 " N,	12° 4' 0.6096" N ,

			75° 20' 44.8152 "E	21°26' 4168 " E
326	Mattool	Kannur	11°58'4.026"N	11°57'53.2296"N
			75°18'11.952"E	75°18'22.6548"E
327	Ezhome-1	Kannur	12°2'16.1088"N	12°02'3.2460"N
			75°18'13.8736"E	75°18'13.1472"E
328	Ezhome-2	Kannur	12°02'3.1092"N	12°02'3.9444"N
			75°18'13.1148"E	75°18'3.6216"E
329	Payyannur M-1	Kannur	12°04'19.0128"N	12°04'21.0756"N
			75°11'53.7901"E	75°12'7.6644"E
330	Payyannur M-2	Kannur	12°05'56.9292"N	12°05'57.9876"N
			75°11'27.2580"E	75°11'27.1896"E
331	Payyannur M-3	Kannur	12°04'39.7272"N	12°04'30.3601"N
			75°11'37.0104"E	75°11'38.6808"E
332	Ramanthali	Kannur	12°3'49.0392"N	12°4'13.1232"N
			75°10'58.5336"E	75°10'47.1864"E
333	Valiyaparamba-1	Kasargode	12°03'36.0540"N	12°11'57.9588"N
			75°10'44.5872"E	75°07'37.8300"E
334	Valiyaparamba-2	Kasargode	12°07'50.5920"N	12°07'10.7328"N
			75°10'12.1512"E	75°09'26.9136"E
335	Valiyaparamba-3	Kasargode	12°10'02.3464"N	12°11'05.1108"N
			75°08'34.1844"E	75°08'49.9596"E
336	Valiyaparamba-4	Kasargode	12°07'18.8292"N	12°08'09.7656"N
			75°10'13.9980"E	75°09'17.5752"E
337	Valiyaparamba-5	Kasargode	12°05'48.9408"N	12°06'24.8508"N
			75°10'09.6312"E	75°10'00.3324"E
338	Valiyaparamba-6	Kasargode	12°03'18.3348"N	12°11'53.5452"N
			75°10'48.6948"E	75°0733.2256"E
339	Valiyaparamba-7	Kasargode	12°10'17.6160"N	12°10'52.3164"N
			75°08'52.6092"E	75°08'44.1600"E
340	Thrikaripur-1	Kasargode	12°08'24.6300"N	12°08'23.9100"N
			75°09'05.4432"E	75°09'04.7880"E
341	Thrikaripur-2	Kasargode	12°10'32.0808"N	12°08'49.5708"N
			75°08'23.9604"N	75°09'01.5048"E
342	Cheruvathur	Kasargode	12°12'24.1740"N	12°11'45.3732"N
			75°07'43.7376"E	75°07'47.0892"E
343	Kumbla	Kasargode	12°35'50.2918"N	12°36'00.5130"N
			74°56'19.5450"E	74°56'17.3032"E

Annexure- VI

Thozhilidangal (Space for fishing operations) Marine				
Sl. No.	**Name of fishing village**	**Name of the district**	**GPS position of south east end**	**GPS position of north east end**
1	Paruthiyoor	Thiruvananthapuram	08°18'07.8852"N	08°18'55.2024"N
			77°04' 14.3652" E	77°04'03.5580"E
2	Poovar	Thiruvananthapuram	08°18'55.2024" N	08°19'14.2464"N
			77°04' 03.5580" E	77°3'39.6540"E
3	Karumkulam	Thiruvananthapuram	08°19'17.8906"N	08°19'37.6021"N
			77°03'33.7966"E	77°03'12.3963"E
4	Kochuthura	Thiruvananthapuram	08°19'38.6010"N	08°19'48.9869"N
			77°03'08.6011"E	77°02'54.8957"E
5	Puthiyathura	Thiruvananthapuram	08°19'48.4966"N	08°20'10.6954"N
			77°02'54.6013"E	77°02'28.8910"E
6	Pallom	Thiruvananthapuram	08°20'10.9887"N	08°20'13.1899"N
			77°02'28.4010"E	77°02'25.4792"E
7	Pulluvila	Thiruvananthapuram	08°20'14.4899"N	08°20'43.8301"N
			77°02'24.1988"E	77°01'44.6988"E
8	Adimalathura	Thiruvananthapuram	08°20'50.9745"N	08°21'14.3965"N
			77°01'36.4975"E	77°01'03.4955"E
9	Vizhinjam south	Thiruvananthapuram	08°22'30.3024"N	08°22'42.1032"N
			76°59'43.5192"E	76°59'21.8040"E
10	Vizhinjam north	Thiruvananthapuram	08°22'50.2680"N	08°22'50.2680"N
			76°59'4.5564"E	76°59'4.5564"E
11	Kovalam	Thiruvananthapuram	08°23'17.7648"N	08°23'46.0500"N
			76°58'34.9680"E	76°58'24.2544"E
12	Poonthura	Thiruvananthapuram	08°25'31.9044"N	08°26'6.6264"N
			76°57'34.6680"E	76°56'59.1360"E
13	Valiyathura	Thiruvananthapuram	08°27'52.0020"N	08°27'54.4932"N
			76°55'31.4004"E	76°55'29.6220"E
14	Shanghumugham	Thiruvananthapuram	08°28'47.7588"N	08°28'50.6244"N
			76°54'42.2280"E	76°54'42.2280" E
15	Kannamthura	Thiruvananthapuram	08°29'06.7236"N	08°29'14.3808"N
			76°54'22.9608"E	76°54'15.6204"E
16	Vettukad	Thiruvananthapuram	08°29'22.2540"N	08°29'47.7384"N
			76°54'09.3600"E	76°53'47.1696"E
17	Kochuveli	Thiruvananthapuram	08°29'50.9028"N	08°30'24.5376"N
			76°53'44.4660"E	76°53'02.2344"E
18	Valiyaveli	Thiruvananthapuram	08°30'42.1884"N	08°31'25.4856"N
			76°53'01.7700"E	76°52'28.6356"E
19	Pallithura	Thiruvananthapuram	08°32'28.1184"N	08°32'49.6896"N

			76°51'39.6396"E	76°51'21.9780"E
20	Puthenthope	Thiruvananthapuram	08°34'19.7620"N	08°34'19.7620"N
			76°50'8.6450"E	76°50'8.6450"E
21	Maryanadu	Thiruvananthapuram	08° 35' 36.4452" N	08° 36' 5.2848" N
			76° 49' 13.3608" E	76° 48' 43.5384" E
22	Puthukurichi	Thiruvananthapuram	08° 36' 5.2848" N	08° 37' 2.7372" N
			76° 48' 43.5384" E	76°47'57.732"E
23	Vettoor	Thiruvananthapuram	08°42'41.1912"N	08°44'45.8448"N
			76°43'24.2328"E	76°41'48.8184"E
24	Chilakkoor	Thiruvananthapuram	08°43'11.4960"N	08°43'11.5500"N
			76°42'59.7348"E	76°42'59.5692"E
25	Odayam	Thiruvananthapuram	08°44'45.8448"N	08°44'45.5280"N
			76°41'48.8184"E	76°41'48.2460"E
26	Edava	Thiruvananthapuram	08°45'58.6980"N	08°45'58.7232"N
			76°412'.1048"E	76°412'.2344"E
27	Paravoor south	Kollam	08°47'03.3504"N	08°47'50.5500"N
			76°40'22.2744"E	76°39'36.4896"E
28	Paravoor North	Kollam	08°47'50.8848"N	08°50'27.5496"N
			76°39'36.0432"E	76°38' 24.0288"E
29	Mayyanad	Kollam	08°49'19.9524"N	08°49'17.5296"N
			76°38' 34.8972"E	76°38'35.7900"E
30	Eravipuram south	Kollam	08°51'41.6520"N	08°51'44.7420"N
			76°36'29.9592"E	76°36'26.3888"E
31	Pallithottam	Kollam	08°52'34.4928"N	08°52'32.5632"N
			76°35'20.2308"E	76°35'16.4292"E
32	Port Kollam	Kollam	08°52'50.8584"N	08°52'49.9944"N
			76°34'46.4808"E	76°34'49.8936"E
33	Moodakkara	Kollam	08°52'54.9444"N	08°52'54.3036"N
			76°34'31.8648"E	76°34'34.6944"E
34	Vady	Kollam	08°52'54.9552"N	08°52'56.2224"N
			76°34'25.6908"E	76°34'30.8028"E
35	Thangassery	Kollam	08°52'57.6552"N	08°52'55.1964"N
			76°34'17.7492"E	76°34'10.9308"E
36	Neendakara	Kollam	08°57'39.7260"N	08°57'40.2804"N
			76°32'14.2764"E	76°32'13.9848"E
37	Vellanathuruth	Kollam	09°01'36.7698"N	09°01'55.3620"N
			76°31'05.7756"E	76°30'57.1896"E
38	Cheriyazheekkal	Kollam	09°03'08.1216"N	09°03'08.2404"N
			76°30'14.7564"E	76°30'13.6260"E
39	Azheekkal	Kollam	09°06'14.3820"N	09°06'29.5848"N
			76°28'42.3228"E	76°28'35.6736"E
40	Valiyazheekkal	Alappuzha	09°08'21.9860"N	09°08'50.9333"N
			76°27'45.8744"E	76°27'31.8570"E

41	Tharayilkadavu	Alappuzha	09°09'18.2419"N	09°09'41.6160"N
			76°27'21.3652"E	76° 27'21.3652"E
42	Kallikadu	Alappuzha	09°12'02.8656"N	09°12'33.9372"N
			76°26'02.0076"E	76°25'50.0412"E
43	Arattupuzha	Alappuzha	09°13'14.9088"N	09°13'14.9124"N
			76°25'29.7840"E	76°25'29.7804"E
44	Pathiyankara	Alappuzha	09°14'28.9572"N	09°14'39.2568"N
			76°25'14.0520"E	76°25'06.9636"E
45	Thrikunnappuhzha	Alappuzha	09°15'28.4256"N	09°15'41.6232"N
			76°24'27.1584"E	76°24'34.7472"E
46	Pallana	Alappuzha	09°18'1403280"N	09°18.15.3648"N
			76°23'09.9420"E	76°23'09.2148"E
47	Thottappally	Alappuzha	09°19'09.4152"N	09°19'07.6332"N
			76°22'46.0776"E	76°22'46.8984"E
48	Purakkad	Alappuzha	09°22'29.6832"N	09°22'30.1980"N
			76°21'16.9848"E	76°21'16.8696"E
49	Neerkkunnam	Alappuzha	09°23'12.0984"N	09°24'30.0420"N
			76°21'14.0220"E	76°20'29.0832"E
50	Punnappra South	Alappuzha	09°25'29.7336"N	09°25'29.5880"N
			76°20'21.5088"E	76°20'20.4432"E
51	Punnapra North	Alappuzha	09°26'56.0184"N	09°26'56.2416"N
			76°19'43.0032"E	76°19'42.5964"E
52	Vadackal South	Alappuzha	09°26'56.7744"N	09°27'48.0312"N
			76°19'41.4300"E	76°19'28.2648"S
53	Vadackal North	Alappuzha	09°28'11.7408"N	09°28'45.2928"N
			76°19'24.3012"E	76°19'16.0140"E
54	Kanjiramnchira	Alappuzha	09°29'59.7696"N	09°30'24.1848"N
			76°18'57.6324"E	76°18'52.3368"E
55	Thumpoli South	Alappuzha	09°30'42.0948"N	09°31'12.6120"N
			76°18'48.9780"E	76°18'43.2396"E
56	Thumpoli North	Alappuzha	09°31'12.4968"N	09°31'24.7656"N
			76°18'43.3188"E	76°18'40.2408"E
57	Chettikad	Alappuzha	09°31'26.4576"N	09°32'19.9644"N
			76°18'41.8320"E	76°18'31.4352"E
58	Kattoor	Alappuzha	09°32'48.5124"N	09°34'18.4404"N
			76°18'27.9324"E	76°18'11.6352"E
59	Pollethai	Alappuzha	09°34'20.9460"N	09°35'38.6088"N
			76°18'11.5992"E	76°17'59.8164"E
60	Chethy	Alappuzha	09°35'38.6772"N	09°37'14.2212"N
			76°18'00.1368"E	76°17'47.1588"E
61	Chennaveli	Alappuzha	09°37'28.3656"N	09°37'24.9564"N
			76°17'43.1376"E	76°17'46.2192"E
62	Arthunakal	Alappuzha	09°39'45.4680"N	09°39'41.9904"N
			76°17'58.1964"E	76°17'33.9216"E

63	Thiackal	Alappuzha	09°41'09.6936"N	09°40'17.2668"N
			76°17'24.9612"E	76°17'30.7320"E
64	Ottamassery	Alappuzha	09°41'16.0044"N	09°41'17.2880"N
			76°17'24.0646"E	76°17'23.5212"E
65	Azheekal	Alappuzha	09°44'53.2140"N	09°45'00.8964"N
			76°17'04.9740"E	76°17'10.9716"E
66	Pallithodu North-1	Alappuzha	09°46'35.3110"N	09°46'36.5210"N
			76°16'47.7510"E	76°16'47.3030"E
67	Pallithodu North-2	Alappuzha	09°47'12.3020"N	09°47'15.1210"N
			76°16'41.1110"E	76°16'40.8230"E
68	Pallithodu North-3	Alappuzha	09°47'13.0310"N	09°47'13.3110"N
			76°16'42.5120"E	76°16'42.5120"E
69	Chellanam	Ernakulam	09º47'26.8116"N	09º48'10.9908"N
			76º16'36.7464"E	76º16'29.2368"E
70	Kandakkadavu	Ernakulam	09º51'14.3496"N	09º51'16.1172"N
			76º15'55.9332"E	76º15'55.6416"E
71	Kannamaly	Ernakulam	09º52'04.1916"N	09º52'54.0084"N
			76º15'46.9620"E	76º15'39.4776"E
72	Cheriyakadavu	Ernakulam	09º53'57.7176"N	09º 54'01.1116"N
			76º15'23.1192"E	76º15'22.9752"E
73	Manassery	Ernakulam	09º55'09.8544"N	09º55'10.4484"N
			76º15' 03.4364"E	76º15'04.1976"E
74	Saudi	Ernakulam	09º56'23.7524"N	09º55'49.9328"N
			76º14'37.2664"E	76º14'48.6962"E
75	Fortkochi	Ernakulam	09º57'48.1248"N	09º58'05.7804"N
			76º14'14.4812"E	76º14'27.3378"E
76	Azheekkal	Ernakulam	09º58'28.4484"N	09º58'28.2216"N
			76º13'50.6172"E	76º13'48.5508"E
77	Malippuram	Ernakulam	10º01'12.9612"N	10º01'12.5472"N
			76º12'51.3972"E	76º12'51.8292"E
78	Elamkunnappuzha	Ernakulam	10º01'31.4544"N	10 01'33.2436"N
			76º12'43.2216"E	76º12'42.6204"E
79	Nayarambalam-1	Ernakulam	10º02'51.9828"N	10º02'52.5192"N
			76º12'19.9332"E	76º12'19.8684"E
80	Nayarambalam-2	Ernakulam	10º03'58.8924"N	10º03'59.6448"N
			76º11'54.9924"E	76º11'54.2472"E
81	Edavanakad-1	Ernakulam	10°04'59.2968"N	10°01'50.3228"N
			76°11'39.0786"E	76°11'39.6276" E
82	Edavanakad-2	Ernakulam	10°04'39.8028"N	10°04'39.0936"N
			76°11'44.1312"E	76°11'44.0556"E
83	Pazhangad	Ernakulam	10°05'57.2244"N	10°05'58.0776"N
			76°11'22.0956"E	76°11'22.5564"E
84	Kuzhuppilly	Ernakulam	10°06'13.2588"N	10°06'13.7124" N
			76°11'19.5144"E	76°11'19.5396" E

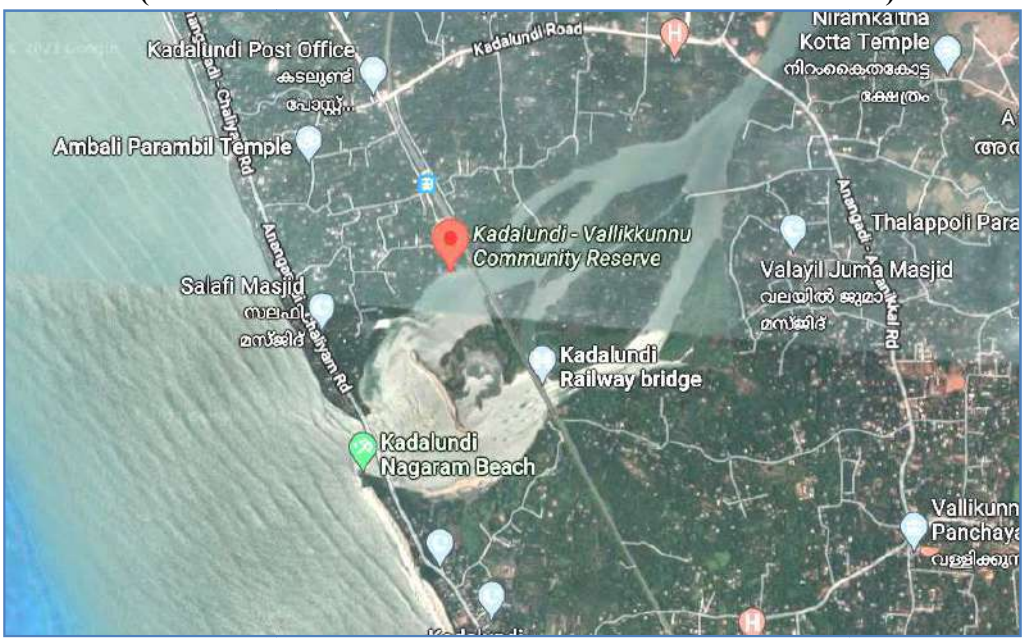
85	Ayyampilly-1	Ernakulam	10°06'51.4044"N	10°06'52.1244"N
			76°11'10.7952"E	76°11'10.7952"E
86	Ayyampilly-2	Ernakulam	10°06'35.2944"N	10°06'35.6076"N
			76°11'14.4672"E	76°11'14.6976"E
87	Cherai	Ernakulam	10°07'31.2852"N	10°07'31.6092"N
			76°11'01.3372"E	76°10'59.9952"E
88	Munambam	Ernakulam	10°10'56.7588"N	10°10'56.5896"N
			76°10'12.1152"E	76°10'10.5312"E
89	Pernjanam	Thrissur	10°18'07.0031"N	10°18'43.0051"N
			76°07'35.0096"E	76°07'25.0006"E
90	Nattika	Thrissur	10°23'46.4793" N	10°25'13.2924" N
			76°05'31.8169" E	76°04'56.4754" E
91	Thalikulam	Thrissur	10°25'50.0045"N.	10°27'19.0066"N.
			76°04'40.0096"E	76°04'02.0043"E
92	Pallivalappu	Mapappuram	10°50'64.2776"N	10°50'65.5796"N
			75°53'91.1288"E	75°53'91.2153"E
93	Koottayi	Mapappuram	10°51'11.1157"N	10°51'11.7796"N
			75°53'81.8048"E	75°53'08.1851"E
94	Paravanna	Mapappuram	10°54'72.4968"N	10°54'73.6939"N
			75°53'02.7266"E	75°53'02.4811"E
95	Thevarkadappuram	Mapappuram	10°55'12.4031"N	10°55'14.2874"N
			75°52'00.9469"E	75°52'94.0322"E
96	Puthiyakadappuram-1	Mapappuram	10°56'62.3490"N	10°56'62.7559"N
			75°52'60.2987"E	75°52'60.1076"E
97	Puthiyakadappuram-2	Mapappuram	10°56'12.4975"N	10°56'13.6746"N
			75°52'71.7672"E	75°52'73.8593"E
98	Cheerankadappuram	Mapappuram	10°57'32.6582"N	10°57'33.6852"N
			75°52'43.4189"E	75°54'43.1131"E
99	Edakadappuram	Mapappuram	10°58'00.6817"N	10°58'01.5013"N
			75°52'27.3417"E	75°52'26.8267"E
100	Ossankadappuram	Mapappuram	10°58'80.9761"N	10°58'82.3486"N
			75°52'04.5758"E	75°52'05.6359"E
101	Elarankadappuram	Mapappuram	10°58'91.7212"N	10°58'92.6039"N
			75°52'00.5444"E	75°52'00.8120"E
102	Pandarakadappuram	Mapappuram	10°59'20.0931"N	10°59'22.5754"N
			75°51'95.0265"E	75°51'94.5718"E
103	Kormankadappuram-1	Mapappuram	11°03'56.8540"N	11°00'38.1933"N
			75°51'63.9464"E	75°51'62.9405"E
104	Kormankadappuram-1	Mapappuram	10°59'94.0454"N	10°59'94.4403"N
			75°51'75.6542"E	75°51'75.9600"E
105	Kadalundi beach	Mapappuram	11°05'58.3629"N	11°06'09.5735"N
			75°50'27.3066"E	75°49'98.7029"E
106	Marad	Kozhikode	11° 11'25.008"N	11° 11'24.3670"N
			75° 47' 35.1168" E	75° 47' 35.4134" E

107	Thekkekadappuram	Kozhikode	11° 14'18.5712"N	11° 14'18.3256"N
			75° 46'29.964"E	75° 46'30.2340"'E
108	Puthiyangadi	Kozhikode	11° 17'56.5368"N	11° 17'56.266"N
			75° 45'17.9064"E	75° 45'18.1264"E
109	Elathure	Kozhikode	11° 18'14.9688"N	11° 18'14.5888"N
			75° 45' 55.1196" E	75° 45' 55.3196" E
110	Kannankadavu	Kozhikode	11° 21'39.2234"N	11° 21'39.8144"N
			75° 43' 54.2704" E	75° 43' 53.7304" E
111	Valiyamangadu	Kozhikode	11° 25'27.8148"N	11° 25'28.6544"N
			75° 41' 53.1132"E	75° 41' 52.1122"E
112	Virunnukandy	Kozhikode	11° 25'51.0888"N	11° 25'52.0023"N
			75° 41' 37.8564"E	75° 41' 36.9654"E
113	Thekody	Kozhikode	11° 29'8.2032"N	11° 29'7.1032"N
			75° 37' 14.1240"E	75° 38' 13.1240"E
114	Kuriyadi	Kannur	11°36'25.1568"N	11°36'25.3512"N
			75° 34' 29.8092'E	75° 34' 30.4644'E
115	Chalil Gopalpetta	Kannur	11°44'17.4300"N	11°44'22.698"N
			75°29'45.5028"E	75°29'40.6428"E
116	Azheekode-1	Kannur	11°53'49.4268"N	11°53'13.3128"N
			75°19'53.7348"E	75°19'28.9848"E
117	Azheekode-2	Kannur	11°56'04.3532"N	11°56'44.1276"N
			75°18'13.1220"E	75° 19' 26.0388" E
118	Palakode-1	Kannur	12°01'38.4168"N	12°01'17.9436"N
			75°13'33.6396"E	75°13'24.0780"E
119	Palakode-2	Kannur	12°00'37.2090"N	12°00'39.9312"N
			75°12'53.1000"E	75°12'32.6412"E
120	Thaikadappuram-1	Kasargode	12°12'43.8876"N	12°12'47.8656"N
			75°07'07.4244"E	75°07'03.8712"E
121	Thaikadappuram-2	Kasargode	12°12'44.2296"N	12°12'46.8144"N
			75°07'05.7036"E	75°07'04.3572"E
122	Punjavi	Kasargode	12°16'37.7472"N	12°16'37.5132"N
			75°05'24.7380"E	75°05'26.3004"E
123	Ajanoor	Kasargode	12°20'09.5532"N	12°20'09.5748"N
			75°03'55.3032"E	75°03'54.3600"E
124	Pallikara-1	Kasargode	12°24'16.9744"N	12°24'17.5461"N
			75°01'32.0463"E	75°01'32.0149"E
125	Pallikara-2	Kasargode	12°23'28.1328"N	12°23'28.6944"N
			75°02'17.5272"E	75°02'15.0684"E
126	Kottikulam	Kasargode	12°24'43.1856"N	12°24'43.6428"N
			75°01'19.4520"	75°01'19.5708"E
127	Keezhur-1	Kasargode	12°28'13.8000"N	12°28'14.8548"N
			74°59'27.2328"E	74°59'27.2544"E
128	Keezhur-	Kasargode	12°26'56.1804"N	12°27'51.3360"N
			75°00'00.6408"N	74°59'36.0672"E

129	Kasaba	Kasargode	12°28'39.1800"N	12°28'38.2440"N
			74°59'09.4344"E	74°59'10.0572"E
130	Koyipadi	Kasargode	12°35'29.0544"N	12°35'29.1552"N
			74°56'17.4156"E	74°56'17.4120"E
131	Shiriya	Kasargode	12°42'21.1536"N	12°42'20.5164"N
			74°53'26.2752"E	74°53'26.7792"E
132	Manjeswaram-1	Kasargode	12°44'34.5948"N	12°42'31.5828"N
			74°52'15.4200"E	74°53'11.4432"E
133	Manjeswaram-2	Kasargode	12°42'31.5648"N	12°42'31.5828"N
			74°53'11.2668"E	74°53'11.4432"E

Annexure VII

Kadalundi –Vallikunnu community Reserve
(11.13'098" N 75.82'914" E and 11.12'572" N 75.83'303"E)



Annexure- VIII

Artificial Reef/ Fish Protected area (Marine)			
Sl. No.	**Name of fishing village**	**Name of the district**	**Positon of AR/FPA**
1	South Kollenkode	Thiruvananthapuram	08°15'.5650"N
			77°03'322"E
2	Paruthiyoor	Thiruvananthapuram	08°15'.541"N
			77°02'770"E
3	Poovar	Thiruvananthapuram	08°15'200"N
			77°01'168"E
4	Kochuthura	Thiruvananthapuram	08°16'.7660"N
			77°01'.0210"E
5	Puthiyathura	Thiruvananthapuram	08°17'.6490"N
			77°00'.5720"E
6	Pallom-1	Thiruvananthapuram	08°18'.6210"N
			77°01'.2730"E
7	Pallom-2	Thiruvananthapuram	08°18'.6820"N
			77°01'.1140"E
8	Pallom-3	Thiruvananthapuram	08°18'.8040"N
			77°01'.0010"E
9	Adimalathura-1	Thiruvananthapuram	08°19'.6930"N
			77°00'.0770"E
10	Adimalathura-2	Thiruvananthapuram	08°19'.7890"N
			76°59'.9390"E
11	Adimalathura-3	Thiruvananthapuram	08°19'.9370"N
			76°59'.8620"E
12	Poonthura	Thiruvananthapuram	08°24'.1190"N
			76°54'.3830"E
13	Beemapally	Thiruvananthapuram	08°24'.9810"N
			76°53'.8750"E
14	Valiyathura-1	Thiruvananthapuram	08°26'.1340"N
			76°52'.8150"E
15	Valiyathura-2	Thiruvananthapuram	08°25'.6680"N
			76°52'.6110"E
16	Manathala	Thrissur	10°35'32.9517"N
			75°59'59.0633"E
17	Edakkazhiyur-1	Thrissur	10°36'34.5254"N
			75°59'25.8299"E
18	Edakkazhiyur-2	Thrissur	10° 37'12.9092"N
			75°59'07.3150"E
19	Kadalundi beach	Malappuram	11°05'58.3629"N
			75°50'27.3066"E

20	Marad	Kozhikode	11° 11'25.008"N
			75° 47' 35.1168'' E
21	Puthiyangadi	Kozhikode	11° 17'56.5368"N
			75° 45'17.9064"E
22	Puthiyappa(s)	Kozhikode	11° 18'43.092"N
			75° 45'2.0736"E

Annexure- IX

Clam Protected Area/Fish Protected Area/ Fish sanctuary (CRZ-IV)				
Sl. No.	**Name of LSGI/CPA/FPA/ sanctuary**	**Name of the district**	**GPS position**	**Extent of area in ha**
1	Kollam C 1 thuruth	Kollam	08°56'02.5232" N	2
			76°33'40.9120" E	
2	Thekkumbhagom-1	Kollam	08º56'08.7184"N	2
			76º32'58.6496"E	
3	Thekkumbhagom-2	Kollam	08°56'05.0300"N	2
			76°33'41.0654"E	2
4	Perayam-1	Kollam	08°58'26.7660"N	
			76°39'25.5548"E	2
5	Perayam-2	Kollam	08°59'05.2580"N	
			76°38'39.9848"E	2
6	Perinad	Kollam	08°57'35.2540"N	2
			76°38'09.1588"E	
7	Thrikkaruva-1	Kollam	08°56'10.7726"N	2
			76°34' 34.0245"E	
8	Thrikkaruva-2	Kollam	08°57'32.7254"N	2
			76°36'00.3214"E	2
9	Mannanchery-1	Alappuzha	09°33'02.9844"N	
			76°21'24.9156"E	2
10	Mannanchery-2	Alappuzha	09°33' 26.4348"N	
			76°21'27.6840"E	2
11	Mannanchery-3	Alappuzha	09°33'42.6348"N	2
			76°21'31.4280"E	
12	Mannanchery-4	Alappuzha	09°33'22.7016"N	2
			76°21'31.4280"E	
13	Mannanchery-5	Alappuzha	09°33'44.7516"N	2
			76°21'33.5340"E	2
14	Mannanchery-6	Alappuzha	09°34'15.6792"N	
			76°21'37.5408"E	2
15	Mannanchery-7	Alappuzha	09°34'27.2352"N	
			76°21'44.1864"E	2
16	Mannanchery-8	Alappuzha	09°34'49.6524"N	2
			76°21'59.1012"E	
17	Mannanchery-9	Alappuzha	09°35'02.0688"N	2
			76°22'08.3280"E	
18	Muhamma-1	Alappuzha	09°35'42.1848"N	2
			76°21'57.9996"E	2
19	Muhamma-2	Alappuzha	09°36'28.1448 "N	

			76°22'04.7172"E	2
20	Muhamma-3	Alappuzha	09°36'37.2024"N	
			76°22'06.7116"E	2
21	Muhamma-4	Alappuzha	09°36'50.2812"N	2
			76°23'04.7472"E	
22	Muhamma-5	Alappuzha	09°85'20.4036"N	2
			76°22'05.1204"E	
23	Thanneermukkam-1	Alappuzha	09°38'32.0316"N	2
			76°22'50.4552"E	2
24	Thanneermukkam-2	Alappuzha	09°40'16.6872"N	
			76°23'31.6248"E	2
25	Thycattussery-1	Alappuzha	09°45'35.1468"N	
			76°20'24.5868"E	2
26	Thycattussery-2	Alappuzha	09°45'13.1832"N	2
			76°20'40.4664"E	
27	Thycattussery-3	Alappuzha	09°43'37.758"N	2
			76°22'01.2936"E	
28	Aymanam-1	Kottayam	9°38' 2.4648"N	4
			76°25'05.0628"E	
29	Aymanam-2	Kottayam	9°38'19.9248"N	4
			76°24'47.8044"E	
30	Kumarakom-1	Kottayam	9°38'02.3424"N	4
			76°25'04.9548"E	
31	Kumarakom-2	Kottayam	9°33'14.9472"N	8
			76°25'32.5164"E	
32	Kumarakom-3	Kottayam	9°33'22.6404"N	8
			76°26'26.0484"E	
33	Kumarakom-4	Kottayam	9°36'03.3552"N	2
			76°25'16.5036"E	
34	Vallikunnu	Malappuram	11°07'06.0952"N	38
			75°49'97.6548"E	
35	Narath	Kannur	11° 57' 36.0034 " N	5
			75° 23' 06.0231 " E	
36	Ezhome	Kannur	12°2'0.1572"N	5
			75°18'5.3676"E	
37	Kunhimangalam	Kannur	12°04'22.0901"N	5
			75°12'12.5001"E	
38	Ramanthali	Kannur	12°4'28.7401"N	5
			75°11'34.4004"E	
	TOTAL			**152**

Annexure- X

Peeling shed					
Sl. No.	**Name of firm/ owner**	**Name of LSGI**	**Public/ Private**	**Latitude**	**Longitude**
1	Philomin Joseph	Kollam C	Private	08°55'56.7984"N	76°32'31.7912"E
2	Franson	Kollam C	Private	08°55'55.8480"N	76°32'31.9160"E
3	John	Kollam C	Private	08°55'57.0504"N	76°32'32.7516"E
4	Jose George	Kollam C	Private	08°55'55.3656"N	76°32'33.2736"E
5	Pouland	Kollam C	Private	08°55'57.2052"N	76°32'33.4248"E
6	Shaji Francis	Kollam C	Private	08°55'57.5400"N	76°32'39.6636"E
7	Manoj	Kollam C	Private	08°54'29.8800"N	76°32'42.1368"E
8	Kunjumon	Kollam C	Private	08°54'29.5200"N	76°32'42.6192"E
9	Boban John	Kollam C	Private	08°55'55.8336"N	76°32'42.6840"E
10	Tomson Gilbert	Kollam C	Private	08°55'57.8640"N	76°32'44.6494"E
11	Vincent	Kollam C	Private	08°54'19.6074"N	76°32'48.0588"E
12	A.T Babu	Kollam C	Private	08°55'53.8572"N	76°32'48.4332"E
13	Luke	Kollam C	Private	08°55'54.1776"N	76°32'48.7536"E
14	Skobin	Kollam C	Private	08°50'25.9800"N	76°37'43.5828"E
15	Joyal. A	Kollam C	Private	08°51'27.9252"N	76°37'43.7376"E
16	Marshel	Neendakara	Private	08°56'25.1484"N	76°32'49.6752"E
17	Marshel	Neendakara	Private	08°56'26.0412"N	76°32'49.8624"E
18	Sebastian	Neendakara	Private	08°56'25.1664"N	76°32'49.9164"E
19	Joy	Neendakara	Private	08°56'57.7680"N	76°32'51.2880"E
20	Sam	Neendakara	Private	08°56'48.0660"N	76°33'01.3140"E
21	Lasar	Neendakara	Private	08°56'52.3500"N	76°33'01.8648"E
22	Stansilus	Neendakara	Private	08°56'23.7444"N	76°32'34.4256"E
23	Babu	Neendakara	Private	08°57'04.8816"N	76°32'36.9060"E
24	Vinod	Neendakara	Private	08°57'10.1844"N	76°32'40.0128"E
25	Sivaprasad	Neendakara	Private	08°56'53.7468"N	76°32'42.9792"E
26	Nija Anil	Neendakara	Private	08°58'02.3124"N	76°31'43.8672"E
27	Leena	Neendakara	Private	08°57'54.2988"N	76°31'45.89264"E
28	Reji mol	Neendakara	Private	08°57'44.9028"N	76°31'49.8756"E
29	Vasantha	Neendakara	Private	08°57'36.8568"N	76°31'52.8420"E
30	Laurenz	Neendakara	Private	08°58'05.3470"N	76°31'57.8856"E
31	Berny	Neendakara	Private	08°57'02.4012"N	76°32'25.2384"E
32	Radhamani	Neendakara	Private	08°57'25.5924"N	76°32'26.4336"E
33	Devidathan Pillai	Neendakara	Private	08°57'01.8864"N	76°32'26.5632"E
34	Radhakrishnan	Neendakara	Private	08°57'03.0384"N	76°32'28.8456"E
35	Rohini	Neendakara	Private	08°57'12.1464"N	76°32'31.3224"E
36	Shibu Babyjohn	Neendakara	Private	08°56'23.4420"N	76°32'34.4004"E
37	Prasad	Chavara	Private	08°58'21.9216"N	76°31'51.9852"E
38	Dayana	Thekkumbhagom	Private	08°56'42.8568"N	76°33'07.3692"E

39	Benny Perera	Alappad	Private	09°07'05.0952"N	76°28'31.9402"N
40	Supriya Netto	Alappad	Private	09°07'19.6644"N	76°28'32.8800"N
41	Rajesh	Alappad	Private	09°06'47.4696"N	76°28'34.9356"N
42	soumya	Alappad	Private	09°06'20.6856"N	76°28'39.0252"N
43	Jyothi	Alappad	Private	09°06'13.6332"N	76°28'42.6252"N
44	Nitheesh	Alappad	Private	09°06'21.5280"N	76°28'49.7064"N
45	Sathyalaya	Clappana	Private	09°07'32.0988"N	76°28'56.9928"N
46	Sathyalaya	Clappana	Private	09°07'32.2212"N	76°28'58.8828"N
47	Krishnakumari	Alappad	Private	09°02'53.1240"N	76°30'18.9396"N
48	Vasantha	Alappad	Private	09°02'33.2412"N	76°30'25.9236"N
49	Soja	Alappad	Private	09°02'33.2412"N	76°30'25.9236"N
50	Maya	Alappad	Private	09°02'24.9634"N	76°30'26.1828"N
51	Reena	Alappad	Private	09°02'17.4624"N	76°30'32.0148"N
52	Sobhana	Alappad	Private	09°02'22.1352"N	76°30'34.6356"N
53	Sreekala	Alappad	Private	09°02'08.0448"N	76°30'47.9088"N
54	Saseendran	Alappad	Private	09°02'05.2728"N	76°30'53.8328"N
55	Manilal	Alappad	Private	09°01'36.6996"N	76°30'54.1476"N
56	Sangeetha	Alappad	Private	09°01'54.7932"N	76°30'57.9636"N
57	Suneesha	Alappad	Private	09°01'46.2324"N	76°31'00.6060"N
58	Dileep	Alappad	Private	09°01'35.5769"N	76°31'06.0420"N
59	Abhimanyu	Arattupuzha	private	N9°8'23.8704"	E76°27'43.3800"
60	Anila	Aarattupuzha	private	N 9° 10' 52.0248"	E 76° 26' 33.3024"
61	shylaja	Aarattupuzha	private	N 9° 10' 51.078"	E 76° 26' 35.4156"
62	pushaparajen	Aarattupuzha	private	N 9° 10' 49.4503"	E 76° 26' 36.50348"
63	santhosh	Aarattupuzha	private	N 9° 9' 14.6952"	E 76° 27' 20.2752"
64	Sherly	Aarattupuzha	private	N 9°13'43.6728"	E 76°25'15.6324"
65	Mahmood	Aarattupuzha	private	N 9°13'8.4288"	E 76°25'31.998"
66	Raji	Aarattupuzha	private	N 9°12'36.3816"	E 76°25'47.0784
67	Renuka	Aarattupuzha	private	N 9°12'26.6184"	E 76°25'51.6036"
68	Preetha	Aarattupuzha	private	N9°12'25.488"	E 76°25'52.1112"
69	Sudharsanan	Aarattupuzha	private	N9°12'20.8188"	E76°25'54.6168"
70	Abhilash	Aarattupuzha	private	N9°12'16.1172"	E76°25'58. 1304"
71	Santhosh	Aarattupuzha	private	N9°12'9.1116"	E76°25'59.7936"
72	Sudharsan	Aarattupuzha	private	N9°11'58.4268"	E76°26'3.6672
73	Sulekha	Thrikkunnappuzha	private	9°18'11.0772"N	76°23'11.022"E
74	Ravi	Thrikkunnappuzha	private	9°18'7.8012"N	76°23'12.588"E
75	Chandran	Thrikkunnappuzha	private	9°18'5.9256"N	76°23'13.9884"E
76	Latha	Thrikkunnappuzha	private	9°18'7.2288"N	76°23'14.19"E
77	Radha	Thrikkunnappuzha	private	9°17'39.9084"N	76°23'26.3616"E
78	Muhammad Shameer	Thrikkunnappuzha	private	9°17'29.0796"N	76°23'31.1532"E
79	Nisha	Thrikkunnappuzha	private	9°17'17.4948"N	76°23'36.6936"E
80	Soman	Thrikkunnappuzha	private	9°17'11.9724"N	76°23'38.9328"E
81	Baiju	Thrikkunnappuzha	private	9°18'19.9152"N	76°23'7.4292"E

82	Shyamalan	Thrikkunnappuzha	private	9°18'17.6832"N	76°23'8.772"E
83	Shaji(late)bhavana	Thrikkunnappuzha	private	9°18'5.9004"N	76°23'19.6548"E
84	Baby	Thrikkunnappuzha	Private	N 9° 15' 19.8288"	E 76°24' 31.176"
85	Sindhu	Thrikkunnappuzha	Private	N 9° 15'23.1804"	E 76° 24' 29.5092"
86	Sreeni	Thrikkunnappuzha	Private	N 9° 15' 31.7736"	E 76° 24' 25.7688"
87	Thaha	Thrikkunnappuzha	Private	N 9° 15' 55.512"	E 76° 24' 14.7384"
88	Rasheed	Thrikkunnappuzha	Private	N 9° 16' 6.3516"	E 76° 24'9.6876"
89	Pradeep	Thrikkunnappuzha	Private	N 9°16' 14.3148"	E 76° 24'5.3316"
90	Naissam	Thrikkunnappuzha	Private	N 9° 16'27.4044"	E 76° 24'4.1976"
91	Hamsa	Thrikkunnappuzha	Private	N 9° 16'32.3508"	E 76° 23'57.4476"
92	Anas	Thrikkunnappuzha	Private	N 9° 16' 43.0788"	E 76° 23'56.2596"
93	Hilal	Thrikkunnappuzha	Private	N 9° 16.47.1468"	E 76° 23'51.7848"
94	Abdulsamad	Thrikkunnappuzha	Private	N 9°15'32.0796"	E 76° 24'25.3008"
95	Rashida	Thrikkunnappuzha	Private	N 9° 16'54.0984"	E 76° 23'48.6924"
96	Noushad	Thrikkunnappuzha	Private	N 9° 16'59.4516"	E 76° 23'46.7916"
97	Ashraf	Thrikkunnappuzha	Private	N 9° 17'1.8888"	E 76° 23' 45.5388"
98	Shahida	Thrikkunnappuzha	Private	N 9° 17'1.176"	E 76° 23' 45.618"
99	Majeed	Thrikkunnappuzha	Private	N 9° 16'41.016"	E 76° 23'54.9816
100	Suja	Thrikkunnappuzha	Private	N 9° 15'33.4476"	E 76° 24' 24.5196"
101	Najim	Thrikkunnappuzha	Private	N 9° 16'37.5852"	E 76°23'55.0464
102	Seenath	Thrikkunnappuzha	Private	N 9° 16'48.2304"	E 76°23'50.4816"
103	Hameed kunju	Thrikkunnappuzha	Private	N 9° 16'28.128"	E 76° 24' 1.4904
104	Mohanan	Thrikkunnappuzha	Private	N 9° 15' 13.662"	E 76° 24' 35.0424"
105	Yesudas, Thilakamma	Thrikkunnappuzha	Private	N 9° 15' 13.05"	E 76° 24' 33.7176"
106	Shaji	Thrikkunnappuzha	Private	N 9° 15' 5.9868"	E 76° 24' 40.6512"
107	Ravunni	Thrikkunnappuzha	Private	N 9° 15' 1.1736"	E 76° 24' 40.0392"
108	Asha	Thrikkunnappuzha	Private	N 9° 14' 58.6932"	E 76° 24' 40.9896"
109	Mukundhan	Thrikkunnappuzha	Private	N 9° 14' 56.454"	E 76° 24' 41.8284"
110	Seena, Ambili, Girija	Thrikkunnappuzha	Private	N 9° 14' 55.3056"	E 76° 24' 42.57"
111	Ahammad Azhar	Thrikkunnappuzha	Private	N 9° 14' 36.3912"	E 76° 24' 50.454"
112	Suma	Thrikkunnappuzha	Private	N 9° 14' 55.3056"	E 76° 24' 42.57"
113	Kunjunni	Thrikkunnappuzha	Private	N 9° 14' 25.7388"	76° 24' 56.5236"
114	Rejith	Purakkad	Private	N9°22'37.9488"	E76°21'27.9324"
115	Mini	Purakkad	Private	N9°22'18.93"	E76°21'25.848"
116	Manjuneshan	Purakkad	Private	N9°22'14.016"	E76°21'28.692"
117	Ambili	Purakkad	Private	N9°22'12.7668"	E76°21'29.0556"
118	Ani	Purakkad	Private	N9°22'10.768"	E76°21'30.3768"
119	Vijeesh Viswambaran	Purakkad	Private	N9°22'10.7256"	E76°21'30.708"
120	Ambilikuttan	Purakkad	Private	N9°21'58.338"	E76°21'33.696"
121	Sudharma	Purakkad	Private	N9°21'35.3088"	E76°21'41.9436"
122	Ramanan	Purakkad	Private	N9°21'40.1256"	E76°21'41.7312"
123	Jyothikumar	Purakkad	Private	N9°20'56.652"	E76°22'8.6592"
124	Beena	Purakkad	Private	N9°20'56.652"	E76°22'8.6592"

125	Sugunan	Purakkad	Private	N9°20'5.7556"	E76°22'9.6132"
126	Surendran	Purakkad	Private	N9°21'1.0224"	E76°21'59.7456"
127	Thaha	Purakkad	Private	N9°20'42.1224"	E76°22'7.8636"
128	Thankachi	Purakkad	Private	N9°20'38.328"	E76°22'8.85"
129	Samkrishnan	Purakkad	Private	N9°20'37.8996"	E76°22'9.2748"
130	Sukumaran	Purakkad	Private	N9°20'13.8732"	E76°22'19.704"
131	Jyothikumar	Purakkad	Private	N9°20'11.166"	E76°22'20.6976"
132	Salam	Purakkad	private	09°22'18.5628"	76°21'23.2740"
133	Shaji	Purakkad	private	09°22'31.1340"	76°21'17.3988"
134	Renjith	Purakkad	private	09°22'23.0592"	76°21'23.6232"
135	Vijesh	Purakkad	private	09°22'06.4668"	76°21'33.3072"
136	Satheesan	Purakkad	private	09°21'26.9892	76°21'49.600"
137	Shoukathali	Purakkad	private	09°19'15.3048"	76° 22'45.1920"
138	Ahamed Azar	Purakkad	private	09°19'12.7092"	76°22'45.3648"
139	Harilal	Purakkad	private	09°18'55.1900"	76°42'57.600"
140	Sam krishnan	Purakkad	private	09°20'29.26668"	76°22'12.6948"
141	Thankachi	Purakkad	private	09°20'37.6444"	76°22'09.0730"
142	Animon	Purakkad	private	09°22'10.4738"	76°21'29.7252"
143	Shan	Purakkad	private	09°22'26.6808"	76°22'19.6992"
144	Nazar	Purakkad	private	09°22'18.5592"	76°21'22.7340
145	Devadas	Purakkad	Private	N 9°18' 28.764	E 76°23' 4.11
146	Mohanan	Purakkad	Private	N 9° 18' 45.4716	E 76°23' 7.8828
147	Syamalan	Purakkad	Private	N 9° 18' 42.9552	E 76°23' 16.2816
148	Ananthu	Purakkad	Private	N 9°18' 28.3356	E 76°23' 3.6348
149	Latheef	Purakkad	Private	N 9° 19' 10.362	E 76°23' 9.456
150	Saiju	Purakkad	Private	N 9°19' 9.6276	E 76° 23' 8.3832
151	Hari	Purakkad	Private	N 9°18' 55.8576	E 76° 22' 57.3816
152	Shoukath	Purakkad	Private	N 9° 19' 15.5568	E 76° 22' 44.6232
153	Abdul majeed	Purakkad	Private	N 9° 19' 15.744	E 76°22' 44.9544
154	Salam	Purakkad	Private	N 9° 19' 12.5472	E 76° 22' 46.1568
155	Saleema	Purakkad	Private	N 9°19' 37.7328	E 76°22' 37.6032
156	Mohanlal	Purakkad	Private	N 9° 19' 54.084	E 76° 22' 28.792
157	Majeed	Purakkad	private	09°19'13.7388"	76°22'46.5024"
158	Salam	Ambalappuzha (S)	Private	9°22'31.9512"N	76°21'16.5564"E
159	Unni	Ambalappuzha (S)	Private	9°22'34.2012"N	76°21'14.4101"E
160	Gireesh	Ambalappuzha (S)	Private	9°22'43.9968"N	76°21'26.6292"E
161	Sudhakaran	Ambalappuzha (S)	Private	9°22'36.2280"N	76°21'13.2336"E
162	Asharaf	Ambalappuzha (S)	Private	9°22'36.2280"N	76°21'13.2336"E
163	Sindhu	Ambalappuzha (S)	Private	9°22'36.2280"N	76°21'13.2336"E

164	Manjumol	Ambalappuzha (S)	Private	9°22'42.5424"N	76°21'11.6352"E
165	Latha	Ambalappuzha (S)	Private	9°22'43.3452"N	76°21'11.4048"E
166	Asharaf	Ambalappuzha (S)	Private	9°22'47.1792"N	76°21' 9.3456"E
167	sony	Ambalappuzha (S)	Private	9°22'47.1792"N	76°21' 9.3456"E
168	beena	Ambalappuzha (S)	Private	9°23'13.6068"N	76°20'57.8508"E
169	Aboobaker	Ambalappuzha (S)	Private	9°23'16.1160"N	76°20'55.8636"E
170	Shameer	Ambalappuzha (S)	Private	9°23'16.1160"N	76°20'55.8636"E
171	Sharif	Ambalappuzha (S)	Private	9°23'18.8340"N	76°20'54.7548"E
172	Majeed	Ambalappuzha (S)	Private	9°23'18.9708"N	76°20'54.7764"E
173	Raju	Ambalappuzha (S)	Private	9°23'18.9708"N	76°20'54.7764"E
174	Sujith	Ambalappuzha (S)	Private	9°23'18.9708"N	76°20'54.7764"E
175	Anzil	Ambalappuzha (S)	Private	9°23'48.7320"N	76°20'51.6804"E
176	Asharaf	Ambalappuzha (S)	Private	9°23'10.4208"N	76°21'16.2108"E
177	Dasappan	Ambalappuzha (S)	Private	9°23'10.4208"N	76°21'16.2108"E
178	Aji	Ambalappuzha (S)	Private	9°23'10.4208"N	76°21'16.2108"E
179	Shaji	Ambalappuzha (S)	Private	9°23'10.4208"N	76°21'16.2108"E
180	Noushadh	Ambalappuzha(N)	Private	N9°24'35.1864"	E76°20'27.7872"
181	Jayapalan	Ambalappuzha(N)	Private	N9°24'40.266"	E76°20'29.6736"
182	Nisar	Ambalappuzha(N)	Private	N9°24'17.6544"	E76°20'48.858"
183	Suni	Ambalappuzha(N)	Private	N9°23'58.398"	E76°20'45.024"
184	kalam	Ambalappuzha(N)	Private	N9°23'58.0344"	E76°20'45.114"
185	Abdulkalam	Ambalappuzha (s)	Private	09°22'31.6812	76°21'16.239
186	Mustafa	Punapra(S)	Private	N9°24'58.5828"	E76°20'24.5364"
187	Balan	Punapra(S)	Private	N9°24'32.3424"	E76°20'50.1612"
188	Rafi	Punapra(S)	Private	N9°24'32.3424"	E76°20'50.1612"
189	Noushad	Punapra(S)	Private	N9°24'49.2588"	E76°20'23.4096"
190	Laila	Punapra(S)	Private	N9°24'49.2444"	E76°20'23.3808"
191	Biju	Punapra(S)	Private	N9°25'3.9828"	E76°20'18.5208"
192	Haseena	Punapra(S)	Private	N9°25'6.7764"	E76°20'21.8904"
193	Navas	Punapra(S)	Private	N9°25'8.2776"	E76°20'25.8108"
194	Sulatha	Punapra(S)	Private	N9°25'4.6704"	E76°20'34.53"
195	Jalal	Punapra(S)	Private	N9°25'4.6704"	E76°20'34.53"
196	Yeshudas	Punnapra south	Private	N 9° 26' 24.0288	E 76° 19' 55.9308
197	Hentry	Punnapra south	Private	N 9°26' 16.7532	E 76° 19' 57.0792

198	Asharaf	Punnapra south	Private	N9° 26' 24.3096	E 76° 19' 55.5456
199	Jamal	Alappuzha M	Private	9°30'09.6"N	76°80'57.5"E
200	Lucy	Alappuzha M	Private	N9°28'5.2284"	E76°19'27.5628"
201	Manoharan	Alappuzha M	Private	N9°28'5.2248"	E 76°19'27.534"
202	Baiju	Alappuzha M	Private	N9°28'31.4436"	E76°19'19.2756"
203	Mohanakumari	Alappuzha M	Private	N9°28'11.3592"	E76°19'26.0688"
204	Sivadasan	Alappuzha M	Private	N9°28'43.0068"	E76°19'29.3988"
205	Abdul Kalam	Alappuzha M	Private	N9°27'59.2956"	E76°19'35.7672"
206	Anil Kumar	Maraikulam(S)	Private	9°33'10.692"N	76°18'24.1992" E
207	Antony	Maraikulam(S)	Private	9°33'12.6072"N	76°18'24.084"E
208	Sabu	Mararikylam North	Private	9°37'49.8252"	76°17'46.3524"
209	Suresh	Cherthala (S)	private	09°40'51.4776"	76°17'32.6760"
210	Suresh veliyil	Cherthala (S)	private	N 9º40’51.4776″	E 76º17’32.676″
211	Mary Tunila	Thuravoor	Private	9°46'6.3192"N	76°17'11.2848"E
212	Faisal, Siyad, nikarthil, chavady	Thuravoor	Private	9°46'15.4956"N	76°17'14.7084"E
213	Stalin Kunnel, pallithode	Thuravoor	Private	9°45'48.2004"N	76°16'56.1936"E
214	Sumesh E S, Illickal,	Thuravoor	Private	9°45'44.1684"N	76°17'18.6288"E
215	Madhu Vavaparambil	Thuravoor	Private	9°45'44.6256"N	76°17'19.8384"E
216	Joseph Puthenpurackal	Thuravoor	Private	9°45'19.1196"N	76°16'59.0736"E
217	Nazar	Thykatussery	Private	N 09°47'29.6304"	E 76°21'30.5388"
218	chandrangathan	Panavally	Private	N 09°48'42.7896"	E76°21'59.6772"
219	Bose	Panavally	Private	N 09°48'51.7176"	E76°21'50.9076"
220	Haneefa	Panavally	Private	N 09°48'05.0000"	E 76°21'46.0296"
221	Nasar	Panavally	Private	N 09°49'28.3944"	E76°21'8.0136"
222	Lekshmanan	Arookutty	Private	N 09°51'29.7180"	E 76°20'16.9080"
223	P. K Ibrahimkutty	Arookutty	Private	N 09°51'19.4760"	E 76°20'22.8804"
224	Sanoob	Arookutty	Private	N 09°51'55.4076"	E 76°20'07.0476"
225	Salim	Arookutty	Private	N 09°51'55.4076"	E 76°20'07.0476"
226	Nazar	Arookutty	Private	N 09°52'13.9980"	E 76°19'13.8576"
227	Khazeem	Arookutty	Private	N 09°52'13.9368"	E 76°19'14.0916"
228	Damodharan	Arookutty	Private	N 09°52'11.6364"	E 76°19'14.1528"
229	Abdul Gafoor	Arookutty	Private	N 09°52'29.9064"	E 76°17'46.5180"
230	Sreekumar K S	Aroor	Private	N 09°52'45.3000"	E 76°17'46.7000"
231	Devasikutty	Chellanam	private	09°48'49.0392"N	76°16' 31.7280"E
232	Alby	Chellanam	private	09°48'16.0488"N	76°16' 37.6248"E
233	Babu A K	Maruvakkadu	Private	09º49' 421176"N	76º16' 20.7948" E
234	Josy	Kandakadavu	Private	09º51'12.0384"N	76º15' 58.4676"E
235	Salim	Kandakadavu	Private	09º51'07.4016"N	76º15' 59.7708"E
236	Unni & Co	Kadamakkudy	Private	10º03' 32.7614"N	76º14' 47.3460"E
237	Jayaprasad	Kadamakkudy	Private	10º03'32.2820"N	76º14' 44.7828"E
238	Marine Exports PVT.LTD.	Narakkal	Private	10°02'48.6124"N	76°13'53.9238"E

239	Bose peeling shed PVT	Kuzhupilly	Private	10°06'33.8001"N	76°12'43.1001"E
240	Shashedharan shed PVT	Kuzhupilly	Private	10°06'39.3084"N	76°12'41.4252"E
241	AMS peeling shed PVT	Kuzhupilly	Private	10°06'57.3588"N	76°12'28.5192"E
242	Biju A.S.	Pallipuram	Private	10°07'22.9012"N	76°11'37.2113"E
243	Ashraf	Pallipuram	Private	10°09'22.7241"N	76°11'37.9213"E
244	Ashraf	Pallipuram	Private	10°09,24.7325"N	76°11'36.2145"E
245	Vinayakan	Pallipuram	Private	10°08'22.8081"N	76°12'06.0912"E
246	Franco	Pallipuram	Private	10°08'12.6012"N	76°12'12.6421"E
247	Raiju P.A.	Pallipuram	Private	10°08'49.1452"N	76°11'55.9401"E
248	Nandakumar	Pallipuram	Private	10°09'50.8572"N	76°11'15.9864"E
249	Savi	Pallipuram	Private	10°10'25.0104"N	76°10'39.9036"E
250	KMF peeling shed 1	Azhikode	Private	10°11'26.4379"N	76°10'9.25086"E
251	KMF peeling shed 2	Azhikode	Private	10°11'18.9862"N	76°09'54.4887"E
252	Three Star Shed 1	Eriyad	Private	10°12'43.0438"N	76°09'17.2870"E
253	Three Star hed 2	Eriyad	Private	10°13'04.1322"N	76°09'08.0276"E
254	Three Star Shed 3	Eriyad	Private	10°13'24.4662"N	76°09'12.5478"E
255	Society	Chemenchery	Public	11°21'41.0231"N	75°44'39.8465"E
256	Society	Atholi	Private	11°24'10.3269"N	75°44'91.613"E
257	Ullurkadavu	Chengottukavu	Private	11°25'47.3113"N	75°44'17.9456"E
258	Thorayikadvu	Chengottukavu	Private	11°24'55.8845"N	75°44'87.6495"E

Annexure XI

Annexure- XI A						
Fisheries Post-harvest Infrastrucutres						
Sl. No.	**Name of firm/ owner**	**Type**	**Name of LSGI**	**Public/ Private**	**Latitude**	**Longitude**
1	V.George Joseph	Fish Processing Unit	Kulathoor	Private	08°17'46.0968"N	77°05'34.6632"E
2	KSCADC	Solar Fish Drying Unit	Poovar	Public	08°19'03.0612"N	77°03'57.1464"E
3	Sea boy fisheries	Fish Processing Unit	Kadinamkulam	Private	08°34'28.5780"N	76°50'17.2860E
4	Suku	Depuration unit	Kollam C	Private	08°54'32.4900"N	76°32'39.1524"E
5	Suku	Depuration unit	Kollam C	Private	08°54'31.3704"N	76°32'40.3764"E
6	Solomon Antony	Depuration unit	Kollam C	Private	08°54'28.5876"N	76°32'42.6408"E
7	Leela Krishnan	Depuration unit	Kollam C	Private	08°54'24.1596"N	76°32'45.5964"E
8	Matsyafed	Fish Processing Unit	Kollam C	Private	08°55'55.1712"N	76°32'28.3272"E
9	Jennifer	Fish processing unit	Kollam C	Private	08°55'51.5460"N	76°32'32.9496"E
10	Luke	Fish processing unit	Kollam C	Private	08°54'30.4956"N	76°32'41.4132"E
11	Philomin Antony	Fish processing unit	Kollam C	Private	08°55'57.2340"N	76°32'43.6200"E
12	Ravi	Fish processing unit	Kollam C	Private	08°54'23.0652"N	76°32'46.1364"E
13	Anil Kumar	Fish processing unit	Kollam C	Private	08°55'54.7536"N	76°32'46.4136"E
14	Vivek	Fish processing unit	Kollam C	Private	08°55'55.1316"N	76°32'47.8212"E
15	Britto	Fish processing unit	Kollam C	Private	08°54'14.7064"N	76°32'47.8608"E
16	Chooruvila Joseph	Fish processing unit	Kollam C	Private	08°55'50.5272"N	76°33'41.9796"E
17	Matsyafed	Chitosan plant	Neendakara	Public	08°56'13.1964"N	76°32'43.5012"E
18	Alphonse Joseph	Fish Processing Unit	Neendakara	Private	08°57'30.7656"N	76°31'59.2968"E
19	Jaber Muhammad	Fish Processing Unit	Neendakara	Private	08°57'28.5228"N	76°32'02.3892"E
20	Anil Kumar	Fish Processing Unit	Neendakara	Private	08°56'51.5760"N	76°32'36.4884"E
21	Samudra	Fish Processing Unit	Neendakara	Private	08°56'24.5760"N	76°32'48.9660"E

22	Charley Joseph	Fish Processing Unit	Neendakara	Private	08°56'21.0228"N	76°32'51.4680"E
23	Johnson thuruthel	Fish Pre processing	Punnapra(N)	Private	N9°27'16.3908"	E76°19'40.8036"
24	Berly thaiparambil	Fish Pre processing	Punnapra(N)	Private	N9°27'31.8024	E76°19'35.5548"
25	Mary Serge anjiliparamb	Fish Pre processing	Punnapra(N)	Private	N9°27'37.3032"	E76°19'35.0544"
26	NA	Fish Curing unit	Kuthiathode	Private	9°47'14.3000" N	76°16'42.5000"E
27	Robin	Fish Curing unit	Kuthiathode	Private	9°47'17.0000" N	76°16'41.2000"E
28	India sea foods	Fish Processing Unit	Kannamaly	Private	09º52'16.8708"N	76º15' 57.6360"E
29	India sea foods	Fish Processing Unit	Kannamaly	Private	09º52'17.1984"N	76º15' 57.4344"E
30	Safera	Fish Processing Unit	Kannamaly	Private	09º53' 10.6188"N	76º15' 39.5748"E
31	K &K	Fish Processing Unit	Kannamaly	Private	09º52' 57.0468"N	76º15' 43.2360"E
32	ABAD,CAPS Seafoods	Fish Processing Unit	Elamkunnapuzha	Private	09°58'35.8248"N	76°14'35.1672"E
33	Kunjumohammed	Fish Drying unit	Elamkunnapuzha	Private	09°58'47.5320"N	76°14'28.5828"E
34	Arun	Fish Drying unit	Elamkunnapuzha	Private	09°58'47.9136"N	76°14'28.1256"E
35	Jiby	Fish Drying unit	Kuzhupilly	Private	10°07'45.4001"N	76°12'23.8001"E
36	ABAD	Fish Processing Unit	Pallipuram	Private	10°10'54.2352"N	76°10'28.8696"E
37	KSCADC	Solar Fish Drying Unit	Chavakkad M	Public	10° 35',31.35533"N	75° 59'56.92607'"E
38	NA	Fish processing unit	Punnayur	Private	10°36'50.0967"N	75°59'21.9960"E

Annexure- XI B					
Ice Plant					
Sl. No.	**Name of firm/ owner**	**Name of LSGI**	**Public/ Private**	**Latitude**	**Longitude**
1	Godwin	Poovar	Private	08°19'11.0064"N	77°03'54.4860"E
2	Kulirma Ice Plant	Thiruvananthpuram C	Private	08°22'50.2716"N	76°59'25.7316"E
3	Meera Ice Plant	Thiruvananthpuram C	Private	08°22'52.9536"N	76°59'26.1636"E
4	Surya Ice Plant	Thiruvananthpuram C	Private	08°22'51.6180"N	76°59'26.2248"E
5	Maya Ice Plant	Thiruvananthpuram C	Private	08°22'52.0320"N	76°59'26.4012"E
6	Alif Ice Plant	Thiruvananthpuram C	Private	08°22'50.7648"N	76°59'26.6820"E
7	Marine Ice Plant	Thiruvananthpuram C	Private	08°22'51.9924"N	76°59'26.8476"E
8	Nazeem Ice Plant	Thiruvananthpuram C	Private	08°22'51.2436"N	76°59'26.9016"E
9	Dlm ice plant	Kadinamkulam	Private	08°36'0.061"N	76°48'50.9360"E
10	Bismi Ice Plant	Anchuthengu	Private	08°40'31.2780"N	76°45'13.7340"E
11	Aji Ice Plant	Anchuthengu	Private	08°40'15.2364"N	76°45'27.4968"E
12	Ice plant	Anchuthengu	Govt	08°40'08.7888"N	76°45'32.3208"E
13	Sulaiman Kassim Settu	Kollam C	Private	08°55'52.2588"N	76°32'28.6584"E
14	Raju Patropil	Kollam C	Private	08°55'20.6220"N	76°32'31.9160"E
15	Joy	Kollam C	Private	08°55'55.4700"N	76°32'32.5320"E
16	Antony Paul	Kollam C	Private	08°55'57.1116"N	76°32'35.9628"E
17	Alphonse	Kollam C	Private	08°55'54.5628"N	76°32'46.6728"E
18	Vivek	Kollam C	Private	08°55'57.9648"N	76°32'47.7888"E
19	Solomon Antony	Kollam C	Private	08°55'55.4052"N	76°32'49.1388"E
20	Joy	Kollam C	Private	08°55'56.6976"N	76°33'02.1672"E
21	Chandrababu	Kollam C	Private	08°55'53.5368"N	76°33'04.1076"E
22	Anandhan	Kollam C	Private	08°55'51.1320"N	76°33'06.3036"E
23	Anandhan	Kollam C	Private	08°55'50.0628"N	76°33'07.7400"E
24	Charly Joseph	Kollam C	Private	08°55'52.8312"N	76°33'10.2096"E
25	Raju	Kollam C	Private	08°55'49.8792"N	76°33'11.1528"E
26	Leelakrishnan	Kollam C	Private	08°55'50.2644"N	76°33'20.9880"E
27	Leelakrishnan	Kollam C	Private	08°55'50.4300"N	76°33'21.7548"E
28	Willarmi	Kollam C	Private	08°55'51.1428"N	76°33'28.2440"E
29	Pratheep Martin	Kollam C	Private	08°55'45.2280"N	76°33'41.9256"E
30	Lorences Kochuveedu	Kollam C	Private	08°55'45.2380"N	76°33'41.9266"E
31	Jeraves	Kollam C	Private	08°55'48.2052"N	76°33'42.6888"E
32	Lorences Kochuveedu	Kollam C	Private	08°55'46.2480"N	76°33'42.9356"E
33	Johnson	Kollam C	Private	08°54'54.0324"N	76°33'59.3424"E
34	Carmel	Kollam C	Private	08°53'02.3028"N	76°34'32.8080"E
35	Immerson	Kollam C	Private	08°53'01.9932"N	76°34'36.5412"E
36	Dr. Paul Laboy	Kollam C	Private	08°52'49.3284"N	76°35'00.8592"E
37	San Jose	Neendakara	Private	08°56'20.1912"N	76°32'33.2160"E

38	Nadeer	Neendakara	Private	08°56'44.5200"N	76°32'33.4140"E
39	Rajeev	Neendakara	Private	08°57'58.1760"N	76°31'50.0844"E
40	Biju	Neendakara	Private	08°57'38.5884"N	76°31'54.2640"E
41	Thulaseedharan Pillai	Neendakara	Private	08°57'23.2920"N	76°32'04.8408"E
42	Sea shore	Neendakara	Private	08°56'36.6972"N	76°32'13.7940"E
43	Jol Paul	Neendakara	Private	08°56'30.9948"N	76°32'19.8240"E
44	Kings	Neendakara	Private	08°56'25.1880"N	76°32'25.2240"E
45	Udayam	Neendakara	Private	08°56'24.9108"N	76°32'25.8648"E
46	Ushas	Neendakara	Private	08°56'24.4536"N	76°32'26.2212"E
47	Janardhanan	Alappad	Private	09°04'31.4940"N	76°20'38.1948"N
48	Baby Papa	Alappad	Private	09°08'04.1892"N	76°27'51.8220"N
49	Matsyafed	Alappad	Public	09°07'53.9580"N	76°27'58.4676"N
50	Babu	Alappad	Private	09°07'27.7752"N	76°28'08.6520"N
51	Udayan	Alappad	Private	09°07'42.3840"N	76°28'09.6240"N
52	Amrutha	Alappad	Private	09°07'48.7236"N	76°28'13.2420"N
53	Rajan	Alappad	Private	09°07'03.5148"N	76°28'31.8288"N
54	Thomas Daniel	Alappad	Private	09°07'18.5268"N	76°28'32.3688"N
55	Bindhu Hiralal	Alappad	Private	09°07'18.8040"N	76°28'32.6136"N
56	Ittikkathara	Alappad	Private	09°07'19.1784"N	76°28'32.8548"N
57	Gayatri	Alappad	Private	09°07'18.1920"N	76°28'33.0744"N
58	Raveendran	Alappad	Private	09°07'12.0216"N	76°28'34.2876"N
59	Vishnu	Alappad	Private	09°13'08.4560"N	76°28'52.8096"N
60	Geetha	Kulasekharapuram	Private	09°04'29.7264"N	76°30'02.1096"N
61	Three Star Ice Plant	Azhikode	Private	10°11'21.3480"N	76°10'23.6580"E
62	Anugraha Ice Plant	Azhikode	Private	10°11'22.6140"N	76°10'24.1680"E
63	Ameen Ice Plant	Azhikode	Private	10°11'25.1100"N	76°10'22.6860"E
64		Punnayur	private	10° 36'51.13508"N	75°59'27.13776"E
65	Eks Ice plant	Ponnani M	Private	10°46'86.6613"N	75°55'03.3833"E
66	Rifayath ice plant	Ponnani M	Private	10°46'88.3865"N	75°55'06.5758"E
67	Crown ice plant	Ponnani M	Private	10°46'87.4577"N	75°55'07.3402"E
68	Bismi ice plant	Ponnani M	Private	10°46'86.4874"N	75°55'07.8934"E
69	Ek ice plant	Ponnani M	Private	10°46'85.8807"N	75°55'07.9155"E
70	Mc Ice plant	Ponnani M	Private	10°46'86.1850"N	75°55'04.3469"E
71	Korapuzha ice factory	Chemenchery	Private	11°21'37.2521"N	75°44'49.7599"E

Annexure XII

Annexure- XII A					
Fishing Boat Yard					
Sl. No.	**Name of firm/ owner**	**Name of LSGI**	**Public/ Private**	**Latitude**	**Longitude**
1	Christ Boat Yard	Karimkulam	Private	08°19'28.6932"N	77°03'26.0424"E
2	Sri. Rechens	Thiruvananthpuram C	Private	08°22'48.0432"N	76°59'32.7084"E
3	SIFFS	Thiruvananthpuram C	Private	08° 40' 44" N	76° 53' 25" E
4	Pushpalayam Pathose	Kollam C	Private	08°55'11.7912"N	76°33'43.7472"E
5	Fathima Wilson	Kollam C	Private	08°55'11.4744"N	76°33'44.1972"E
6	Raju Patropil	Kollam C	Private	08°55'21.3780"N	76°33'46.2744"E
7	Thankachan Zacharius Fernandez	Kollam C	Private	08°55'09.8616"N	76°33'46.8936"E
8	Sahayaraj	Kollam C	Private	08°51'57.5712"N	76°36'10.7568"E
9	Godwin	Kollam C	Private	08°50'37.2264"N	76°37'32.8800"E
10	Charley Joseph	Kollam C	Private	08°55'56.9712"N	76°32'51.1116"E
11	Govt	Kollam C	Public	08°55'57.8208"N	76°32'57.4944"E
12	Leelakrishnan	Kollam C	Private	08°55'56.5428"N	76°33'00.3492"E
13	Chandrababu	Kollam C	Private	08°55'55.2288"N	76°33'04.5792"E
14	Charly Joseph	Kollam C	Private	08°55'50.9628"N	76°33'05.2380"E
15	Manikandan	Kollam C	Private	08°54'51.2112"N	76°33'05.6268"E
16	Soman	Kollam C	Private	08°55'50.0628"N	76°33'07.7400"E
17	Anandhan	Kollam C	Private	08°55'51.7908"N	76°33'08.0064"E
18	Leelakrishnan	Kollam C	Private	08°55'50.3940"N	76°33'19.1268"E
19	Nettos Babu	Kollam C	Private	08°55'53.2524"N	76°33'29.9160"E
20	Raju	Neendakara	Private	08°57'41.3496"N	76°32'16.4688"E

21	Alex	Neendakara	Private	08°56'36.0672"N	76°32'43.5624"E
22	SIFS	Neendakara	Private	08°56'17.4660"N	76°32'51.3060"E
23	Ajayakumar	Alappad	Private	09°07'16.2876"N	76°28'20.3412"N
24	Sankaran	Alappad	Private	09°07'09.4044"N	76°28'25.4460"N
25	Lali	Alappad	Private	09°06'56.4912"N	76°28'33.0492"N
26	Raveendran	Alappad	Private	09°07'20.4456"N	76°28'38.8380"N
27	Chikku	Alappad	Private	09°06'44.2980"N	76°28'39.7380"N
28	Balakrishnan	Alappad	Private	09°06'56.3940"N	76°28'41.3688"N
29	Podiyan Swami	Alappad	Private	09°06'45.8460"N	76°28'47.5572"N
30	Chandran	Alappad	Private	09°06'17.8416"N	76°28'52.4280"N
31	Sadanandan	Alappad	Private	09°04'53.1040"N	76°29'30.7788"N
32	Janardhanan	Alappad	Private	09°04'30.5112"N	76°29'38.2128"N
33	Viswa kumar	Kulasekharapuram	Private	09°05'12.2424"N	76°29'27.6108"N
34	Viswa kumar	Kulasekharapuram	Private	09°04'53.0292"N	76°29'38.1336"N
35	Rajan	Karunagappally M	Private	09°02'22.8948 N	76°30'34.6464"N
36	Saji	Karunagappally M	Private	08°56'17656"N	76°30'38.3688"N
37	Samudra Shipyard Private Ltd	Aroor	Private	N 09°53'20.8000"	E 76°17'47.1000"
38	Praga Marine Private Ltd-	Aroor	Private	N 09°53'19.0000"	E 76°17'51.5000"
39	John	Chellanam	Private	09°48'30.9672"N	76°16' 34.9284"E
40	Joy	Chellanam	Private	09°48'04.0212"N	76°16' 38.2548"E
41	Kunjappan	Chellanam	Private	09°48'09.7740"N	76°16' 38.2440"E
42	Krishnan komarath	Purathur	Private	10°47'46.2120"N	75°54'38.5269"E

Annexure- XII B						
Fishing Accessories Space						
Sl. No.	**Name of firm/ owner**	**Type**	**Name of LSGI**	**Public/ Private**	**Latitude**	**Longitude**
1	Fisheries dept.	Net mending space	Kulathoor	Public	08°18'11.9772"N	77°05'25.6416"E
2	Fisheries dept.	Net mending space	Kulathoor	Public	08°17'44.9804"N	77°06'07.6536"E
3	Fisheries dept.	Net mending space	Poovar	Public	08°18'56.7828"N	77°04'02.0244"E
4	Fisheries dept.	Net mending space	Karimkulam	Public	08°20'51.6048"N	77°01'58.1052"E
5	Fisheries dept.	Net mending space	Karimkulam	Public	08°19'40.7136"N	77°03'09.1332"E
6	Fisheries dept.	Net mending space	Karimkulam	Public	08°19'36.3072"N	77°03'13.9320"E
7	Fisheries dept.	Net mending space	Kottukal	Public	08°20'51.1512"N	77°01'42.0852"E
8	Chandrababu	Engine Workshop	Kollam C	Private	08°55'52.3848"N	76°33'03.8880"E
9	Matsyafed	Fuel Bunk	Kollam C	Public	08°52'57.5292"N	76°34'18.7320"E
10	Matsyafed	Fuel Bunk	Kollam C	Private	08°55'58.5552"N	76°32'42.6696"E
11	Matsyafed	Fuel Bunk	Neendakara	Public	08°56'10.6944"N	76°32'41.2872"E
12	Matsyafed	Engine Workshop	Neendakara	Public	08°56'13.2324"N	76°32'40.3656"E
13	Matsyafed	Fuel Bunk	Alappad	Public	09°07'51.6864"N	76°28'02.7444"N
14	Kasthoori	Fuel Bunk	Alappad	Private	09°07'48.8244"N	76°28'12.9576"N
15	Sarath Chandran	Fuel Bunk	Alappad	Private	09°07'30.8064"N	76°28'19.7904"N
16	Rejith	Fuel Bunk	Alappad	Private	09°07'08.1152"N	76°28'32.3544"N
17	Baiju	Fuel Bunk	Alappad	Private	09°06'59.0364"N	76°28'38.7192"N
18	Arun Nath	Fuel Bunk	Alappad	Private	09°04'47.6904"N	76°29'33.5040"N
19	Kazhimbram	Net mending space	Chappallipuram	Private	10°22'11.10486"N	76°06'08.8429"E
20	Kavilamma	Net mending space	Chappallipuram	Private	10°23'46.2634"N	76°05'32.9189"E
21	Vedavyasan	Equipment storage	Nattika	Private	10°23'48.83161"N	76°04'59.5694"E
22	Ambadi	Equipment storage	Nattika	Private	10°24'48.0271"N	76°05'06.2532"E
23	Kavadi	Equipment storage	Nattika	Private	10°23'59.0307"N	76°05'28.3097"E
24	Airoor IR8	Net mending space	Kaipamangalam	Private	10°19'08.0052"N	76°07'16.0056"E
25		Equipment storage	Chavakkad M	Private	10°34"9.7674"N	76°00'34.2955"E.
26		Net mending space	Punnayur	Private	10°36'50.7130"N	75°59'22.6248"E
27		Equipment storage	Punnayur	Private	10°36'49.6831"N	75°59'20.2057"E

Annexure XIII

Annexure XIII A-Potential areas for seaweed farming in Kerala		
Name of theLocation	**GPS Coordinates (D.M.S)**	**Total available area (in ha) (approx)**
Thiruvananthapuram District		
Vizhinjam	8”23’1. 24”N. 76”57’36.67”E	10
Total available area for Thiruvananthapuram District		10
Kollam District		
Thirumallavaram	8”54’42”N, 76”38’21”E	20
Total available area for Kollam District		20
Kozhikode District		
Elathur	11”20’07.03”N, 75”44’35”E	1
Puthiyappa	11”19’18, 17”N, 75”44’24.65”E	7
Thikkodi	11”28’46, 1”N, 75”37’28.8”E	20
Total available area for Kozhikode District		28
Kasargod District		
Padanna	12”12’20.52”N, 75”07’22.22”E	5
Bekal	12”23’43.8”N, 75”02’78”E	17
Total available area for Kasargod District		22
Total area available in Kerala		**80**

Annexure XIII B -Sites for the cage culture activity

Name of District	Place identified	Location	Remarks on-site feasibility based on the desktop analysis
	Odayam	8°742011 N 76°690766 E	The suitable depth and 1.65 km from shore (beach landing facility). **(Feasible)**
Kollam	West of Thirumullavaram and South of Neendakara	8°894211 N 76°53069 E	The suitable depth and 1.5 km from shore (Jetty facility is available).**(Feasible)**
Kannur	Puthiyangadi	12°00034 N 75°24409 E	Suitable depth and distance is 1.44 km from the shore. **(Feasible)**
	Ayikkara Fort	12°84865 N 75°37167 E	Suitable depth and distance is about 1.4 km from the jetty **(Feasible)**
	Edakkad	11°80229 N 75°42436 E	A suitable site is available north to this site. **(Feasible)**
Kozhikode	Koilland	11°422634N 75°684973E	Suitable 1.3 km from jetty **(Feasible)**

Annexure XIV

Annexure - XIV A

LIST OF AQUACULTURE PONDS

Thiruvananthapuram district

Sl. No.	Name of LSGI	Name of farmer	Sy No	Extent of area in ha	Public/ Private	Latitude	Longitude
1	Azhoor	Arshad	38/13,38/14	0.20	Private	08°37'31.4292"N	76°48'09.6264"E
2	Azhoor	Nasarulla	3063/126,30 63/12	0.50	Private	08°38'04.1352"N	76°47'48.5772"E
3	Azhoor	Ansar	5/32,5/33	0.40	Private	08°38'05.0208"N	76°47'48.1704"E
4	Azhoor	Pradeep	5/30,5/31	0.40	Private	08°38'05.5680"N	76°47'49.5096"E
5	Azhoor	Padmini	3063/2	0.20	Private	08°38'14.6184"N	76°48'06.7608"E
6	Azhoor	Shaji	148/4	0.20	Private	08°38'11.1264"N	76°48'09.4176"E
7	Azhoor	Prajil	3063/101/1	0.20	Private	08°38'06.1008"N	76°48'03.4074"E
8	Azhoor	Pranav	113/3	0.32	Private	08°38'11.9976"N	76°47'05.1728"E
9	Azhoor	Aneesh	May-29	0.20	Private	08°38'12.0156"N	76°47'51.2520"E
10	Azhoor	Sidhardhan	148/11	0.20	Private	08°38'14.6814"N	76°48'06.7608"E
11	Azhoor	Rahul	113/3	0.60	Private	08°38'04.9848"N	76°48'01.1556"E
12	Azhoor	Bindhu	860/4	0.60	Private	08°38'00.9132"N	76°48'00.3456"E
13	Azhoor	Sunitha	861/21	0.60	Private	08°38'00.2688"N	76°47'58.1748"E
14	Kadinamkulam	Bhaskaran	56/13, 56/14	0.40	Private	08°37'16.7952"N	76°48'23.2704"E
15	Kadinamkulam	Nasima	56/16	0.40	Private	08°37'15.2724"N	76°48'23.6808"E
16	Kadinamkulam	Rajendran	252/3, 253/4	0.24	Private	08°37'18.4968"N	76°48'16.2048"E
17	Kadinamkulam	Shibu		0.20	Private	08°36'50.1264"N	76°50'20.8356"E
18	Mangalapuram	Sundareshan	81/7-1	0.06	Private	08°36'52.5888"N	76°50'22.1352"E
19	Mangalapuram	Vinodh	84/16, 83/20, 73/51	0.40	Private	08°37'37.9272"N	76°49'31.3608"E
20	Mangalapuram	Aneez	423/11-1	0.20	Private	08°36'19.9944"N	76°50'07.1736"E
21	Mangalapuram	Saifudheen	424/2	0.20	Private	08°36'14.8536"N	76°50'08.3760"E
22	Mangalapuram	Saifudheen	424/3	0.20	Private	08°36'18.2340"N	76°50'11.6664"E
23	Vettoor	Shoukath Ali	2943/134	0.40	Private	08°42'20.0916"N	76.44'48.7428"E
24	Vettoor	Aarifa	442/8-1	0.40	Private	08°42'52.7040"N	76°44'42.0070"E
25	Vettoor	Suresh Babu	494/6	0.40	Private	08°42'20.7180"N	76°44'48.2860"E
26	Cherunniyoor	Shami	597/54	0.80	Private	08°42'58.5828"N	76°45'51.9120"E
27	Cherunniyoor	Raghu		2.00	Private	08°72'03.0020"N	76°76'63.4480"E
28	Cherunniyoor	Arun		0.40	Private	08°42'56.7210"N	76°45'45.1080"E
29	Manamboor	Noushad	415/14	0.20	Private	08°70'82.9276"N	76°76'66.5800"E
30	Manamboor	Nisar A.	426/02	0.00	Private	08°70'18.6770"N	76°76'77.6100"E
31	Manamboor	salim	441/61	0.44	Private	08°70'15.7970"N	76°76'63.1700"E
32	Manamboor	Haris	404/3	0.26	Private	08°70'11.5976"N	76°76'62.8100"E
33	Manamboor	Noushad	441/612	0.34	Private	08°70'22.4676"N	76°76'62.4000"E

34	Manamboor	Sakkir Hussain	422/9	0.20	Private	08°70'51.8676"N	76°76'63.4700"E
35	Manamboor	Anarkali	441/32	0.20	Private	08°71'04.4676"N	76°76'70.7700"E
36	Elakamon	Suhair	137	0.34	Private	08°77'84.8560"N	76°71'40.9270"E
37	Vakkom	Shenoy	123, 123/3	0.40	Private	08°41'00.9132"N	76°45'17.8524"E
38	Vakkom	Shanavas	122	0.40	Private	08°41'01.2444"N	76°45'17.8860"E
39	Vakkom	Mubarak	366/1, 441/67	0.60	Private	08°42'06.0876"N	76°46'34.8348"E
40	Vakkom	Beena	6/2/1,6/2	0.60	Private	08°41'51.3384"N	76°45'06.4800"E
41	Vakkom	Basheer	12/73,74	0.40	Private	08°41'45.3300"N	76°44'57.4044"E
42	Vakkom	Unnais	441/64	0.12	Private	08°42'09.6300"N	76°46'30.1548"E
43	Vakkom	Baji	51/14-16, 51/15-5,51/2-15	0.20	Private	08°42'10.3464"N	76°44'22.5744"E
44	Vakkom	Shereef	2943	0.40	Private	08°41'38.8176"N	76°44'50.2008"E
45	Vakkom	Babu	2943/A-2	0.40	Private	08°41'38.6412"N	76°44'51.0648"E
46	Vakkom	Babu	2943/A-2	0.40	Private	08°41'38.6412"N	76°44'51.0648"E
47	Chirayinkeezhu	Byju Kottapuram	429/14	0.20	Private	08°39'16.4088"N	76°47'40.1316"E
48	Chirayinkeezhu	Fathima	895/4	0.20	Private	08°37'23.0016"N	76°47'55.9964"E
49	Chirayinkeezhu	Shafin	841/2-2	0.40	Private	08°38'03.4476"N	76°47'45.6324"E
50	Chirayinkeezhu	Thara Radhakrishnan	684/26	0.12	Private	08°39'15.8832"N	76°46'16.7088"E
51	Chirayinkeezhu	Musilayar college	559/22	0.40	Private	08°39'16.6320"N	76°46'15.3588"E
52	Chirayinkeezhu	Salim Shah	550/14	0.40	Private	08°38'45.3336"N	76°47'25.6812"E
53	Chirayinkeezhu	Nabeel	Apr-14	0.40	Private	08°38'06.2376"N	76°47'47.5944"E
54	Anchuthengu	Joy Periera	2943,44/1-8-2,2943/2/B-1	0.80	Private	08°40'53.2308"N	76°45'06.7248"E
55	Anchuthengu	Chitrangandan	44/A-1	0.20	Private	08°40'36.4728"N	76°45'41.0544"E
56	Anchuthengu	Bindhu Joy	2943/B3	0.20	Private	08°40'53.2308"N	76°45'06.7248"E
57	Anchuthengu	Shyam Sharma	422/1	0.60	Private	08°42'02.3472"N	76°44'41.9316"E
58	Anchuthengu	Beena	2944/1	0.60	Private	08°41'53.4336"N	76°44'35.3688"E
59	Anchuthengu	Sukumaran	2943/235	0.50	Private	08°42'13.6224"N	76°44'50.2548"E
60	Anchuthengu	Rajesh		0.60	Private	08°42'14.7996"N	76°44'50.0748"E
61	Anchuthengu	Vinod		0.50	Private	08°42'05.8572"N	76°44'43.8036"E
62	Anchuthengu	Zakker Hussain	2943/79	0.60	Private	08°42'02.4156"N	76°44'41.7372"E
63	Anchuthengu	Aloycious		0.40	Private	08°40'46.5312"N	76°45'25.4412"E
64	Anchuthengu	Sanju sathyan		0.20	Private	08°41'34.8828"N	76°44'38.8356"E
65	Anchuthengu	Nidhin		0.20	Private	08°41'34.7028"N	76°44'38.8608"E
66	Anchuthengu	KG Prabhasuthan	2943	0.13	Private	08°42'21.4488"N	76°45'02.8296"E
		Total		**24.87**			
Kollam district							

Sl. No.	Name of LSGI	Name of farmer	Sy No	Extent of area in ha	Public/ Private	Latitude	Longitude
1	Paravoor M	Sabu	63/4-8,38/1	0.54	Private	08˚50'04.6068" N	76˚40'37.4844"E
2	Paravoor M	Rajendrababu		0.48	Private	08˚50'04.6969" N	76˚40'37.5843"E
3	Poothakkulam	Naseemabeevi		0.10	Private	08˚50'04.7168" N	76˚40'37.3845"E
4	Chirakkara	Pramod	61/4	0.32	Private	08˚50'03.1920" N	76˚40'13.2708"E
5	Chirakkara	Sunitha	95/3	0.20	Private	08˚51'18.4068" N	76˚40'10.2036"E
6	Chirakkara	Prakash		0.56	Private	08˚50'31.0056" N	76˚40'42.3696"E
7	Chirakkara	Aswin		1.00	Private	08˚50'28.8528" N	76˚40'45.4080"E
8	Chirakkara	Shiju		2.00	Private	08˚50'37.1440" N	76˚40'23.8988"E
9	Chirakkara	Adrak Ventures		1.00	Private	08˚50'37.3272" N	76˚40'23.9340"E
10	Chirakkara	Prasannan		5.20	Private	08˚50'37.1400" N	76˚40'23.8908"E
11	Chirakkara	Arunima		3.00	Private	08˚50'42.8856" N	76˚41'03.4440"E
12	Chirakkara	Saji		2.00	Private	08˚50'42.5940" N	76˚41'05.1828"E
13	Chirakkara	Geetha		2.00	Private	08˚50'42.5328" N	76˚41'06.4464"E
14	Chirakkara	Sajitha		3.00	Private	08˚50'42.6912" N	76˚41'06.9180"E
15	Adichanalloor	Shameem A S	430/2	1.08	Private	08˚51'18.4068" N	76˚40'10.2036"E
16	Adichanalloor	Seenath	374/1,374/5, 374/10,374/4-2,374/8-2,374/9-2	0.78	Private	08˚51'19.1700"N	76˚40'23.9268"E
17	Adichanalloor	Sabeela Beevi	373/4,380/6, 380/7	2.00	Private	08˚51'31.8960"N	76˚39'55.6308"E
18	Adichanalloor	Ishaam A	378/1,10,12-2,13,14,15,16,17 507/12, 398/1-3,390/2, 376/1,	1.64	Private	08˚ 51'19.1704"N	76˚40'23.9288"E
19	Adichanalloor	Shanavas	383/3-2,383/3-3	0.40	Private	08˚ 51'31.8884"N	76˚39'55.5663"E
20	Adichanalloor	Badarudeen	427/10,427/2,382/1,382/3-4,384,385/2	1.04	Private	08˚ 51'31.8980"N	76˚39'55.5876"E
21	Adichanalloor	Rahanabeevi		1.40	Private	08˚ 51'34.4296"N	76˚39'55.8786"E
22	Adichanalloor	Abdul kalam Azad		2.40	Private	08˚ 51'31.8384"N	76˚39'55.5660"E
23	Adichanalloor	Krishnanunni	375/7,368/2, 375/6,368/1	2.00	Private	08˚ 51'34.0692"N	76˚39'2.3220"E
24	Adichanalloor	Madhu		1.00	Private	08˚50'54.5820"N	76˚39'55.8972"E
25	Adichanalloor	Beena Raju	359/5,359/3,	1.20	Private	08˚50'50.4096"N	76˚40'34.9248"E
26	Adichanalloor	Fazaludeen S	300/3,356/8, 356/9,355/1, 304/1	2.00	Private	08˚52'05.8188"N	76˚40'01.2180"E
27	Adichanalloor	Sajeena fazal	306/2,300/5, 303/5,300/2, 300/3	2.00	Private	08˚52'05.8764"N	76˚40'01.2828"E
28	Adichanalloor	Nahas	303/3,300/4/2,303/1,303/2	2.00	Private	08˚52'05.8964"N	76˚40'01.2612"E
29	Adichanalloor	Thahira	404/6	0.28	Private	08˚51'34.4772"N	76˚39'55.9404"E
30	Adichanalloor	Radhakrishnan	405/11/2,416/10,405/9	0.30	Private	08˚51'34.4196"N	76˚39'55.8756"E
31	Adichanalloor	Muhd.Shafi		1.20	Private	08˚51'34.6644"N	76˚39'55.9424"E

32	Adichanalloor	Shahaludeen	402/1-2	0.80	Private	08˚51'34.6068"N	76˚39'55.8972"E
33	Adichanalloor	Jubairiyabeevi	391/2-2,393/1-2	0.80	Private	08˚51'34.6088"N	76˚39'55.9188"E
34	Adichanalloor	Hussain Ibrahimkutty		0.80	Private	08˚51'34.6168"N	76˚39'55.9208"E
35	Adichanalloor	Nazeerath		0.40	Private	08˚ 51'31.9280"N	76˚39'55.5876"E
36	Adichanalloor	Ani		0.48	Private	08˚ 53'34.5473"N	76˚43'28.2560"E
37	Adichanalloor	Gireesh		2.00	Private	08˚ 51'34.1793"N	76˚39'2.3440"E
38	Adichanalloor	Mohan Raj		0.40	Private	08˚ 51'18.4098" N	76˚40'10.2046"E
39	Adichanalloor	Babuji		0.20	Private	08˚51'34.4256"N	76˚39'55.9784"E
40	Adichanalloor	Shemeer Subair		2.00	Private	08˚ 51'19.2714"N	76˚40'23.9348"E
41	Adichanalloor	Anzarudeen		0.88	Private	08˚50'47.6268"N	76˚40'8.7312"E
42	Adichanalloor	Latha Vincent		1.31	Private	08˚52'05.8588"N	76˚40'01.2250"E
43	Adichanalloor	Austin		1.60	Private	08˚50'48.7458"N	76˚40'10.0160"E
44	Adichanalloor	Edmond		1.20	Private	08˚50'55.7658"N	76˚40'25.8470"E
45	Adichanalloor	Shibu Rajan		1.20	Private	08˚51'03.9540"N	76˚40'37.4880"E
46	Adichanalloor	Unknown		2.00	Private	08˚51'21.7885"N	76˚41'28.9784"E
47	Chathannoor	Ramanujan		0.12	Private	08˚59'34.0692"N	76˚39'2.3220"E
48	Mayyanad	Tennyson F J	516/1,515/3, 515/7,515/19	5.00	Private	08˚51'02.5524"N	76˚39'54.1692"E
49	Mayyanad	Jishin v	514/2/3,514/3/2	1.00	Private	08˚51'02.5544"N	76˚39'54.2224"E
50	Mayyanad	Chithra		0.20	Private	08˚49'53.0796"N	76˚38'12.2460'E
51	Mayyanad	AnoopJ K		0.40	Private	08˚50'42.0783"N	76˚37'41.2472'E
52	Mayyanad	Salim		0.20	Private	08˚50'45.1385"N	76˚39'44.2698'E
53	Mayyanad	Abdul Rasheed		1.00	Private	08˚51'02.5684"N	76˚39'54.2134"E
54	Mayyanad	Susa		0.20	Private	08˚50'45.7548"N	76˚40'8.7420"E
55	Mayyanad	Powlin Varghese		0.20	Private	08˚50'56.5024"N	76˚40'01.2162"E
56	Kollam C	Manu Dominic		0.03	Private	08˚55'21.3816"N	76˚32'37.3020'E
57	Kollam C	Sebastian		0.24	Private	08˚56'04.2972"N	76˚33'10.2384'E
58	Kollam C	Binu		0.08	Private	08˚55'54.1056"N	76˚33'53.5428'E
59	Kollam C	Cleetus		0.20	Private	08˚55'12.6624"N	76˚33'1.1340'E
60	Kollam C	George		0.08	Private	08˚55'21.3384"N	76˚32'38.1768'E
61	Neendakara	Sreyas farm		0.40	Private	08°57'14.6460"N	76°32'52.2096"E
62	Neendakara	christeena		0.10	Private	08°56'43.9944"N	76°33'01.5264"E
63	Neendakara	Biju seba		0.01	Private	08°56'35.4264"N	76°32'48.8508"E
64	Chavara	Laijumon	449/10,373/4	0.12	Private	08°58'42.8592"N	76°33'31.8312"E
65	Panmana	Prem lal		1.20	Private	09°02'39.0372"N	76°33'05.5440"E
66	Panmana	Siju	469/1	0.04	Private	09°01'34.5288"N	76°32'18.3372"E
67	Panmana	Sheela	502/18	0.06	Private	09°01'27.5988"N	76°32'06.2844"E
68	Panmana	Rabiath	527/13	0.12	Private	09°01'03.2736"N	76°31'55.8552"E
69	Thekkumbhagom	Jayasree Reghu	8/4-1,2,3	0.20	Private	08º56'25.8864"N	76º30'37.7208"E
70	Thekkumbhagom	Vimal Antony	427/17	0.20	Private	08º56'52.8864"N	76º32'55.5288"E
71	Thekkumbhagom	Renjan		0.08	Private	08º57'14.5980"N	76º33'26.0280"E
72	Thekkumbhago	Justin		0.20	Private	08º57'28.4040"N	76º32'52.7784"E

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73	Thekkumbhagom	Antony Pathrose	416/1	0.59	Private	08º56'24.8064"N	76º33'19.1196"E
74	Thekkumbhagom	Rajasekharan		0.72	Private	08º56'42.8280"N	76º33'07.3692"E
75	KarunagappallyM	Krishnakumar		0.04	Private	09°03'33.3432"N	76°32'39.5244"E
76	KarunagappallyM	Mahesh		0.02	Private	09°03'12.0848"N	76°30'21.6648"E
77	KarunagappallyM	Sivarajan		0.14	Private	09°03'13.8528"N	76°30'22.8456"E
78	KarunagappallyM	Sudhakaran		0.02	Private	09°03'15.2560"N	76°30'24.4440"E
79	KarunagappallyM	Salimkumar		0.20	Private	09°03'15.6564"N	76°30'29.6172"E
80	KarunagappallyM	Rajendran		0.32	Private	09°02'54.4488"N	76°30'22.1604"E
81	KarunagappallyM	Soosan Kodi		0.10	Private	09°01'42.2112"N	76°30'04.4016"E
82	KarunagappallyM	Soosan Kodi		0.12	Private	09°01'41.4184"N	76°32'05.9400"E
83	KarunagappallyM	Soosan Kodi		0.08	Private	09°01'41.9640"N	76°32'05.2900"E
84	KarunagappallyM	Amarjith		0.20	Private	09°01'47.9496"N	76°31'50.9664"E
85	KarunagappallyM	Jacob		0.08	Private	09°01'45.4116"N	76°31'47.5104"E
86	KarunagappallyM	Bijily Varghese		0.40	Private	09°01'46.6752"N	76°31'08.7196"E
87	KarunagappallyM	Bijily Varghese		0.12	Private	09°01'57.3960"N	76°30'55.4508"E
88	KarunagappallyM	Bijily Varghese		0.08	Private	09°01'46.4388"N	76°31'07.6604"E
89	KarunagappallyM	Deepu Vijayan		0.06	Private	09°03'48.7260"N	76°30'07.8588"E
90	KarunagappallyM	Haris Musliyar		0.20	Private	09°21'15.5940"N	76°30'55.1844"E
91	KarunagappallyM	Haris Musliyar		0.08	Private	09°02'16.0548"N	76°30'55.1844"E
92	Thodiyoor	Ushakumari	222/7-2	0.06	Private	09°03'05.5152"N	76°32'58.4448"E
93	Thodiyoor	Ushakumari	222/8	0.08	Private	09°03'05.6916"N	76°32'58.3224"E
94	Thodiyoor	Devadas		0.06	Private	09°02'15.6372"N	76°33'09.4968"E
95	Thodiyoor	Prakash	206/3-2	0.01	Private	09°03'12.6324"N	76°32'54.6504"E
96	Kulasekharapuram	Mohanan		0.20	Private	09°05'21.7896"N	76°29'37.1904"E
97	Kulasekharapuram	Rohinikkutty		0.20	Private	09°05'29.4900"N	76°29'35.2068"E
98	Kulasekharapuram	Rajeev		0.20	Private	09°05'01.4568"N	76°29'40.3476"E
99	Kulasekharapuram	Rajeev		0.04	Private	09°05'05.3052"N	76°29'42.6588"E
100	Kulasekharapuram	Devadas		0.04	Private	09°04'59.6784"N	76°29'36.8268"E
101	Kulasekharapuram	Sindhu		0.08	Private	09°04'59.6460"N	76°29'36.9240"E
102	Kulasekharapuram	Arun		0.20	Private	09°04'59.2932"N	76°29'42.6588"E
103	Kulasekharapuram	Sudhakaran		0.06	Private	09°04'50.7720"N	76°29'48.3756"E
104	Kulasekharapuram	Vijayalakshmi		0.20	Private	09°04'54.9660"N	76°29'47.2848"E
105	Kulasekharapuram	Pradeepan		0.20	Private	09°04'41.1132"N	76°29'51.8028"E
106	Kulasekharapuram	Girija Sankar		0.40	Private	09°04'22.6812"N	76°29'49.7796"E
107	Kulasekharapura	Kala		0.08	Private	09°04'12.9468"N	76°30'06.8760"E

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108	Kulasekharapuram	Sajitha		0.04	Private	09°04'12.7272"N	76°30'07.4232"E
109	Kulasekharapuram	Lekshmanan		0.04	Private	09°04'12.2772"N	76°30'07.5924"E
110	Kulasekharapuram	Bibin Ashok		0.40	Private	09°04'05.6748"N	76°30'03.8520"E
111	Kulasekharapuram	Gopalakrishnan		0.16	Private	09°04'03.9864"N	76°30'03.4056"E
112	Kulasekharapuram	Jagan		0.20	Private	09°03'53.1108"N	76°30'54.6480"E
113	Kulasekharapuram	Sreelatha		0.20	Private	09°03'58.4748"N	76°30'10.2492"E
114	Kulasekharapuram	Jaya		0.40	Private	09°04'14.9916"N	76°29'59.4744"E
115	Kulasekharapuram	Jaya		0.12	Private	09°04'14.2428"N	76°29'59.1252"E
116	Kulasekharapuram	Jaya		0.20	Private	09°04'03.2860"N	76°30'00.1548"E
117	Kulasekharapuram	Lalaji		0.20	Private	09°04'34.2696"N	76°29'49.2396"E
118	Kulasekharapuram	Lalaji		0.12	Private	09°04'34.3488"N	76°29'50.2692"E
119	Kulasekharapuram	Parvathy		0.20	Private	09°04'46.0452"N	76°29'48.9912"E
120	Kulasekharapuram	Basheer Ahmmed		0.14	Private	09°05'33.4032"N	76°29'26.1744"E
121	Kulasekharapuram	Anitha		0.24	Private	09°04'59.6064"N	76°29'37.8672"E
122	Clappana	Vamadevan	31/12-2,31/13-2	0.20	Private	09°07'16.9392"N	76°28'59.4264"E
123	Clappana	Jayan		0.28	Private	09°07'28.5528"N	76°29'00.4920"E
124	Clappana	Beena		0.20	Private	09°07'25.3776"N	76°29'01.6800"E
125	Clappana	Krishna		0.16	Private	09°07'13.4436"N	76°28'46.6489"E
126	Clappana	Shibu		0.20	Private	09°07'21.8820"N	76°29'01.8600"E
127	Clappana	Ramanan		0.06	Private	09°07'05.8152"N	76°29'10.0680"E
128	Clappana	Kalesh	11/14-2,24/5-2	0.20	Private	09°07'12.6228"N	76°28'47.4672"E
129	Clappana	Ramesan		0.20	Private	09°07'11.1216"N	76°28'50.7612"E
130	Clappana	Harilal		0.20	Private	09°07'23.1384"N	76°28'54.8652"E
131	Clappana	Udayakumar		0.12	Private	09°07'26.3208"N	76°28'54.4692"E
132	Clappana	Chandrananandan		0.20	Private	09°07'25.2156"N	76°28'46.0848"E
133	Clappana	Bindu Mary		0.20	Private	09°07'31.3356"N	76°28'49.5336"E
134	Clappana	Jaya shaji		0.08	Private	09°07'08.2956"N	76°29'11.3712"E
135	Clappana	Wilson	169/8-2	0.20	Private	09°06'59.4396"N	76°28'58.5912"E
136	Clappana	Sujatha	427/05	0.12	Private	09°07'09.2424"N	76°28'46.9236"E
137	Clappana	Pradeep		0.08	Private	09°07'07.9104"N	76°28'49.4220"E
138	Clappana	Ravi	272/42	0.20	Private	09°07'07.0716"N	76°28'38.8380"E
139	Clappana	Pavithran		0.20	Private	09°07'04.6128"N	76°29'01.5432"E
140	Clappana	Mohandas		0.18	Private	09°07'25.4712"N	76°29'05.1108"E
141	Clappana	Paul	146/4,165/5-3,165/4	0.60	Private	09°07'05.4660"N	76°29'14.1396"E
142	Clappana	Prasannan		0.40	Private	09°07'07.2696"N	76°29'20.1768"E
143	Clappana	Shylaja		0.08	Private	09°07'30.2376"N	76°29'14.3088"E
144	Clappana	Anitha		0.04	Private	09°07'14.2464"N	76°29'15.6876"E
145	Clappana	Jeevanji	187/2-5	0.20	Private	09°06'50.3928"N	76°29'20.8320"E

146	Clappana	Chandran		0.20	Private	09°06'44.5212"N	76°29'16.6668"E
147	Clappana	Babu		0.40	Private	09°06'41.3352"N	76°29'05.5896"E
148	Clappana	Aravindaksh an		0.12	Private	09°06'40.0320"N	76°29'09.8844"E
149	Clappana	Hassan		0.12	Private	09°06'44.7408"N	76°28'57.4758"E
150	Clappana	Panchaman		0.80	Private	09°07'08.2956"N	76°29'11.3712"E
151	Clappana	Anilkumar		0.12	Private	09°07'11.6400"N	76°28'31.0332"E
152	Clappana	Anand Ashok		0.11	Private	09°06'34.5262"N	76°29'08.8215"E
153	Clappana	Barnabas		0.08	Private	09°06'06.2316"N	76°29'06.1512"E
154	Clappana	Indu		0.08	Private	09°06'20.2428"N	76°29'08.1132"E
155	Clappana	Sajitha		0.20	Private	09°06'13.1076"N	76°29'29.0832"E
156	Clappana	Santhamma		0.20	Private	09°06'13.1580"N	76°29'28.9788"E
157	Clappana	Rejilal		0.60	Private	09°06'12.3120"N	76°29'26.5740"E
158	Clappana	Ansar		0.06	Private	09°03'10.3860"N	76°30'22..4892"E
159	Clappana	Gangakunju		0.20	Private	09°06'24.2820"N	76°29'37..3920"E
160	Clappana	Gopalakrishn an		0.14	Private	09°07'13.5444"N	76°28'49.2492"E
161	Clappana	Suprakashan		0.20	Private	09°07'09.8904"N	76°28'47.8668"E
162	Alappad	Rajasekhara n		0.20	Private	09°04'09.3644"N	76°29'34.7892"E
163	Alappad	Sathyavathi		0.40	Private	09°04'38.8164"N	76°30'17.7228"E
164	Alappad	Baiju		0.06	Private	09°04'46.2108"N	76°29'29.2560"E
165	Alappad	Raveendran Achari		0.02	Private	09°07'36.8900"N	76°28'42.2472"E
166	Alappad	Dharmangad han		0.40	Private	09°07'23.9232"N	76°28'36.1236"E
167	Alappad	Temple pond		0.40	Public	09°04'41.2464"N	76°29'29.2560"E
168	Alappad	Dept. of Fisheries		1.12	Public	09°06'42.1920"N	76°28'42.2472"E
169	Alappad	Dept. of Fisheries		20.00	Public	09°07'34.2372"N	76°28'38.3124"E
170	Thevalakkara	Rajan	443/48	0.20	Private	09º00'32.2920"N	76º36'21.8484"E
171	Thevalakkara	Cletus	13/4,13/1	0.50	Private	09º00'35.7696"N	76º35'50.4060"E
172	Thevalakkara	Omanakutta n	458/4	0.20	Private	08º58'59.4192"N	76º34'27.4404"E
173	Thevalakkara	Koshy Tharakan	420/36	0.22	Private	09º02'05.4168"N	76º33'58.8348"E
174	Thevalakkara	Mersali	90/8,90/6	0.60	Private	09º00'06.7572"N	76º35'26.2932"E
175	West Kallada	Manikandan	489/3-6,5-28,3-7, 3-5,3-3	0.80	Private	09º00'09.6120"N	76º36'25.6644"E
176	West Kallada	Biju lal	489/8	0.40	Private	09º00'13.8348"N	76º36'27.0648"E
177	West Kallada	Chandra Baby	461/5	0.20	Private	09º00'28.2708"N	76º36'16.6068"E
178	West Kallada	Akhil	502/26,503/3	0.24	Private	09º00'06.5772"N	76º36'46.8828"E
179	West Kallada	sasidharan	500/10-2	0.16	Private	09º00'07.9488"N	76º36'41.2560"E
180	West Kallada	Prasanna	489/9-2,4	0.60	Private	09º00'13.7664"N	76º36'27.5436"E
181	West Kallada	Ragesh	502/25	0.16	Private	09º00'06.5016"N	76º36'46.6128"E
182	Mundrothuruth	Sreelal	437/4/28/4,47	0.36	Private	08˚59'26.6100"N	76˚37'25.5432"E
183	Mundrothuruth	Sajeev S		0.40	Private	08˚59'20.7276"N	76˚37'12.9432" E
184	Mundrothuruth	Thampilal		5.50	Private	08˚59'21.1740"N	76˚37'10.2216"E
185	Mundrothuruth	Ajith		0.48	Private	08˚59'28.8564"N	76˚37'17.2380"E

186	Mundrothuruth	Prakash		0.17	Private	08°59'38.0544"N	76°37'02.9208"E
187	Mundrothuruth	Pradeep	169/3,169/20,169/10	0.08	Private	08°59'38.0832"N	76°37'02.6796"E
188	Mundrothuruth	Santhosh Kumar		0.16	Private	08°59'59.3772"N	76°37'43.1220"E
189	Mundrothuruth	Gopalakrishnan	457/6,457/6,457/9,457/9	0.64	Private	08°59'59.3772"N	76°37'43.1220"E
190	Mundrothuruth	viswambharan G		0.08	Private	08°59'59.3772"N	76°37'05.9412"E
191	Mundrothuruth	Anilkumar		0.20	Private	08°59'53.6412"N	76°37'05.9412"E
192	Mundrothuruth	Balachandran	468/2,3,5,6	0.64	Private	08°59'59.3772"N	76°37'43.1220" E
193	Mundrothuruth	Sudarshana babu	453/5,453/13	0.04	Private	08°59'45.6072"N	76°37'05.1456"E
194	Mundrothuruth	Prabhavathi		0.20	Private	08°59'40.7184"N	76°37'43.1420"E
195	Mundrothuruth	Rajaneesh		0.16	Private	08°59'40.056"N	76°36'03.0960"E
196	Mundrothuruth	Shivaprasad	298/6/1,298/16,17,298/6/8	0.32	Private	08°59'36.2508"N	76°36'04.5108"E
197	Mundrothuruth	Abdul shukkur		0.50	Private	08°59'59.5248"N	76°36'46.7016"E
198	Mundrothuruth	Sugathan	287/3	0.15	Private	08°59'59.0676"N	76°35'46.4388"E
199	Mundrothuruth	Jayakumar		0.04	Private	08°59'47.0544"N	76°37'03.2520"E
200	Mundrothuruth	Sai		0.68	Private	08°59'58.0668"N	76°35'44.9268"E
201	Mundrothuruth	Edward		0.36	Private	08°59'59.3232'N'	76°35'44.1492"E
202	Mundrothuruth	Suresh	305/9,295/3	0.20	Private	08°59'57.156"N	76°35'43.2492"E
203	Mundrothuruth	Karunakaran		0.80	Private	08°59'59.3232"N	76°35'44.1492"E
204	Mundrothuruth	Satheeshan	469/12,475/3-1,469/12-2,475/3-2,469/7-2,469/12-3	0.24	Private	08°59'29.1372"N	76°37'28.1424"E
205	Mundrothuruth	Syamkumar		0.24	Private	08°59'35.5812"N	76°37'15.9240"E
206	Mundrothuruth	Jacob		1.49	Private	08°59'54.6072"N	76°35'24.5148"E
207	Mundrothuruth	Pradeepan		0.08	Private	08°59'32.0928"N	76°37'13.9872"E
208	Mundrothuruth	Karthik		1.00	Private	08°59'56.9616"N	76°35'28.4244"E
209	Mundrothuruth	Shobaraj		0.60	Private	08°59'57.3504"N	76°35'30.1560"E
210	Mundrothuruth	Liji	470/3,470/6	0.20	Private	08°59'33.1584"N	76°35'13.8828"E
211	Mundrothuruth	Baiju	73/20,73/20-2	0.20	Private	08°59'29.1372"N	76°37'28.1424"E
212	Mundrothuruth	Girly	77/8/21	0.60	Private	08°59'46.6404"N	76°35'42.6192"E
213	Mundrothuruth	Ajith		0.80	Private	08°59'44.8944"N	76°35'53.4288"E
214	Mundrothuruth	Rajagopal	99/1,76/6	0.60	Private	08°59'45.8880"N	76°35'52.0656"E
215	Mundrothuruth	Jaya	457/14,452/9,10,13,14,19	0.20	Private	08°59'46.5792"N	76°37'17.1120"E
216	Mundrothuruth	Babu Sebastian		1.00	Private	08°59'37.3596"N	76°35'47.9904"E
217	Mundrothuruth	Babu Sebastian		1.00	Private	08°59'37.4856"N	76°35'48.3612"E
218	Mundrothuruth	Sreelal	0295/7/2	0.52	Private	08°59'37.3596"N	76°37'10.6896"E
219	Mundrothuruth	Reghu	333/2	0.57	Private	08°59'34.2744"N	76°35'52.0848"E
220	Mundrothuruth	Sethu		0.40	Private	08°59'33.2160"N	76°37'07.5540"E
221	Mundrothuruth	Ananthan	306/7,8,9,305/13	0.76	Private	08°59'33.1728"N	76°37'07.5792"E
222	Mundrothuruth	Anilal	298/1	0.32	Private	08°59'33.0684"N	76°37'07.1112"E
223	Mundrothuruth	Prince		6.00	Private	08°59'31.4664"N	76°36'06.5232"E

224	Mundrothuruth	Shashankan	,305/6,15,3,11,12,18	0.58	Private	08˚59'36.924"N	76˚36'06.5232"E
225	Mundrothuruth	Radhakrishnan	299/15/3	0.72	Private	08˚59'29.5440"N	76˚37'03.4536"E
226	Mundrothuruth	Anil lal		0.20	Private	08˚59'26.6100"N	76˚37'25.5432"E
227	Mundrothuruth	Sasi kumar	461/7/2,476/11,476/12	0.32	Private	08˚59'40.3656"N	76˚37'08.3820"E
228	Mundrothuruth	Ajith		0.60	Private	08˚99'5.5740"N	76˚59'08.8170"E
229	Mundrothuruth	Chako		0.80	Private	08˚59'22.2900"N	76˚37'14.3256"E
230	Mundrothuruth	Prasad		0.64	Private	08˚59'29.1372"N	76˚37'28.1424"E
231	Mundrothuruth	Jose prakash		0.09	Private	08˚59'42.2556"	76˚37'07.9680"E
232	Mundrothuruth	Panchayath pond		0.20	Private	08˚59'25.3752"N	76˚37'58.0368"E
233	Mundrothuruth	Mahesh		0.04	Private	08˚59'24.6372"N	76˚37'08.2992"E
234	Mundrothuruth	susha		0.04	Private	08˚59'30.6384"N	76˚36'32.6268"E
235	Mundrothuruth	Francis		0.20	Private	08˚59'47.5656"N	76˚38'16.6704"E
236	Mundrothuruth	Sunil Babu	190/6,190/9,190/17,190/16,2,5	0.40	Private	08˚59'38.2524" N	76˚36'38.7504"E
237	Mundrothuruth	Rajendran Narayanan		0.04	Private	08˚59'39.4656" N	76˚36'38.7504'E
238	Mundrothuruth	Susheela		0.06	Private	08˚59'43.6488" N	76˚36'31.4856"E
239	Mundrothuruth	Sadhya c vidhyadharan		1.80	Private	08˚59'31.9416" N	76˚36'22.5144"E
240	Mundrothuruth	Baiju Nair		1.50	Private	09˚00'02.4408" N	76˚36'9.5076"E
241	Mundrothuruth	Varghese kutty		0.12	Private	08˚59'38.2524" N	76˚36'38.7504"E
242	Mundrothuruth	Vinukuttan		1.20	Private	09˚00'07.0308"N	76˚35'50.0136"E
243	Mundrothuruth	Murukesh		0.60	Private	09˚00'10.2564"N	76˚35'58.3476"E
244	Mundrothuruth	Aji vishwam		1.50	Private	09˚00'06.1524"N	76˚35'58.9524"E
245	Mundrothuruth	Jayakumar		0.03	Private	08˚59'38.2524"N	76˚36'38.7504"E
246	Mundrothuruth	Biju	106/23,73/20-2,20	0.16	Private	09˚ 00'11.0268"N	76˚35'56.7096"E
247	Mundrothuruth	Sudarshanan		1.20	Private	09˚00'06.6888"N	76˚36'05.0760"E
248	Mundrothuruth	Dhanya	163/1	0.60	Private	08˚59'38.2523" N	76˚36'38.7505"E
249	Mundrothuruth	Surendran		0.20	Private	09˚00'06.9876"N	76˚35'48.1524"E
250	Mundrothuruth	Sarasamma		0.10	Private	09˚00'10.4148"N	76˚36'06.9300"E
251	Mundrothuruth	Prasannakumar		2.92	Private	08˚59'23.9280" N	76˚36'39.3336"E
252	Mundrothuruth	Sathyanandan		0.36	Private	08˚59'38.2524" N	76˚36'38.7504"E
253	Mundrothuruth	Anil,Vijayavilasam		0.20	Private	09˚00'26.3880"N	76˚36'14.2416"E
254	Mundrothuruth	sunil		1.20	Private	09˚00'34.1604"N	76˚36'06.9876"E
255	Mundrothuruth	Dasappan		0.20	Private	09˚00'34.6140"N	76˚36'07.3224"E
256	Mundrothuruth	Vinod		0.40	Private	09˚00'34.1136"N	76˚36'06.8868"E
257	Mundrothuruth	Leela Antony		0.10	Private	09˚00'35.1684"N	76˚36'07.6500"E
258	Mundrothuruth	Johnson	376/47	0.40	Private	09˚00'35.5464"N	76˚36'08.1468"E
259	Mundrothuruth	Margret	442/48	0.28	Private	09˚00'36.7308"N	76˚36'08.2152"E
260	Mundrothuruth	Elizabeth		0.20	Private	09˚00'36.3492"N	76˚36'08.2908"E
261	Mundrothuruth	Gopilal		1.20	Private	08˚59'36.8340"N	76˚36'48.4992"E
262	Mundrothuruth	Shobhana		0.14	Private	08˚59'36.8340"N	76˚36'50.8428"E

263	Mundrothuruth	Sadasivan		0.80	Private	08˚59'24.9504"N	76˚36'45.5722"E
264	Mundrothuruth	Sulekha		0.40	Privite	08˚59'24.9504"N	76˚36'45.5722"E
265	Mundrothuruth	Sheela		0.20	Privite	09˚00'22.8600"N	76˚36'10.5912"E
266	Mundrothuruth	Vijayakumar		0.22	Privite	08˚59'23.7048"N	76˚36'52.5204"E
267	Mundrothuruth	San jose		1.00	Privite	08˚59'06.7416"N	76˚36'52.2900"E
268	Mundrothuruth	Sethu		1.00	Privite	08˚59'18.5712"N	76˚36'56.4408"E
269	Mundrothuruth	Balan		0.20	Privite	09˚00'18.3240"N	76˚36'08.6688"E
270	Mundrothuruth	Ullas		0.20	Privite	09˚00'17.8020"N	76˚36'08.1756"E
271	Mundrothuruth	Sukumaran		0.20	Privite	09˚00'16.6860"N	76˚36'09.7848"E
272	Mundrothuruth	Issac		0.75	Privite	08˚59'21.4584"N	76˚37'02.7552"E
273	Mundrothuruth	Beena gopinath		1.27	Privite	08˚59'14.5176"N	76˚36'55.0512"E
274	East Kallada	Renjini		0.20	Privite	08˚58'57.7128"N	76˚37'28.2216"E
275	East Kallada	Susheela		0.40	Privite	08˚58'57.7328"N	76˚37'28.4216"E
276	Panayam	Edison		0.04	Privite	08˚55'53.1048"N	76˚37'11.2836"
277	Panayam	Rosario		1.00	Privite	08˚55'59.9088"N	76˚37'11.2836"E
	Ponds partially infested with mangrove						
278	Mayyanad				Public	08˚50'48.6816"N	76˚37'34.3560"E
279	Mundrothuruth	Don Bosco		100.00	Private	08˚59'57.1344"N	76˚35'29.7960"E
280	Mundrothuruth	Dhanya		4.40	Private	08˚59'38.2523" N	76˚36'38.7505"E
281	Mundrothuruth	Surendran		0.40	Private	09˚00'11.0700"N	76˚35'56.3532"E
282	Mundrothuruth	San jose		10.00	Private	08˚59'01.8888"N	76˚36'54.9612"E
283	Mundrothuruth	Anitta		0.80	Private	08˚59'30.3684"N	76˚36'43.6176"E
284	East Kallada	Rajesh		0.20	Private	08˚58'57.7421"N	76˚37'28.5421"E
285	East Kallada	unknown		0.40	Private	08˚58'57.5431"N	76˚37'28.7621"E
		Total		**289.92**			
Alappuzha district							
Sl. No.	**Name of LSGI**	**Name of farmer**	**Sy No**	**Extent of area in ha**	**Public/ Private**	**Latitude**	**Longitude**
1	Devikulangara	Sasikumar	79/3,79/11,79/5,76/4.6	0.50	Private	09°08'26.7684" N	76°29' 28.2840" E
2	Devikulangara	Sadhasivan	63/2.63/1,168/9-6,3/5,168/9-5	0.60	Private	09°09'15.2352"N	76°28'51.3156"E
3	Devikulangara	Ajith	138/1.33	0.20	Private	09°08'22.8516"N	76°29'09..0852" E
4	Devikulangara	Jayakumar	61/11-14	1.00	Private	09°09'30.6072" N	76°28' 50.9556" E
5	Devikulangara	Lijin	B122/77/20A L-396	0.60	Private	09°08' 20.2092" N	76°29' 15.1836" E
6	Devikulangara	Roy	76/1-5	0.30	Private	09°08' 19.7988" N	76° 29' 15.2736" E
7	Devikulangara	Sreerangana dhan	765/2,3,4,5,6,7	0.20	Private	09°07' 59.304" N	76° 29' 9.2868" E
8	Devikulangara	Anilkumar	335/9,339/5, 334/4	0.20	Private	09°09' 24.8472" N	76º 30' 0.6444" E
9	Devikulangara	Chandradas	59/1/13	0.50	Private	09°09' 36.2988" N	76° 28' 51.3372" E
10	Devikulangara	Sujil	138/1-33	0.50	Private	09°08' 36.222" N	76°29'01.5792" E

11	Devikulangara	Vijayan	69/7,69/9-14	0.40	Private	09°08' 47.4936" N	76°29' 2.6412" E
12	Devikulangara	Chandrabos e	90/7-2-2	0.20	Private	09°07' 59.2032" N	76° 29' 9.4812" E
13	Devikulangara	Sreekumar	777/2-2	0.10	Private	09°07'39.8388" N	76°29'03.9444" E
14	Devikulangara	Vinod	97/12-2-2	0.20	Private	09°07' 39.8388" N	76° 29'03.9444" E
15	Devikulangara	Sargadharan	765/2,10,17, 18 765/3.4,765/ 4.2	0.20	Private	09°07' 59.304" N	76° 29' 9.2868" E
16	Devikulangara	Rahul	18/4,185/86, 18/13	0.36	Private	09º 8'43.0584" N	76º 28' 22.3428" E
17	Devikulangara	Chandraboss	133/10-13,53/8-13	0.20	Private	09º09' 55.4184" N	76º 29' 12.4368" E
18	Devikulangara	Tintu vidhya sagar	171/3 171/1	0.20	Private	09º 09'24.0480" N	76º 28' 53.5548" E
19	Devikulangara	Rahul	179/4	0.10	Private	09º09'13.1904" N	76º 28' 55.1388" E
20	Devikulangara	Vinod	97/12-2-2	0.20	Private	09°07' 39.8388" N	76° 29' 03.9444" E
21	Devikulangara	Rajesh	1-Nov	0.32	Private	09º10' 11.4996" N	76º 28' 36.2784" E
22	Devikulangara	Sargadharan	765/2,10,17, 18,765/3.4 765/4.2	0.20	Private	09°07'59.3040" N	76° 29' 09.2868" E
23	Devikulangara	Rahulan	764/13	0.40	Private	09º 08'00.4812" N	76º 29' 21.0336" E
24	Devikulangara	Bijuraj	55/1-1	0.20	Private	09º09'54.8244" N	76º 28' 47.9136" E
25	Devikulangara	Rekha Sugu	65/4-2,65/5,65/6-2,38/1-62	0.50	Private	09º09'08.5896" N	76º 28' 51.7548" E
26	Kandalloor	Swapna	840/4 840/7 18/11 18/2 18/3 18/7	0.60	Private	09º08'45.8880" N	76º 28' 22.5336" E
27	Kandalloor	Kanakamma	813/7, 814/3,4 , 385/15	0.20	Private	09º09' 2.3472" N	76º 28' 13.3068" E
28	Kandalloor	MDileepkum ar	840/1	0.47	Private	09º08'44.8584" N	76º 28' 20.3736" E
29	Kandalloor	Surendran	472/4	0.60	Private	09º10'21.1476" N	76º 27' 32.3712" E
30	Kandalloor	Viswambhar an	470/4.470/5	0.20	Private	09º10'20.9316" N	76º 27' 31.4100" E
31	Kandalloor	Hareesh	468/6-2	0.20	Private	09º10'21.6876" N	76º 27' 28.5444" E
32	Kandalloor	Sivankutty	470/6.172.70	0.20	Private	09º10'22.1664" N	76º 27' 31.4028" E
33	Kandalloor	Lal	471/1	0.20	Private	09º10'27.7212" N	76º 27' 34.5312" E
34	Kandalloor	Binu	776/7 776/10 776/11	0.80	Private	09º09'25.0740" N	76º 28' 33.4020" E
35	Kandalloor	Sudhakaran	186/6	0.20	Private	09º09'24.1596" N	76º 28' 23.9880" E
36	Kandalloor	Surendran	0725/5/2	0.20	Private	09º09'05.1192" N	76º 28' 35.1156" E
37	Kandalloor	ManjuNadh	253/15-2 253/16-3	0.20	Private	09º10'05.1780" N	76º 27' 37.2564" E
38	Kandalloor	Sreenivas	253/15-1 253/16-1	0.20	Private	09º10'05.0844" N	76º 27' 37.2024" E
39	Kandalloor	KJ Sarasan	471/7	0.20	Private	09º10'19.5780" N	76º 27' 30.7656" E
40	Kandalloor	Udhayan	827/2	0.20	Private	09º09'05.1120" N	76º 28' 35.2380" E
41	Kayamkulam M	Anandha Rajan	231/26.19	0.20	Private	09º10'12.1656" N	76º 28' 42.0924" E
42	Arattupuzha	Chithraranja n	198\14	0.20	Private	09º10'45.1092" N	76º 26' 55.3416" E
43	Arattupuzha	Anandan	420\10	0.30	Private	09º13'43.5576"N	76º 25º 39.4536" E
44	Arattupuzha	Jinarajan	530\1	0.20	Private	09º05'01.9080"N	76º 25' 28.8442" E
45	Arattupuzha	Licy Varghese	171\11	0.30	Private	09º15'01.0908" N	76º 25' 28.8552" E
46	Arattupuzha	Vaishak	606\1	0.20	Private	09º08'20.8060" N	76º 27' 54.0320" E

47	Arattupuzha	Prathapan	11\10	0.08	Private	09º13'38.6040" N	76º 25' 46.4324" E
48	Arattupuzha	Indira	144\15	0.08	Private	09º10'41.5063" N	76º 26' 56.0040" E
49	Arattupuzha	Savithr	715\3	0.08	Private	09º10'42.5102" N	76º 26' 55.9942" E
50	Arattupuzha	Sibi	295\18	0.06	Private	09º14'21.0912" N	76º 25' 09.0876" E
51	Arattupuzha	Purushan	141\7	0.08	Private	09º12'42.4976" N	76º 26' 51.9494" E
52	Arattupuzha	Nadarajan	107/6-8	0.08	Private	09º09' 56.4120" N	76º 27' 18.3888" E
53	Arattupuzha	Rajesh	296\18	0.08	Private	09º12'16.2088" N	76º 26' 15.9988" E
54	Arattupuzha	Raju	294\14	0.08	Private	09º14' 51.1308" N	76º 25' 22.8656" E
55	Arattupuzha	Sanalkumar	44541	0.08	Private	09º12' 48.0060" N	76º 23' 23.8164" E
56	Arattupuzha	Ramani	111/3	0.08	Private	09º14' 39.1016" N	76º 25' 17.1012" E
57	Arattupuzha	muthukrishnsn	33\14	0.20	Private	09º09' 56.4120" N	76º 27' 18.3888" E
58	Arattupuzha	Shyju	169\14	0.20	Private	09º14'43.7136" N	76º 26' 13.1864" E
59	Arattupuzha	Gopi	198\11	0.20	Private	09º10' 22.2996" N	76º 27' 09.1116" E
60	Arattupuzha	Jyomish	224/1	0.30	Private	09º14'38.7096"N	76º 25' 16.9932" E
61	Arattupuzha	Sajitha	298/1-6	0.20	Private	09º14'52.1394" N	76º 25' 22.8156" E
62	Arattupuzha	Prasennan	444\12	0.20	Private	09º09'55.4012" N	76º 27' 16.4021" E
63	Arattupuzha	Suma	148/8	0.10	Private	09º09'56.0808" N	76º 27' 21.7872" E
64	Arattupuzha	Shaji D	678/11	0.10	Private	09º13' 36.4870" N	76º 25' 44.4360" E
65	Arattupuzha	Sudhev	67/1-1	0.20	Private	09º13' 28.8760" N	76º 25' 42.1367" E
66	Arattupuzha	Syam	166/13-14	0.20	Private	09º10' 41.4656" N	76º 26' 56.8670" E
67	Arattupuzha	Omankuttan	132/4-6	0.20	Private	09º10' 40.4606" N	76º 26' 52.4546" E
68	Arattupuzha	Ammini	156/2	0.20	Private	09º 09' 52.4106" N	76º 27' 18.3547" E
69	Arattupuzha	Kasinadhan	32\44	0.20	Private	09º09' 55.8036" N	76º 27' 20.1060" E
70	Arattupuzha	Muraleedharan	67/14-15	0.08	Private	09º11'28.5880" N	76º 26' 45.5072' E
71	Arattupuzha	Harilal	101\12	0.08	Private	09º 0'41.5164" N	76º 26' 56.0904" E
72	Arattupuzha	Radhakrishnan	308/2	0.08	Private	09º13' 59.0268" N	76º 25' 13.5552" E
73	Arattupuzha	Vamanan	118/3	0.06	Private	09º13' 59.5776" N	76º 25' 14.2176" E
74	Arattupuzha	Subhrahmanya Babu	576/13	0.06	Private	09º09'16.4736" N	76º 27' 30.3516" E
75	Arattupuzha	Krishnaunni	180/3	0.06	Private	09º13'45.1164" N	76º 25'21.5364" E
76	Arattupuzha	Thankam	336/7	0.06	Private	09º13' 43.8528" N	76º 25' 22.6596" E
77	Arattupuzha	Rejula	214/4	0.04	Private	09º12' 55.2708" N	76º 26' 02.5296" E
78	Arattupuzha	Viswan	236/8	0.20	Private	09º09' 11.2680" N	76º 27' 27.0648" E
79	Arattupuzha	Rajeeb	316/6	0.06	Private	09º09' 08.7156" N	76º 27' 24.4872" E
80	Arattupuzha	Ajeesh	447/4	0.06	Private	09º09' 53.6328" N	76º 27' 19.5984" E
81	Arattupuzha	Mohanan	403/6	0.06	Private	09º09' 09.8208" N	76º 27' 35.4456" E
82	Arattupuzha	Thushara	506/13	0.06	Private	09º09'22.7376" N	76º 27' 39.0240" E
83	Arattupuzha	Seema	228/1	0.04	Private	09º09'21.5640" N	76º 27' 38.5524" E
84	Arattupuzha	Chandran	324/1-6	0.04	Private	09º09'16.4952" N	76º 27' 30.4776" E
85	Arattupuzha	Sumesh	309/5	0.05	Private	09º09'31.9320" N	76º 27' 31.7160" E
86	Arattupuzha	Unnikuttan	407/3	SSS	Private	09º13'45.2496" N	76º 25'21.8856" E
87	Arattupuzha	Sudha prasenan	314\1-6	0.08	Private	09º14'38.7096" N	76º 25' 16.9932" E
88	Thrikkunapuzha	Saheed	66\4	2.00	Private	09º14'33.7128" N	76º 25' 11.7948" E

89	Thrikkunapuzha	Santhosh	101\14	0.08	Private	09º15'01.0800" N	76º 25' 08.6952" E
90	Thrikkunapuzha	Kasinadhan	474\14	26.00	Private	09º14' 21.0912" N	76º 25' 09.8760" E
91	Thrikkunapuzha	Sarath chandran	636\15	0.40	Private	09º17'02.1660" N	76º 24' 21.1248" E
92	Thrikkunapuzha	Retnama	163/7	0.60	Private	09º15'01.0800" N	76º 25' 08.6952" E
93	Thrikkunapuzha	Mujeebrahman	396\45	0.30	Private	09º16' 31.9368" N	76º 24' 20.8764" E
94	Thrikkunapuzha	Princelal	35/1-22	2.00	Private	09º18' 18.3924" N	76º 23' 42.4536" E
95	Thrikkunapuzha	Prakasan	67/2	0.20	Private	09º14' 52.3068" N	76º 25' 04.6704" E
96	Thrikkunapuzha	Sujith	424/6	0.30	Private	09º15'01.3032" N	76º 25' 01.0848" E
97	Thrikkunapuzha	Remani	512/1-3	0.50	Private	09º14'54.2544" N	76º 25' 03.7452" E
98	Thrikkunapuzha	Nanmajan	112\78	0.40	Private	09º15'42.8868" N	76º 25' 02.1504" E
99	Thrikkunapuzha	Gowthaman	669\2B	0.40	Private	09º15'50.5404" N	76º 25' 04.4724" E
100	Thrikkunapuzha	Himesh	617/18	0.20	Private	09º15'01.9332" N	76º 25' 07.2552" E
101	Thrikkunapuzha	Shajfeek	611/7	0.12	Private	09º16'08.3712" N	76º 24; 19.0692" E
102	Thrikkunapuzha	Remesan	1414\45	0.80	Private	09º16'14.4228" N	76º 24' 35.2656" E
103	Thrikkunapuzha	Sanilkumar	696\11	0.05	Private	09º16'14.4228 N	76º 24' 35.2656" E
104	Muthukulam	Satheeshan	627/13-2, 627/13-3	0.28	Private	09º13'14.7324" N	76º 27' 40.5144" E
105	Mudhukulam	Gopi D	630/7, 630/19	0.28	Private	09º12'47.7648" N	76º 26' 43.0872" E
106	Mudhukulam	Raju	176/13, 176/14 , 176/15	0.80	Private	09º13'26.0909" N	76º 26' 33.7700" E
107	Mudhukulam	Ramabadran	4/11-, 4/6	0.20	Private	09º14'04.1820" N	76º 26' 36.1032" E
108	Mudhukulam	Kunjachan	159/33	0.20	Private	09º13'42.0312" N	76º 26' 35.3940" E
109	Mudhukulam	Ajith	167/2	0.08	Private	09º13'31.0584" N	76º 26' 43.0116" E
110	Mudhukulam	Shaiju	380/13-2	0.60	Private	09º13'13.0116" N	76º 26' 37.2192" E
111	Mudhukulam	Aneesh V	176/9, 176/7	0.28	Private	09º13'27.6850" N	76º 26' 31.7904" E
112	Mudhukulam	Sree Kumar P	380/6-8	0.40	Private	09º13'25.7952" N	76º 26' 26.7756" E
113	Mudhukulam	Vijay	158/18, 158/14	0.20	Private	09º13'46.8536" N	76º 26' 37.0788" E
114	Mudhukulam	Shaji D	624/13	0.20	Private	09º12' 35.9892" N	76º 26' 49.1201" E
115	Mudhukulam	Shivaprasad	632/2	0.28	Private	09º12'47.0504" N	76º 26' 39.3468" E
116	Mudhukulam	Praveen Prasannan	391/5-2	0.40	Private	09º12'56.0160" N	76º 26' 48.1380" E
117	Chingoli	Shameem	408/10,415/4	0.40	Private	09º14' 57.2640" N	76º 26' 38.7204" E
118	Chingoli	Surendran	6/10/-2	0.12	Private	09º15'24.7140" N	76º 26' 40.6248" E
119	Chingoli	Omana	6/10-	0.12	Private	09º15'25.5852" N	76º 26' 41.8776" E
120	Chingoli	Sajeev	408/6	0.28	Private	09º4'58.3404" N	76º 26' 34.3176" E
121	Chingoli	Koshy	259/12-10, 406/3	0.20	Private	09º4' 59.3088" N	76º 26' 32.0532" E
122	Chingoli	Badarudheen	413/5-4	0.20	Private	09º14'53.3760" N	76º 26' 40.1532" E
123	Chingoli	Hariprasad	423/4, 423/5	0.40	Private	09º14' 54.1421" N	76º 26' 13.9524"E
124	Chingoli	Ajil	437/111, 437/5	0.40	Private	09º14'37.8276" N	76º 26' 26.8800" E
125	Chingoli	Priyanka	464/6	0.08	Private	09º14'21.7140" N	76º 26' 36.5068" E
126	Chingoli	Vishwan	450/2, 444/10	0.28	Private	09º14'37.1976" N	76º 26' 32.9424" E
127	Chingoli	Pramod R	405/1, 405/2, 406/4	0.60	Private	09º15'03.1176" N	76º 26' 37.1688" E
128	Chingoli	Niyas	407/6	0.40	Private	09º15'03.0024" N	76º 26' 36.9420" E

129	Chingoli	Rajesh kumaR	429/4,429/6, 430/6	0.52	Private	09º14'17.3688" N	76º 26' 26.4440" E
130	Chingoli	Rajesh kumaR	348/2	0.25	Private	09º14'58.3404"N	76º 26' 34.3176" E
131	Chingoli	Prasad	44335	0.48	Private	09º15'04.4434" N	76º 26' 43.4832" E
132	Karthikapally	Latha venugopal	38/2-2-2, 34/1-2-5,38/2-2	1.26	Private	09º15'29.1348" N	76º 25' 17.8500" E
133	Karthikapally	S Sudharsanan	18/10-B, 18/10, 153/5	0.14	Private	09º15'52.4700" N	76º 25' 43.0104" E
134	Kumarapuram	M Sarala	75/25,82/3, 83/152	0.45	Private	09º17'19.4496" N	76º 24' 40.3488" E
135	Purakkad	Sudheendral al	394/4,40/4	1.00	Private	09°19'38.6292"N	76°23'09.5280"E
136	Purakkad	Miniroy	124/2-2	5.00	Private	09°19'24.0564"N	76°23'05.4420"E
137	Purakkad	Jagadhamm a	39/3-2	0.32	Private	09°19'38.6544"N	76°23'15.0324"E
138	Alappuzha (M)	Michael Antony	35/1	0.20	Private	09°29'51.9432"N	76°20'59.1252"E
139	Alappuzha (M)	Madhanan	37	0.20	Private	09°30'46.4652"N	76°21'30.3192"E
140	Alappuzha (M)	Pradeep	910/93	0.40	Private	09°30'49.6512"N	76°21'27.4572"E
141	Alappuzha (M)	Shibu	70/73	0.28	Private	09°29'34.0944"N	76°21'50.5584"E
142	Alappuzha (M)	Sudharma Rajendran	BL 67,66	1.00	Private	09°30'38.7432"N	76°21'19.0260"E
143	Alappuzha (M)	VJ Sakaria	411/1/76	0.80	Private	09°31'06.8592"N	76°21'25.0632E
144	Alappuzha (M)	vz jjohn	411/1-74,75,76,78	0.36	Private	09°31'06.8160"N	76°21'25.0776"E
145	Aryad	Thomas Antony	430/8,2,4	0.14	Private	09°32'06.7992"N	76°21'02.7288" E
146	Aryad	AtharUl-Imam	430/9-10	0.20	Private	09°32'06.8388"N	76°21'02.7216"E
147	Aryad	Ancy Mathew	424/1	0.10	Private	09°32'03.3972"N	76°21'04.0788"E
148	Aryad	Litttle Flower Church	424/5-1	0.24	Private	09°32'06.5436"N	76°21'09.7272"E
149	Aryad	K C Joseph	461/8,10,17, 3	0.80	Private	09°31'39.8280"N	76°21'09.3276"E
		Total		**75.07**			
Kottayam district							
Sl. No.	**Name of LSGI**	**Name of farmer**	**Sy No**	**Extent of area in ha**	**Public/ Private**	**Latitude**	**Longitude**
1	Thalayazham	St .Xaviers college		0.60	Private	9°41'55.8996"N	76°24'19.5768"E
2	Thalayazham	Robin Joseph		0.32	Private	9°42'01.6488"N	76°24'22.2084"E
3	Thalayazham	Anu joseph		0.48	Private	9°44'09.7381"N	76°25'76.4291"E
4	Thalayazham	Shubi		0.80	Private	9°41'54.1680"N	76°24'15.7536"E
5	Thalayazham	Anila vipin		0.20	Private	9°43'57.7325"N	76°24'37.4009"E
6	Thalayazham	Sangamam karshika farm		0.80	Private	9°42'09.9936"N	76°24'18.0072"E
7	Thalayazham	P C Chacko		1.44	Private	9°41'59.9460"N	76°24'15.3540"E
8	Thalayazham	Romy		1.60	Private	9°42'01.2132"N	76°24'14.9328"E
9	Vaikom (M)	Mary John	197/106	0.30	Private	9°44'07.5768"N	76°23'25.0404"E
10	Vaikom (M)	C K Purushan	124/1-20	0.02	Private	9°45'27.2412"N	76°23'13.9524"E

11	Vaikom (M)	T K Radhakrishnan	124/1-1	0.01	Private	9°45'27.5960"N	76°23'14.2908"E
12	Vaikom (M)	Viswakumar	124/1-26	0.02	Private	9°44'27.8388"N	76°23'25.0404"E
13	Vaikom (M)	Xavior Joseph	165/7,165/9, 165/8B	0.20	Private	9°44'07.5768"N	76°23'14.2907"E
14	Vaikom (M)	Lijin Johny	12/12A312/1 1A2	0.20	Private	9°44'26.2068"N	76°24'28.9512"E
15	Vaikom (M)	Arun Asokan	135/6-2,135/2-6	0.20	Private	9°45'58.0032"N	76°23'28.1256"E
16	Vaikom (M)	Christopher	46/5A,46/98	0.20	Private	9°45'10.0872"N	76°24'41.5872"E
17	Vaikom (M)	Sarathchandran	109/11,109/1 4	0.30	Private	9°45'46.2464"N	76°24'12.7546"E
18	Vaikom (M)	Rajan K		0.60	Private	9°44'27.0096"N	76°24'32.6664"E
19	Vaikom (M)	Devarajan		0.40	Private	9°44'27.0672"N	76°24'34.0380"E
20	Vaikom (M)	Kunjumon		0.20	Private	9°44'30.2676"N	76°24'28.9260"E
21	Vaikom (M)	Mohanan		0.35	Private	9°44'30.2460"N	76°24'28.9296"E
22	Chempu	Sajeev N K		0.48	Private	9°48'15.9012"N	76°24'21.8664E
23	Chempu	Asokan p V		0.20	Private	9°49'53.1084"N	76°23' 7.3392"E
24	Chempu	Luis Antony		2.00	Private	9°50'29.3244"N	76°22'55.2864"E
25	Chempu	Peethambaran T K		0.36	Private	9°49'50.4660"N	76°23'03.6744E
26	Chempu	Valsala Mohan		0.24	Private	9°49'47.4996"N	76°23'00.7260"E
27	Chempu	MithunRaj		0.27	Private	9°48'17.7984"N	76°25'06.7584"E
28	Chempu	Pradeep		2.00	Private	9°49'12.5256"N	76°23'14.2908"E
29	Chempu	P K Santhosh		0.40	Private	9°48'30.8016"N	76°24'25.9848"E
30	Chempu	Jinesh Shaji		0.20	Private	9°48' 31.2264"N	76°24'22.3884"E
31	Chempu	K Mohanan		0.20	Private	9°48 40.5576"N	76°24'33.2064"E
32	Chempu	Jinu Raj		0.40	Private	9°48'15.3972"N	76°24'30.0852"E
33	Chempu	Sugathan		0.20	Private	9°48'37.2672"N	76°25'03.0504"E
34	Chempu	Ravindran		0.20	Private	9°49'38.5608"N	76°24'42.9012"E
35	Chempu	Soubin		0.20	Private	9°48'40.5576"N	76°24' 33.2064"E
36	Chempu	Gopika T J		0.20	Private	9°80'53.6200"N	76°41'00.1090"E
37	Chempu	Saji K M		0.40	Private	9°49'11.9856"N	76°23'14.8524"E
38	Chempu	Sujith Narayan		0.20	Private	9°49'24.9276"N	76°23'05.3016 "E
39	Chempu	Santhakumari		0.40	Private	9°48' 7.5672"N	76°24' 35.9460"E
40	Chempu	Mahila		0.30	Private	9°48'34.0452"N	76°24' 24.2604"E
41	Chempu	Prasantha		0.40	Private	9°48'36.7812"N	76°24' 34.3404"E
42	Chempu	Raji K S		0.80	Private	9°48'34.9164"N	76°24'27.4608"E
43	Chempu	Prasad P D		0.60	Private	9°49'36.7176"N	76°24'42.4620"E
44	Chempu	Raju TK		0.20	Private	9°48' 36.7632"N	76°24' 50.5404"E
45	Chempu	Anil Kumar		0.20	Private	9°48'07.8084"N	76°24'37.4760"E
46	Chempu	Saji N P		0.20	Private	9°49'24.6504"N	76°23'04.1784"E
47	Chempu	Ajeesh M R		0.48	Private	9°50'30.9084"N	76°22'53.2164"E
48	Chempu	Syamala		0.20	Private	9°48'07.5672"N	76°24'35.9460"E
49	Chempu	Sujith Mohan		0.20	Private	9°48'43.5312"N	76°24'26.1540"E
50	Chempu	Salimkumar		0.60	Private	9°49'48.0072"N	76°23'41.2980"E

51	Chempu	Majeed		2.00	Private	9°49'20.9172" N	76°23'00.8376"E
52	Chempu	Ranchan		0.20	Private	9°48'59.2704"N	76°24'37.5192"E
53	Vechoor	Hamsa		0.20	Private	9°40'12.9792"N	76°25'35.6052"E
54	Vechoor	Jowhara		1.00	Private	9°41'46.0788"N	76°26'01.0644"E
55	Vechoor	St.Michels church		4.00	Private	9°40'02.4276"N	76°24'19.9476"E
56	Vechoor	Eby		2.80	Private	9°38'49.3908"N	76°25'35.6052"E
57	TV Puram	Kayaloram Malsyakrishi	18/8-2,18/16,18/10	0.20	Private	9°42'27.3348"N	76°23'02.6016"E
58	TV Puram	Devidasan	27/14	0.20	Private	9°42'34.9632"N	76°24'8.4744"E
59	TV Puram	MIini kuruvila	156/4	0.20	Private	9°43'52.6872"N	76°24'04.5648"E
60	TV Puram	Natarajan	18/6A4	0.20	Private	9°42'35.3844"N	76°23'08.4372"E
61	TV Puram	Deepa rajagopal	28/8A-3R	0.20	Private	9°42'44.2008"N	76°23'58.2756"E
62	TV Puram	Jaise george	100/13A-2R	0.20	Private	9°43'17.7312"N	76°24'40.8852"E
63	TV Puram	Ashwin Abraham	74/3-1,8R	0.20	Private	9°43'17.7276"N	76°24'40.8852"E
64	TV Puram	Rejeesh	11/21A	0.15	Private	9°42'26.0676"N	76°23'59.2152"E
65	TV Puram	Remesan	5/12A	0.40	Private	9°43'22.2096"N	76°24'43.5708"E
66	TV Puram	Soban Ponnuse	145/4A	0.35	Private	9°42'55.2708"N	76°24'18.2052"E
67	Maravanthuruth	Remesan		0.20	Private	9°47'32.8308"N	76°22'15.4452"E
68	Maravanthuruth	Soumya	98/71, 96/2A	0.20	Private	9°47'21.8184"N	76°22'09.7284"E
69	Maravanthuruth	Sreedharan	97/11 A	0.20	Private	9°47'17.8548"N	76°22'15.0312E
70	Maravanthuruth	Maneesh		1.00	Private	9°47'37.6476"N	76°22'42.1752"E
71	Maravanthuruth	Mathews		0.60	Private	9°47'30.0096"N	76°22'39.4932"E
72	Maravanthuruth	Vyas s Solenki	104/B	0.20	Private	9°47'46.4208"N	76°22'44.2128"E
73	Maravanthuruth	Prabudh	180/5	0.20	Private	9°47'32.0568"N	76°23'11.5872"E
74	Maravanthuruth	Rajamma	8/12-1-1	0.40	Private	9°48'15.3828"N	76°24'26.0496"E
75	Maravanthuruth	Salimol	6/2/	0.32	Private	9°48'16.0812"N	76°24'22.1040"E
76	Maravanthuruth	Sajit	127/14 A1	0.20	Private	9°47'54.5316"N	76°23'19.7124"E
77	Maravanthuruth	Shalbi		0.20	Private	9°48'15.5844"N	76° 24'25.3224"E
78	Maravanthuruth	Sumesh	48/10B	0.10	Private	9°47'40.2324"N	76°23'45.9636"E
79	Maravanthuruth	Sukesan	107/20 C	0.45	Private	9°47'43.7892"N	76°22'56.8128"E
80	Maravanthuruth	Sivadasan		0.40	Private	9°47'51.5868"N	76°23'31,6212E
81	Maravanthuruth	Akhil	11/2A2	0.20	Private	9°48'24.5988"N	76°24'11.6856"E
82	Maravanthuruth	Anil		0.53	Private	9°47'31.6680"N	76°22'44.4648"E
83	Maravanthuruth	Rajan	101/1 A	1.00	Private	9°47'36.6252"N	76°22'18.1992"E
84	Maravanthuruth	Shibu		0.80	Private	9°47'24.0504"N	76°25'00.4728E
85	Udayanapuaram	Anoop	1-Jan	0.40	Private	9°45'11.5380"N	76°23'31.0038"E
86	Udayanapuaram	Roy		0.40	Private	9°44'28.2444"N	76°24'31.5396"E
87	Udayanapuaram	Rijo MAthew	42/62,42/42	0.40	Private	9°46'18.7140"N	76°23'23.8992"E
88	Udayanapuaram	Magi George	122/7A	0.20	Private	9°46'50.6064"N	76°22'35.6556"E
89	Udayanapuaram	Mrithunjayan	143/1-2	0.40	Private	9°46'15.9168"N	76°23'31.5600"E
90	Udayanapuaram	Chandram	146/8-A1	0.80	Private	9°46'00.4512"N	76°22'53.7852"E
91	Udayanapuaram	Prasad	149/3	0.20	Private	9°46'00.4332"N	76°22'53.7780"E
92	Udayanapuaram	shaji	43/17-A3	0.28	Private	9°46'26.0508"N	76°23'26.376"E

93	Udayanapuaram	Rajesh	42/2	0.80	Private	9°47'16.9800"N	76°22'26.2776"E
94	Udayanapuaram	Remesan	114/1-B1	0.20	Private	9°47'05.9244"N	76°22'37.9272"E
95	Udayanapuaram	Baby	15/6-19-1	0.20	Private	9°47'16.7676"N	76°22'46.0704"E
96	Udayanapuaram	Suresh	127/1-9	0.40	Private	9°47'00.5748"N	76°22'36.562"E
97	Udayanapuaram	Claramma	7/6-B1,7/6-B2	0.20	Private	9°46'40.0332"N	76°32'48.9444"E
98	Udayanapuaram	Claramma Paily	32/1-1-1	0.20	Private	9°46'21.8676"N	76°22'43.4352"E
99	Udayanapuaram	Narendran	48/2	0.40	Private	9°47'16.7676"N	76°22'46.0704"E
100	Udayanapuaram	sheeja	149/3	0.20	Private	9°45'47.1816"N	76°23'45.1752"E
101	Udayanapuaram	Prajith		0.40	Private	9°46'10.9560"N	76°22'48.0936"E
102	Udayanapuaram	Shajahan		0.12	Private	9°46'10.9560"N	76°22'48.0936"E
103	Udayanapuaram	Antony		0.40	Private	9°46'21.0684"N	76°22'43.8204"E
104	Udayanapuaram	Rajan P K		0.12	Private	9°46'45.0804"N	76°22'33.8124"E
105	Udayanapuaram	Radhakrishnan	55/7-2	0.40	Private	9°46'31.8144"N	76°23'16.3248"E
106	Udayanapuaram	Sheeba	41/2-3	0.40	Private	9°46'58.3320"N	76°24'27.4356"E
107	Udayanapuaram	Raveendrakumar	129/7B	0.40	Private	9°46'20.2296"N	76°24'00.2272"E
108	Udayanapuaram	Rosily	150/3C	0.40	Private	9°46'58.3322"N	76°24'27.4356"E
109	Udayanapuaram	Balaji	103/3F-1-1	0.20	Private	9°46'50.6062"N	76°22'35.6556"E
110	Udayanapuaram	Prasad	149/3	0.20	Private	9°46'00.4332"N	76°22'53.7780"E
111	Udayanapuaram	Vargese		0.20	Private	9°46'32.9628"N	76°22'53.7780"E
112	Udayanapuaram	Bineesh		0.40	Private	9°46'29.5212"N	76°22'39.3996"E
113	Udayanapuaram	Thomas		1.92	Private	9°45'50.6952"N	76°23'10.3380"E
114	Udayanapuaram	Varghese Philipose		0.40	Private	9°46'18.4296"N	76°22'55.1352"E
115	Udayanapuaram	Sadasivan		0.12	Private	9°46'12.0972"N	76°22'46.0344"E
116	Udayanapuaram	Santhosh		0.25	Private	9°46'56.1432"N	76°24'21.1140"E
117	Udayanapuaram	Rakhavan		0.18	Private	9°46'03.8856"N	76°22'48.1836"E
118	Udayanapuaram	Arun kadavan		1.82	Private	9°47'72.1760"N	76°23'38.0262"E
119	Udayanapuaram	Mini Anilkumar		1.00	Private	9°46'00.0588"N	76°22'58.2708E
120	Udayanapuaram	Abhilash		0.80	Private	9°47'10.8888"N	76°22'35.5908E
121	Chempu	Keecheril		1.00	Private	9°49'15.9132"N	76°24'59.0616"E
		Total		**58.48**			
Ernakulam district							
Sl. No.	**Name of LSGI**	**Name of farmer**	**Sy No**	**Extent of area in ha**	**Public/ Private**	**Latitude**	**Longitude**
1	Maradu (M)	Kishore	463/24	0.60	Private	09°55'21.5328"N	76°19'46.7868"E
2	Kadamakudy	M A Antony	247	0.06	Private	10º02'45.8736"N	76º15'08.4204"E
3	Kadamakudy	Joseph Antony	247	0.15	Private	10º02'45.0888"N	76º15'08.6076"E
4	Kadamakudy	Josey Jacob		0.36	Private	10º01'56.1447"N	76º15'53.1442"E
5	Kadamakudy	Sebastian		0.40	Private	10º02'49.1220"N	76º16'32.0014"E
6	Kadamakudy	Sreeji Pooji		0.08	Private	10º03'42.1005"N	76º15'36.1884"E
7	Kadamakudy	V A Jacob		0.40	Private	10º03'55.1236"N	76º14'36.1122"E
8	Cheranalloor	Purushan		2.00	Private	10°01'40.5984"N	76°15'37.0330"E

9	Maradu (M)	Gopi Manakkathara	943	0.60	Private	09°55' 29.7408"N	76°19'38.0424" E
10	Maradu (M)	Raveendran	177/15	0.04	Private	09°55'58.9008"N	76°19' 05.9484"E
11	Maradu (M)	Babu		0.60	Private	09°55'36.1128"N	76°19' 24.2544"E
12	Maradu (M)	Aravindashan		0.40	Private	09°56'41.4096"N	76°19'54.1488"E
13	Maradu (M)	Shibu		0.60	Private	09°55'36.4260"N	76°19'54.1488"E
14	Maradu (M)	Pramod	1118/2	0.81	Private	09°55' 14.7720"N	76°19' 39.4176"E
15	Maradu (M)	Thankappan		0.40	Private	09°55'36.4260"N	76°19'45.0048"E
16	Maradu (M)	PremKumar	472/3	0.12	Private	09°55'13.1340"N	76°19'37.9164"E
17	Maradu (M)	Krishan	1120/2	0.75	Private	09°55'36.4260"N	76°19'45.0048"E
18	Maradu (M)	Sheela	480/2	0.60	Private	09°55' 07.6656"N	76°19'29.9208"E
19	Maradu (M)	Sumesh		1.62	Private	09°55'14.0016"N	76°19'36.0156"E
20	Maradu (M)	Vilasini		0.40	Private	09° 54'58.4172"N	76°19'47.6220"E
21	Maradu (M)	Usha Babu	480/6	0.40	Private	09° 55'32.1960"N	76°19'46.7976"E
22	Maradu (M)	Sumi Nixon	1195/1	0.40	Private	09° 56'25.2096"N	76°18'38.4984"E
23	Maradu (M)	Saiju.M.R	450/4,453/2, 458/9	2.83	Private	09° 55'34.9968"N	76°19'57.5832"E
24	Maradu (M)	Loosi Peter		0.40	Private	09° 55'34.9968"N	76°19'57.5832"E
25	Amballor	Raveendran NR		0.12	Private	09°50'31.7724"N	76°23'28.3920"E
26	Amballor	Jose KV		0.79	Private	09°50'28.3632"N	76°23'25.8540"E
27	Amballor	C Thomas		0.80	Private	09°50'23.8920"N	76°23'26.5272"E
28	Amballor	CC Chacko		0.80	Private	09°50'24.5472"N	76°23'29.5728"E
29	Amballor	Shylaja sasi		0.12	Private	09°50'22.6356"N	76°23'28.4568"E
30	Amballor	Pavithran KB		0.20	Private	09°50'17.3112"N	76°23'33.7596"E
31	Thripunithura	Murukesan OK		3.00	Private	09°55'36.4476"N	76°20'41.5248"E
32	Udayamperoor	Gorge Thomas		0.20	Private	09°51'57.3696"N	76°22'40.7748"E
33	Udayamperoor	Sasi		0.40	Private	09°54'40.0212"N	76°21'11.3472"E
34	Udayamperoor	Sini		0.20	Private	09°52'40.7640"N	76°22'30.8856"E
35	Kumbalam	Arun V Dinesh	210/2	0.20	Private	09°53' 46.7088"N	76°18' 55.4400"E
36	Kumbalanghi	Sreejith		1.00	Private	09°52'11.5464"N	76°17'02.0328"E
37	Mulavukad	Rajeev CD	228/14,15,16 ,17,19	2.00	Private	09°59'35.934"N	76°15'21.1212"E
38	Mulavukad	Savul Johny Hinu		3.20	Private	09°59'24.6984"N	76°15'16.7508"E
39	Mulavukad	Vallarpadadam Aqua World		4.80	Private	09°59'25.4508"N	76°15'16.8516"E
40	Mulavukad	Roy		0.40	Private	09°59'18.2724"N	76°15'20.5056"E
41	Mulavukad	Sasikumar	206	0.70	Private	09°59'29.9832"N	76°15'58.7076"E
42	Mulavukad	Kennan		0.40	Private	09°59'31.9416"N	76°14'57.8580"E
43	Mulavukad	Rajfeen Joseph		0.48	Private	09°59'31.8912"N	76°14'57.8256"E
44	Mulavukad	PR John	228	0.40	Private	09°59'31.8912"N	76°14'57.8257"E
45	Mulavukad	Kusumam		1.50	Private	10°00'39.7080"N	76°14'34.7244"E
46	Mulavukad	Sunilkumar MT	154/2	0.63	Private	10°00'31.9572"N	76°14'38.9400"E
47	Mulavukad	Thilakan	71	0.60	Private	10°00'25.9668"N	76°14'42.0864"E

48	Mulavukad	Binil	73	0.14	Private	10°00'27.1440"N	76°14'39.5232"E
49	Mulavukad	Gowri	63	0.68	Private	10°00'21.7332"N	76°14'37.5036"E
50	Mulavukad	Beena,Anitha	96/14,15,16	0.28	Private	10°00'21.7332"N	76°14'37.5036"E
51	Mulavukad	Raju	96/6	0.16	Private	10°00'17.7156"N	76°14'41.6976"E
52	Mulavukad	Sarojam	96/8	0.26	Private	10°00'17.7156"N	76°14'41.6976"E
53	Mulavukad	Pushpangathan	114	0.46	Private	09°59'51.0504"N	76°15'08.2224"E
54	Mulavukad	Alfred	115	0.45	Private	09°59'50.4312"N	76°15'04.1040"E
55	Mulavukad	Antony,Joy,Sunny,Davis	114	4.00	Private	09°59'49.3120"N	76°15'16.5708"E
56	Mulavukad	AyishaDevi	31/2,31/3	2.60	Private	09°59'55.5324"N	76°15'16.4448"E
57	Mulavukad	DR.Kalton	172	0.51	Private	09°59'44.3076"N	76°14'48.9084"E
58	Mulavukad	Kalyani	139	0.61	Private	09°59'44.1960"N	76°14'47.2920"E
59	Mulavukad	Alen,Paul,Lorense	142	1.20	Private	09°59'44.2788"N	76°14'47.2092"E
60	Mulavukad	Sudheesh	211	0.80	Private	09°59'26.6496"N	76°15'15.2928"E
61	Mulavukad	Lancy	205	0.80	Private	09°59'34.1124"N	76°14'57.3360"E
62	Mulavukad	Nalini	117	0.47	Private	09°59'50.4492"N	76°15'04.1436"E
63	Mulavukad	Prabin ps	126/18,126/20,126/21	0.40	Private	09°59'58.9884"N	76°14'51.6948"E
64	Mulavukad	Sudarsanan	728/3,215/4	0.20	Private	09°59'45.8052"N	76°14'56.9796"E
65	Cheranalloor	Boban		0.20	Private	10° 02'26.3480"N	76°17'00.1680"E
66	Cheranalloor	Mahesh	507/3	0.40	Private	10°03'03.9996"N	76°17'15.8784"E
67	Cheranalloor	Jithu George	170/5	0.40	Private	10°02'30.4812"N	76°17'07.4508"E
68	Cheranalloor	Jose Jesma	352/1	0.80	Private	10°13'06.3504"N	76°16'29.9748"E
69	Cheranalloor	Prajil		2.40	Private	10°13'06.3504"N	76°16'29.9748"E
70	Cheranalloor	Kunjumon		2.40	Private	10°38'00.1360"N	76°16'39.7920"E
71	Cheranalloor	Sreedharan	628/9	0.40	Private	10°01'38.7520"N	76°15'35.9410"E
72	Cheranalloor	KrishnaMenon		2.80	Private	10°13'09.2700"N	76°15'36.8600"E
73	Cheranalloor	Kumaran		0.40	Private	10°01'40.6956"N	76°15'37.1664"E
74	Cheranalloor	Joseph		1.61	Private	10°01'40.5516"N	76°15'37.0152"E
75	Cheranalloor	Jolly Varghese		2.00	Private	10°01'47.2221"N	76°15'44.7214"E
76	Cheranalloor	Jacob Daniel		0.20	Private	10°01'40.6200"N	76°15'46.9021"E
77	Cheranalloor	Joy Porthas		0.79	Private	10°01'41.7010"N	76°15'51.0231"E
78	Cheranalloor	Sanish		0.32	Private	10°01'47.3211"N	76°15'44.4210"E
79	Cheranalloor	Abilash		2.00	Private	10°01'41.4001"N	76°15'52.2001"E
80	Elamkunnapuzha	Aquatourism		4.00	Private	10°01'16.0968"N	76°12'59.7060"E
81	Kottuvally	Sebeena sebastian	329/1-A-6	0.20	Private	10°05'58.0848"N	76°14'36.7548"E
82	Kottuvally	Ramachandran		0.40	Private	10°06'02.6352"N	76°14'44.0448"E
83	Kottuvally	Sebastian K.X	283/1C55,B31,D6, 287/4B,287/5,4B,4A,	0.40	Private	10°05'58.3512"N	76°14'36.4416"E
84	Kottuvally	Radhan	246/10,12-2,3,4,5	0.30	Private	10°07'20.3628"N	76°13'46.5996"E
85	Kottuvally	Mini pradeep	329/119,1A,16,21, 279,329/1A-116	0.30	Private	10°06'49.1256"N	76°13'59.0772"E

86	Kottuvally	Sreekumar	32/1-2,50/112	0.30	Private	10°05'58.0848"N	76°14'36.7548"E
87	Chendhamangla m	Stephy Elias	23/6-6,10-2,6-4	1.00	Private	10°05'58.0848"N	76°14'36.7548"E
88	Vadakkekara	Hari pallath	118/12A,B	0.20	Private	10°10'23.5092"N	76°11'45.0132"E
89	Vadakkekara	Aneesh	191/6	0.20	Private	10°10'10.5776"N	76°11'53.9988"E
90	Chittatukara	Thankamani	156/113,14,10,2	0.36	Private	10°10'08.0043"N	76°12'00.4003"E
91	Chittatukara	Mani M.S	156/7,8,9	1.85	Private	10°10'08.0043"N	76°12'00.4003"E
92	Chittatukara	Shukkur	157/1	0.80	Private	10°08'55.0212"N	76°12'00.6516"E
93	Chittatukara	Vinod		2.00	Private	10°08'40.2828"N	76°12'14.4108"E
94	Chittatukara	Rejeesh	158/1	0.80	Private	10°08'40.2828"N	76°12'14.4108"E
95	Chittatukara	Ayyapan	151/1	0.80	Private	10°08'55.0212"N	76°12'00.6516"E
96	Karumaloor	Ullas	364/1-2	0.40	Private	10°07'15.0204"N	76°16'21.9936"E
97	Karumaloor	Subramanyan	362/1	0.60	Private	10°07'15.0204"N	76°16'21.9936"E
98	Karumaloor	Deepu	363/11-2	0.40	Private	10°07'15.0204"N	76°16'21.9936"E
99	Ezhikkara	Vadakkechalkettu samajam	62/1-4,62-1-4,3,1	10.00	Private	10°06'48.7224"N	76°13'04.0026"E
100	Ezhikkara	Balakrishnan	177/7	0.20	Private	10°07'15.3228"N	76°13'23.0052"E
101	Ezhikkara	Pradeep	55/4-3-1,1-1,2-1	0.30	Private	10°06'44.4672"N	76°13'50.9772"E
102	Ezhikkara	James chacco	95/1	2.00	Private	10°06'48.7224"N	76°13'04.0026"E
103	Ezhikkara	Shibu	102/B1,6B1, 19B1,105/7D 3,6C,7C	0.80	Private	10°06'43.0004"N	76°13'07.0029"E
104	Varapuzha	Denny	403/1-2	0.64	Private	10°05'04.8948"N	76°15'25.8012"E
105	Ezhikkara	Shibu	102/B1,6B1, 19B1,105/7D 3,6C,7C	0.80	Private	10°06'43.0004"N	76°13'07.0029"E
		Total		**99.15**			
Thrissur district							
Sl. No.	**Name of LSGI**	**Name of farmer**	**Sy No**	**Extent of area in ha**	**Public/ Private**	**Latitude**	**Longitude**
1	Punnayurkulam	Sulaiman	152|10A,11A	0.56	Private	10° 37'35.6016"N	75°50'45.4308"E
2	SN Puram	Prasanh		0.40	Private	10°24'54.3200"N	76°19'94.3300"E
3	SN Puram	Rajan		0.26	Private	10°24'61.9800"N	76°19'66.3200"E
4	Engandiyur	Ayoob		1.00	Private	10°31'45.2820" N	76°03'44.1360" E
5	Pavaratty			5.00	Private	10° 32'42.6048"N	76°03'56.8296"E
6	Kadappuram			2.95	Private	10° 32'5.766"N	76°02'01.284"E
7	Kadappuram			0.40	Private	10° 32'14.5104"N	76°02'43.2924"E
8	Kadappuram			0.75	Private	10° 33'23.922"N	76°01'44.5728"E
9	Kadappuram			1.20	Private	10° 33'54.3744"N	76°1'43.7376"E
10	Kadappuram			0.30	Private	10° 33'54.3600"N	76°01'43.6944"E
11	Kadappuram			0.20	Private	10° 33'28.7892"N	76°01'44.0328"E
12	Chavakkad M			3.00	Private	10° 35'8.8440"N	76°01'3.6527"E
13	Punnayur			0.48	Private	10° 39'40.0176"N	75°58"52.194"E

14	Punnayur			0.32	Private	10° 37'35.6016"N	75°589'45.4308"E
15	Punnayur			0.16	Private	10° 39'5.3208"N	75°59'14.8128"E
16	Punnayur			1.00	Private	10° 36'49.2516"N	76°0'39.8988"E
17	Punnayur			0.50	Private	10° 39'40.0176"N	75°58"52.1940"E
18	Punnayur			1.20	Private	10° 37'35.6016"N	75°589'45.4308"E
19	Punnayur			0.12	Private	10° 39'5.3208"N	75°59'14.8128"E
20	Punnayur			1.70	Private	10° 36'49.2516"N	76°00'39.8988"E
21	Punnayurkulam			0.60	Private	10° 39'42.462p"N	75°58'53.3748°"E
22	Punnayurkulam			0.58	Private	10° 40'42.3228"N	75°58"17.5584E
23	Punnayurkulam			0.42	Private	10° 41'30.1956"N	75°57'57.1956"E
		Total		**23.10**			
Malappuram district							
Sl. No.	**Name of LSGI**	**Name of farmer**	**Sy No**	**Extent of area in ha**	**Public/ Private**	**Latitude**	**Longitude**
1	Maranchery	Noushad.P.K	119/2-7	0.24	Private	10°45'01.8641" N	75°56'68.1219" N
2	Maranchery	Abdul Nazer	119/1	0.20	Private	10°45'04.5875" N	75°56'68.2486" E
3	Maranchery	Ubaid		0.60	Private	10°44'94.6366" N	75°56'72.0084" E
4	Maranchery	Usman		0.60	Private	10°43'90.5645" N	75°57'85.5081" E
5	Maranchery	Muhammed Shafi		0.40	Private	10°44'58.3108" N	75°56'88.2706" E
6	Veliyancode	Jayan		0.10	Private	10°43'08.9598" N	75°56'43.0164" E
7	Veliyancode	Muhammedunni		0.60	Private	10°44'55.1129" N	75°56'32.6926" E
8	Veliyancode	Sidheek	77/8A-1	0.04	Private	10°43'89.5169" N	75°56'00.4294" E
9	Veliyancode	Majeed		0.20	Private	10°44'41.7801" N	75°56'26.7783" E
10	Veliyancode	Muhammed		0.12	Public	10°44'38.2601" N	75°56'28.3112" E
11	Veliyancode	Muhammed Rafi	1/22/2007	0.40	Private	10°44'72.8214" N	75°56'74.9756" E
12	Veliyancode	Pushpakaran	1	0.40	Public	10°43'88.5287" N	75°56'03.8114" E
13	Veliyancode	Ramshad	2-Aug	0.20	Private	10°44'75.9362" N	75°56'33.0929" E
14	Veliyancode	Hamsa	1	0.84	Public	10°43'82.1901" N	75°56'32.3325" E
15	Ponnani M	Vijeesh		0.40	Public	10°45'72.0529" N	60°28'02.6257" E
16	Ponnani M	Sakeer.P		0.80	Public	10°47'91.3665" N	60°37'02.4715" E
17	Ponnani M	Sharafudheen		0.80	Public	10°46'99.2987" N	60°09'05.1708" E
18	Ponnani M	Ajith		0.20	Private	10°46'39.0097" N	75°57'03.0026" E
19	Perumpadappu	Abdul kalaam Azaad	115/1	0.10	Private	10°42'00.3207" N	75°57'00.3127" E
20	Perumpadappu	Ajmal	179/9-16	0.10	Private	10°42'00.0124" N	75°58'00.0918" E
21	Perumpadappu	Mukthar		0.10	Private	10°42'00.0026" N	75°57'00.4109" E
22	Perumpadappu	Musthak.k		0.08	Private	10°42'00.2604" N	75°57'00.4108" E
23	Perumpadappu	Masood.k		0.15	Private	10°42'00.2636" N	75°57'00.4194" E
24	Perumpadappu	Rahmathulla		0.10	Private	10°42'00.2376" N	75°57'00.4247" E
25	Kalady	Kabeer	95/1-1	0.20	Private	10°45'01.0641" N	75°56'68.1219" E
26	Kalady	koya		0.20	Private	10°48'76.0771" N	75°59'00.0874" E

27	Kalady	Muthu		0.25	Private	10°48'80.4637" N	75°59'61.8479" E
28	Purathur	Rajeev.N		1.60	Public	10°47'95.9627" N	75°54'87.2639" E
29	Purathur	Narayanan		0.80	Public	10°48'16.2228" N	75°54'73.2426" E
30	Purathur	Narayanan		0.80	Public	10°48'16.9757" N	75°54'07.5037" E
31	Purathur	Kunhimoosa		1.00	Public	10°48'01.9250" N	75°54'78.5856" E
32	Purathur	Bhavitha		0.60	Public	10°48'28.1045" N	75°55'15.1857" E
33	Purathur	Bhavitha		1.00	Public	10°48'37.8679" N	75°55'15.4251" E
34	Purathur	Surendran		0.40	Public	10°48'98.9623" N	75°54'53.4419" E
35	Talakkad	Jafar ramanali		1.20	Private	10°52'29.2498" N	75°55'14.7009" E
36	Talakkad	Jafar ramanali		0.60	Private	10°52'03.3754" N	75°55'07.9095" E
37	Talakkad	Jafar ramanali		1.00	Private	10°53'29.2209" N	75°54'84.1197" E
38	Tirur M	Kunjamu		0.96	Private	10°54'05.2411" N	75°54'55.5582" E
39	Tirur M	Haneefa		0.60	Private	10°54'04.0164" N	75°54'56.1576" E
40	Tirur M	Ali vailasseri		0.60	Private	10°54'67.0194" N	75°54'38.5838" E
41	Tirur M	Ibrahimkutty		0.20	Private	10°54'06.9131" N	75°54'39.4408" E
42	Tirur M	Gireesh.k.p		0.48	Private	10°54'76.5304" N	75°54'45.7292" E
43	Tirur M	Kalippoyka		2.00	Private	10°55'90.9309" N	75°55'68.5992" E
44	Tirur M	Jamsheed		0.20	Private	10°55'93.2991" N	75°55'56.0706" E
45	Tirur M	Karuppan		0.20	Private	10°55'95.3592" N	75°55'50.8503" E
46	Tirur M	kunharamutty		0.20	Private	10°56'16.3391" N	75°55'83.2501" E
47	Tirur M	Sidheeq		0.20	Private	10°56'01.7858" N	75°55'79.6693" E
48	Vettom	Khadeeja kutty	117/6-4	0.40	Private	10°52'51.8519" N	75°53'86.2445" E
49	Vettom	Ismail	212/97	0.40	Private	10°51'62.9589" N	75°54'46.8074" E
50	Vettom	Abdulrasak	143/1	0.20	Private	10°52'51.8519" N	75°53'86.2445" E
51	Vettom	Sainudheen		1.60	Private	10º51'62.6131"N	75º54'44.3954"E
52	Vettom	Divakeran		1.80	Private	10º51'47.2703'N	75º54'36.9603"E
53	Vettom	Abdu saleem		1.00	Private	10º51'62.9589"N	75º54'46.8074"E
54	Vettom	Yusaf		2.00	Private	10º51'62.7257"N	75º54'44.4087"E
55	Vettom	Akbar		1.60	Private	10º51'39.4194"N	75º54'27.6162"E
56	Vettom	Kunjimoosa		0.80	Private	10º51'04.6188"N	75º54'20.9376"E
57	Vettom	Safiya		1.20	Private	10º51'35.8332"N	75º54'26.4372"E
58	Vettom	Rajan		0.80	Private	10º51'52.6938"N	75º54'16.0692"E
59	Vettom	Sudheesh		0.80	Private	10º51'57.7746"N	75º54'11.2554"E
60	Niramaruthur	Faisal		2.00	Private	10°55'10.7636" N	75°53'30.6785" E
61	Niramaruthur	Vijeesh.P		1.20	Public	10°55'10.7043" N	75°53'30.3787" E
62	Niramaruthur	Latheef		0.20	Private	10°55'24.5112" N	75°53'10.0369" E
63	Niramaruthur	Hamza		0.40	Private	10º55'50.8724"N	75º53'23.8732"E
64	Niramaruthur	Krishnan		0.40	Private	10º52'02.4512"N	75º53'01.0136"E
65	Niramaruthur	Jamal		1.40	Private	10º55'03.8996"N	75º53'15.5248"E
66	Niramaruthur	Kasim		1.20	Private	10º55'21.3884"N	75º53'26.8384"E
67	Niramaruthur	Syju		0.80	Private	10º55'14.0798"N	75º.53'29.1556"E
68	Tanur M	Suresh Babu		0.20	Public	11°00'05.7057"N	75º52'03.8154"E

69	Tanur M	Udayakumar		1.60	Public	11°04'21.0704"N	75°52'04.7487" E
70	Tanur M	Shiju		0.20	Public	11°00'57.3394"N	75°52'00.4860" E
71	Tanur M	Anoop		0.20	Public	11°00'34.3150"N	75°52'00.4860" E
72	Tanur M	Vybhav		0.40	Private	11°01'14.9148"N	75°52'21.8539" E
73	Tanur M	Lithosh		0.20	Public	11°00'86.5482"N	75°51'09.0798"E
74	Parappanangadi M	Prasad		0.40	Private	11°01'02.8486"N	75°51'97.7583"E
75	Parappanangadi M	Jeeju		0.40	Private	11°01'35.5924"N	75°51'79.1243"E
76	Parappanangadi M	Vinu Kumar		0.20	Private	11°01'69.0152"N	75°51'59.5911'E
77	Vallikunnu	Faisal		0.20	Private	11°06'00.7044"N	75°51'00.1587"E
78	Vallikunnu	Premananda n		0.40	Private	11°06'20.6417"N	75°51'02.8906"E
79	Thenhipalam	Rajan		0.40	Private	11°06'68.2066"N	75°51'05.5936"E
80	Thenhipalam	Athul		0.28	Private	11°06'06.9096"N	75°51'05.7486"E
81	Vallikunnu	Abdulla Naha		0.20	Private	11°07'19.7774"N	75°49'86.6348"E
82	Thenhipalam	Safeer		0.28	Private	11°07'06.0112"N	75°52'01.8599"E
83	Vallikunnu	Sudha		0.40	Private	11°07'60.2197"N	75°50'39.3987"E
84	Thenhipalam	Saidalavi		0.20	Private	11°07'60.7191"N	75°52'01.8245"E
85	Vallikunnu	Arun Raj	113/4	0.40	Private	11°07'78.6968"N	75°49'88.1216'E
86	Thenhipalam	Sukumaran		0.40	Private	11°07'79.4547"N	75°52'05.1672"E
87	Vallikunnu	Lakshmanan		0.20	Private	11°08'13.4596"N	75°50'41.4646"E
		Total		**50.42**			
Kozhikode district							
Sl. No.	**Name of LSGI**	**Name of farmer**	**Sy No**	**Extent of area in ha**	**Public/ Private**	**Latitude**	**Longitude**
1	Kadalundi	Babu Ambali	256/14	0.20	Private	11°07'94.3235"N	75°49'95.3716" E
2	Kadalundi	Anil Kumar		0.12	Private	11°07'97.6612"N	75°49'96.3512" E
3	Kadalundi	Shan		0.20	Private	11°09'49.1478"N	75°50'51.6899" E
4	Kadalundi	Vadakumbad u		1.60	Private	11°09'32.3935"N	75°49'61.2418" E
5	Feroke M	Abdul Siddique		0.60	Private	11°09'73.5002"N	75°49'03.2739" E
6	Feroke M	Haridasan		0.40	Private	11°09'69.4109"N	75°50'30.5011"E
7	Feroke M	Vishwambar an		0.40	Private	11°09'68.7872"N	75°50'32.4464"E
8	Feroke M	Shanavas.M		0.32	Private	11°09'69.4089"N	75°49'33.3396"E
9	Feroke M	Shibin	86/8	0.40	Private	11°09'78.6888"N	75°50'52.3422"E
10	Olavanna	Mahima Sangham	96/14	0.20	Private	11°12'48.2296"N	75°49'47.7737"E
11	Olavanna	Rajesh KV		0.02	Private	11°14'78.9017"N	75°50'81.9352"E
12	Kozhikode M	Rajendra Prasad	6-Feb	1.60	Private	11°19'35.9048"N	75°46'15.2529"E
13	Kozhikode	Sajeesh Eranjikkal	7-Jan	0.20	Private	11°19'31.0465"N	75°46'04.3678"E
14	Kozhikode	Abdul Rasheed		4.00	Private	11°19'94.3787"N	75°45'61.6926"E
15	Kozhikode	Chandra Shekaran	154/1	0.20	Private	11°19'49.4933"N	75°75'29.3894"E

16	Kozhikode	Kunjalan		0.20	Private	11°10'90.1539"N	75°49'47.0983"E
17	Kozhikode	Mohanan	11-Mar	0.20	Private	11°19'05.5043"N	75°45'80.2099"E
18	Kozhikode	Iqbal Eranjikkal		0.40	Private	11°19'88.5501"N	75°45'72.5575"E
19	Kakkodi	Surendran	37/6	0.04	Private	11°20'55.8348"N	75°47'57.0284"E
20	Kakkodi	Sunilkumar	Dec-43	0.08	Private	11°20'70.5052"N	75°46'72.4302"E
21	Chelannur	Sathar Pallikattu	23-Jan	0.20	Private	11°21'30.9527"N	75°46'69.1392"E
22	Chelannur	Shakeena Malayil	24-Jan	0.06	Private	11°20'92.5086"N	75°46'68.2239"E
23	Thalakulathur	Prasad Kuniyil	23-Jan	0.40	Private	11°21'83.1384"N	75°45'15.3902"E
24	Thalakulathur	Gopalan	27/17	0.20	Private	11°21'68.7313"N	75°45'01.4092"E
25	Thalakulathur	Santhosh K		0.20	Private	11°21'71.7468"N	75°45'14.5454"E
26	Thalakulathur	Harikrishnan	189/1	0.04	Private	11°20'38.2215"N	75°44'91.6587"E
27	Thalakulathur	Rajan	23-Jan	0.13	Private	11°21'65.9721"N	75°45'24.4201"E
28	Thalakulathur	Arif	181/18	0.03	Private	11°20'81.0414"N	75°44'92.5016"E
29	Thalakulathur	Shibin Bappayil	189/16	0.26	Private	11°20'43.5213"N	75°44'98.5346"E
30	Chemancherry	Santhosh Balavihar		0.16	Private	11°21'47.7111"N	75°44'25.2922"E
31	Chemancherry	Sudheer Kumar	77/1	0.60	Private	11°21'49.6656"N	75°44'28.3599"E
32	Chemancherry	Prabhakaran	77/1	0.20	Private	11°21'50.5432"N	75°44'24.9059"E
33	Chemancherry	Balakrishnan		0.20	Private	11°21'50.1764"N	75°44'32.3631"E
34	Chemancherry	Farm		2.00	Private	11°22'02.5765"N	75°44'69.2489"E
35	Chemancherry	Babu		1.20	Private	11°22'03.0991"N	75°44'72.8839"E
36	Chemancherry	Babu		2.00	Private	11°22'06.9094"N	75°44'77.9915"E
37	Chemancherry	Baby marine		1.20	Private	11°22'11.7531"N	75°44'75.5232"E
38	Chemancherry	Puthari JLG		0.20	Private	11° 21'82.2174"N	75°43'99.1628"E
39	Chemancherry	Kuttusa		0.60	Private	11°21'89.3174"N	75°43'84.8719"E
40	Chemancherry	Ahamed koya	2/1b	0.40	Private	11°22'16.1945"N	75°43'79.8207"E
41	Chemancherry	Cocrane company		3.20	Private	11°22'21.7442"N	75°43'65.5539"E
42	Chemancherry	Mohandas		1.00	Private	11°22'33.1867"N	75°43'66.3909"E
43	Chemancherry	Kappad kaipuzha		10.00	Private	11°22'60.0059"N	75°43'48.5776"E
44	Chemancherry	Yousaf		2.00	Private	11°22'39.3674"N	75°43'63.2808"E
45	Chemancherry	Muthachikav ukett		1.00	Private	11°22'55.3379"N	75°44'48.2512"E
46	Chemancherry	Sidique	156/1,2	1.00	Private	11°22'96.6674"N	75°44'58.6072"E
47	Chemancherry	Venugopal		6.72	Private	11°23'27.5675"N	75°44'46.8008"E
48	Chemancherry	Farm		1.90	Private	11°23'36.5071"N	75°44'48.6817"E
49	Chemancherry	Hashim pilakkal		2.00	Private	11°23'38.6744"N	75°44'38.5128"E
50	Chemancherry	Kandoth praveen		1.60	Private	11°23'45.4585"N	75°44'37.5592"E
51	Chemancherry	Shahana thayil		1.00	Private	11°23'50.9424"N	75°44'35.6281"E
52	Chemancherry	Musthafa kuniyoth		0.72	Private	11°23'45.9078"N	75°44'38.6697"E
53	Chemancherry	Musthafa kuniyoth	55/32,33,36, 39,40	0.90	Private	11°23'51.3624"N	75°44'38.6697"E
54	Chemancherry	Pradeepan		0.40	Private	11°23'57.2844"N	75°44'33.8658"E

55	Chemancherry	Musthafa &etal	55/30,34,35	0.40	Private	11°23'60.6546"N	75°44'37.1247"E
56	Chemancherry	Sreeja manoj		0.40	Private	11°23'46.0163"N	75°44'60.0697"E
57	Chemancherry	Chathanadath thazhe		10.80	Private	11°24'02.2873"N	75°44'66.2475"E
58	Chemancherry	Sreekumar	55/1A,55/4A	0.28	Private	11°24'00.0372"N	75°44'74.1734"E
59	Chemancherry	Parisons company		8.00	Private	11°24'19.1297"N	75°44'75.4146"E
60	Chemancherry	Hashim diamond		1.60	Private	11°24'90.7178"N	75°44'72.4997"E
61	Atholi	Shafeer	3/2,2/4	0.20	Private	11°23'05.6029"N	75°44'99.5806"E
62	Atholi	Gokulam Aqua	4D	3.60	Private	11°23'55.5885"N	75°44'93.1675"E
63	Atholi	Manoj K K	60/2C	1.34	Private	11°23'54.3658"N	75°45'01.0914"E
64	Atholi	Joshy K K	63/1	1.18	Private	11°23'51.4591"N	75°45'10.7614"E
65	Atholi	Annankottan vayal		0.60	Private	11°23'52.7271"N	75°45'16.1426"E
66	Atholi	Suraj	35	0.33	Private	11°23'78.5367"N	75°44'89.1542"E
67	Atholi	Sajeevan	35	0.40	Private	11°23'76.1624"N	75°44'90.5362"E
68	Atholi	Praveen raj	35	2.20	Private	11°23'81.7314"N	75°44'96.1085"E
69	Atholi	Madhavan		0.20	Private	11°24'88.6335"N	75°45'12.3969"E
70	Atholi	Ravi		0.20	Private	11°23'79.7988"N	75°44'85.5755"E
71	Atholi	Mukandithaz haenilam		4.00	Private	11°23'93.0387"N	75°44'93.7529"E
72	Atholi	Alikoya		0.20	Private	11°24'88.6335"N	75°44'91.2359"E
73	Atholi	Vishwan	21	10.00	Private	11°24'81.8306"N	75°45'46.3778"E
74	Atholi	Vishwan	21	12.00	Private	11°24'89.6254"N	75°45'62.5897"E
75	Chengottukavu	Arun Kumar		1.60	Private	11°25'07.8512"N	75°44'85.0223"E
76	Chengottukavu	Muthedathut hazha		0.20	Private	11°25'36.8233"N	75°44'19.4845"E
77	Chengottukavu	Chalil krishnan		1.20	Private	11°25'43.3618"N	75°44'22.4215"E
78	Chengottukavu	Choy		0.10	Private	11°25'41.39841N	75°44'18.7322"E
79	Chengottukavu	Babu		0.60	Private	11°25'46.6606"N	75°44'23.0693"E
80	Chengottukavu	Ullurkadavu		2.00	Private	11°25'40.5402"N	75°44'14.0973"E
81	Chengottukavu	Emerald company	31/2	6.80	Private	11°25'79.2759"N	75°43'73.0655"E
82	Chengottukavu	Vijitu	35/4	0.40	Private	11°25'81.1826"N	75°43'68.2798"E
83	Chengottukavu	Sreelesh		0.40	Private	11° 25'82.0048"N	75°43'68.0384"E
84	Chengottukavu	Raveendra Nadhan		2.50	Private	11°25'54.7258"N	75°43'57.2941"E
85	Chengottukavu	Cheliya nadammal 1		2.00	Private	11°25'22.2318"N	75°43'57.8051"E
86	Chengottukavu	Nadammal 2		2.40	Private	11°25'50.0817"N	75°43'52.9691"E
87	Ulliyeri	Puthencherik ettu		7.00	Public	11°25'68.6539"N	75°45'05.7504"E
88	Ulliyeri	Siji		0.40	Private	11°25'66.8399"N	75°44'94.7545"E
89	Ulliyeri	Puthencherik ettu		3.00	Public	11°25'61.6048"N	75°44'91.6668"E
90	Ulliyeri	Praveen raj		2.40	Private	11°25'58.7043"N	75°44'82.8678"E
91	Ulliyeri	Dharmapala n		1.00	Private	11°25'65.6549"N	75°44'77.4061"E
92	Ulliyeri	Sivadasan &etal		5.20	Private	11°25'45.9291"N	75°44'80.9165"E
93	Ulliyeri	Faisal		1.20	Private	11°26'00.6772"N	75°44'01.1161"E

94	Koyilandy M	Sudheer	79/2	0.40	Private	11°27'01.2111"N	75°43'16.9423"E
95	Koyilandy M	Kanayamkode		15.00	Private	11°26'93.3325"N	75°43'45.1598"E
96	Keezhariyoor	Kunjiraman		0.60	Private	11°29'72.8904"N	75°40'73.8638"E
97	Keezhariyoor	Prabhakaran		0.60	Private	11°29'74.5463"N	75°40'71.8742"E
98	Keezhariyoor	Karunan		0.20	Private	11°29'74.2486"N	75°40'69.1746"E
99	Keezhariyoor	Smijith		0.20	Private	11°29'77.9527"N	75°40'56.2457"E
100	Keezhariyoor	Kallodukallu		2.00	Public	11°29'87.8092"N	75°40'55.7609"E
101	Keezhariyoor	Moidi keloth		0.20	Private	11°29'89.4729"N	75°40'60.0457"E
102	Keezhariyoor	Chandran		1.00	Private	11°30'23.0318"N	75°40'39.0158"E
103	Moodadi	Sadhanandhan		0.60	Private	11°29'22.4992"N	75°40'69.6695"E
104	Moodadi	Devadas		0.40	Private	11°29'45.3826"N	75°40'41.4459"E
105	Moodadi	Sivashakaran		0.40	Private	11°29'43.6163"N	75°40'55.4893"E
106	Moodadi	Pushkala	29/27	0.40	Private	11°29'51.8328"N	75°40'40.2389"E
107	Thikkodi	Minar muhammed		0.40	Private	11°30'81.1234"N	75°39'12.6798"E
108	Thikkodi	Kole nilam		1.00	Public	11°30'77.7881"N	75°39'08.6806"E
109	Thikkodi	Thikodi kallakth		3.20	Private	11°29'67.4122"N	75°37'24.0487"E
110	Thurayur	Usman		3.00	Private	11°30'80.0077"N	75°39'16.5502"E
111	Thurayur	Narayanan		0.60	Private	11°30'86.5599"N	75°39'23.3898"E
112	Thurayur	Ismayil C P		1.00	Private	11°30'97.2672"N	75°39'50.9334"E
113	Thurayur	Ismayil C P		1.00	Private	11°31'03.7188"N	75°39'50.7785"E
114	Thurayur	Nujma llayedath		0.60	Private	11°31'00.8646"N	75°39'58.2358"E
115	Payyoli	Madathil thazechira		2.40	Private	11°31'89.9643"N	75°37'51.9544"E
116	Payyoli	Changaramkandi		2.40	Private	11°81'97.8426"N	75°37'49.2085"E
117	Payyoli	Kallachira		1.60	Private	11°32'12.2627"N	75°37'43.9782"E
118	Payyoli	Kulangarachira		1.00	Private	11°31'98.4221"N	75°37'43.9782"E
119	Payyoli	Sunilkumar		0.20	Private	11°31'97.8662"N	75°37'49.0858"E
120	Payyoli	Kuttadanchira		1.20	Private	11°31'89.5445"N	75°37'87.1423"E
121	Payyoli	Hamza		1.00	Private	11°31'86.3336"N	75°37'85.0824"E
122	Payyoli	Pokkar		1.00	Private	11°31'85.6832"N	75°37'85.0824"E
123	Payyoli	Sivashethram chira		6.00	Public	11°31'78.9284"N	75°37'88.2729"E
124	Payyoli	Kannan		0.40	Private	11°31'94.2238"N	75°37'59.3533"E
125	Payyoli	Valiyachira		1.20	Private	11°31'92.6548"N	75°37'55.0081"E
126	Maniyur	Hameed. T	Apr-17	0.25	Private	11°55'86.6971"N	75°62'71.1578"E
127	Maniyur	Bhargavi	22-Sep	0.20	Private	11°53'41.6329"N	75°63'63.5331"E
128	Maniyur	Charalum purath fish farm	4/3,4/2, 4/1,4/7	0.45	Private	11°56'56.4614"N	75°63'62.8726"E
129	Maniyur	Mohanan CTK	74/23,74/61, 74/65	0.48	Private	11°56'66.6614"N	75°63'28.3224"E
130	Maniyur	karshaka kootayma	3-Feb	0.76	Private	11°54'51.0414"N	75°62'77.5311"E
131	Maniyur	Vijeesh KTK	61/19	0.20	Private	11°56'16.8248"N	75°62'64.6233"E
132	Maniyur	Usha	66/28	0.20	Private	11°56'54.8387"N	75°63'06.2109"E

133	Maniyur	Ashraf	74/79	0.60	Private	11°56'66.0822"N	75°63'27.5378"E
134	Vadakara M	Vijith. P. P	205	0.10	Private	11°58'73.7316"N	75°58'90.7233"E
135	Azhiyur	Muhammad	20/3,20/4,32/1	2.40	Private	11°67'52.0962"N	75°56'51.3161" E
136	Azhiyur	Shaji mon	73/19	0.11	Private	11°70'35.3796"N	75°55'30.6871"E
137	Azhiyur	Jayesh	11/7,8/3	0.10	Private	11°63'86.6238"N	75°56'42.5519"E
138	Azhiyur	G P. Prakasan	85/3	0.24	Private	11°69'52.1101"N	75°54'92.0364"E
139	Azhiyur	C N Viswanathan	67/35	0.04	Private	11°69'66.6183"N	75°55'72.5127"E
140	Azhiyur	Pavithran	73/3	0.10	Private	11°68'85.1985"N	75°63'38.9641"E
141	Azhiyur	Purushothaman	67/11	0.12	Private	11°42'13.0716"N	75°32'56.1912"E
		Total		**210.98**			
Kannur district							
Sl. No.	**Name of LSGI**	**Name of farmer**	**Sy No**	**Extent of area in ha**	**Public/ Private**	**Latitude**	**Longitude**
1	Narath	Aboobakker		0.40	Private	11°56'41.8506"N	75° 24' 8.4528"E
2	Ramanthalli	Salmath		0.49	Private	12°04'13.1232"N	75°10'47.1864"E
3	Ramanthalli	Mahesh K		0.20	Private	12°04'13.1232"N	75°10'47.1864"E
4	Kunhimangalam	Mithalayil ambu		0.40	Private	12°04'13.1232"N	75°10'47.1864"E
5	Kunhimangalam	Pradeep kumar		0.76	Private	12°04'13.1232"N	75°10'47.1864"E
6	Payyannur M	Raveendran		4.00	Private	12°06'44.8812"N	75°11'39.9696"E
7	Payyannur M	Vijaya Kumari		0.12	Private	12°07'10.4448"N	75°11'40.3476"E
8	Payyannur M	Fathima		2.23	Private	12°07'10.4448"N	75°11'40.3476"E
9	Payyannur M	Mahesh c v		0.30	Private	12°07'90.2964"N	75°11'41.2188"E
10	Ramanthalli	shareef		3.84	Private	12°04'20.5500"N	75°12'15.4422"E
11	Payyannur M	Athayi Balan		0.32	Private	12°04'10.0236"N	75°12'47.9988"E
12	Kunhimangalam	Sathya prakashan		3.00	Private	12°04'11.6508"N	75°13'16.1184"E
13	Payyannur M	Rameshan		2.50	Private	12°04'28.9776"N	75°13'19.3008"E
14	Kunhimangalam	Salin padinjarn		1.16	Private	12°04'17.8068"N	75°13'20.5212"E
15	Payyannur M	T Purushothaman		5.00	Private	12°04'25.5648"N	75°13'20.9460"E
16	Kunhimangalam	Dineshan		0.40	Private	12°04'00.8904"N	75°13'21.7920"E
17	Kunhimangalam	Deepu		1.00	Private	12°04'00.8904"N	75°13'21.7921"E
18	Kunhimangalam	Harinarayanan		0.15	Private	12°04'19.9920"N	75°13'22.0944"E
19	Kunhimangalam	Roshini farm		20.00	Private	12°04'48.9000"N	75°13'23.9002"E
20	Ramanthalli	Haris	239/105	1.25	Private	12°03'18.4068"N	75°13'24.7152"E
21	Ramanthalli	Gireesh		0.81	Private	12°02'12.1812"N	75°13'25.4244"E
22	Payyannur M	Raveendran		2.80	Private	12°04'38.5176"N	75°13'26.1372"E
23	Ramanthalli	verkayi group		0.61	Private	12°03'07.9488"N	75°13'26.3280"E
24	Kunhimangalam	Faisal		0.26	Private	12°03'03.1176"N	75°13'32.9124"E
25	Kunhimangalam	Ibrahim TP		0.43	Private	12°03'03.1176"N	75°13'32.9124"E

26	Kunhimangalam	Suma		8.50	Private	12°03'03.1176"N	75°13'32.9124"E
27	Kunhimangalam	Palakkeel group		5.49	Private	12°03'03.2616"N	75°13'32.9304"E
28	Madayi	Manoj	199/102,199/D,199/E,199/F	0.81	Private	12°02'28.7736"N	75°13'33.7296"E
29	Kunhimangalam	Rajan		1.16	Private	12°04'48.6228"N	75°13'41.4444"E
30	Madayi	Abdullah	199/139,199/138	2.02	Private	12°02'14.3340"N	75°13'46.1712"E
31	Kunhimangalam	Rajan		2.00	Private	12°04'25.6872"N	75°13'46.1712"E
32	Kunhimangalam	Chamandi krishnan		1.00	Private	12°03'29.9628"N	75°13'48.0828"E
33	Payyannur M	Ahammed Kunhi		2.00	Private	12°07'90.7392"N	75°14'11.6484"E
34	Madayi	Gopalkrishnan	33/1,33/2	2.00	Private	12°03'39.0452"N	75°14'17.6928"E
35	Cheruthazham	Sujith		2.00	Private	12°03'07.6608"N	75°14'20.2956"E
36	Madayi	Aravindakshan.k	33/2	2.00	Private	12°03'06.8472"N	75°14'20.5004"E
37	Madayi	shivanandan	34/1,34/5	0.59	Private	12°03'05.0184"N	75°14'20.5584"E
38	Cheruthazham	Cheruthazham GP		3.60	Private	12°03'12.8484"N	75°14'27.3624"E
39	Cheruthazham	Cheruthazham GP		1.20	Private	12°03'50.1012"N	75°14'33.3782"E
40	Madayi	Fisheriesn dpt	40	0.12	Public	12°00'57.5316"N	75°14'33.8208"E
41	Madayi	muraleedharan.k	32/103,32/105	2.31	Private	12°02'39.4620"N	75°14'34.7421"E
42	Cheruthazham	Muhammad		1.60	Private	12°03'14.4901"N	75°14'34.7424"E
43	Madayi	Ramesan.kv	33/1	1.60	Private	12°03'39.7408"N	75°14'80.4732"E
44	Payyannur M	Nalinakshan k v		0.65	Private	12°06'49.1904"N	75°15'11.5884"E
45	Cheruthazham	Krishnan		0.32	Private	12°02'39.7968"N	75°15'13.6656"E
46	Cheruthazham	Ratheesh		0.06	Private	12°02'39.7968"N	75°15'22.6584"E
47	Madayi	Lesly	154/6,154/10	0.40	Private	12°00'46.6560"N	75°15'45.2844"E
48	Cherukunnu	PRP Group, Muttil		4.00	Private	12°00'20.9664"N	75°16'11.3988"E
49	Cherukunnu	United Aqua farm		5.00	Private	12°00'19.9404"N	75°16'12.8712"E
50	Cherukunnu	Janardhanan T		2.00	Private	12°00'11.9304"N	75°16'15.7476"E
51	Cherukunnu	Chandran P		4.00	Private	12°01'22.7892"N	75°16'18.1632"E
52	Cherukunnu	Sudhakaran		1.50	Private	11°59'58.3294"N	75°16'31.9656"E
53	Cherukunnu	PattikaJati Sangham		2.00	Private	12°00'27.9684"N	75°16'42.6972"E
54	Cherukunnu	Raghu P		2.00	Private	12°00'25.2938"N	75°16'44.2122"E
55	Cherukunnu	Haridas K		1.00	Private	12°00'25.9328"N	75°16'44.3712"E
56	Cherukunnu	Agil p		1.00	Private	12°00'25.2354"N	75°16'44.3712"E
57	Cherukunnu	Purushothaman		0.60	Private	12°00'25.9380"N	75°16'44.3712"E
58	Cherukunnu	Akhil, Muttil		1.00	Private	11°59'49.1964"N	75°16'52.3092"E
59	Kannapuram	Sreerag		0.40	Private	11°58'18.2614"N	75°17' 45.0420"E
60	Ezhome	Abdul Majeed		1.00	Private	12°01'33.1212"N	75°17'00.2652"E
61	Cherukunnu	Kowath, Muttil		0.80	Private	12°00'28.4328"N	75°17'00.4236"E
62	Kannapuram	Praveen		1.00	Private	11°58'55.7364"N	75°17'26.4948"E
63	Kannapuram	Sheethal		1.00	Private	11°59'05.5680"N	75°17'29.2308"E

64	Kannapuram	Chandran T		1.00	Private	11°58'52.6008"N	75°17'29.8068"E
65	Ezhome	Sivan		0.20	Private	12°01'56.7804"N	75°17'40.3188"E
66	Mattool	K V Janakiamma		1.60	Private	11°58'11.2656"N	75°17'41.7912"E
67	Mattool	Santha		0.81	Private	11°58'10.5312"N	75°17'42.2988"E
68	Mattool	K V Gowriamma		0.81	Private	11°58'09.6204"N	75°17'42.8028"E
69	Ezhome	Parayil Rajesh		0.20	Private	12°01'58.6992"N	75°17'44.5560"E
70	Kannapuram	Lalitha		1.00	Private	11°58'43.3380"N	75°17'46.3524"E
71	Ezhome	Saju		3.23	Private	12°01'48.4644"N	75°17'47.2668"E
72	Ezhome	Ezhome bank		2.02	Private	12°01'49.2096"N	75°17'58.1416"E
73	Kannapuram	Pradeep O V		0.04	Private	11°58'02.4276"N	75°17'58.7400"E
74	Cherukunnu	Ajith		4.00	Private	12°00'51.6924"N	75°17'90.5642"E
75	Cherukunnu	Thanal SHG Kattakkulam		5.00	Private	11°59'29.7564"N	75°17'90.7008"E
76	Ezhome	Ezhillam		1.29	Private	12°02'01.6000"N	75°18'05.2000"E
77	Pattuvam	Pocker K		1.00	Private	12°01'35.2344"N	75°18'10.5912"E
78	Pattuvam	Mohammed Hassan		2.00	Private	12°01'04.4184"N	75°18'11.5164"E
79	Ezhome	Sukumaran		0.31	Private	12°02'07.1376"N	75°18'12.7908"E
80	Anthoor M	Sulekha Kodiyil		0.28	Private	12°01'51.7152"N	75°18'14.0436"E
81	Pattuvam	Ibrahim T		0.24	Private	12°01'00.6888"N	75°18'14.3822"E
82	Ezhome	Haneesh K Ezhome		2.00	Private	12°02'24.5356"N	75°18'18.0025"E
83	Pattuvam	Vinil Vargheese		1.00	Private	12°00'56.1420"N	75°18'20.6856"E
84	Pattuvam	Hameed K		0.36	Private	12°00'56.1412"N	75°18'20.6856"E
85	Ezhome	Abdulla		0.31	Private	12°02'40.2240"N	75°18'21.3254"E
86	Pattuvam	Ahmed Kutty		6.00	Private	12°00'27.4640"N	75°18'25.1352"E
87	Kallyassery	Kabeer		3.00	Private	11°57'44.7156"N	75°18'26.7624"E
88	Mattool	Chandran		0.81	Private	11°57'54.0360"N	75°18'27.4104"E
89	Pattuvam	Musthafa KP		1.00	Private	12°01'55.3224"N	75°18'30.9421"E
90	Kannapuram	Narayanan PP		1.00	Private	11°58'09.5052"N	75°18'32.7924"E
91	Ezhome	Pratheeksha Group		0.81	Private	12°02'37.1796"N	75°18'35.9280"E
92	Kallyassery	Krishnan VT		1.00	Private	11°57'51.2011"N	75°18'39.6936"E
93	Pattuvam	Moosan T		2.00	Private	12°02'04.8696"N	75°18'40.4208"E
94	Ezhome	Pratheeksha Group		1.80	Private	12°02'39.1776"N	75°18'41.1660"E
95	Pattuvam	Peruntharkandy		2.00	Private	12°02'13.5168"N	75°18'43.1496"E
96	Ezhome	Oorvalli SHG		5.00	Private	12°02'50.3268"N	75°18'47.2176"E
97	Pattuvam	Thulluvan Pallikkandy		2.00	Private	12°02'41.4348"N	75°18'55.1124"E
98	Kallyassery	Ashraf		1.00	Private	11°57'31.2321"N	75°18'58.2524"E
99	Pattuvam	Subha Vinil		1.00	Private	12°00'51.9336"N	75°18'59.7528"E
100	Pattuvam	Babu M		0.56	Private	12°00'51.9336"N	75°18'59.7528"E
101	Pattuvam	Muhammed Kunhi		2.00	Private	12°01'12.1116"N	75°18'90.4536"E
102	Pattuvam	Divakaran K		0.20	Private	12°02'05.1288"N	75°19'23.5956"E
103	Pattuvam	Pream		0.20	Private	12°02'05.1288"N	75°19'23.5956"E

		Kumar					
104	Pappinissery	Thottathil Shyamala		0.50	Private	11°56'56.4002"N	75°19'38.7408"E
105	Kannapuram	Anirudhan		1.00	Private	12°00'15.4812"N	75°19'40.2492"E
106	Pattuvam	Fisherman society ariyil		2.00	Private	12°00'44.7552"N	75°19'49.7496"E
107	Ezhome	K Padmanabhan	37/102	0.36	Private	12°02'26.1816"N	75°19'52.9716"E
108	Anthoor M	Sudhakaran Chapady		15.00	Private	12°00'03.7908"N	75°20'20.7204"E
109	Pattuvam	Muhammed Habeeb		0.10	Private	12°00'14.5296"N	75°20'29.4972"E
110	Anthoor M	Sudhakaran K		4.00	Private	12°00'08.7814"N	75°20'31.5708"E
111	Kallyassery	Mohanan T, Koovode		0.40	Private	12°00'30.1142"N	75°21'19.3608"E
112	Anthoor M	Jagadeesan		0.20	Private	12°00'13.2408"N	75°21'20.5506"E
113	Pattuvam	Damodharan		0.20	Private	12°00'28.1736"N	75°21'20.9448"E
114	Anthoor M	Sunny Vargheese		3.00	Private	12°00'18.3636"N	75°21'21.3804"E
115	Pappinissery	Sunand		1.00	Private	11°56'17.2135"N	75°21'24'.2541E
116	Kallyassery	Abdul Rahman		0.60	Private	11°59'59.1828"N	75°21'32.6664"E
117	Anthoor M	Jithu		0.20	Private	12°00'15.8904"N	75°21'60.5700"E
118	Anthoor M	Ramesan		1.00	Private	12°00'22.6521"N	75°21'90.7318"E
119	Narath	Sunil		0.09	Private	11°56'36.5496"N	75°22'37.7004"E
120	Narath	Bineesh		0.28	Private	11°55'53.0508"N	75°23'16.5840"E
121	Kannur	Muhammad Niyas		0.04	Private	11°54'40.7844"N	75°23'28.2912"E
122	Narath	Fajfar		1.75	Private	11°55'12.1440"N	75°23'48.7788"E
123	Narath	Sudhakaran		0.22	Private	11°56'41.4996"N	75°23'49.5708"E
124	Narath	Sahajan		9.40	Private	11°55'14.7216"N	75°23'53.4984"E
125	Anthoor M	Dhanesan		0.10	Private	11°58'31.1772"N	75°23'60.1800"E
126	Narath	Dinesh Kumar		3.40	Private	11°55'31.5768"N	75°25'30.9111"E
127	Eranholi	Dinachandra n Muthalper		4.00	Private	11°47'44.4516"N	75°26'58.2216"E
128	Pinarayi	Sarin		0.20	Private	11°48'59.1516"N	75°27'53.5572"E
129	Pinarayi	Shanil		0.40	Private	11°48'57.9492"N	75°27'58.1040"E
130	Pinarayi	Shanthan		0.40	Private	11°48'57.9492"N	75°27'58.1040"E
131	Dharmadam	Prabhavathi others	72/1	1.60	Private	11°48'48.3732"N	75°27'58.6512"E
132	Dharmadam	K V Ramesan	13/14	1.20	Private	11°48'37.3218"N	75°27'58.6512"E
133	Dharmadam	P T Rajan	442/08	0.40	Private	11°48'43.8596"N	75°28'09.1128"E
134	Pinarayi	Raveendran		2.00	Private	11°48'21.6684" N	75°28'13.3932"E
135	Pinarayi	Raju		0.40	Private	11° 48'35.2080"N	75°28'13.7244"E
136	Pinarayi	Ramesan k		2.80	Private	11°48'46.5444"N	75°28'14.8116"E
137	Pinarayi	Janardhanan		0.40	Private	11°48'46.5732"N	75°28'16.6116"E
138	Dharmadam	Anadakrishn an		2.00	Private	11°47'56.0304"N	75°28'28.9488"E
139	Dharmadam	Padmini	67/105	1.20	Private	11°47'56.0364"N	75°28'28.9488"E
140	Dharmadam	Dasan	23, 32/4, 28 1/B	1.00	Private	11°47'56.0364"N	75°28'28.9488"E
141	Dharmadam	Padmini	442/55	0.20	Private	11°47'56.0364"N	75°28'28.9488"E

142	Pinarayi	Sreejesh V P		0.40	Private	11°47'56.0364"N	75°28'28.9488"E
143	Dharmadam	C Purushu	12-Feb	0.60	Private	11°48'50.8644"N	75°28'30.0324"E
144	Dharmadam	Reliance aqua farm	83/1	2.00	Private	11°48'00.2134"N	75°28'30.2658"E
145	Dharmadam	Valsan		0.60	Private	11°48'56.2212"N	75°28'30.7704"E
146	Dharmadam	Gopi		1.00	Private	11°48'56.2212"N	75°28'30.7704"E
147	Dharmadam	KV purushu		0.60	Private	11°47'55.0568"N	75°28'31.0324"E
148	Dharmadam	Govindan	442/08	1.00	Private	11°48'56.2212"N	75°28'31.3704"E
149	Thalassery M	T G Moly Elizabath		1.20	Private	11°46'12.3403"N	75°28'31.8961"E
150	Dharmadam	Pramodan		1.00	Private	11°48'16.9092"N	75°28'32.7108"E
151	Dharmadam	Jayandan	71/1B	1.00	Private	11°48'16.9092"N	75°28'32.7180"E
152	Dharmadam	Deepesh	28/1B	1.00	Private	11°47'57.2892"N	75°28'32.7508"E
153	Thalassery M	Givals Androos Joseph		0.60	Private	11°46'12.9686"N	75°28'33.1043"E
154	Pinarayi	Hudaifa		3.00	private	11°48'04.4159"N	75°28'35.2576"E
155	Pinarayi	Pradeep		0.40	Private	11°48'90.1908"N	75°28'36.4548"E
156	Thalassery M	Santhosh Kumar K K	17/2A	0.60	Private	11°45'56.0108"N	75°28'37.9548"E
157	Dharmadam	Bhaskaran		1.20	Private	11°47'02.0364"N	75°28'45.8218"E
158	Dharmadam	Mahesh	89/1,86/3	2.00	Private	11°04'58.6254"N	75°28'47.1298"E
159	Dharmadam	MC Jayalakshmi	32/1	0.20	Private	11°47'53.8547"N	75°28'47.9521"E
160	Dharmadam	Jayanathan	71/1B	2.00	Private	11°48'20.4712"N	75°28'47.9521"E
161	Dharmadam	Sunilkumar	32/2	0.65	Private	11°47'51.4568"N	75°28'48.5988"E
162	Eranholi	M V Surendran	38/1	2.80	Private	11°46'45.2964"N	75°28'48.6048"E
163	Dharmadam	Janardhanan		2.00	Private	11°46'51.0546"N	75°28'49.2635"E
164	Dharmadam	Simisha k	35	0.36	Private	11°47'23.0026"N	75°28'49.4568"E
165	Dharmadam	K Rajan	54/1	2.00	Private	11°47'23.0026"N	75°28'49.5368"E
166	Dharmadam	Fisheries Dpt		1.00	Public	11°47'49.5333"N	75°28'51.4438"E
167	Pinarayi	Sireejesh V P	17/1 171/2	0.06	Private	11°47'49.5333"N	75°28'51.4438"E
168	Dharmadam	Ragunath	16/1 16/2	0.40	Private	11°47'49.7415"N	75°28'51.8457"E
169	Peralassery	Bhaskaran		0.40	Private	11°49'18.4548"N	75°28'53.0112"E
170	Dharmadam	Vinod M	59/1	1.00	Private	11°47'48.2355"N	75°28'53.2354"E
171	Dharmadam	Ragunath	52/2	3.00	Private	11°47'52.1245"N	75°28'54.2478"E
172	Dharmadam	Sujesh	442/08	0.40	Private	11°48'59.8536"N	75°28'55.1604"E
173	Peralassery	Shaheeda		0.40	Private	11°49'18.8328"N	75°28'57.3060"E
174	Dharmadam	Padmarajan	66/104	0.30	Private	11°47'30.2354"N	75°28'58.4415"E
175	Eranholi	Abdulla		4.80	Private	11°47'11.8392"N	75°28'58.9296"E
176	Dharmadam	KT chandran		5.00	Private	11°47'52.3214"N	75°28'59.4256"E
177	Dharmadam	Sasi		1.00	Private	11°47'47.3856"N	75°28'62.6648"E
178	Pinarayi	Maratta		5.00	Private	11°47'54.1248"N	75°28'81.0108"E
179	Dharmadam	Roopa kumari	55/1	1.80	Private	11°47'51.0304"N	75°29'01.5540"E
180	Dharmadam	Pramodan	17	1.00	Private	11°47'48.2532"N	75°29'05.4589"E
181	Dharmadam	Pramod Madathil	75/102	2.00	Private	11°47'44.4025"N	75°29'08.2232"E
182	Thalassery M	Shajeer		1.00	Private	11°46'45.8795"N	75°29'10.0032"E

183	Thalassery M	Shaji P	6//8	0.20	Private	11°46'44.0003"N	75°29'11.2198"E
184	Thalassery M	Pradeep Kumar	6//8	0.40	Private	11°46'45.0014"N	75°29'11.3214"E
185	Eranholi	Prabhakaran	8A	0.40	Private	11°47'22.4376"N	75°29'11.5980"E
186	Dharmadam	Kunjikrishnan	79/12, 11, 39; 109/31, 6/17, 80/12,	1.60	Private	11°47'29.2589"N	75°29'11.7589"E
187	Pinarayi	NES block		1..2	Private	11°48'02.2553"N	75°29'12.2543"E
188	Pinarayi	C V Sumajan		1.00	Private	11°47'46.2895"N	75°29'13.3256"E
189	Dharmadam	Veluthen		0.50	Private	11°46'42.1608"N	75°29'13.5060"E
190	Eranholi	Yatheendran		1.10	Private	11°46'45.6784"N	75°29'13.6248"E
191	Thalassery M	Anilkumar K.C	166	1.40	Private	11°45'51.0142"N	75°29'16.1321"E
192	Peralassery	Sulochana		0.01	Private	11°49'27.2928"N	75°29'20.3172"E
193	Pinarayi	Sasi		2.00	Private	11°47'44.4583"N	75°29'21.2985"E
194	Dharmadam	Veluthen		0.20	Private	11°47'25.4040"N	75°29'24.5904"E
195	Eranholi	Rajan K		0.60	Private	11°47'38.3568"N	75°29'26.7648"E
196	Eranholi	Prabhakaran Muthalper		4.80	Private	11°47'35.8728"N	75°29'35.0772"E
197	Thalassery M	Bijoy		0.60	Private	11°45'36.4212"N	75°29'36.3984"E
198	Dharmadam	Shibin		1.00	Private	11°48'40.1148"N	75°29'40.3332"E
199	Dharmadam	Kamala group		1.00	Private	11°48'40.1148"N	75°29'40.3332"E
200	Pinarayi	Fisheries dpt		0.80	Public	11°48'40.1148"N	75°29'40.3332"E
201	Peralassery	Vinod Kumar		0.40	Private	11°51'32.7708"N	75°29'40.3332"E
202	Dharmadam	Sahaji C		1.00	Private	11°47'30.1488"N	75°29'50.2044"E
203	Eranholi	Puliyullathil Vineesh		1.60	Private	11°47'20.1876"N	75°29'80.0196"E
204	Eranholi	Nasar Muthelper		6.80	Private	11°47'42.3188"N	75°29'80.2608"E
205	Dharmadam	Preman		0.80	Private	11°47'15.6084"N	75°29'80.2644"E
206	Eranholi	M Pavithran		0.40	Private	11°47'40.2216"N	75°29'90.4416"E
207	Eranholi	Raghavan		0.80	Private	11°47'20.1876"N	75°29'90.6756"E
208	Eranholi	Babu		0.20	Private	11°47'51.1656"N	75°30'14.4216"E
209	Eranholi	N Balan		0.20	Private	11°47'50.1216"N	75°30'22.1976"E
210	Eranholi	Palaoran		0.20	Private	11°47'50.3196"N	75°30'22.3596"E
211	Eranholi	Cheruveri Sajeevan		0.20	Private	11°47'50.8056"N	75°30'90.8172"E
212	Thalassery M	K S Seena		0.04	Private	11°45'33.7608"N	75°31'00.5232"E
213	Ezhome	Krishnakumar		0.80	Private	12°03'68.5601"N	75°31'02.2601"E
214	Thalassery M	Aji k		2.50	Private	11°45'34.7004"N	75°31'10.3080"E
215	Eranholi	Muttammal Suresh		0.20	Private	11°47'51.2988"N	75°31'59.9916"E
216	Eranholi	Arjun		0.20	Private	11°79'66.5300"N	75°50'95.7500"E
		Total		**336.00**			
Kasargode district							
Sl. No.	**Name of LSGI**	**Name of farmer**	**Sy No**	**Extent of area in ha**	**Public/ Private**	**Latitude**	**Longitude**
1	Valiyaparamba	Sabir		0.20	Private	12°10'40.8540"N	75°08'25.3788"E

2	Valiyaparamba	VKP Muhammed Ismail		0.30	Private	12°10'40.8540"N	75°08'25.3788"E
3	Valiyaparamba	Pramod K	96/1B3	0.08	Private	12°10'48.5616"N	75°08'44.1600"E
4	Valiyaparamba	Rajitha CV	95/2B	0.12	Private	12°10'22.3464"N	75°08'34.1844"E
5	Valiyaparamba	Abbas	98/5	0.06	Private	12°10'22.3464"N	75°08'34.1844"E
6	Valiyaparamba	PP.Ramachandran		0.20	Private	12°08'20.4468"N	75°09'26.7948"E
7	Thrikaripur	Shiju		0.02	Private	12°09'02.2284"N	75°09'15.7932"E
8	Thrikaripur	Sasi VV		0.03	Private	12°09'00.9936"N	75°09'15.1020"E
9	Thrikaripur	Muhammed Kunhi		4.00	Private	12°06'49.0788"N	75°11'17.4804"E
10	Thrikaripur	Karthyayani		0.02	Private	12°08'46.7124"N	75°09'20.6604"E
11	Thrikaripur	Pescado	216/6	0.20	Private	12°07'27.0048"N	75°10'14.0520"E
12	Padne	KV Shaji		0.02	Private	12°08'51.8244"N	75°08'58.5744"E
13	Padne	Muhammed Kunhi	219/5	2.00	Private	12°09'21.3084"N	75°09'01.8792"E
14	Padne	KV Dasan	286/4	0.02	Private	12°08'51.7164"N	75°08'58.5708"E
15	Padne	Shaju K	93/1A	0.04	Private	12°10.18.2748"N	75°08'28.4244"E
16	Padne	K Karunakaran	219/5	0.40	Private	12°09'25.5816"N	75°09'.00.2952"E
17	Padne	K Shanthakumar	219/5	0.40	Private	12°09'21.2364"N	75°09'01.7928"E
18	Padne	R Raji	93/1	0.02	Private	12°09'30.8232"N	75°08'42.5544"E
19	Padne		93/1	0.04	Public	12°10'10.3008"N	75°08'45.9204"E
20	Padne	Sandhya MV	265/1A	0.06	Private	12°08'47.2272"N	75°09'21.1608"E
21	Padne	Sasi PV	265/1	0.06	Private	12°09'00.8460"N	75°09'15.9984"E
22	Padne	Shiju VK	265/1	0.04	Private	12°09'02.5596"N	75°09'16.7040"E
23	Padne	Ashkar	267	0.40	Private	12°10'36.2076"N	75°08'36.2076"E
24	Padne		265	0.02	Public	12°10'19.0812"N	75°08'44.7648"E
25	Padne		268	1.25	Public	12°11'07.5336"N	75°08'27.2148"E
26	Padne		265	0.06	Public	12°11'06.8784"N	75°08'21.5808"E
27	Padne		265	0.34	Public	12°11'50.5032"N	75°08'00.3696"E
28	Padne	Babu PK	265	0.04	Private	12°11'40.3980"N	75°07'07.8872"E
29	Cheruvathur	Suresh N	88/20	0.02	Private	12°13'45.8328"N	75°08'35.4696"E
30	Cheruvathur			0.10	Public	12°12'49.9716"N	75°07'46.1208"E
31	Cheruvathur	Rajesh	114/3	0.04	Private	12°13'52.1328"N	75°09'57.5532"E
32	Kanhangad	Chithrabhanu		0.40	Private	12°18'06.8040"N	75°06'33.1920"E
33	Kanhangad	Chirutha		0.40	Private	12°18'07.8192"N	75°06'39.7872"E
34	Kanhangad	Bekal Club	397	0.10	Private	12°16'24.4488"N	75°06'52.3368"E
35	Kanhangad	Bekal Club	397	0.80	Private	12°16'23.1888"N	75°06'50.7816"E
36	Kanhangad	K Vijayan	540	0.34	Private	12°16'21.9468"N	75°06'47.1060"E
37	Mangalpady	Ibrahim	224/1	0.20	Private	12°38'33.3960"N	74°55'80.1912"E
		Total		**12.84**			

Annexure - XIV B

LIST OF AQUACULTURE AREA IN OPEN WATERS

Thiruvananthapuram district						
Sl. No.	**Name of LSGI**	**GPS position of one end**	**GPS position of another end**	**Distance in KM**	**Extent of area in ha**	**No of units**
1	Poovar	08°18'59.8824"N	08°19'04.7472"N	0.50	0.25	2
		77°04'39.5400"E	77°04' 29.1120"E			
2	Kadinamkulam	08°37'14.2320"N	08°38'06.2844"N	2.00	1.00	2
		76°48'22.0824"E	76°47'44.5344"E			
3	Andoorkonam	08°36'01.8684"N	08°36'04.4408"N	4.00	2.00	6
		76°50'06.7992"E	76°50' 07.7640"E			
4	Mangalapuram	08°37'37.9272"N	08°37'36.2928"N	2.00	1.00	1
		76°49'31.3608"E	76°49'30.7668"E			
5	Chirayinkeezhu-1	08°42'02.4264"N	08°42'10.6254"N	1.00	0.50	2
		76°44'41.7444"E	76°44'41.7372"E			
6	Chirayinkeezhu-2	08°38'06.0540"N	08°38'08.9736"N	0.50	0.25	44
		76°47'35.9268"E	76°47'45.9960"E			
7	Anchuthengu	08°42'02.4156"N	08°42'03.4264"N	1.00	0.50	2
		76°44'41.7372"E	76°44' 43.7444"E			
8	Elakamon	08°78'53.3940"N	08°78'54.9940"N	2.00	1.00	2
		76°70'09.2170"E	76°71'09.2170"E			
9	Manamboor	08°70'10.4276"N	08°71'60.2476"N	3.50	1.75	6
		76°76'61.3500"E	76°77'01.2700"E			
		Total			**8.25**	**67**
Kollam district						
Sl. No.	**Name of LSGI**	**GPS position of one end**	**GPS position of another end**	**Distance in KM**	**Extent of area in ha**	**No of units**
1	Paravoor M	08º49'12.0140"N	08º49'21.7468"N	1.00	0.50	2
		76°39'33.0006" E	76°39'25.5244" E			
2	Poothakkulam	08º47'24.9812"N	08º47'28.9121"N	1.50	0.75	1
		76°41'21.0712" E	76°41'25.6244" E			
3	Chirakkara-1	08º50'05.0856"N	08º50'08.7468"N	1.00	0.50	8
		76°40'35.5872" E	76°40'41.6244" E			
3	Chirakkara-2	08º50'04.6298"N	08º 50'12.3792"N	2.00	1.00	25
		76°40'37.4954" E	76°40'17.2596" E			
4	Adichanalloor	08º51'34.4196"N	08º51'58.5596"N	2.50	1.25	31
		76°39'55.8756" E	76°39'79.0156" E			
5	Chathannoor	08º59'34.0692"N	08º59'38.0832"N	1.00	0.50	6
		76°39'02.3220" E	76°39'06.4620" E			
6	Mayyanad	08º49'53.0796"N	08º50'47.6268"N	1.00	0.50	1

		76°38'12.3512" E	76°40'08.7312" E			
7	Kollam C 1 thuruth	08º55'32.8512"N	08º55'48.8729"N	1.50	0.75	20
		76°34'28.3512" E	76°34'46.3869" E			
8	Neendakara-1	08°57'08.4312"N	08°57'12.5712"N	0.50	0.25	2
		76°32'49.4160"E	76°32'44.9232"E			
9	Neendakara-2	08°57'26.3340"N	08°57'26.4888"N	0.50	0.25	6
		76°32'28.7412"E	76°32'29.5332"E			
10	Chavara-1	08°58'43.3272"N	08°58'32.1492"N	1.00	0.50	3
		76°33'41.8248"E	76°33'15.5412"E			
11	Chavara-2	08°58'25.6980"N	08°58'11.7588"N	0.50	0.25	13
		76°33'06.4584"E	76°32'59.4960"E			
12	Chavara-3	08°58'09.5772"N	08°57'42.6708"N	1.00	0.50	16
		76°32'46.8348"E	76°32'35.6208"E			
13	Panmana-1	09°02'36.9564"N	09°02'35.9448"N	0.03	0.02	1
		76°33' 06.2028"E	76°33'05.8896"E			
14	Panmana-2	09°01'58.1376"N	09°01'49.4904"N	0.50	0.25	5
		76°33'26.3232"E	76°33'23.2992"E			
15	Thekkumbhagom-1	08º56' 25.8864"N	08º56' 49.7184"N	3.00	1.50	4
		76º30' 37.7208"E	76º32' 08.6496"E			
16	Thekkumbhagom-2	08º57' 21.1068"N	08º57'19.4652"N	0.10	0.05	4
		76º33'36.8640"E	76º33'35.0712"E			
17	Thekkumbhagom-3	08º57' 21.2004"N	08º57'14.4972"N	0.50	0.25	15
		76º33'36.9288"E	76º33'25.9812"E			
18	Thekkumbhagom-4	08º59' 30.3972"N	08º57'59.2560"N	3.00	1.50	8
		76º32'49.5996"E	76º33'32.6664"E			
19	Thekkumbhagom-5	08º59'30.3972"N	08º57' 59.4144"N	3.00	1.50	4
		76º32'49.5996"E	76º33'32.6880"E			
20	Thekkumbhagom-6	08º58'02.2512"N	08º57'59.4144"N	0.20	0.10	3
		76º33'35.7552"E	76º33'32.6880"E			
21	Thekkumbhagom-7	08º58'02.2370"N	08º58'21.7524"N	0.75	0.38	6
		76º33'35.7372"E	76º33'20.9268"E			
22	Thekkumbhagom-8	08º57'37.3788"N	08º58'08.4576"N	0.60	0.30	2
		76º33'35.4276"E	76º33'16.3548"E			
23	Thekkumbhagom-9	08º57'02.4984"N	08º58'21.7812"N	0.40	0.20	3
		76º33'44.1396"E	76º33'20.9268"E			
24	Thekkumbhagom-10	08º57'55.6560"N	08º58'38.3196"N	1.50	0.75	1
		76º34'10.0380"E	76º34'29.1504"E			
25	Thekkumbhagom-11	08º57'35.3196"N	08º57'31.8456"N	0.35	0.18	11
		76º32'41.0748"E	76º32'51.2772"E			
26	Thekkumbhagom-12	08º57'35.4960"N	08º57'38.1996"N	0.10	0.05	2
		76º32'41.1072"E	76º32'40.5384"E			

27	Thekkumbhagom-13	08º57'39.3948"N	08º57'35.7552"N	0.15	0.08	3
		76º32'38.0256"E	76º32'35.6424"E			
28	Thekkumbhagom-14	08º57'35.7264"N	08º57'31.2840"N	0.15	0.08	6
		76º32'35.4192"E	76º32'35.1420"E			
29	Thekkumbhagom-15	08º57'39.3660"N	08º57'38.2284"N	0.10	0.05	2
		76º32'38.0256"E	76º32'40.5384"E			
30	Alappad 1	09°02'07.4364"N	09°04'22.4904"N	4.50	2.25	3
		76°30'39.5316"E	76°29'42.6588"E			
31	Alappad 2	09°07'30.9072"N	09°07'48.2596"N	0.75	0.38	2
		76°28'20.0352"E	76°28'02.4024"E			
32	Alappad 3	09°06'00.8316"N	09°06'28.1160"N	1.00	0.50	2
		76°29'01.5216"E	76°28'52.8024"E			
33	Thevalakkara-1	09°02'05.5248"N	09°02'09.0024"N	0.20	0.10	1
		76°33'59.3460"E	76°34'02.5248"E			
34	Thevalakkara-2	08º59'07.0080"N	08º59'42.0396"N	6.50	3.25	1
		76º40'06.6828"E	76º36'42.6492"E			
35	Thevalakkara-3	09°00'08.2908"N	09°00'32.2920"N	1.00	0.50	3
		76°36'36.5508"E	76°36'21.8484"E			
36	West Kallada-1	09°00'30.2256"N	09°00'31.0932"N	0.50	0.25	1
		76°36'59.0292"E	76°36'59.2524"E			
37	West Kallada-2	09°00'02.2428"N	09°00'02.1672"N	0.20	0.10	2
		76°36'52.0804"E	76°36'52.4736"E			
38	Mundrothuruth 1	08°59'16.1196"N	08°59'39.4764"N	0.73	0.37	8
		76°36'22.1938"E	76°36'38.4178"E			
39	Mundrothuruth 2	08°59'59.2008"N	08°59'57.2604"E	1.93	0.97	15
		76°35'56.5368"E	76°36'59.7780"E			
40	East Kallada	08°59'321036"N	08°59'58.7652"N	1.23	0.62	7
		76°38'49.9272"E	76°38'19.9392" E			
41	Perayam	08°58'56.7660"N	08°59'57.9192"N	2.19	1.10	15
		76°37'44.5548"E	76°38'21.7500" E			
42	Perinad	08°57'04.3632"N	08°57'58.4532"N	3.12	1.56	25
		76°37'51.9852" E	76°39'18.6084" E			
43	Panayam	08°58'13.2780"N	08°57'26.4816"N	1.43	0.72	18
		76°37'09.4692" E	76°37'09.4692" E			
44	Thrikkaruva-1	08°55'43.6584"N	08°57'50.8644"N	4.52	2.26	18
		76°34'30.0720" E	76°35'44.1888"E			
45	Thrikkaruva-2	08°55'45.6744"N	08°56'09.0204"N	1.54	0.77	19
		76°34'32.6028" E	76°35'17.2248" E			
46	Thrikkaruva-3	08°58'03.4000"N	08°57'45.7010"N	0.56	0.28	24
		76°36'07.1000" E	76°36'02.2320" E			
		Total			**30.67**	**378**

Alappuzha district						
Sl. No.	**Name of LSGI**	**GPS position of one end**	**GPS position of another end**	**Distance in KM**	**Extent of area in ha**	**No of units**
1	Devikulangara	09°07'49.6272"N	09°07'49.0440"N	0.03	0.02	1
		76°28'33.4308"E	76°28'34.2840"E			
2	Arattupuzha-1	09°13'46.2324"N	09°13'45.2712" N	0.03	0.02	1
		76°25'41.0772"E	76°25'41.5164"E			
3	Arattupuzha-2	09°11'30.5556"N	09°11'31.0632"N	0.02	0.01	1
		76°26'46.4892"E	76°26'46.3164"E			
4	Thrikunnappuzha-1	09°15'17.4276"N	09°15'26.9712"N	0.33	0.17	6
		76°25'24.9168"E	76°25'19.7076"E			
5	Thrikunnappuzha-2	09°15'22.1832"N	09°15'26.9208"N	0.23	0.12	17
		76°25'24.1536"E	76°25'18.4080"E			
6	Thrikunnappuzha-3	09°16'11.0712"N	09°16' 10.1532"N	0.03	0.02	1
		76°24'43.5888"E	76°24'43.0776"E			
7	Thrikunnappuzha-4	09°15'53.3448"N	09°15'53.2584"N	0.02	0.01	1
		76°24'43.8300" E	76°24'44.3448"E			
8	Karthikapally-1	09°15'22.2480"N	09°15'26.9712"N	0.19	0.10	6
		76°25'23.6136"E	76°25'19.7076"E			
9	Karthikapally-2	09°15'28.6128"N	09°15'28.9080"N	0.03	0.02	1
		76°25'06.0852"E	76°25'06.02400"E			
10	Karthikapally-3	09°15'02.8512"N	09°14'54.3912"N	0.60	0.30	1
		76°26'29.5944"E	76°26'47.3712"E			
11	Karthikapally-4	09°15'04.7448"N	09°15'05.0616"N	0.02	0.01	1
		76°26'30.2676"E	76°26'29.9408"E			
12	Purakkad	09°19'42.8664"N	09°19'44.1696"N	0.05	0.03	1
		76°23'15.7812''E	76°23'14.4816"N			
13	Alappuzha M	09°31'17.580"N	09°31'18.948"N	0.16	0.08	3
		76°22'10.0488"E	76°22'04.7568"E			
14	Mannanchery	09°34'36.5664"N	09°34'35.5880"N	0.03	0.02	1
		76°21'36.1836"E	76°21'36.3310"E			
15	Muhamma	09°36'09.3348"N	09°36'09.3348"N	0.43	0.22	1
		76°21'40.9570"E	76°21'55.0764"E			
16	Thanneermukkam	09°42'00.5688"N	09°41'16.0872"N	3.28	1.64	2
		76°21'37.3176"E	76°22'12.5940"E			
17	Pallippuram	09°48'39.3012"N	09°45'55.8540"N	5.24	2.62	10
		76°21'58.9428"E	76°22'47.8560"E			
18	Perumbalam	09°51'08.7588" N	09°49'50.3400" N	2.48	1.24	2
		76°21'58.7016" E	76°21'39.7728" E			
19	Kuthiyathode	09°46'36.3108" N	09°47'27.9024" N	1.69	0.85	3
		76°17'11.9652" E	76°16'52.5828" E			
		Total			**7.50**	**60**

Kottayam district						
Sl. No.	**Name of LSGI**	**GPS position of one end**	**GPS position of another end**	**Distance in KM**	**Extent of area in ha**	**No of units**
1	Thalayazham	9°42'45.0396"N	9°43'57.7325"N	6.19	3.09	21
		76°24'26.0316"E	76°24'37.4009"E			
2	Vaikom (M)	9°44'19.1076"N	9°45'32.4468"N	4.50	2.25	20
		76°23'26.0412"E	76°23'10.9680"E			
3	Vechoor	9°40'46.7580"N	9°40'29.7372"N	2.10	1.05	6
		76°24'38.0664"E	76°24'27.4032"E			
4	TV Puram	9°43'12.0324"N	9°43'12.0612"N	3.50	1.75	13
		76°23'19.2012"E	76°23'18.8664"E			
5	Udayanapuram	9°47'05.0670"N	9°46'12.0972"N	2.00	1.00	6
		76°22'16.87444"E	76°22'46.0344"E			
6	Maravanthuruth	9°46'56.5788"N	9°47'49.0272"N	1.50	0.75	14
		76°24'32.8428"E	76°22'37.9668"E			
7	Chempu-1	9°48'37.1664"N	9°49'35.5188"N	0.85	0.42	17
		76°23'12.3396"E	76°23'03.0948"E			
8	Chempu-2	9°49'47.5752"N	9°48'41.5908"N	4.15	2.08	92
		76°23'00.7800"E	76°24'53.6184"E			
	Total				**12.39**	**189**
Ernakulam district						
Sl. No.	**Name of LSGI**	**GPS position of one end**	**GPS position of another end**	**Distance in KM**	**Extent of area in ha**	**No of units**
1	Maradu	09° 55'38.9496"N	09° 56'23.6904"N	4.31	2.16	24
		76°19'27.5448"E	76° 18' 41.4684"E			
2	Amballor	09°50'45.6576"N	09°49'54.0840"N	3.00	1.50	50
		76°23'26.0592"E	76°23'39.8940"E			
3	Udayamperoor	90°50'41.3088"N	09°50'40.3764"N	2.00	1.00	60
		76°23'12.6564"E	76°23'56.6976"E			
4	Thripunithura	09°55'47.9856"N	09°55'47.9856"N	1.00	0.50	40
		76°20'40.3692"E	76°20'39.6636"E			
5	Puthenvelikkara-1	10° 11' 56.2808"N	10° 11' 56.7956"N	3.55	1.78	40
		76° 12' 53.6116"E	76° 14' 21.3864"E			
6	Puthenvelikkara-2	10° 11' 42.2808"N	10° 09' 07.9544"N	9.16	4.58	25
		76° 12' 52.6116'E	76° 16' 29.4600"E			
7	Kumbalanghi-1	09°53'48.0300"N	09°51'40.1940"N	5.61	2.81	63
		76°17'14.8560"E	76°17'38.0058"E			
8	Kumbalanghi-2	09°52'52.8276"N	09°51'44.5968"N	5.63	2.82	68
		76°16'46.6500"E	76°17'39.5232"E			
9	Kumbalam-1	09°55'04.5372"N	09° 53' 46.7124"N	5.94	2.97	50
		76° 18' 35.748"E	76° 18' 55.422"E			
10	Kumbalam-2	09° 54' 54.9108"N	09° 53' 09.5316"N	8.35	4.18	50
		76° 19' 2.0388"E	76° 20' 21.588"E			
11	Ezhikkara-1	10°04'29.604"N	10°7'09.1164"N	4.00	2.00	20

		76°14'27.4488"E	76°13'24.0069"E			
12	Ezhikkara-2	10°08'01.5864"N	10°8'39.1128"N	3.00	1.50	20
		76°12'24.9084"E	76°14'23.3124"E			
13	Ezhikkara-3	10°04'46.3584"N	10°05'35.4696"N	3.00	1.50	20
		76°14'28.9284"E	76°14'27.4569"E			
14	Ezhikkara-4	10°05'39.9948"N	10°06'17.3016"N	2.00	1.00	15
		76°13'41.2716"E	76°13'16.0932"E			
15	Kottuvally	10°07'16.5948"N	10°07'16.5756"N	7.00	3.50	70
		76°13'39.0126"E	76°13'39.1656"E			
16	Chendhamangalam-1	10°10'50.7216"N	10°11'02.5188"N	2.00	1.00	20
		76°13'32.2464"E	76°13'03.2628"E			
17	Chendhamangalam-2	10°11'31.3836"N	10°11'19.2192"N	2.00	1.00	20
		76°12'44.0748"E	76°12'15.2064"E			
18	Chendhamangalam-3	10°09'48.0312"N	10°11'19.2192"N	8.00	4.00	40
		76°15'06.0498"E	76°12'15.2064"E			
19	Chendhamangalam-4	10°10'33.2724"N	10°10'45.5088"N	2.00	1.00	20
		76°14'13.4304"E	76°13'23.1852"E			
20	Vadakkekara	10°11'12.2316"N	10°10'24.7368"N	2.00	1.00	30
		76°11'41.6652"E	76°10'48.7128"E			
21	Chittatukara	10°08'55.0212"N	10°09'00.0306"N	2.00	1.00	70
		76°12'06.0516"E	76°12'21.3588"E			
22	Varapuzha-1	10°05'12.0084"N	10°05'12.0084"N	3.00	1.50	25
		76°15'25.8012"E	66°15'25.8012"E			
23	Varapuzha-2	10°03'50.0976"N	10°03'59.0544"N	3.00	1.50	25
		76°15'33.6096"E	76°16'27.0102"E			
24	Chellanam-1	09° 54' 45.1728"N	09° 51' 55.8216"N	5.21	2.61	25
		76° 15' 29.3544"E	76° 16' 10.4088"E			
25	Chellanam-2	09° 54' 14.0040"N	09° 53' 55.7988"N	4.60	2.30	25
		76° 15' 24.4188"E	76° 15' 54.1260"E			
26	Elamkunnapuzha-1	10°02'12.3121"N	10°0'37.0908"N	6.30	3.15	50
		76°14'05.7105"E	76°14'13.2576"E			
27	Narakkal	10°02'16.4102"N	10°03'03.9124"N	5.05	2.53	40
		76°14'03.8214"E	76°13'50.5123"E			
28	Nayarambalam	10°04'23.8632"N	10°03'12.5532"N	10.60	5.30	60
		76°13'08.6031"E	76°13'27.3864"E			
29	Edavanakkad	10°08'02.8092"N	10°04'28.1820"N	9.80	4.90	55
		76°21'01.9431"E	76°11'51.0072"E			
30	Kuzhupilly	10°06'49.2696"N	10°06'53.3836"N	5.34	2.67	45
		76°12'16.24968"E	76°12'36.0201"E			
31	Pallipuram	10°09'50.6010"N	10°07'47.1012"N	6.40	3.20	50

		76°11'18.3018"E	76°12'24.4241"E			
32	Kadamakudy-1	10º 02' 45.7834" N	10º 02' 21.8649" N	0.80	0.40	6
		76º 15' 00.6418" E	76º 15' 07.2576" E			
33	Kadamakudy-2	10º 02' 47.2672" N	10º 02' 29.6458" N	0.60	0.30	4
		76º 15' 08.4283" E	76º 15' 18.9614" E			
34	Kadamakudy-3	10º 02' 42.1574" N	10º 02' 45.3877" N	0.20	0.10	2
		76º 15' 01.2587" E	76º 15' 49.3564" E			
35	Kadamakudy-4	10º 02' 42.5745" N	10º 02' 45.9618" N	0.30	0.15	3
		76º 15' 46.5627" E	76º 15' 00.3785" E			
36	Kadamakudy-5	10º 02' 35.7218" N	10º 02' 07.4212" N	0.90	0.45	8
		76º 16' 01.5622" E	76º 16' 08.4716" E			
37	Kadamakudy-6	10º 03' 51.1486" N	10º 01' 58.3278" N	0.50	0.25	2
		76º 15' 50.6254" E	76º 16' 05.7451" E			
38	Kadamakudy-7	10º 02' 45.2417" N	10º 03' 04.1946" N	0.70	0.35	6
		76º 16' 33.8617" E	76º 16' 45.2574" E			
39	Kadamakudy-8	10º 02' 42.5644" N	10º 02' 44.6215" N	0.25	0.13	2
		76º 15' 42.3215" E	76º 15' 49.2061" E			
40	Kadamakudy-9	10º 02' 23.2341" N	10º 03' 02.7286" N	0.30	0.15	2
		76º 15' 54.5236" E	76º 15' 55.9856" E			
41	Kadamakudy-10	10º 02' 51.5877" N	10º 03' 24.4276" N	0.30	0.15	2
		76º 15' 57.3285" E	76º 16' 05.4134" E			
42	Kadamakudy-11	10º 03' 14.7693" N	10º 03' 14.8521" N	0.38	0.19	2
		76º 15' 30.3811" E	76º 15' 42.4178" E			
43	Kadamakudy-12	10º 03' 17.5674" N	10º 03' 20.2186" N	0.47	0.24	4
		76º 15' 25.3687" E	76º 15' 09.2035" E			
44	Kadamakudy-13	10º 03' 08.8694" N	10º 02' 58.4873" N	0.35	0.18	3
		76º 15' 06.3859"E	76º 15' 05.4781" E			
45	Kadamakudy-14	10º 03' 34.3849" N	10º 03' 33.5234" N	1.32	0.66	22
		76º 14' 43.1243" E	76º 14' 41.4262" E			
46	Kadamakudy-15	10º 03' 23.3842" N	10º 03' 49.5619" N	0.90	0.45	15
		76º 15' 49.7255" E	76º 15' 59.8573" E			
47	Kadamakudy-16	10º 03' 51.5366" N	10º 03' 50.5367" N	0.21	0.11	2
		76º 15' 54.8562" E	76º 15' 47.6574" E			
48	Kadamakudy-17	10º 03' 07.5277" N	10º 03' 23.2237" N	0.50	0.25	5
		76º 15' 57.6755" E	76º 16' 02.6647" E			
49	Kadamakudy-18	10º 03' 24.2586" N	10º 03' 48.4522" N	0.70	0.35	10
		76º 15' 49.2563" E	76º 15' 59.7852" E			
50	Cheranaloor-1	10º 02' 20.3028" N	10º 02' 20.3424" N	0.02	0.01	1
		76º 16' 09.2460" E	76º 16' 09.3210" E			
51	Cheranaloor-2	10º 03' 39.2904" N	10º 03' 26.4816" N	1.00	0.50	1
		76º 16' 50.5020" E	76º 16' 47.2224" E			
52	Mulavukad-1	10°00' 43.1172"N	10°00'28.0404"N	3.00	1.50	40

		76°14' 33.7632"E	76°14'58.2936"E			
53	Mulavukad-2	09°59'59.6040"N	09°59'49.1136"N	0.50	0.25	10
		76°14'36.9744"E	76°14'36.7152"E			
54	Mulavukad-3	09°59'55.3704"N	09°59'53.6424"N	0.10	0.05	10
		76°15'36.7344"E	76°15'43.9704"E			
55	Mulavukad-4	09°59'36.2472"N	09°59'03.0228"N	1.00	0.50	10
		76°14'41.7984"E	76°14'46.4280"E			
56	Mulavukad-5	09º 55' 53.5728" N	09º 55' 46.6932" N	0.30	0.15	5
		76º 18' 08.2080" E	76º 18' 13.1256" E			
57	Mulavukad-6	09º 55'48 .2890" N	09º 55' 34.1156" N	0.52	0.26	20
		76º 17' 35.0644" E	76º 17' 43.2894" E			
58	Mulavukad-7	10º 00' 04.0987" N	10º 00' 05.0840" N	0.34	0.17	5
		76º 16' 21.6644" E	76º 16' 32.8612" E			
59	Mulavukad-8	10º 00' 04.9525" N	10º 00' 52.0491" N	1.52	0.76	30
		76º 16' 33.6416" E	76º 16' 18.4809" E			
	Total				**81.47**	**1447**
Thrissur district						
Sl. No.	**Name of LSGI**	**GPS position of one end**	**GPS position of another end**	**Distance in KM**	**Extent of area in ha**	**No of units**
1	Eriyad	10°11'04.5720"N	10°11'04.5720"N	0.10	0.05	1
		76°09'55.5480"E	76°09'55.5480"E			
2	Kodungallur M	10°11'53.6756"N	10°30'09.7163"N	5.00	2.50	38
		76°11'38.5781"E	76°16'37.8723"E			
3	Sreenarayanapuram	10°24'37.6000"N	10°15'54.8880"N	2.00	1.00	14
		76°10'41.6940"E	76°11'02.6460"E			
4	Mathilakam	10°30'09.7163"N	10°30'09.7163"N	0.10	0.05	1
		76°16'37.8723"E	76°16'37.8723"E			
5	Poyya	10°.12'10.2"N	10°.12'25.2"N	3.00	1.50	6
		76°14'02.1"E	76°13'.59"E			
6	Vellangallur	10°28'66.8000"N	10°25'86.1600"N	4.00	2.00	9
		76°17'07.1269"E	76°20'07.5096"E			6
7	Vadanappilly	10°29'06.7200" N	10°29'42.2340" N	2.00	1.00	4
		76°05'10.9932" E	76°05'04.4232" E			
8	Engandiyur	10°31'55.3188" N	10°31'51.5352"	1.00	0.50	12
		76°02'29.9760" E	76°02'49.3320"			
9	Venkitangu	10°30'32.9544"N	10°30'33.1452"N	1.00	0.50	4
		76°05'05.9784" E	76°05'05.8308" E			
10	Manalur	10°29'17.8548"N	10°30'14.9940"N	4.00	2.00	10
		76°05'09.0276"E	76°05'50.5896"E			
	Total				**11.10**	**105**

Malappuram district						
Sl. No.	**Name of LSGI**	**GPS position of one end**	**GPS position of another end**	**Distance in KM**	**Extent of area in ha**	**No of units**
1	Perumpadappu	10°42'56.0108" N	10°42'56.1129" N	0.25	0.13	1
		75°59'71.5139" E	75°59'71.6926" E			
2	Veliyancode	10°43'85.2142" N	10°44'55.1129" N	2.00	1.00	23
		75°56'39.1279" E	75°56'32.6926" E			
3	Maranchery	10°45'03.8622" N	10°45'20.8864" N	1.00	0.50	9
		75°56'67.0079" E	75°56'70.4904" E			
4	Ponnani M-1	10°47'08.6181" N	10°48'40.4959"N	2.00	1.00	3
		75°55'53.8779" E	75°57'38.9724" E			
5	Ponnani M-2	10°46'58.7895" N	10°47'15.9061"N	1.00	0.50	7
		75°57'03.0483" E	75°57'80.4588" E			
6	Purathur	10°46'12.4072" N	10°48'22.0127" N	1.00	0.50	2
		75°55'06.0264" E	75°55'06.0407" E			
7	Purathur	10°48'30.2781" N	10°48'30.4994" N	1.00	0.50	4
		75°55'15.2963" E	75°55'15.7811" E			
8	Thalakkad	10°52'03.1766"N	10°52'03.3754"N	1.00	0.50	7
		75°55'08.8208"E	75°55'07.9095"E			
9	Tirur-1	10°55'06.3391"N	10°55'06.3193"N	0.50	0.25	1
		75°54'62.7498"E	75°54'62.8102"E			
10	Tirur-2	10°55'37.8894"N	10°55'38.1699"N	0.50	0.25	1
		75°55'00.4079"E	75°55'04.0959"E			
11	Parappanangadi	11°01'09.2419"N	11°01'29.5404"N	1.00	0.50	5
		75°52'18.1947"E	75°53'02.0828"E			
12	Moonniyur	11°04'96.1687"N	11°05'95.2697"N	0.25	0.13	1
		75°53'04.0563"E	75°52'15.3321"E			
13	Thenhipalam	11°05'95.4829"N	11°07'72.2522"N	0.00	0.00	1
		75°52'14.5999"E	75°51'86.9773"E			
14	Vallikunnu	11°05'93.2345"N	11°07'54.4521'N	3.00	1.50	25
		75°52'13.9743"E	75°49'97.8881"E			
15	Vazhayur	11°12'28.0538"N	11°13'64.7465"N	1.50	0.75	8
		75°51'91.1058"E	75°53'22.3784"E			
16	Vettom	10º51'05.6034"N	10º52'05.6378"N	0.50	0.25	2
		75º54'96.6522"E	75º55'00.3518"E			
17	Tanur	11°01'04.4022"N	11°0127.9726"N	1.50	0.75	8
		75° 52'19.9444"E	75° 53'04.7141" E			
	Total				**9.01**	**108**
Kozhikode district						
Sl. No.	**Name of LSGI**	**GPS position of one end**	**GPS position of another end**	**Distance in KM**	**Extent of area in ha**	**No of units**
1	Kadalundi	11°08'28.1778" N	11°08'43.6422" N	2.00	1.00	20
		75°50'41.4928"E	75°51'18.3783"E			

2	Feroke M	11°10'03.4474"N	11°10'77.2494"N	0.70	0.35	6
		75°48'90.8700"E	75°49'72.2073"E			
3	Olavanna	11°13'49.3952"N	11°13'46.2895"N	1.00	0.50	5
		75°49'82.6438"E	75°49'94.9290"E			
4	Thalakalathur	11°21'27.1403"N	11°21'50.5393"N	0.50	0.25	5
		75°44'69.5325"E	75°44'81.7533"E			
5	Kakkodi	11°20'62.9136"N	11°20'63.1221"N	0.50	0.25	5
		75°47'54.5445"E	75°47'55.2134"E			
6	Chelannur	11°20'71.7399"N	11°21'30.4379"N	1.00	0.50	13
		75°47'60.5911"E	75°46'67.4474"E			
7	Chemanchery	11°22'65.3583"N	11°23'17.9915"N	1.00	0.05	20
		75°44'66.6699"E	75°44'53.0591"E			
8	Atholi	11°23'02.4516"N	11°23'48.8540"N	0.80	0.40	15
		75°44'97.1143"E	75°44'86.2574"E			
9	Chengottukavu	11°26'29.2120"N	11°26'59.7751"N	0.80	0.40	10
		75°43'68.2718"E	75°43'69.3017"E			
10	Koyilandy M	11°26'62.9199"N	11°26'83.6794"N	1.00	0.50	10
		75°43'69.4345"E	75°43'73.0655"E			
11	Ulliyeri	11°26'59.2802"N	11°26'68.2236"N	0.30	0.15	4
		75°43'78.0021"E	75°43'87.8673"E			
12	Moodadi	11°29'76.6655"N	11°30'44.0589"N	1.80	0.90	20
		75°40'20.2813"E	75°39'88.4911"E			
13	Thikkodi	11°30'65.3677"N	11°30'65.4091"N	0.50	0.25	6
		75°39'32.2230"E	75°39'21.0181"E			
14	Keezhariyoor	11°28'68.7689"N	11°30'57.5854"N	3.00	1.50	30
		75°41'63.7446"E	75°40'07.2377"E			
15	Thurayur	11°31'78.5283"N	11°31'99.1868"N	0.80	0.40	5
		75°39'74.4497"E	75°40'00.3256"E			
16	Maniyoor	11°33'70.1599"N	11°34'06.5727"N	1.50	0.75	20
		75°38'01.4130"E	75°38'42.0103"E			
17	Payyoli M	11°33'95.8555"N	11°33'96.2201"N	0.80	0.40	8
		75°37'01.2285"E	75°36'99.6473"E			
18	Thiruvallur	11°36'46.5907"N	11°36'46.6410"N	0.40	0.20	5
		75°39'69.5936"E	75°39'69.6489"E			
19	Vadakara M	12°12'54.8655"N	12°12'43.0921"N	0.40	0.20	3
		75°07'79.3554"E	75°07'82.4554"E			
	Total				**8.95**	**210**
Kannur district						
Sl. No.	**Name of LSGI**	**GPS position of one end**	**GPS position of another end**	**Distance in KM**	**Extent of area in ha**	**No of units**
1	Pinarayi	11°49'50.0034"N	11°49'29.8776"N	1.00	0.50	25
		75°29'30.8421"E	75°29'49.1848"E			
2	Peralassery	11° 49' 50.9304" E	11° 49' 7.0212" N	5.00	2.50	20

		75° 29' 30.5016 " N	75° 28' 28.3008" E			
3	Panoor-1	11° 42'46.7028" N	11° 42'47.5344" N	0.50	0.25	10
		75° 35' 28.6290" E	75° 35' 20.4252" E			
4	Panoor-2	11° 42' 46.7136" N	11° 42' 46.7136" N	0.25	0.15	1
		75° 35' 28.7016" E	75° 35' 28.7016" E			
5	Panoor-3	11° 42' 46.7784" N	11° 42' 46.7784" N	0.25	0.15	1
		75° 35' 28.5144" E	75° 35' 28.5144" E			
6	Narath	11° 55' 14.2248 " N	11° 55' 14.2248" N	0.50	0.25	3
		75° 24 38.8296 " E	75°24'38.8296 " E			
7	Kolachery-1	11° 57' 55.1628" N	11°58' 23.8440" N	2.50	1.25	5
		75° 23' 13.3188" E	75° 24' 8.5824" E			
8	Kolachery-2	11° 58 ' 23.8440" N	11° 58'23.8440" N	0.25	0.15	3
		75° 24' 8.5824" E	75° 24' 8.5824" E			
9	Mayyil	12° 0' 18.5004"N	12° 0' 18.5004"N	0.25	0.15	5
		75° 24 ' 27.9252"E	75° 24 ' 27.9252"E			
10	Pappinissery	11° 56' 17.0043" N	11° 56 '56.4001 "N	4.00	2.00	20
		75° 21' 24.0324 "E	75°19' 38.7408" E			
11	Kalyassery	11° 57' 51.7752" N	11° 57' 51.7752" N	1.50	0.75	35
		75° 19' 45.7176" E	75° 19' 45.7176" E			
12	Kannapuram	11° 58' 2.4276 "N	11° 58' 52.6008" N	1.50	0.75	25
		75° 17' 58.7402"E	75° 17' 29.8068" E			
13	Aanthur-1	12° 0' 12.7872" N	12° 0' 47.6136" N	5.00	2.50	20
		75° 20' 57.8148" E	75° 19' 52.3092" E			
14	Aanthur-2	12° 0' 40.5612" N	11° 58' 19.8948" N	7.00	3.50	5
		75° 24' 25.6968" E	75° 22' 59.8836"E			
15	Thaliparamba-1	12° 2' 37.3740 " N	12° 2' 37.3820" N	0.50	0.25	5
		75° 20' 8.1924 E	75° 20' 8.1928"E			
16	Thaliparamba-2	12° 2' 37.3560" N	12° 3' 17.9110" N	3.00	1.50	5
		75° 20' 8.0952" E	75° 20'59.5536" E			
17	Cherukunnu	12 0' 25.9380" N	12 1' 20.9964" N	3.00	1.50	18
		75 16' 44.3712 " E	75°16'34.6476 " E			
18	Pattuvam	.12° 0' 44.7516 " N	12° 0' 54.8388" N	2.00	1.00	100
		75° 19' 49.7532 "E	75° 19' 2.3268"E			
19	Pariyaram	12° 3' 11.3364"N	12° 3' 56.5848 "N	2.50	1.25	10
		75° 20' 43.6092 "E	75° 20' 15.6876"E			
20	Ezhome-1	12°02'3.2460"N	12°01'15.4948"N	0.25	0.13	8
		75°18'13.1472"E	75°17'59.4456"E			
21	Ezhome-2	12°02'24.8424"N	12°02'24.9001"N	3.00	1.50	150
		75°19'51.5640"E	75°19'51.9500"E			
22	Madayi-1	12°02'11.7276"N	12°0'47.9052"N	1.00	0.50	6
		75°13'31.9656"E	75°15'46.6308"E			
23	Madayi-2	12°02'28.6152"N	12°02'15.6768"N	0.25	0.15	1
		75°13'34.1146"E	75°14'11.1120"E			

24	Madayi-3	12°02'44.6064"N	12°02'46.8924"N	1.00	0.50	7
		75°13'39.9396"E	75°13'41.1610"E			
25	Madayi-4	12°03'27.1404"N	12°03'26.1024"N	0.50	0.25	2
		75°14'37.3668"E	75°14'36.3655"E			
26	Madayi-5	12°03'58.4268"N	12°03'58.4268"N	0.02	0.01	1
		75°13'58.8612"E	75°13'58.8612"E			
27	Cheruthazham-1	12°02'59.7156"N	12°03'0.2304"N	0.50	0.25	5
		75°15'9.1980"E	75°15'4.3452"E			
28	Cheruthazham-2	12°06'42.0732"N	12°06'32.9112"N	1.00	0.50	6
		75°15'44.4284"E	75°15'2.5164"E			
29	Kunhimangalam-1	12°06'26.3664"N	12°06'22.7592"N	1.00	0.50	5
		75°13'15.5640"E	75°13'12.2772"E			
30	Kunhimangalam-2	12°03'7.4844"N	12°06'43.1280"N	1.00	0.50	25
		75°13'27.2856"E	75°13'39.5724"E			
31	Payyannur M-1	12°05'52.5264"N	12°05'41.9064"N	3.00	1.50	150
		75°12'43.1580"E	75°10'49.1484"E			
32	Payyannur M-2	12°04'22.5948"N	12°04'26.5836"N	3.00	1.50	150
		75°12'8.1864"E	75°12'32.4936"E			
33	Ramanthali-1	12°04'14.3184"N	12°03'59.5224"N	1.50	0.75	30
		75°12'3.0528"E	75°12'52.0056"E			
34	Ramanthali-2	12°03'56.9448"N	12°03'45.6408"N	1.00	0.50	20
		75°10'54.1668"E	75°10'58.0116"E			
	Total				**29.39**	**882**
Kasargode district						
Sl. No.	**Name of LSGI**	**GPS position of one end**	**GPS position of another end**	**Distance in KM**	**Extent of area in ha**	**No of units**
1	Valiyaparamba-1	12°03'36.0540"N	12°05'42.6264"N	7.00	3.50	30
		75°10'44.5872"E	75°10'41.5668"E			
2	Valiyaparamba-2	12°05'29.9328"N	12°05'29.9328"N	0.30	0.02	50
		75°09'57.6792"E	75°09'57.6792"E			
3	Valiyaparamba-3	12°05'29.9328"N	12°09'18.8676"N	6.00	3.00	670
		75°09'57.6792"E	75°08'32.3412"E			
4	Valiyaparamba-4	12°07'50.5920"N	12°07'25.5036"N	0.60	0.30	40
		75°10'12.1512"E	75°09'33.7788"E			
5	Valiyaparamba-5	12°07'26.1696"N	12°07'26.1696"N	0.01	0.01	50
		75°09'33.4764"E	75°09'33.4764"E			
6	Valiyaparamba-6	12°07'26.3964"N	12°07'26.3964"N	0.33	0.17	25
		75°09'33.5232"E	75°09'33.5232"E			
7	Valiyaparamba-7	12°07'32.1096"N	12°07'32.9232"N	0.01	0.01	3
		75°09'31.6800"E	75°09'33.8472"E			
8	Valiyaparamba-8	12°07'33.3552"N	12°07'56.7336"N	1.00	0.50	150
		75°09'34.3620"E	75°09'46.0152"E			
9	Valiyaparamba-9	12°07'57.8100"N	12°08'11.5152"N	0.18	0.09	50

		75°09'46.2312"E	75°09'45.3888'E			
10	Valiyaparamba-10	12°07'10.7328'N	12°08'09.0096'N	2.60	1.30	120
		75°09'26.9136"E	75°09'19.6200"E			
11	Valiyaparamba-11	12°08'22.6284"N	12°08'31.8516"N	1.00	0.05	40
		75°08'57.5918"E	75°09'14.7924"E			
12	Valiyaparamba-12	12°08'31.8516"N	12°08'22.4880"N	0.01	0.01	6
		75°09'14.7924"E	75°09'24.2748"E			
13	Valiyaparamba-13	12°08'22.4880"N	12°08'21.3648"N	0.01	0.01	3
		75°09'24.2748"E	75°09'25.7472"E			
14	Valiyaparamba-14	12°08'20.4468"N	12°08'13.6356"N	1.00	0.05	70
		75°09'26.7948"E	75°09'37.2312"E			
15	Valiyaparamba-15	12°08'13.5744"N	12°08'13.5744'N	0.01	0.01	3
		75°09'37.2888"E	75°09'37.2888"E			
16	Valiyaparamba-16	12°09'22.3596"N	12°09'35.2044"N	3.00	1.50	25
		75°08'30.8436"E	75°08'30.4332"E			
17	Valiyaparamba-17	12°09'21.3588"N	12°09'22.3596"N	0.60	0.30	20
		75°08'31.2720"E	75°08'30.8436"E			
18	Valiyaparamba-18	12°10'29.5356"N	12°10'43.4136"N	0.01	0.00	2
		75°08'37.6656"E	75°08'34.0024"E			
19	Valiyaparamba-19	12°11'06.5400"N	12°10'27.8580"N	0.45	0.23	2
		75°08'27.8448"E	75°08'14.9244"E			
20	Valiyaparamba-20	12°11'05.1108"N	12°11'05.1108"N	2.00	1.00	58
		75°08'49.9596"E	75°08'49.9596"E			
21	Valiyaparamba-21	12°11'16.8864"N	12°11'16.8864"N	0.25	0.10	80
		75°07'51.0420"E	75°07'51.0420"E			
22	Valiyaparamba-22	12°11'18.4020"N	12°11'37.0068"N	0.50	0.25	80
		75°07'50.9628"E	75°07'38.4348"E			
23	Valiyaparamba-23	12°12'18.0216"N	12°11'57.9588"N	0.50	0.25	83
		75°07'47.8416"E	75°07'37.8300"E			
24	Valiyaparamba-24	12°05'44.9000"N	12°06'23.3000"N	7.00	4.50	600
		75°10'06.9000"E	75°10'14.9000"E			
25	Valiyaparamba-25	12°06'53.2000"N	12°06'01.0000"N	2.00	1.00	80
		75°10'10.5000"N	75°10'16.0000"E			
26	Thrikaripur-1	12°07'14.5920"N	12°07'20.6544"N	2.00	1.00	50
		75°09'41.4648"E	75°09'41.3964"E			
27	Thrikaripur-2	12°07'26.5152"N	12°07'26.3944"N	0.50	0.25	22
		75°09'43.2216"E	75°09'43.3944"E			
28	Thrikaripur-3	12°07'56.2872"N	12°07'57.2738"N	1.00	0.50	25
		75°09'51.4260"E	75°09'51.6060"E			
29	Thrikaripur-4	12°08'35.0628"N	12°08'30.9300"N	1.00	0.50	30
		75°09'29.9664"E	75°09'31.4424"E			
30	Thrikaripur-5	12°08'52.3140"N	12°09'01.2312"N	2.00	1.00	50
		75°09'15.5808"E	75°09'14.1840"E			
31	Thrikaripur-6	12°09'10.5697"N	12°09'04.2840"N	3.00	1.50	40

		75°09'14.4468"E	75°09'13.4280"E			
32	Thrikaripur-7	12°09'54.7464"N	12°09'13.2372"N	3.00	1.50	2
		75°09'50.8752"E	75°09'13.3128"E			
33	Thrikaripur-8	12°09'20.1132"N	75°09'14.1372"N	1.00	0.50	30
		75°09'13.9428"E	75°09'14.1372"E			
34	Padne-1	12°08'45.9564"N	12°11'47.5584"N	7.00	3.50	210
		75°09'20.9448"E	75°07'57.6300"E			
35	Padne-2	12°09'14.4036"N	12°10'23.8800"N	3.00	1.50	13
		75°08'47.1768"E	75°08'29.4432"E			
36	Padne-3	12°09'18.4752"N	12°10'31.8216"N	3.00	1.50	90
		75°08'47.1192"E	75°08'29.1840"E			
37	Padne-4	12°09'10.9728"N	12°11'34.6380"N	6.00	3.00	12
		75°09'15.0768"E	75°08'40.6032"E			
38	Cheruvathur-1	12°12'17.3880"N	12°12'18.5040"N	1.00	0.50	75
		75°07'49.7244"E	75°07'48.1332"E			
39	Cheruvathur-2	12°12'18.5040"N	12°12'58.3596"N	1.00	0.50	72
		75°07'48.1368"E	75°07'12.7164"E			
40	Cheruvathur-3	12°13'04.3644"N	12°13'04.3644"N	2.00	1.00	70
		75°07'12.1368"E	75°07'12.1368"E			
41	Cheruvathur-4	12°13'33.2040"N	12°13'37.2268"N	0.50	0.25	40
		75°07'06.3156"E	75°07'07.5468"E			
42	Cheruvathur-5	12°13'54.4440"N	12°13'49.5660"N	1.00	0.50	67
		75°07'44.7276"E	75°08'00.3444"E			
43	Cheruvathur-6	12°13'07.9680"N	12°13'07.1184"N	5.00	2.50	500
		75°08'07.8592"E	75°08'20.4972"E			
44	Cheruvathur-7	12°13'11.9100"N	12°13'18.6240"N	2.00	1.00	60
		75°08'22.8552"E	75°08'24.5328"E			
45	Cheruvathur-8	12°13'38.4564"N	12°13'46.5600"N	0.05	0.25	50
		75°07'37.0020"E	75°07'48.9396"E			
46	Cheruvathur-9	12°13'43.8312"N	12°13'44.6016"N	0.05	0.25	24
		75°07'43.6008"E	75°07'44.4756"E			
47	Cheruvathur-10	12°13'45.9768"N	12°13'49.8216"N	1.00	0.50	15
		75°07'46.1748"E	75°07'49.5984"E			
48	Cheruvathur-11	12°13'33.7656"N	12°13'33.3804"N	0.05	0.25	5
		75°08'56.2992"E	75°08'55.6440"E			
49	Cheruvathur-12	12°14'00.3012"N	12°13'56.4960"N	2.00	1.00	80
		75°07'56.7048"E	75°08'30.1272"E			
50	Cheruvathur-13	12°14'10.9176"N	12°14'15.6480"N	2.00	1.00	40
		75°09'11.2320"E	75°09'25.5060"E			
51	Cheruvathur-14	12°16'21.9468"N	12°12'04.0176"N	1.00	0.50	2
		75°06'47.1060"E	75°07'56.3916"E			
52	Kayyur-Cheemeni-1	12°14'12.2136"N	12°14'12.0372"N	1.00	0.05	5
		75°09'44.1864"E	75°09'43.9128"E			
53	Kayyur-Cheemeni-	12°14'12.1092"N	12°14'12.4692"N	1.00	0.50	5

	2					
		75°09'43.7400"E	75°09'43.5492"E			
54	Kayyur-Cheemeni-3	12°14'41.7372"N	12°14'41.5212"N	1.00	0.50	2
		75°09'52.9956"E	75°09'52.6680"E			
55	Kayyur-Cheemeni-4	12°14'42.2484"N	12°14'42.2412"N	1.00	0.50	1
		75°09'52.7508"E	75°09'52.3152"E			
56	Kayyur-Cheemeni-5	12°15'39.5496"N	12°16'24.8448"N	2.00	1.00	10
		75°10'08.8320"E	75°11'04.0524"E			
57	Kayyur-Cheemeni-6	12°16'13.4148"N	12°15'58.8456"N	11.00	6.50	30
		75°11'08.6208"E	75°13'41.5740"E			
58	Kayyur-Cheemeni-7	12°16'42.9348"N	12°15'58.6512"N	3.00	1.50	10
		75°15'42.1848"E	75°16'45.9660"E			
59	Nileswaram M-1	12°12'33.5448"N	12°12'33.6996"N	0.05	0.03	1
		75°07'15.4056"E	75°07'15.3408"E			
60	Nileswaram M-1	12°14'36.4812"N	12°14'50.8632"N	1.00	0.50	5
		75°07'11.6076"E	75°06.59'.4540"E			
61	Kanhangad M-1	12°15'47.1492"N	12°15'23.8104"N	0.07	0.04	2
		75°06'59.0724"E	75°07'06.1356"E			
62	Kanhangad M-2	12°15'24.8868"N	12°15'41.4540"N	2.00	1.00	6
		75°07'04.3284"E	75°07'08.2416"E			
63	Kanhangad M-3	12°15'41.3352"N	12°15.41.6232"N	0.07	0.04	3
		75°07'08.4756"E	75°07'08.6052"E			
64	Kanhangad M-4	12°15'41.4972"N	12°16'27.2532"N	2.00	1.00	6
		75°07'08.5008"E	75°06'48.8988"E			
65	Kanhangad M-5	12°18'27.0540"N	12°18'40.5936"N	0.20	0.10	2
		75°06'28.3176'E	75°06'50.0472"E			
66	Kanhangad M-6	12°18'35.3268"N	12°18'35.9676"N	2.00	1.00	6
		75°06'18.3456"E	75°06'18.9504"N			
67	Kanhangad M-7	12°18'08.4384"N	12°17'56.4432"N	2.00	1.00	5
		75°06'46.0008"E	75°06'54.8100"E			
68	Ajanoor	12°20'59.0532"N	12°20'44.0592"N	2.50	1.25	12
		75°03'42.5124"E	75°03'49.0284"E			
69	Pallikkara-1	12°23'57.1596"N	12°24'24.3576"N	1.50	0.75	5
		75°01'42.0348"E	75°01'58.3392"E			
70	Pallikkara-2	12°24'24.9120"N	12°24'23.7672"N	1.50	0.75	5
		75°01'59.4804"E	75°01'57.6228"E			
71	Chemnad-1	12°28'22.7388"N	12°28'59.1096"N	17.00	8.50	10
		74°59'49.4952"E	75°04'39.5076"E			
72	Chemnad-2	12°29'29.1696"N	12°29'29.1984"N	0.08	0.04	2
		75°02'08.4660"E	75°02'08.7648"E			
73	Chemnad-3	12°30'26.7912"N	12°30'26.7948"N	0.04	0.02	1
		75°01'27.3252"E	75°01'27.4512"E			

74	Chengala-1	12°29'59.6220"N	12°29'57.9480"N	0.20	0.10	5
		75°0118.4656"E	75°01'55.6608"E			
75	Chengala-2	12°30'20.0052"N	12°28'58.1988"N	20.00	10.00	10
		75°01'18.4656"E	75°04'40.6452"E			
76	Mogral-Puthur-1	12°31'51.9816N	12°31'51.9888"N	0.24	0.12	6
		74°57'45.8568"E	74°57'45.8568"E			
77	Mogral-Puthur-2	12°31'54.5736"N	12°31'54.7572"N	0.16	0.08	4
		74°57'44.5428"E	74°57'45.4464"E			
78	Mangalpady-1	12°37'01.3008"N	12°38'10.9284"N	10.00	5.00	1
		74°55'56.9820"E	74°56'58.5060"E			
79	Mangalpady-2	12°38'05.7300"N	12°38'28.9896"N	1.50	0.75	1
		74°55'11.3880"E	74°55'09.6564"E			
80	Mangalpady-3	12°42'19.7352"N	12°42'20.8224"N	0.04	0.02	1
		74°53'28.1256"E	74°53'27.6792"E			
81	Mangalpady-4	12°42'19.7928"N	12°41'38.4792N	4.00	2.00	1
		74°53'28.0716"E	74°54'21.8160"E			
82	Manjeshwar-1	12°42'37.8648"N	12°42'38.1060"N	0.12	0.06	3
		74°53'34.4076"E	74°53'33.4320"E			
83	Manjeshwar-2	12°45'14.9328"N	12°45'36.8604"N	3.00	0.15	1
		74°52'02.7120"E	74°52'11.4636"E			
	Total				**89.26**	**4181**

Annexure - XIV C								
LIST OF AQUACULTURE AREA IN KAIPAD AREA OF KANNUR								
Sl. No.	**Name of LSGI**	**Name of farmer/ group**	**Sy No**	**Extent of area in ha**	**Type**	**Public/ Private**	**Latitude**	**Longitude**
1	Kannur	Munderi,		10.00	Culture field	Private	11°56'10.9104"N	75 25'52.8924"E
2	Ezhome	Kayal group		7.82	Culture field	Private	12°01'38.3304"N	75°16'20.1864"E
3	Ezhome	Chootayam		40.46	Culture field	Private	12°01'33.3121"N	75°16'56.1648"E
4	Ezhome	Avathekkai		24.28	Culture field	Private	12°01'51.2184"N	75°17'11.8572"E
5	Ezhome	Raveendran		27.31	Culture field	Private	12°02'08.5812"N	75°18'14.1696"E
6	Ezhome	Kannom		20.00	Culture field	Private	12°02'39.9732"N	75°18'21.0924"E
7	Ezhome	New farm		16.19	Culture field	Private	12°02'42.8356"N	75°18'21.1259"E
8	Ezhome	Kottila		10.00	Culture field	Private	12°02'49.4196"N	75°18'27.0288"E
9	Ezhome	Sasi		49.00	Culture field	Private	12°02'34.2312"N	75°18'31.3668"E
10	Kannapuram	Mungam Farm,		5.00	Culture field	Private	11°58'10.3296"N	75°18'37.1304"E
11	Pattuvam	Sreyas Activity Group		5.00	Culture field	Private	12°02'13.5168"N	75°18'43.1496"E
12	Ezhome	Thirunilam kaippad		10.00	Culture field	Private	12°02'50.3736"N	75°18'46.8180"E
13	Kannapuram	Choottakkeel Farm		5.00	Culture field	Private	11°58'38.8452"N	75°19' 6.3912" E
14	Anthoor M	We one group		13.00	Culture field	Private	12°00'07.6392"N	75°20'31.5708"E
15	Anthoor M	Sivadasan		5.00	Culture field	Private	12°00'30.5064"N	75°21'27.5172"E
16	Kannur	Varam Kadavu Farm		6.43	Culture field	Private	11°54'54.4644"N	75°24'50.7528"E
17	Kolachery	Yousuf,		5.00	Culture field	Private	11°58'40.9044"N	75°24'58.6836"E
18	Kolachery	Ansar KE		5.00	Culture field	Private	11°55'31.5768"N	75°25'30.9001"E
19	Thalassery M	roxy		4.80	Culture field	Private	11°46'14.6521"N	75°28'29.5215"E
20	Thalassery M	Pavithran M		5.00	Culture field	Private	11°46'19.2246"N	75°28'34.5472"E
21	Thalassery M	Sherif A K		5.00	Culture field	Private	11°46'23.4251"N	75°28'38.2254"E
22	Thalassery M	Amica Natura aqua farm	411/2	5.00	Culture field	Private	11°46'20.2224"N	75°28'42.0744"E
23	Thalassery M	Nishand E K		5.00	Culture field	Private	11°46'27.2598"N	75°28'43.8512"E
24	Thalassery M	Valiyakandam		5.00	Culture field	Private	11°46'27.1740"N	75°28'46.8264"E
25	Thalassery M	Fathima fish farm		5.00	Culture field	Private	11°46'39.5940"N	75°28'50.5164"E
26	Thalassery M	Octopus aqua farm		5.00	Culture field	Private	11°46'41.0664"N	75°28'53.6664"E
27	Dharmadam	Dharmadam	55	1.50	Culture field	Private	11°47'27.3876"N	75°29'14.6868"E
28	Dharmadam	Dharmadam	54/1	2.50	Culture field	Private	11°47'27.4092"N	75°29'14.7048"E
29	Dharmadam	Dharmadam	34/2	0.44	Culture field	Private	11°47'27.4092"N	75°29'14.7048"E
30	Dharmadam	Preman		5.40	Culture field	Private	11°47'32.4598"N	75°29'17.4587"E
31	Dharmadam	Raghunathan		1.50	Culture field	Private	11°48'40.1148"N	75°29'40.3332"E
32	Thalassery M	Flower horn farm		5.00	Culture field	Private	11°46'31.2636"N	75°29'40.4088"E
33	Eranholi	Jagadeesh babu		10.40	Culture field	Private	11°47'47.4432"N	75°29'55.6008"E
34	Dharmadam	Preman	81/2	5.50	Culture field	Private	11°04'58.6254"N	75°29'80.2644"E
35	Eranholi	Balan		2.30	Culture field	Private	11°47'14.4996"N	75°29'90.6756"E
36	Eranholi	N Rajan		3.20	Culture field	Private	11°47'48.6996"N	75°30'00.9036"E

37	Thalassery M	Nittoor		2.00	Culture field	Private	11°46'22.9568"N	75°29'20.4302"E
38	Dharmadam	Fisheries Dpt		1.00	Culture field	Public	11°48'40.1148"N	75°29'40.3332"E
39	Thalassery M	Asad, Thalassery		1.28	Culture field	Private	11°45'16.9092"N	75°30'19.5804"E
40	Panoor M	Monthal, Panoor		2.00	Culture field	Private	11°41'17.8908"N	75°33'46.6884"E
41	Panoor M	A Rmachandran		6.00	Culture field	Private	11°40'14.9376"N	75°34'10.4368"E
42	Dharmadam	Moosa	89/1	7.00	Filtration field	Private	11°47'56.0364"N	75°28'28.9488"E
43	Eranholi	Tharishu bhoomi	108	4.00	Mudflats	Private	11°47'34.3644"N	75°30'20.9520"E
44	Eranholi	Tharishu bhoomi		8.00	Mudflats	Private	11°79'49.6666"N	75°50'66.8500"E
45	Eranholi	Tharisubhoomi		.0.2	Mudflats	Private	11°79'65.9166"N	75°50'95.9330"E
		TOTAL		**373.31**				

Annexure - XIV D								
LIST OF AQUACULTURE AREA IN POKKALI								
Sl. No.	**Name of LSGI & District**	**Name of farmer**	**Sy No**	**Extent of area in ha**	**Type**	**Public/ Private**	**Latitude**	**Longitude**
1	Kadakkarappally	K Komalavally	324/1A1,324/1A2	0.90	Culture Field	Private	09°43'00.9912"N	76°17' 20.4072"E
2	Kadakkarappally	T J Antony	260/13.A	0.30	Culture Field	Private	09°43' 01.2288"N	76°17' 51.8678"E
3	Kadakkarappally	KR Antony	236/1-4	0.63	Culture Field	Private	09°42'31.1328" N	76°17'48.1344" E
4	Vayalar	PV Kunjappan	250/1, 15/22	0.60	Culture Field	Private	09°44'03.8724" N	76°20'26.0016" E
5	Vayalar	KJ Xavier	250/1	0.15	Culture Field	Private	09°43'37.5024" N	76°20'34.7784" E
6	Vayalar	PN Nadarajan	51/1 -80-2	1.60	Culture Field	Private	09°42'32.7564" N	76°20'30.8760" E
7	Vayalar	KK Ramakrishnan	51/1-28,1	1.25	Culture Field	Private	09°42'15.0444" N	76°20'28.2480" E
8	Vayalar	Boban P Mathew	135/8B, 8B2	1.50	Culture Field	Private	09°44'24.7380" N	76°19'57.1764" E
9	Pallippuram	Sebastian Antony	287/4A	1.20	Culture Field	Private	09°45'52.0308" N	76°20'15.0828" E
10	Pallippuram	Joseph Xavier	290/6, 290/5	0.40	Culture Field	Private	09°45'47.9448" N	76°20'42.7632" E
11	Pattanakkad	T B Mohandas	399/31,33,34	0.80	Culture Field	Private	09°44'15.4536N	76°17'29.4684" E
12	Pattanakkad	Kathrina (Lissamma jolly)	242/20, 21A 2B	0.60	Culture Field	Private	09°42'39.2652" N	76°17'58.1964" E
13	Pattanakkad	EK Gireesh	346/1-1-3	1.80	Culture Field	Private	09°44'13.0848" N	76°18'03.5460" E
14	Pattanakkad	PN Prasanna	345/1	1.80	Culture Field	Private	09°44'13.6824" N	76°18'02.6604" E
15	Pattanakkad	K S Sivaprasad	398/1-1-2,398/1-1	2.00	Culture Field	Private	09°43'29.8920" N	76°18'03.7440" E
16	Pattanakkad	Vargeese sebastian	415/1A,415/1A5,415/1A6	0.80	Culture Field	Private	09°45'03.1248" N	76°17'17.0412" E
17	Pattanakkad	Thressyamma,MS.Aliyamma	415/1A6,415/A	0.50	Culture Field	Private	09°45'03.1716" N	76°17'17.0988 E
18	Pattanakkad	Kishore babu	407/1B	1.60	Culture Field	Private	09°42'28.5048" N	76°18'10.8864" E
19	Pattanakkad	Martin PV	257/1-1	0.60	Culture Field	Private	09°44'44.6640" N	76°17'24.8460" E
20	Pattanakkad	Elsi Vargeese	415/1A7,1A5,1A10, 1A11,1A12	1.70	Culture Field	Private	09°44'55.9032" N	76°17'18.5892" E
21	Pattanakkad	Vargeese john	415/A5,414/1-4,415/1A-9,415/1A8	1.20	Culture Field	Private	09°48' 48.0924N	76°17' 29.9976"E
22	Pattanakkad	K J Cyrus	381/3-1,381/2-1	1.70	Culture Field	Private	09°44'53.1564" N	76°17'19.3596" E
23	Thykattussery	George Xavier	99/3-1, 3-4	0.45	Culture Field	Private	09°45'52.1316" N	76°20'14.9244" E
24	Thuravoor	Susan Ouseph	29/3A, 3B, 3C, 9/2-1	1.40	Culture Field	Private	09°45'29.8440" N	76°09'52.4532" E
25	Thuravoor	Nandagopal Kammath	125/3-1, 125/3-2 AB	2.50	Culture Field	Private	09°47'23.4528" N	76°19'25.9356" E
26	Thuravoor	Ashokan pt		0.20	Culture Field	Private	09°46'37.7220" N	76°19'54.8796" E
27	Thuravoor	P Sivan	68/19-2	0.50	Culture Field	Private	09°47'11.1624" N	76°19'40.9800" E
28	Thuravoor	C P Purushotham	29/12 C2	0.24	Culture Field	Private	09°45'24.6060" N	76°19'52.1436" E

		an						
29	Thuravoor	Maniyappan C	61/21/1	0.23	Culture Field	Private	09°46'37.6356" N	76°19'52.3020" E
30	Thuravoor	Sivadasan	61/6B	0.12	Culture Field	Private	09°46'39.8676" N	76°19'42.8520" E
31	Thuravoor	P K Kamalasana n	2,129/14A2	0.52	Culture Field	Private	09°47'22.5456" N	76°19'20.5752" E
32	Thuravoor	KV Jiji	7/5, 50/13, 107/1A	2.00	Culture Field	Private	09°45'42.8256" N	76°20'01.0392" E
33	Thuravoor	George Alaxander	9/4, 9/3	1.10	Culture Field	Private	09°45'30.2976" N	76°20'02.9004" E
34	Thuravoor	Jollyamma Alex	9/9B1, B2, 5/9-1-4	0.90	Culture Field	Private	09°45'30.2976" N	76°20'02.9004" E
35	Thuravoor	Sivaprasad R	67/19, 68/1	0.25	Culture Field	Private	09°47'11.1524" N	76°19'40.9000" E
36	Thuravoor	Varghese VC	35/10 , 33/10	1.39	Culture Field	Private	09°45'30.3696" N	76°20'02.9940" E
37	Thuravoor	R Surendranad ha kammath	127/1-4,127/1-3	1.20	Culture Field	Private	09°47'23.4652" N	76°19'25.9456" E
38	Thuravoor	Bahuleyan NS	285/17A	0.20	Culture Field	Private	09°45'15.3828" N	76°20'10.8204" E
39	Thuravoor	Muraleedhar an	35/12-13	0.36	Culture Field	Private	09°45'30.2976" N	76°20'02.9004" E
40	Thuravoor	P X Sebastian	14/1/c4	1.60	Culture Field	Private	09°46'13.1592N	76°17'08.7864" E
41	Thuravoor	Tessy Mathew	12/1.2,12/1.3,12/1. 4	0.60	Culture Field	Private	09°46'12.2448" N	76°17'08.7684" E
42	Thuravoor	PS Thomas	14/1, C/4	1.20	Culture Field	Private	09°44'52.1592" N	76°17'13.8912" E
43	Thuravoor	PV Prakashan	98/4B 4	0.50	Culture Field	Private	09°44'45.0672" N	76°19' 50.6208"E
44	Thuravoor	K Z Mary gracy	261/1,2,3	0.16	Culture Field	Private	09°44'47.8392" N	76°19' 05.4700"E
45	Thuraoor	Balachandra n.M V	9/6,9/c,9/7,9/8	0.30	Culture Field	Private	09°45'30.2876" N	76°20'02.8004" E
46	Thuravoor	CG Sakunthala Bhai	31/1, 36.1	0.34	Culture Field	Private	09°46'23.8800" N	76°19'42.1716" E
47	Thuravoor	Sathiyamma Purushotham an	36/1-3, 35/7	0.34	Culture Field	Private	09°46'17.5656" N	76°19' 51.8412"E
48	Thuravoor	Mahilamani	35/4-1-3	0.20	Culture Field	Private	09°46'17.4828" N	76°19'52.6476" E
49	Thuravoor	KS Muhammad	16/4/3, 16/4/5	2.00	Culture Field	Private	09°46'03.7884" N	76°17'28.2264" E
50	Thuravoor	H.Jayakumar	210/B	1.20	Culture Field	Private	09°45'18.9324" N	76°17'33.5724" E
51	Thuravoor	P S Thomas	283/1	0.84	Culture Field	Private	09°46'15.2256" N	76°17'14.8632" E
52	Thuravoor	Antony K R	283/1	0.65	Culture Field	Private	09°46'11.9496" N	76°17'10.1364" E
53	Thuravoor	Minimol Thomas	283/1	1.08	Culture Field	Private	09°46'12.0144" N	76°17'17.7396" E
54	Thuravoor	T D Vilsant	261/1-1	0.20	Culture Field	Private	09°46' 11.3016"N	76°17'03.1992" E
55	Thuravoor	Sindhumol	6/3A,B,C , 6/5B/3	2.00	Culture Field	Private	09°45'42.7968" N	76°20'02.0364" E
56	Thuravoor	Shajimon K	210/2.3,210/3.2	0.24	Culture Field	Private	09°45' 23.4648"N	76°18'15.9012" E
57	Thuravoor	Jacob Kuruvila	250/1A	0.54	Culture Field	Private	09° 45' 05.3128"N	76°20'06.4348" E
58	Thuravoor	V.G.Mathew	9/5,9/5/2,9/2	0.80	Culture Field	Private	09°45' 30.3976"N	76°20'02.8004" E
59	Kuthiathode	Babu Cherunkal	355/1,2,5, 25/1	2.00	Culture Field	Private	09° 47' 31.6356"N	76°17'16.9008" E
60	Kuthiathode	Liston George	18/1, 16/1, 17/1	2.00	Culture Field	Private	09°46'42.8844" N	76°17'16.1664" E

61	Kuthiathode	Shaji Augustin	14/1C 1	2.00	Culture Field	Private	09°47'10.3380" N	76°16'51.8916" E
62	Kuthiathode	Vinod vasudevan nair	48/2	2.60	Culture Field	Private	09°46'28.4808" N	76°17'44.4336" E
63	Kuthiathode	Prasanth PB	9/1/2-	0.24	Culture Field	Private	09°47'07.0080" N	76°16'55.2216" E
64	Kuthiathode	Baiju paul	14/1AB3.2	1.16	Culture Field	Private	09°46'58.5912" N	76°17'10.71960 "E
65	Kuthiathode	Ahamadul	116/1A,116/1B	1.27	Culture Field	Private	09°46'23.3148" N	76°18'03.7764" E
66	Kodamthuruth	N P.Abdulkhadhar	28/1,29/1,346	1.20	Culture Field	Private	09°47'30.9048" N	76°17'11.1984" E
67	Kodamthuruth	Sofi babu	25/1-4,25/1-6	1.00	Culture Field	Private	09°47'30.9048" N	76°17'11.1984" E
68	Kodamthuruth	Anurag Kaimal	54/1, 55/1, 56/1	4.50	Culture Field	Private	09°47'36.4128" N	76°17'51.8208" E
69	Kodamthuruth	Molly k	40/1	4.00	Culture Field	Private	09°47'36.4128" N	76°17'51.8208" E
70	Kodamthuruth	Vijayanadha kaimal PK	40/1, 1/3/4	4.00	Culture Field	Private	09°47'36.4128" N	76°17'51.8208" E
71	Kodamthuruth	N.P.Sameer	24/1,25/1,39/1	1.30	Culture Field	Private	09°47'38.2776" N	76°17'56.2668" E
72	Kodamthuruth	Thankachan	59/2-6,58/1-2	1.60	Culture Field	Private	09°47'38.1516" N	76°17'56.0400" E
73	Kodamthuruth	N.P.Mujeeb	24/1,25/1,39/1	1.50	Culture Field	Private	09°47'46.4928" N	76°17'52.7388" E
74	Kodamthuruth	Chandrak KM	57/2-6-8,57/2-6-9	0.15	Culture Field	Private	09°47'39.7932" N	76°17'55.6044" E
75	Kodamthuruth	Remanan.A	269/4A,4B,269/8/B 1, 269/8A,2	0.60	Culture Field	Private	09°48'22.7772" N	76°19' 20.0460"E
76	Kodamthuruth	C J Joseph	68/1-1,	0.26	Culture Field	Private	09°48'16.0920" N	76°17' 51.9432"E
77	Kodamthuruth	Yesudas John K P	68/2-3,68/2-1	0.19	Culture Field	Private	09°48'17.3988" N	76°17' 52.0584"E
78	Kodamthuruth	Mohanan	271/1-2,271/1-3	1.32	Culture Field	Private	09°48'35.7516" N	76°17' 49.9020"E
79	Kodamthuruth	Sam Felix	76/1A2-16,76/1A2-4	1.02	Culture Field	Private	09°48' 40.6764"N	76°17' 49.4628"E
80	Kodamthuruth	Sherly	25/1-7,25/1-9,355/2-1	1.50	Culture Field	Private	09°48' 31.2480"N	76°17'37.1760" E
81	Kodamthuruth	Romesh chandradath .K	154/9A,154/8A	0.36	Culture Field	Private	09°46'54.3900" N	76°18'37.2852" E
82	Kodamthuruth	P S Varghese	74/29,74/25	0.50	Culture Field	Private	09°45'03.1716" N	76°17'00.0988" E
83	Kodamthuruth	Joseph petre	70/1	2.00	Culture Field	Private	09°48'26.8488" N	76°17'52.8144" E
84	Panavally	Chacko Kurian	14/8A, 8B, 14/8A1	1.40	Culture Field	Private	09°47'35.8000" N	76°20'37.5000" E
85	Ezhupunna	George philip	383/2-3,318/2-2, 318/1-2	0.96	Culture Field	Private	09°50'51.4140" N	76°17'27.0600" E
86	Ezhupunna	Mary jacob	318/1/1,318/2/3	2.00	Culture Field	Private	09°50'51.4140" N	76°17'27.0600" E
87	Ezhupunna	VV Augustin	338/1A/ 2	0.35	Culture Field	Private	09°50'48.5016" N	76°17'24.6804" E
88	Ezhupunna	Pouli George	338/1AB	0.68	Culture Field	Private	09°50'48.5016" N	76°17'24.6804" E
89	Ezhupunna	M.K.Karunakaran	327/2A4,2A5	0.17	Culture Field	Private	09°49'47.5032" N	76°17'16.9584" E
90	Ezhupunna	Devasikkutty	364/11-3	0.38	Culture Field	Private	09°48'51.7788" N	76°18'0.8028"E
91	Ezhupunna	John D Britto	B2, 1C3, 19/1	1.20	Culture Field	Private	09°49'49.044"N	76°18'49.2876" E
92	Ezhupunna	Suresh Britto	173/4-3	1.20	Culture Field	Private	09°49'49.0440" N	76°18'49.2876" E

93	Ezhupunna	Sumothmoha n	271/1	2.00	Culture Field	Private	09°49'42.2832" N	76°18'8.2908"E
94	Ezhupunna	Xavier CJ	218/15 , 14B3	0.28	Culture Field	Private	09°49'05.5380" N	76°18'26.4672" E
95	Ezhupunna	Betcy antony	167/17A 2	0.40	Culture Field	Private	09°49'47.6076" N	76°18'15.7320" E
96	Ezhupunna	Rahila Saajith	166/2	0.60	Culture Field	Private	09°49'58.0332" N	76°18'18.8100" E
97	Ezhupunna	Jose Tharakan	325/1-3	2.00	Culture Field	Private	09°51'00.5364" N	76°17'40.0810" E
98	Ezhupunna	Muralidharan nair.SP	251/7/1,264/4b-2 264/2a5-2,264/483	1.20	Culture Field	Private	09°50'07.6488" N	76°18'00.9540" E
99	Aroor	K K Vasu	97/7C,96/7C1	0.16	Culture Field	Private	09°50'56.9508" N	76°18'12.8340" E
100	Puthenvelikkar a	Shibu PS	424/1-4, 1-5, 1-8	1.78	Culture field	Private	10° 11" 58.1388"N	76°14' 23.7696"E
101	Puthenvelikkar a	Abraham	431/1-3-4	1.20	Culture field	Private	10° 12' 00.4284"N	76°14' 24.7308"E
102	Puthenvelikkar a	Varghese TO	489/1A-4	0.18	Culture field	Private	10° 12' 01.7424"N	76°13' 01.4520"E
103	Kumbalam	Antony Arakkal	104/6	0.91	culture field	private	09°53' 09.5604"N	76°20'21.6096" E
104	Kumbalam	Faisal		0.75	culture field	private	09°53' 26.1128"N	76°20'17.4804" E
105	Kumbalam	Joseph		0.16	culture field	private	09° 53' 28.8420"N	76°20' 16.6786"E
106	Kumbalam	O G group		1.62	culture field	private	09° 54' 17.2512"N	76°19' 41.1204"E
107	Mulavukad	Gowri	80,81,85,86,87,91	10.00	Culture field	Private	10°00'20.4660" N	76°15'70.6392" E
108	Mulavukad	Gowri	113,116	2.28	Culture field	Private	10°00'15.6744" N	76°15'12.6864" E
109	Cochin Corporation	Rosy	19/22	0.40	Culture field	Private	09º55'11.1548" N	76º17'29.4752" E
110	Cochin Corporation	Justin	368/1	0.20	Culture field	Private	09º54'55.4512" N	76º17'13.8456" E
111	Elamkunnapuz ha	Sumesh K.K	632/5,632/6,640/7, 631/7,631/9,361/14	1.35	Culture field	Private	10°01'00.5010" N	76°13'49.4021" E
112	Elamkunnapuz ha	Johnson	361/2	0.52	Culture field	Private	10°01'21.8102" N	76°13'37.1201" E
113	Elamkunnapuz ha	Varghese Jojan	119/5	0.60	Culture field	Private	10°01'24.8125" N	76°13'34.6102" E
114	Elamkunnapuz ha	John Kennedy	194/4,210/14,208/1 3	1.49	Culture field	Private	10°01'50.9102" N	76°14'06.8103" E
115	Elamkunnapuz ha	Shyju K.S.	193/5,193/6,193/12 ,210/1,208/9,208/1 0,193/7	1.90	Culture field	Private	10°01'50.8015" N	76°14'00.6105" E
116	Elamkunnapuz ha	J.C.Bose	361/1,361/2.2	1.01	Culture field	Private	10°01'23.2025" N	76°13'36.4128" E
117	Elamkunnapuz ha	Liju M.J.		0.40	Culture field	Private	10°01'26.2158" N	76°13'34.3125" E
118	Elamkunnapuz ha	Manoj K.C.	204/1-3,204/6-2,204/1-2	0.10	Culture field	Private	10°02'11.5015" N	76°14'04.3015" E
119	Elamkunnapuz ha	Augustine Joseph	283/9	0.13	Culture field	Private	10°01'16.2624" N	76°14'12.1236" E
120	Elamkunnapuz ha	Christopher Paul	285/11	0.30	Culture field	Private	10°01'12.7380" N	76°14'04.4844" E
121	Elamkunnapuz ha	Baby Joseph	690/4	0.32	Culture field	Private	10°01'09.7716" N	76°14'03.1128" E
122	Elamkunnapuz ha	Philo Thomas	333/4,335/12	0.41	Culture field	Private	10°01'10.9020" N	76°14'02.2092" E
123	Elamkunnapuz ha	Mini Benny		0.01	Culture field	Private	10°01'08.9472" N	76°13'59.9160" E
124	Elamkunnapuz ha	Shibu K.B.	688/3	1.60	Culture field	Private	10°00'32.1624" N	76°14'04.8048" E

125	Elamkunnapuzha	Ebin Xavier	651/13-2,651/13-3,651/13-4	0.25	Culture field	Private	10°01'38.4120"N	76°14'07.7676"E
126	Elamkunnapuzha	Sarangan E.S.	380/8,381/7,383/9,378/7	9.67	Culture field	Private	10°01'15.3192"N	76°13'18.9876"E
127	Elamkunnapuzha	Anil Kumar	440/1,114/1	3.00	Culture field	Private	10°00'50.0634"N	76°13'23.9232"E
128	Elamkunnapuzha	Treesa Williams	103/3	1.70	Culture field	Private	09°59'53.0736"N	76°14'13.0668"E
129	Elamkunnapuzha	Cleetus T.A.	690/1	0.17	Culture field	Private	10°00'28.2348"N	76°14'4.9596"E
130	Elamkunnapuzha	Mohanan A.C.	640/2,735/2	15.56	Culture field	Private	10°01'03.2592"N	76°13'58.4472"E
131	Elamkunnapuzha	Bahuleyan M.C.	395/2,5,389/5	3.87	Culture field	Private	10°00'50.3136"N	76°13'05.1168"E
132	Elamkunnapuzha	Merselin K.V.	521/13,25,27	0.40	Culture field	Private	10°00'23.6664"N	76°13'16.0788"E
133	Elamkunnapuzha	Antony PraveenK.J.	547/12	0.38	Culture field	Private	10°0'16.4304"N	76°13'46.0056"E
134	Elamkunnapuzha	Sajeevan P.P.	41/2,3,4,40/5	0.97	Culture field	Private	10°1'46.2504"N	76°13'46.2076"E
135	Elamkunnapuzha	Rajeev V.R.	23/3/3,23/3/4	0.21	Culture field	Private	10°1'36.3360"N	76°12'44.9568"E
136	Elamkunnapuzha	Nijesh A.N.	21-May	0.39	Culture field	Private	09°59'57.2748"N	76°13'32.0592"E
137	Narakkal	Abdul Aziz	37,43,37,43,43	3.43	Culture field	Private	10°02'52.1020"N	76°12'42.8010"E
138	Narakkal	Krishnan	17/1,18/9	1.18	Culture field	Private	10°02'52.6010"N	76°12'41.7020"E
139	Narakkal	Biju V.R.	341/12,15,16,14,17	0.80	Culture field	Private	10°01'46.4012"N	76°12'48.8003"E
140	Narakkal	Fransis David Rodrigues	524/6,4	0.10	Culture field	Private	10°02'32.3015"N	76°13'45.3020"E
141	Narakkal	Sanil Kumar	503/2,503/5,503/4	0.26	Culture field	Private	10°02'14.3012"N	76°13'52.1100"E
142	Narakkal	Bose	341/2,343/1	0.94	Culture field	Private	10°01'53.2010"N	76°12'46.2020"E
143	Narakkal	Saneesh	326/36,326/37	0.35	Culture field	Private	10°02'04.8012"N	76°12'53.9110"E
144	Narakkal	Benny Thomas	255/1	0.49	Culture field	Private	10°02'25.7010"N	76°12'33.9020"E
145	Narakkal	Sadanandan	661/1,2,	2.17	Culture field	Private	10°02'46.9010"N	76°14'11.7231"E
146	Narakkal	Joseph K.P.	654/4,2,655 ,664/2	9.53	Culture field	Private	10°02'36.1010"N	76°14'04.8231"E
147	Narakkal	Matsyafed Fish Farm		24.29	Culture field	Public	10°02'13.4015"N	76°12'35.2041"E
148	Narakkal	Near Fish Farm Kett(north)		0.10	Culture field	Private	10°02'19.8014"N	76°12'32.9021"E
149	Narakkal	Thanka		0.38	Culture field	Private	10°02'04.7123"N	76°12'53.1283"E
150	Narakkal	Mani Surendran		0.50	Culture field	Private	10°02'13.3124"N	76°12'43.3184"E
151	Nayarambalam	Ramesh K.R.	382/3,382/5,380/3,380/1,382/1,382/4,382/2,380/2,380/1	2.00	Culture field	Private	10°03'44.3014"N	76°13'50.9214"E
152	Nayarambalam	Dalbin Dikunja	236/3,236/4,236/2	1.38	Culture field	Private	10°02'18.7010"N	76°14'00.6321"E
153	Nayarambalam	Baiju K.A.		3.02	Culture field	Private	10°03'42.7024"N	76°12'13.1010"E
154	Nayarambalam	A.S.Lala	18/19	0.11	Culture field	Private	10°04'19.0848"N	76°12'49.2876"E
155	Nayarambalam	Tileesh		0.06	Culture field	Private	10°04'32.1168"N	76°12'56.7360"E
156	Nayarambalam	Dananjayan		1.28	Culture field	Private	10°35'03.7696"N	76°12'49.9932"E

157	Nayarambalam	Suresh Kumar T.B.	18/20,18/24	0.07	Culture field	Private	10°04'29.5031" N	76°13'02.7451" E
158	Nayarambalam	Sivanandan K.C.	235/5,2-3,2-6	1.00	Culture field	Private	10°03'07.7302" N	76°12'42.2610" E
159	Nayarambalam	Aravindhakshan N.B.	171/3,170/11,1,5	1.60	Culture field	Private	10°03'54.2013" N	76°12'18.1369" E
160	Edavanakkad	Rajeev V.V.	121/3,122/3	5.00	Culture field	Private	10°06'00.6001" N	76°11'01.4801" E
161	Edavanakkad	Dinesan K.G	318/4-3,318/4-2,318/3,318/1-2	2.00	Culture field	Private	10°04'32.5452" N	76°12'03.3948" E
162	Edavanakkad	Michael A.O.	156/5,157/1,156/5,186,184/1,183/8,187/4,188/2,188/21,184/4-4,156/5,187,184/4-5,156/5,155/5,186/1,187	5.00	Culture field	Private	10°05'11.1580" N	76°11'54.0106" E
163	Edavanakkad	Shibu M.R.	170/13,170/9,167/10,167/10-2171/4,170/7,170/11,171/4171/4	2.00	Culture field	Private	10°05'05.0015" N	76°11'54.0154" E
164	Edavanakkad	Dasan.P.B	274/10,274/4-2,274/4	1.60	Culture field	Private	10°04'56.0024" N	76°12'01.1001" E
165	Edavanakkad	Abdul Aziz	302/2-11,302/2-6,302/2,5,6,8,10,11,4,7	5.00	Culture field	Private	10°07'06.9505" N	76°19'02.5620" E
166	Pallipuram	Murali K.S.	665/7	1.02	Culture field	Private	10°08'01.8001" N	76°12'21.0210" E
167	Pallipuram	Uthaman	685/13,690/1-7,690/1-6,689/6-2,690/1-2,691/13,689/7,690/1-3,690/1-4,690/1-5,689/6-3	3.30	Culture field	Private	10°07'48.8017" N	76°12'23.9001" E
168	Pallipuram	M.M.Nizar	224/2-2,224/11-2,224/2-3,224/3-4,224/2-4	2.58	Culture field	Private	10°09'45.1010" N	76°11'32.5021" E
169	Pallipuram	Moly Dinesan	297/6	1.00	Culture field	Private	10°08'.45.0010" N	76°11'54.2021" E
170	Pallipuram	Sajeev		0.40	Culture field	Private	10°08'51.4001" N	76°11'53.1010" E
171	Pallipuram	Sunil K.A.	606/2-2,606/9-2,606/9-2,	1.12	Culture field	Private	10°07'42.5568" N	76°12'01.9764" E
172	Pallipuram	Jishan		2.02	Culture field	Private	10°10'07.8101" N	76°10'20.1320" E
173	Chellanam	Irattathode		44.00	Culture field	Public	09°50'33.3348" N	76°17' 02.7420"E
174	Chellanam	Paruthithode		40.00	Culture field	Public	09°51'06.0480" N	76°16' 56.9064"E
175	Chellanam	Neethu mol Xavier		1.00	Culture field	Private	09°48'46.9152" N	76°16' 51.9132"E
176	Chellanam	Ganapathyka d A block padasekharam		12.00	Culture field	Private	09°49'45.9372" N	76°16' 20.1216"E
177	Chellanam	P J Raphel		1.00	Culture field	Private	09°49'09.4872" N	76°16' 53.3676"E
178	Chellanam	Mathew		2.00	Culture field	Private	09°54'30.3696" N	76°15' 48.0852"E

179	Chellanam	Antony Praveen		1.00	Culture field	Private	09°52'50.5632" N	76°15' 49.2228"E
180	Kumbalanghi	Chudukadu Padasekhara samathy	325, 328, 331	51.20	Filteration field	private	09°51'30.6540" N	76°16'50.4048" E
181	Kumbalanghi	Thekkuvadak opr Padasekhara samathy	320-1, 322,313-1,315	36.00	Filteration field	private	09°52'4.37880" N	76°16'31.2096" E
182	Kumbalanghi	Padinjare Puthenkaari Padasekhara samathy	425, 432	50.00	Filteration field	private	09°51'32.4576" N	76°16'55.0884" E
183	Kumbalanghi	Manakoor Padasekhara samathy		120.00	Filteration field	private	09°52'4.33920" N	76°16'31.5480" E
184	Mulavukad	Savul Johny Hinu	231/3	1.04	Filteration field	Private	09°59'29.9112" N	76°15'12.1968" E
185	Mulavukad	Bhasy,James	96/18,19	0.40	Filteration field	Private	10°00'21.7332" N	76°14'37.5036" E
186	Mulavukad	Martin Joseph	96/9	0.40	Filteration field	Private	10°00'17.7156" N	76°14'41.6976" E
187	Mulavukad	Dhamanan	112	1.40	Filteration field	Private	09°59'54.8556" N	76°15'09.6768" E
188	Mulavukad	Rajamma Louise	309/1-3	2.00	Filteration field	Private	10°00'51.0768" N	76°15'57.9960" E
189	Ezhikkara	South pokkali nelkrishi vikasana samidhi	49/7B,7B-24, 21-1,18,51/4,5,6 49/5-3,23-4 , 329/1A-217 56329/1A,329/1A-217,56329/1A	200.00	Filteration field	private	10°06'21.0001" N	76°14'08.0005" E
190	Ezhikkara	Vadakkepotta krishi samajam	66/1-5,67/1,66-1-4	14.00	Filteration field	private	10°07'56.0226" N	76°12'26.7084" E
191	Varapuzha	Thirumala devaswam vadakke padangi padasekharam	370/1A, 390/1B, 391/1,392/1	17.00	Filteration field	private	10°05'04.8948" N	76°15'25.8012" E
192	Varapuzha	Thirumala devaswam thekke padangi padasekharam	390/1A, 390/1B,392/1, 395/3, 396/1	16.00	Filteration field	private	10°05'04.8948" N	76°15'25.8012" E
193	Varapuzha	Pallikkanila samajamDevaswam padam	380/1,379/1	12.80	Filteration field	private	10°05'04.8948" N	76°15'25.8012" E
194	Varapuzha	Kattathadam Samajam	354/4, 353/3,402/5,6	20.80	Filteration field	private	10°05'04.8948" N	76°15'25.8012" E
195	Varapuzha	Parippuchira samajam	380/1	9.60	Filteration field	private	10°05'04.8948" N	76°15'25.8012" E
196	Kumbalam	Nandakumar V M	84/2-2	1.70	Filteration field	private	09° 53' 46.0464"N	76°20' 28.0176"E
197	Kumbalam	Harshakumar T M	84/3-11	1.03	Filteration field	private	09° 53' 28.8420"N	76°20' 16.6780"E
198	Kumbalam	Krishnakumar V M	84/3-9	1.05	Filteration field	private	09° 53' 49.0850"N	76°20' 12.3850"E
199	Kumbalam	T M Leela	84/3-10	1.04	Filteration field	private	09° 53' 47.2890"N	76°20' 11.4530"E
200	Elamkunnapuzha	A.P.Abu	219/3,4,2,5,215/3,214/1,204/5,194/2,5,6,1	11.20	Filtration field	Private	10°02'12.1020" N	76°14'06.6125" E

201	Elamkunnapuzha	Antony		5.00	Filtration field	Private	10°01'10.1020" N	76°13'25.2025" E
202	Elamkunnapuzha	V.V Thomas	435/2,438/1,2,3,4,437/3,4,2	5.61	Filtration field	Private	10°01'06.4015" N	76°13'27.4125" E
203	Elamkunnapuzha	Prasad	280/2,257/3,264/5,297/13,274/2,278/14	24.83	Filtration field	Private	10°01'30.8025" N	76°14'19.3025" E
204	Elamkunnapuzha	Kattachal krishi samjam		16.90	Filtration field	Private	10°01'59.9010" N	76°14'13.5015" E
205	Elamkunnapuzha	Paul Ponnan	337/3,337/16	5.84	Filtration field	Private	10°01'12.5184" N	76°13,57.9360" E
206	Elamkunnapuzha	Figaritho		0.02	Filtration field	Private	09°59'59.7480" N	76°14'18.0348" E
207	Elamkunnapuzha	Tony	692/50,692/10,692/45,692/31,692/36,692/38,692/9,6,692/39	1.06	Filtration field	Private	10°00'16.3116" N	76°14'11.6304" E
208	Elamkunnapuzha	Sasi A.K.	123,013,381,340	2.26	Filtration field	Private	10°01'10.0776" N	76°13'22.1268" E
209	Elamkunnapuzha	Ojan	381,383,380,382,378,379,88,634,379,375,	9.67	Filtration field	Private	10°01'26.0256" N	76°13'01.4616" E
210	Elamkunnapuzha	Karthikeyan	389/4,5,2,388/1,3,2,398/1,2,4,396/3,397/1,399/1,390/1,8	22.08	Filtration field	Private	10°01'03.4001" N	76°13'27.4012" E
211	Narakkal	T.D.Bhasi	501/11,8,10,13,14,202/2,497/15	3.64	Filtration field	Private	10°02'15.9024" N	76°14'02.6011" E
212	Narakkal	Dalbin Dikunja	508/9,10,11,502/13,12	1.38	Filtration field	Private	10°02'18.7014" N	76°14'00.6102" E
213	Narakkal	Shaji	343/11,12	1.21	Filtration field	Private	10°01'47.7042" N	76°12'48.8011" E
214	Narakkal	Sivadasan	341/18,343/13	0.60	Filtration field	Private	10°01'49.5014" N	76°12'47.4012" E
215	Narakkal	Sivadas	341/3	0.20	Filtration field	Private	10001'51.8014" N	76°12'43.1012" E
216	Narakkal	Salila Kunjumon	32/1,2,3	1.45	Filtration field	Private	10°03'00.6010" N	76°14'07.3124" E
217	Narakkal	Babu Joseph	.17/2	1.50	Filtration field	Private	10°02'51.9020" N	76°12'42.0021" E
218	Narakkal	Jose K.C.	620/4,620/3,609/9	3.94	Filtration field	Private	10°03'09.7010" N	76°13'49.9010" E
219	Narakkal	Pappachan	634/1,2,4,635/1,4	3.87	Filtration field	Private	10°03'03.1012" N	76°13'53.1021" E
220	Narakkal	Antony K.X	623,624,626/1,2	4.97	Filtration field	Private	10°03'32.8021" N	76°13'50.8014" E
221	Narakkal	George Joseph	619/2,5,7	3.79	Filtration field	Private	10°03'04.7010" N	76°13'51.5002" E
222	Narakkal	Sadanandan	34,36/2,36/1	1.96	Filtration field	Private	10°02'54.0101" N	76°12'41.9015" E
223	Narakkal	Sanoj C.S	18/2,8,6,7,5 ,19/2	2.79	Filtration field	Private	10°02'54.1020" N	76°12'40.7151" E
224	Narakkal	Chandran P.U.	15/9,8,6,2,16/2,5,6	6.55	Filtration field	Private	10°02'48.3012" N	76°12'44.2002" E
225	Narakkal	Kunjachan	500/1,5,6,3,498/1,4,494/7,499/4,6,495/12, 501/3	6.11	Filtration field	Private	10°02'11.6015" N	76°14'02.5010" E
226	Narakkal	Sajiv T. .A	666/1,2	2.46	Filtration field	Private	10°02'19.7241" N	76°14'04.2003" E
227	Narakkal	Chemeenkett		0.10	Filtration field	Private	10°02'53.9005" N	76°13'56.2124" E
228	Narakkal	Tomy K.F.		5.22	Filtration field	Private	10°03'02.2001" N	76°13'44.8514" E

229	Narakkal	Venugopal		0.10	Filtration field	Private	10°01'51.8000" N	76°12'46.9214" E
230	Narakkal	Rajan		0.10	Filtration field	Private	10°01'50.1010" N	76°12'47.8241" E
231	Narakkal	Chandran M.V.	599/1,600,601/2,3	1.93	Filtration field	Private	10°02'57.8124" N	76°13'47.6184" E
232	Narakkal	Ragesh	341/18,343/13	1.61	Filtration field	Private	10°01,50.1432" N	76°12'47.8543" E
233	Narakkal	Ezhupathuke ttu		0.20	Filtration field	Private	10°03'25.2132" N	76°13'57.9234" E
234	Narakkal	ASSISI School		7.28	Filtration field	Private	10°02'00.1231" N	76°12'56.3184" E
235	Nayarambalam	K.V.Kannan	413/2,412/1	4.00	Filtration field	Private	10°03'24.6012" N	76°14'31.5012" E
236	Nayarambalam	George Dasious	403/1,2,3 ,409/1,2	6.13	Filtration field	Private	10°03'37.5013" N	76°14'27.9014" E
237	Nayarambalam	K.A.Antony	417/2,418/2,3,1	2.00	Filtration field	Private	10°03'12.1014" N	76°14'25.2321" E
238	Nayarambalam	T.B.Suresh	408/1,2,5,406/2,3,6 ,7,406/1,4,8,9	9.15	Filtration field	Private	10°03'38.1019" N	76°14'27.6231" E
239	Nayarambalam	Maria Dasan C.B.	183/1,185/1,184	2.00	Filtration field	Private	10°03'44.9018" N	76°13'19.6210" E
240	Nayarambalam	N.K.Sajeeva n	138/1,2,3	2.00	Filtration field	Private	10°03'31.9011" N	76°13'13.4014" E
241	Nayarambalam	Alice Augustine	198/2,196/1,2	2.00	Filtration field	Private	10°03'49.9001" N	76°13'18.3027" E
242	Nayarambalam	Ramachandr an	411/5,402/1,2,3,6, 411/5,2,4 ,412/4	7.20	Filtration field	Private	10°03'26.6015" N	76°14'33.5240" E
243	Nayarambalam	Ammukutty K.	138/1,2,3	2.10	Filtration field	Private	10°03'31.9016" N	76°13'13.4024" E
244	Nayarambalam	Shynraj N.M.	2/16-2	0.42	Filtration field	Private	10°04'43.3018" N	76°12'58.3210" E
245	Nayarambalam	Jojo Jose	35/3	0.43	Filtration field	Private	10°04'11.9002" N	76°13'11.7021" E
246	Nayarambalam	Shyby Dasan	183/3,4	2.00	Filtration field	Private	10°03'44.9012" N	76°13'19.6010" E
247	Nayarambalam	Abdul Khayum	39/1-2,39/2-2,5-2	5.97	Filtration field	Private	10°04'12.1018" N	76°12'10.4010" E
248	Nayarambalam	Uthaman K.C.	26/1,24/3,26/8	3.20	Filtration field	Private	10°04'12.5002" N	76°12'12.9611" E
249	Nayarambalam	Abdul Rahman	24/1,6,23/3,4,5	3.55	Filtration field	Private	10°04'09.4014" N	76°12'04.9101" E
250	Nayarambalam	Asokan K.K	166/3,4,166/8,10	9.22	Filtration field	Private	10°03'39.1015" N	76°12'12.1201" E
251	Nayarambalam	Francies P.J	199/5.2,199/3,1.2,4	6.25	Filtration field	Private	10°03'34.3001" N	76°12'17.6003" E
252	Nayarambalam	Shaji	36/3-3,36/4-2,	1.58	Filtration field	Private	10°04'15.4002" N	76°11'56.8003" E
253	Nayarambalam	Fransis sevi	20/1,2,3.2,20/4	3.50	Filtration field	Private	10°03'60.1004" N	76°12'04.2311" E
254	Nayarambalam	Hariharan P. K.	.27/3	1.07	Filtration field	Private	10°04'14.5009" N	76°12'12.4232" E
255	Nayarambalam	Vineesh	12/7,19/4,16/2,19/8 .3	10.34	Filtration field	Private	10°03'55.6014" N	76°12'19.1112" E
256	Nayarambalam	Muhammed Usman	158/1,2,3,156/1	3.53	Filtration field	Private	10°03'25.7048" N	76°12'22.4210" E
257	Nayarambalam	Inas A. O.	160/1,163/5,7,161/ 1	3.45	Filtration field	Private	10°03'31.4020" N	76°12'19.2312" E
258	Nayarambalam	Krishnakuma r	149/9,3,150/9,7,5,1 54/2	2.38	Filtration field	Private	10°03'17.6014" N	76°13'28.9020" E
259	Nayarambalam	Krishnakuma r	147/1,5,148/4,150/ 3	2.59	Filtration field	Private	10°03'20.9015" N	76°13'29.2611" E
260	Nayarambalam	Basha K. P.	252/1.2,2.2	1.32	Filtration field	Private	10°02'59.2068" N	76°12'38.5211" E
261	Nayarambalam	Jijisha	23/2,23/1	0.85	Filtration field	Private	10°03'60.1002" N	76°12'01.6322" E

262	Nayarambalam	Vinod P. S.	31/1,2,3.2,4	2.29	Filtration field	Private	10°04'11.3015" N	76°11'58.9214" E
263	Nayarambalam	Anil Kumar	B6 38/1	3.63	Filtration field	Private	10°04'10.8018" N	76°12'67.2645" E
264	Nayarambalam	Rahul S.Babu	620/1,621/1,2	3.34	Filtration field	Private	10°03'17.1004" N	76°14'00.1254" E
265	Nayarambalam	Manuval T.K.	42/1,2,1.3,41,40/1	9.10	Filtration field	Private	10°04'14.7005" N	76°12'22.4010" E
266	Nayarambalam	Kunjumon	176/4	1.18	Filtration field	Private	10°04'12.6001" N	76°12'22.4630" E
267	Nayarambalam	Hariprasad K.	221/1,222/3,4	1.23	Filtration field	Private	10°03'03.4005" N	76°12'28.2121" E
268	Nayarambalam	Francis A.O.		4.19	Filtration field	Private	10°03'34.3020" N	76°12'17.6332" E
269	Nayarambalam	Prakasan		6.53	Filtration field	Private	10°04'43.7045" N	76°13'30.9011" E
270	Nayarambalam	Antony		2.03	Filtration field	Private	10°04'17.1048" N	76°13'41.4121" E
271	Nayarambalam	Manapatt Samajam		3.20	Filtration field	Private	10°05'18.5048" N	76°13'14.4321" E
272	Nayarambalam	Chemeenkett		0.40	Filtration field	Private	10°05'00.9078" N	76°13'14.2521" E
273	Nayarambalam	Venugopal T.K.		1.20	Filtration field	Private	10°0307.7067" N	76°12'31.8012" E
274	Nayarambalam	Shanmughan	18/23	0.15	Filtration field	Private	10°04'28.7004" N	76°12'44.0712" E
275	Nayarambalam	K.K.Prabhakaran		6.08	Filtration field	Private	10°03'53.9064" N	76°12'56.6412" E
276	Nayarambalam	Bindu P.B.	34/10,12	2.00	Filtration field	Private	10°04'38.5014" N	76°13'00.9012" E
277	Nayarambalam	Sameer P.R.		1.75	Filtration field	Private	10°04'21.3018" N	76°13'08.9023" E
278	Nayarambalam	Dharmajan T.K.		1.10	Filtration field	Private	10°04'21.8075" N	76°13'14.6005" E
279	Nayarambalam	Raghavan P.C.		2.00	Filtration field	Private	10°04'28.6075" N	76°13'05.4015" E
280	Nayarambalam	Usha		2.00	Filtration field	Private	10°04'44.4001" N	76°13'00.3032" E
281	Nayarambalam	Annie Jose		1.00	Filtration field	Private	10°04'37.3040" N	76°13'14.9035" E
282	Nayarambalam	Sreedharan K.K		3.23	Filtration field	Private	10°04'17.3018" N	76°13'41.5012" E
283	Nayarambalam	Shimmy Suresh		2.00	Filtration field	Private	10°05'02.4015" N	76°13'24.1012" E
284	Nayarambalam	Suresh K.S.		5.26	Filtration field	Private	10°04'56.3001" N	76°13'26.8002" E
285	Nayarambalam	Manakottu Samajam		2.38	Filtration field	Private	10°03'17.6001" N	76°13'28.9090" E
286	Nayarambalam	Kannan K.V.	411/5,402/1,2,3,6, 411/5,2,4 ,412/4	7.20	Filtration field	Private	10°03'26.6021" N	76°14'33.5012" E
287	Nayarambalam	Kannan K.V.	408/1,2,5,406/2,3,6 ,7,406/1,4,8,9	9.15	Filtration field	Private	10°03'38.1012" N	76°14'27.6301" E
288	Nayarambalam	P.F.Mani	182/4	1.00	Filtration field	Private	10°03'39.7042" N	76°12'13.9401" E
289	Nayarambalam	JhonyV.P.	381/5,421/2	3.24	Filtration field	Private	10°03'08.9468" N	76°14'27.1854" E

290	Edavanakkad	Renju A.R.	51/5,51/9,52/9,52/8,52/8,51/4,46/6,47/5,47/2,52/6,66/18,47/3,107/1,50/3,120/3,50/19,46/2,51/2,52/12,52/11,51/6,80/10,47/1,51/10,54/1-3,77/9,66/6,77/10,51/8,50/27,54/3-2,54/1-2,52/2-2,50/18,51/7,119/3,121/2,50/25,119/1	10.05	Filtration field	Private	10°06'03.0031" N	76°12'49.0125" E
291	Edavanakkad	Tomy M.V.	274/3,10,4,6,8	2.59	Filtration field	Private	10°05'55.0051" N	76°12'48.0221" E
292	Edavanakkad	Baiju M.D.	75/1,76/9,86/1-2,86/9,86/10,86/14,86/7-3,86/4,83/15,86/3,83/15-2,86/13,83/5-2,83/3,86/7-2,86/5,76/15	0.20	Filtration field	Private	10°06'00.0105" N	76°12'46.0352" E
293	Edavanakkad	Sajeev P.R.	220/5,220/6,220/8,221/1,221/8,218/3	3.21	Filtration field	Private	10°05'00.1701" N	76°12'48.0254" E
294	Edavanakkad	Vijayan P.R.	218/1,216/11,216/3,	1.61	Filtration field	Private	10°05'00.2301" N	76°12'47.0354" E
295	Edavanakkad	RameshM.K.	215/1-3,215/1-2	0.10	Filtration field	Private	10°05'20.0021" N	76°12'47.0547" E
296	Edavanakkad	Remanan T.A.	216/3	1.30	Filtration field	Private	10°08'00.2516" N	76°20'00.5229" E
297	Edavanakkad	A.O.Michael	78/1,2,80/1,2,8,10,4	4.33	Filtration field	Private	10°06'00.0113" N	76°12'46.2487" E
298	Edavanakkad	80 kettu		0.20	Filtration field	Private	10°05'00.3688" N	76°13'10.2946" E
299	Edavanakkad	Nalpathu kettu	84/4,5,6,14,12,16,85/1,3,4,107/8,100/14	2.80	Filtration field	Private	10°05'00.6010" N	76°13'10.3058" E
300	Edavanakkad	Ullas		0.20	Filtration field	Private	10°04'48.5637" N	76°12'20.5520" E
301	Edavanakkad	Pukalakaran	291/4,5,,297/6,284/5,4,297,296,296,284/4,5,245/3,296/1	10.13	Filtration field	Private	10°04'53.1811" N	76°12'29.9772" E
302	Edavanakkad	Mageshan		0.02	Filtration field	Private	10°04'53.1660" N	76°12'03.0420" E
303	Edavanakkad	Aliyar Haji		0.01	Filtration field	Private	10°08'90.9101" N	76°1920'.5621" E
304	Edavanakkad	Mukkath kett	334/2	0.25	Filtration field	Private	10°4'25.7521"N	76°12'33.4881" E
305	Edavanakkad	Kannupillaket t		71.50	Filtration field	Private	10°05'17.2237" N	76°12'48.4812" E
306	Edavanakkad	10 acre		4.60	Filtration field	Private	10°04'50.3961" N	76°11'50.1806" E
307	Edavanakkad	Haseena	100/18,14,7,8,102/7,5	3.65	Filtration field	Private	10°01'01.3746" N	76°21'28.7130" E
308	Edavanakkad	Thomas K.G.	78/1,2,80/1,8,9,2,7,10,4	4.33	Filtration field	Private	10°05'38.3347" N	76°13'87.1071" E
309	Edavanakkad	Tomy M.V.	84/4,5,6,14,12,16,3,1,85/1	2.65	Filtration field	Private	10°05'34.4119" N	76°13'58.8119" E

310	Edavanakkad	Fishery	110/2,3	8.90	Filtration field	Private	10°05'45.2115" N	76°12'37.2542" E
311	Edavanakkad	Arupathu kettu	289/1,5,281/2,4,215/7,279/6,280/1,2,288	7.23	Filtration field	Private	10°05'46.2118" N	76°12'40.2612" E
312	Edavanakkad	Ali	33/7,2,63/3,5,15,83/3,8,14,86/3,10,13,14,76/5,6	5.86	Filtration field	Private	10°05'34.0217" N	76°13'56.1008" E
313	Edavanakkad	Vijayan E.K.	137/6,10,11,14,2,139/1,136/5	5.70	Filtration field	Private	10°10'17.1111" N	76°19'67.4590" E
314	Edavanakkad	K.K.Abdul Shakoor	130/2,192/1	71.50	Filtration field	Private	10°05'17.2237" N	76°12'04.8481" E
315	Edavanakkad	Jabin V.K.	388/1,4,18/5,6,7,383/6,7,382/7,380/7,10,20/3,5,411/17,1,76/4,6,32/3,72/11,384/3,4,385/4,16,382/12,10529/1,19/5,389/2,29/4	17.00	Filtration field	Private	10°08'00.1584" N	76°02'00.5566" E
316	Edavanakkad	Sethumuhammed V.A.	7/3,2,8/5,2,11/9,10,9/14,10	37.25	Filtration field	Private	10°11'00.4744" N	76°00'01.1937" E
317	Edavanakkad	M.C.Rajan	324/4,259/5,309/1,257/3,259/5,258/4,523/5,265/1,260/1,311/2,312/1,310,266/1,268/1,169/1,259/4	25.20	Filtration field	Private	10°11'00.5476" N	76°19'00.6967" E
318	Edavanakkad	Abdul Kareem	131/1,3,4,5,2,6,127/3,4,7,138/8,136/6,137/3	2.15	Filtration field	Private	10°09'00.8076" N	76°02'00.0816" E
319	Edavanakkad	Mohanan	29/7,2,26/1,3/3,33/5,6,27/1,34/5,26/5	13.70	Filtration field	Private	10°12,00.8339" N	76°02'00.1100" E
320	Edavanakkad	Abdul Mujeeb	48/7,46/5,6,2,47/5,1,7,4,50/19,17,51/10,6,52/7,2,4,77/1,65/6,51/1	11.30	Filtration field	Private	10°10'00.3008" N	76°02'00.0850" E
321	Edavanakkad	Binil Kumar	123/4,5,6,8,9,10	2.56	Filtration field	Private	10°12'00.8829" N	76°02'00.0838" E
322	Edavanakkad	Baby K.K.	117/8,9,10,125/1,116/3,5,6,12,128/4,9,124/2	4.40	Filtration field	Private	10°09'00.6679" N	76°20'00.9200" E
323	Kuzhuppilly	James M.T.	164/1,170/2,4,109/21,124/2,140/6,171/1,127/4,7,125/9,169/10,14,15,9,3,12,8,11,195/43,208/6,7	31.50	Filtration field	Private	10°12'00.5788" N	76°20'00.1104" E
324	Kuzhuppilly	Abdul Nazar	305/1,298/2,227/5,332/3,440/8,308/1,316/4,301/4,301/5,303/3,329/1,312/1	38.40	Filtration field	Private	10°11'00.3599" N	76°19'00.6501" E
325	Kuzhuppilly	Sam Abrahim	43,342/18,347/1,44/1,46/32,45/1,3	37.27	Filtration field	Private	10°10'00.2437" N	76°19'00.6254" E

326	Kuzhuppilly	Thomas O.P.	33/7,2,30/2,31/3,26/1,29/4,28,34/5,27/1	14.40	Filtration field	Private	10°07'17.8010" N	76°11'35.7012" E
327	Kuzhuppilly	Jomon		14.40	Filtration field	Private	10°07'26.4011" N	76°11'43.4015" E
328	Kuzhuppilly	Chacochan		16.60	Filtration field	Private	10°07'03.9014" N	76°12'15.1001" E
329	Kuzhuppilly	Ambikavathy	24/6,8,9,24/2,3,7,25/3,1,2,251/2,252/11.2,248/5,7	7.70	Filtration field	Private	10°07'04.4002" N	76°11'50.6021" E
330	Kuzhuppilly	Noorjahan	419/1	2.54	Filtration field	Private	10°06'29.1021" N	76°12'42.2020" E
331	Kuzhuppilly	Vishvanathan V.A.	245/6,1,297/9,246/3,4,245/2,240/1,247/7,8,245/8,244/10-2,247/2	2.84	Filtration field	Private	10°07'05.2034" N	76°11'42.5322" E
332	Kuzhuppilly	Ibrahim K.A.	295/2	3.38	Filtration field	Private	10°06'01.8034" N	76°11'31.0210" E
333	Kuzhuppilly	Sebastian Joseph		0.20	Filtration field	Private	10°09'53.4010" N	76°10'20.2002" E
334	Kuzhuppilly	Balachandran		2.26	Filtration field	Private	10°06'27.3001" N	76°11'42.6010" E
335	Kuzhuppilly	Jalaludheen V.A.	15/2,21/5,19/2,4,3,18/3,11/14,17/13,18/4,5,10/18,17,19/1,12/5,21/1,2,6,15/5	8.68	Filtration field	Private	10°07'06.4012" N	76°11'32.2010" E
336	Kuzhuppilly	Abdul Kareem	295/5	4.39	Filtration field	Private	10°06'25.4004" N	76°11'31.3321" E
337	Kuzhuppilly	K.S.Murali		2.00	Filtration field	Private	10°07'29.7018" N	76°12'23.1212" E
338	Kuzhuppilly	Shanavas	295/2	5.96	Filtration field	Private	10°06'22.5001" N	76°11'36.1400" E
339	Kuzhuppilly	Jomon		14.40	Filtration field	Private	10°07'26.0041" N	76°11'43.4001" E
340	Kuzhuppilly	Sherly Alphonse	420/4	1.25	Filtration field	Private	10°06'01.2522" N	76°12'42.0912" E
341	Kuzhuppilly	Balan			Filtration field	Private	10°07'29.0007" N	76°10,38.0003" E
342	Pallipuram	K.R.Sasidharan		2.00	Filtration field	Private	10°07'47.4011" N	76°11'21.1011" E
343	Pallipuram	V.A.Shaji		2.00	Filtration field	Private	10°07'44.7012" N	76°11'31.1100" E
344	Pallipuram	V.A.Shaji		0.98	Filtration field	Private	10°07'48.8002" N	76°11'20.6510" E
345	Pallipuram	Abdul Salam	495/5,495/7,495/6	2.40	Filtration field	Private	10°07'26.3015" N	76°11'18.7021" E
346	Pallipuram	Radhakrishnan M.A.		5.00	Filtration field	Private	10°07'43.5005" N	76°11'31.3210" E
347	Pallipuram	Mohanan	526/5,526/6,527/4,526/3,6,527/3,527/5,526/2,526/4	3.33	Filtration field	Private	10°07'48.8001" N	76°11'20.6211" E
348	Pallipuram	Shanmughan	662/1,663/1,,6,663/10,663/11,668/8,686/4,664/4	8.00	Filtration field	Private	10°08'00.6014" N	76°12'22.2001" E
349	Pallipuram	Prasad	500/4,500/1,496/3,514/1,504/4,501/3,	10.47	Filtration field	Private	10°07'43.5010" N	76°11'31.3012" E
350	Pallipuram	Raj Mohan	516/1,517/2,518/3	6.00	Filtration field	Private	10°07'44.0007" N	76°11'31.0100" E
351	Pallipuram	Dharmajan	524/1,524/2,523/1	2.37	Filtration field	Private	10°07'47.0004" N	76°11'21.0001" E

352	Pallipuram	Raveendran	512/2,570/6,493/4, 493/1,506/3,493/13 ,507/2,507/11	7.80	Filtration field	Private	10°07'36.0008" N	76°11'38.0009" E
353	Pallipuram	E.K. Rajan	521/5,8,	2.02	Filtration field	Private	10°07'45.0008" N	76°11'21.0006" E
354	Pallipuram	Devarajan N.K.	323/3,4,5,11,2	3.91	Filtration field	Private	10°09'46.7502" N	76°10'33.4022" E
355	Pallipuram	Pushkaran	533/26	0.32	Filtration field	Private	10°08'02.3966" N	76°11'23.8948" E
356	Pallipuram	Sasi	28/19-2	0.13	Filtration field	Private	10°09'41.2436" N	76°10'37.8169" E
357	Pallipuram	Sudharshana n	27/37	0.08	Filtration field	Private	10°09'48.7522" N	76°10'37.3018" E
358	Pallipuram	Jayaram	221/8-3,221/3-2,221/6,221/7	0.52	Filtration field	Private	10°09'47.7324" N	76°10'33.3660" E
359	Pallipuram	Josy		0.08	Filtration field	Private	10°09'47.7504" N	76°10'33.4021" E
360	Chellanam	Kandakkada vv padasekhara m	388, 398, 401	220.00	Filtration field	Private	09°51' 04.5900"N	76°16' 56.9136"E
361	Chellanam	Maruvakkad padasekhara m	8,191,112	180.00	Filtration field	Private	09°50'18.3480" N	76°16' 12.8784"E
362	Chellanam	Neendakara A block padasekhara m	317,318,319	15.00	Filtration field	Private	09°48'39.2112" N	76°17' 02.7312"E
363	Chellanam	Neendakara B Block padasekhara m	313,314,315	48.00	Filtration field	Private	09°48'44.4204" N	76°17' 00.2616"E
364	Chellanam	Muthukupura m padasekhara m	301,304	22.00	Filtration field	Private	09°48'47.0304" N	76°16' 52.0680"E
365	Chellanam	Kalathara chira		185.00	Filtration field	Public	09°53'55.7988" N	76°15' 54.1260"E
366	Chellanam	Thekke Chellanam padasekhara m	342,345	50.00	Filtration field	Private	09°48' 24.5232"N	76°16' 54.1380"E
367	Chellanam	Ganapathyka d B block padasekhara m		13.00	Filtration field	Private	09°49'37.7004" N	76°16' 20.5824"E
368	Chellanam	Ganapathyka d C block padasekhara m		10.00	Filtration field	Private	09°49'29.1684" N	76°16' 23.0412"E
369	Chellanam	Vadakkae chellanam Padasekhara m		40.00	Filtration field	Private	09°49'22.1952" N	76°16' 23.7432"E
370	Chellanam	Chaalpuram Padasekhara m		22.00	Filtration field	Private	09°51'41.3280" N	76°16' 06.1464"E
371	Chellanam	Chakkaracha l		50.00	Filtration field	Public	09°49'11.1576" N	76°16' 56.0352"E
372	Mulavukad	Haridas KP And Group		52.80	Filtration field	Private	10°1'460.2396" N	76°15'00.9288" E
373	Cochin Corporation	Santhibhava n convent		2.00	Mangrove	Private	09º54'29.1006" N	76º17'24.2365" E
374	Cheranalloor			5.00	Mangrove	Private	10°02'21.8184" N	76°16'30.1728" E
375	Cheranalloor			4.00	Mangrove	Private	10°02'21.8220" N	76°16'30.0756" E

376	Cheranalloor			3.00	Mangrove	Private	10°02'21.8904" N	76°16'30.0468" E
377	Cochin Corporation	Jayesh		12.14	Mangrove	Private	09º55'03.5578" N	76º17'43.3321" E
378	Mulavukad	Sajan Babu,Shajan And Group		10.00	Mangrove	Private	09°59'31.8912" N	76°14'57.8256" E
379	Kadamakudy	Francis		2.83	Mud flats	Private	10º02'26.1966" N	76º15'20.1008" E
380	Cochin Corporation	Joseph		8.09	Mud flats	Private	09º54'04.2144" N	76º16'43.5662" E
381	Cochin Corporation	Nimosh		8.00	Mud Flats	Private	10º00'08.1003" N	76º16'05.2331" E
382	Cochin Corporation	Pradeep		8.00	Mud Flats	Private	10º00'07.2331" N	7616'02.5641"E
383	Cochin Corporation	Usha		0.40	Mud Flats	Private	10º00'02.6553" E	76º16'05.5632" E
384	Cheranalloor			2.00	Mud Flats	Private	10°02'35.1168" N	76°16'27.0400" E
385	Cheranalloor			5.00	Mud Flats	Private	10°02'34.9692" N	76°16'27.0444" E
386	Cheranalloor			7.00	Mud Flats	Private	10° 02' 34.908"N	76°16'27.0840" E
387	Cheranalloor			2.00	Mud Flats	Private	10°02'28.0140" N	76°16'28.7400" E
388	Cheranalloor			3.00	Mud Flats	Private	10°02'28.1415" N	76°16'28.8012" E
389	Cheranalloor			4.00	Mud Flats	Private	10°01'41.7828" N	76°16'30.5100" E
390	Cheranalloor			2.00	Mud Flats	Private	10°02'06.2304" N	76°16'35.1408" E
391	Cochin Corporation	Xaviour		0.80	Mud Flats	Private	09º53'54.4335" N	76º17'27.1006" E
392	Poyya	Abdul Latheef	571/3	4.30	Culture field	Private	10°10'23.7000" N	76°13'59.0000" E
393	Eriyad	Saneesh	669/1	0.30	Culture field	Private	10°11'31.2480" N	76°.94'35.2400 E
394	SN Puram	Lal C S		1.23	Culture field	Private	10°24'54.3200" N	76°19'94.3300" E
395	SN Puram	Ajayan		2.00	Culture field	Private	10°024'62.7200'' 'N	76°19'74.8300" E
396	SN Puram	Joseph		2.00	Culture field	Private	10°24'82.8300" N	76°19'46.5500" E
397	SN Puram	Joseph		0.80	Culture field	Private	10°24'81.6200" N	76°19'73.8800" E
398	SN Puram	Shafnabi		1.21	Culture field	Private	10°25'75.4000" N	76°19'14.2000" E
399	SN Puram	Rejin		3.00	Culture field	Private	10°26'02.1200" N	76°19'28.0200" E
400	SN Puram	Anilkumar		1.01	Culture field	Private	10°25'88.4200" N	76°19'26.3000" E
401	SN Puram	Muhammed Angatt		4.80	Culture field	Private	10°25'94.3300" N	76°19'48.0000" E
402	SN Puram	Rahuldas		1.80	Culture field	Private	10°25'94.5000" N	76°19'46.8800" E
403	SN Puram	Shinoy		1.00	Culture field	Private	10°25'40.3000" N	76°19'37.2500" E
404	SN Puram	Kareem		1.21	Culture field	Private	10°25'36.1700" N	76°19'20.0500" E
405	SN Puram	Salam		2.30	Culture field	Private	10°25'34.9200" N	76°19'94.5500" E
406	SN Puram	Basheer			Culture field	Private	10°24'97.5700" N	76°19'22.7000" E
407	Poyya	Varghese		9.40	Culture field	Private	10°12'36.0000" N	76°13'48.0000" E
408	Poyya	Jessy Clitus		1.93	Culture field	Private	10°12'38.0000" N	76°13'43.0000" E
409	Poyya	Clitus		2.30	Culture field	Private	10°12'38.0000" N	76°13'39.0000" E

410	Poyya	Renu		5.00	Culture field	Private	10°12'37.0000" N	76°.13'36.0000' 'E
411	Mathilakam	Kadheejabi		0.18	Culture field	Private	10°30265419"N	76°16402322"E
412	Puthenchira	Murali		3.56	Culture field	Private	10°15'13.9539" N	76°11'33.8806" E
413	Puthenchira	KunjuMuham med		8.90	Culture field	Private	10°14'41.3466" N	76°14'30.2312" E
414	Puthenchira	Francis		4.00	Culture field	Private	10°13'32.4376" N	76°13'11.4510" E
415	Puthenchira	Antony		9.70	Culture field	Private	10°14'34.4162" N	76°13'51.16918 "E
416	Puthenchira	Antony Peter		4.80	Culture field	Private	10°14'34.4166" N	76°13'51.4172" E
417	Puthenchira	Narayanan		7.20	Culture field	Private	10°13'38.6580" N	76°13'24.9900" E
418	Kodungallur M	Peter		1.80	Culture field	Private	10°14'44.0915" N	76°13'43.6595" E
419	Kodungallur M	Sooraj		1.80	Culture field	Private	10°14'53.8040" N	76°13'47.6520" E
420	Kodungallur M	Sudheeshku mar		0.14	Culture field	Private	10°13'12.0412" N	76°12'49.7741" E
421	Kodungallur M	ClassicJamal		2.00	Culture field	Private	10°13'45.3092" N	76°12'29.5684" E
422	Kodungallur M	Ajan		1.41	Culture field	Private	10°14'30.8390" N	76°12'32.8626" E
423	Kodungallur M	Rajan		0.30	Culture field	Private	10°14'24.7356" N	76°12'24.2949" E
424	Kodungallur M	Kunjumoham med		1.40	Culture field	Private	10°14'36.3142" N	76°12'13.3832" E
425	Kodungallur M	Balakrishnan		8.09	Culture field	Private	10°14'36.3142" N	76°12'71.1882" E
426	Kodungallur M	Rahith		5.60	Culture field	Private	10°14'36.3142" N	76°12'07.1196" E
427	Kodungallur M	Balan		0.60	Culture field	Private	10°15'14.7874" N	76°13'34.4049" E
428	Kodungallur M	Ravi		2.80	Culture field	Private	10°15'25.7937" N	76°13'24.0788" E
429	Kodungallur M	Moharan		0.80	Culture field	Private	10°15'25.9629" N	76°13'24.7843" E
430	Kodungallur M	Saleesh		1.20	Culture field	Private	10°15'18.0353" N	76°12'43.0757" E
431	Kodungallur M	Ravi		0.40	Culture field	Private	10°15'22.4118" N	76°12'28.0398" E
432	Kodungallur M	Sundhakaran		2.15	Culture field	Private	10°15'18.1378" N	76°12'24.0662" E
433	Vellangallur	Asharaf		1.41	Culture field	Private	10°25'79.0100" N	76°21'35.7400" E
434	Vellangallur	Muhammed		2.00	Culture field	Private	10°25'70.0250" N	76°22'03.0070" E
435	Vellangallur	Murali K K		1.00	Culture field	Private	10°25'69.2431" N	76°02'41.6323" E
436	Vellangallur	Sudheesh		0.85	Culture field	Private	10°25'65.7000" N	76°19'68.4000" E
437	Engandiyur	Shajil		1.00	Culture field	private	10°29'27.1752" N	76°03'09.3996" E
438	Manalur	Surendran		1.50	Culture field	public	10° 30' 10.4868" N	76° 05' 25.8936" E
439	Poyya	Pallikettu		2.00	Filtration field	Private	10°12'32.0000" N	76°.13'26.0000' 'E
440	Poyya	Jaison		1.94	Filtration field	Private	10°12'29.0000" N	76°.13'26.0000' 'E
441	Kodungallur M	Jipson		4.40	Filtration field	Private	10°13'13.0370" N	76°13'21.2233" E
442	Kodungallur M	Batalian		4.00	Filtration field	Private	10°13'14.54938' 'N	76°1322.7681" E
443	Kodungallur M	Haneefa		0.40	Filtration field	Private	10°13'55.5371" N	76°1323.07907' 'E
444	Kodungallur M	Rainy		3.60	Filtration field	Private	10°13'.03073"N	76°1321.2234" E

445	Kodungallur M	Paulose		5.60	Filtration field	Private	10°13'51.61832'' 'N	76°1322.53691'' 'E
446	Kodungallur M	Tony		10.50	Filtration field	Private	10°14'6.66762'' N	76°1328.06032'' 'E
447	Kodungallur M	Unnikrishnan		1.30	Filtration field	Private	10°14'15.87689'' 'N	76°13'35.74243 ''E
448	Kodungallur M	Biju		1.60	Filtration field	Private	10°14'36.18352'' 'N	76°13'43.30582 ''E
		TOTAL		**3027.12**				

Annexure - XIV E

LIST OF HATCHERY AND SEED FARM

Sl. No.	Name of LSGI & District	Name	Extent of area in ha	Public/ Private	1Latitude	Longitude
1	Kulathoor	RGCA hatchery	1.93	Public	08°17'35.0376"N	77°05'48.8220"E
2	Varkala	ADAK		Public		
3	Kollam Coporation	Pearl spothatchery, Thevally	0.08	Public	08˚54'04.4316"N	76˚34'49.1448"E
4	Neendakara	Govt. Shrimp hatchery, Neendakara	0.4	Public	08°56'14.0604"N	76°32'42.4248"E
5	Kottayam (M)	Sed farm Pallam	11.4	Public	9°31'54.0624"N	76°30'24.6132"E
6	Mulavukad	MPEDA hatchery	3.4	Public	09°59'34.1126"N	76°14'57.3362"E
7	Cochin Corporation	ADAK seed farm	10.92	Public	09º54'22.7445"N	76º17'16.5521"E
8	Azhikode	Govt. hatchery		Public	10°11'21.1860"N	76°10'19.5780"E
9	Azhikode	Water fry hatchery		Private	10°14'58.8988"N	76°08'28.9058"E
10	Poyya	Govt. fish seed farm		Public		
11	Edavilang	Royal Plaza hatchery		Private	10°13'49.3597"N	76°08'49.0116"E
12	Edavilang	Kairali Aqua Tech Hatchery		Private	10°14'01.5906"N	76°08'46.2284"E
13	Edavilang	Divya Prabha hatchery		Private	10°13'45.9015"N	76°08'50.6819"E
14	P. Vemballur	Pearl hatchery		Private	10°14'57.7819"N	76°08'29.5621"E
15	P. Vemballur	Queen's hatchery		Private	10°15'58.8233"N	76°08'09.7580"E
16	Koolimuttam	Rinzi hatchery		Private	10°17'39.5670"N	76°07'43.8113"E
17	Kaipamangalam	Matsyafed hatchery		Public	10°19'36.0444"N	76°07'07.0674"E
18	Kaipamangalam	Vyasa hatchery		Private	10°19'18.0000"N	76°07'12.0792"E
19	Thalikkulam	Sea view prawn hatchery pvt ltd		Private	10°26'13.0022"N.	76°04'31.0073"E
20	Venkitangu	Devasurya hatchery	0.1	Private	10° 30' 10.7952" N	76° 05' 46.1652" E
21	Kadappuram	Govt. fish seed farm	5.26	Public	10° 32'5.7264"N	76°02'01.122"E
22	Veliyancode	Matsyafed hatchery		Public	10°43'18.8863" N	75°56'50.1678" E
23	Veliyancode	Sainudheen seed farm	0.1	Private	10°44'06.9341" N	75°56'79.9967" E
24	New Mahi	Rajan K hatchery	0.37	Private	11°42'36.2220"N	75°31'24.4368"E
25	Eranholi	ADAK seed farm	0.2	Public	11°45'38.7396"N	75°30'27.4176"E
26	Kannur	Marine ornamental hatchery	0.12	Public	11°51'24.6888"N	75°22'19.2356"E
27	Kannur	Matsyafed hatchery	0.12	Public	11°51'10.2869"N	75°22'25.1254"E
28	Madai	Marine fish hatchery		Public		
29	Peralassery	Manoharan hatchery	0.04	Private	11°49'10.5600"N	75°28'26.3280"E

Annexure XV

TOURISM AND FISHERIES SUB PLAN

-Dr. N.K.Sasidharan Pillai, Former Director, IRTC

INTRODUCTION

Kerala is a leading tourism location in the world tourism map. It's enchanting beauty is attracting millions of people to Kerala every year.The beautiful evergreen terrain,beautiful beaches,backwaters,lagoons,the western ghat mountains, evergreen coconut, tea, coffee and cardamom plantations, waterfalls, forests, forest, beautiful reservoirs, sandy beaches, cliffs, cultural diversities, ethnic and traditional arts, historic monuments, pilgrims centres and all are the attractions and this uniqueness is referred globally as "Gods own country". Among this the Kerala coast and the backwaters are one of the prime tourist destinations.

Tourism isthe fast growing development sector world over and it has been growing steadily and steaply.But the pandemic COVID 19has shocking influences in the tourism sector due to the mobility restrictions imposed world over.Tourism is a major contributor to the GDP of nations .In India around 9% of the GDP is contributed by tourism in the FY 2019-20.During this year around 39 million jobs were created and this accounts to about 8% of the total employment generated in India.

Being a prime tourism location among the Indian states, Kerala bagged a major portion of the tourism earnings in 2019. Kerala received the heighest number of tourists ever before and the total earnings touched Rs.45010 crores. It has grown 24.14%over the previous year.Nearly 19.5 million tourists visited Kerala that year. Out of this 18.3 millions were domestic tourists and1.2million were from abroad.The foreign exchange earnings exceeded rupees 10 thousand crores.The potential of tourism as a major employment creator and income generator is undisputed.

When we look in to the tourism statistics of Kerala for the last 10 years,it is very clear that the major share is the domestic tourists and is increasing every year.The origin of the domestic tourists shows that four southern states contribute nearly 84% of the total domestic

visitors and nearly 12 million from Kerala itself. When we analyse the character of the this tourism,mostly pleasure trips, excursions, family outing to enjoy the beauties of nature.Visit to coastal area tourist locations like beaches, cliffs, and cruising through the back waters.They are short duration and affordable activities.In 2019 the total revenue share from the domestic tourists is around Rs 35000 crores.Even though the beaches and back waters are main tourist attractions, the participation of the fisherfolk community is negligible.We need to notice that their traditional livelihood activity is facing challenges, non-fishing days are increasingdue to extreme climatic conditions.Even though we can trace some indirect linkages of benefits,active direct participation is very less. In fact beaches are their dwelling place having a customary right,they are marginalised from the fast growing economic activity in and around and living in the social backwardness. This is a dichotomy which needs corrections.There are ample opportunities in the coastal area tourism for involving the local fisherfolk are you prove their livelihood but it needs a different approach of inclusiveness and it should be an echo system-based and natural resource based. We should consider the traditional strength and unique capacities of the fisherfolk.

A PRO FISHERFOLK PERSPECTIVE FOR THE COASTAL TOURISM

- Inclusiveness of the local fisher folk families and communities is the focus of the perspective
- Consider this as a livelihooddiversification for sustainable income generation.
- Community-based approach is needed.
- Consider them as ecosystem people.
- Explore tourism options in the natural resource management with biodiversity conservation.
- It should be a community collective activity and strengthening the local economy
- Priority for the involvement of women and educated youth from the local community.
- Promoting green options as far as possible.
- Promoting ethnic and traditional components of the local community.
- It should help to reduce the pressure on marine fisheries which is the main source of livelihood.
- Promoting safe and affordable tourism options.

- Identify and marking local livelihood promoting areas is a must.
- Community collective and clustering approach is needed.

TOURISM INDUSTRY OPENS VARIOUS OPPORTUNITIES

- As an investment option for large capital, this is done by multinational and national corporates. It is through real estates,star hotels,logistic services etc.
- Tourism as business opportunities , shops, hotels transportation, accommodation,and various service providing.
- Small business and local service providing, these are petty businesses,way side vending,small shops and kiosks
- Livelihood options, such as labourers,workforce,waiters, cooks, drivers etc.

Naturally we cannot find a pro fisherfolk approach in any of the above opportunities.World over we can see that local and ethnic communities get excluded from their dwelling area due to excessive pressure from the patterns of tourism devolepment.

STRATEGY

- Involving marginalised and ethnic community into a new livelihood option, none of the above possibilities will succeed.
- We need a community level collective and clustering approach.Here we can plan the linkage at fisheries village level.
- Attitudinal change and hand holding supports are needed. Motivated and committed members from the cluster can coordinate and lead the activities
- Protection from the encroachment of aspirants from out side the local cluster is needed.
- Local livelihood promotion areas to be marked and assigned to activity clusters.
- Rights of access to the fisherfolk in to the beaches and sea is to be protected, by maintaining the community owner ship statusfor the local livelihood cluster .
- Involvement of the local self government is needed as the institutional support.
- Ensuring livelihood through local tourism options needs the synergy of nature, human and institutional components.

VALUES OF TOURISM

Globally tourism values are expressed in 5A ie. Attraction, Activities, Accsessibility, Accomodation, Aminities. For local community level tourism promotion one more 'A' is essential it is the Affordability.

POPULAR THEMES OF TOURISM

CATEGORISATION OF TOURISM ACTIVITIES INTO THEMES

- Beach tourism
- Recreational tourism.
- Aqua tourism.
- Ecotourism
- Heritage tourism.
- Cruise tourism.
- Adventure tourism.
- Pilgrimage tourism.
- Responsible tourism.
- Event tourism.
- Pesca tourism

Suitability of the tourism themes can be decided on the local attractions and the strength of the clusters.Pesca tourism is a recent devolepment which is directly linked with fisheries. UNDP and WWFare promoting this theme for the sustainable management of fisheries which is very much needed in Kerala.

CRZ AND TOURISM OPTIONS

Table 2.3 Important Clauses as Per CRZ Notification, 2019 W.R.to Provisions for Tourism Activities

Sl No	Important Clauses as per CRZ Notification 2019	Tourism Provisions and Permissible Activities in Zones
1.	Clause 5.1.1 (i) Provisions for CRZ 1-A	Eco-tourism activities such as mangrove walks, tree huts, nature trails, etc., in identified stretches areas subject to such eco-tourism plan featuring in the approved CZMP as per this notification, framed with due consultative process, public hearing, etc. and further subject to environmental safeguards and precautions related to the Ecologically Sensitive Areas, as enlisted in the CZMP.
2.	Clause 5.2 (VI) Provisions for CRZ II Areas	Temporary tourism facilities shall be permissible in the beaches which shall only include shacks, toilets or washrooms, change rooms, shower panels; walk ways constructed using interlocking paver blocks, etc., drinking water facilities, seating arrangements, etc. and such facilities shall however be permitted only subject to the tourism plan featuring in the approved CZMP as per this notification, framed with due consultative process or public hearing, etc. and further subject to environmental safeguards enlisted in the CZMP, however, a minimum distance of 10 meter from HTL shall be maintained for setting up of such facilities.
3.	Clause 5.3. (II). (f) Provisions for CRZ III with NH/SH passing through NDZ	Wherever there is a national or State highway passing through the NDZ of CRZ-III areas, temporary tourism facilities such as toilets, change rooms, drinking water facility and temporary shacks can be taken up on the seaward side of the road. On landward side of such roads in the NDZ, resorts or hotels and associated tourism facilities shall be permitted and such facilities shall, however, be permitted only subject to the incorporation of tourism plan in the approved CZMP as per this notification.
4.	Clause 5.3. (II). (g) Provisions for CRZ III areas	Temporary tourism facilities shall be permissible in the NDZ and beaches in the CRZ-III areas and such temporary facilities shall only include shacks, toilets or washrooms, change rooms, shower panels, walk ways constructed using interlocking paver blocks, etc., drinking water facilities, seating arrangements etc., and such facilities shall, however, be permitted only subject to the tourism plan featuring in the approved CZMP as per this notification subject to

CRZ 1

Adhering to all the regulations of the CRZlocal fishermen community can engage in various livelihood supporting tourism activities. Promoting biodiversity conservation and promoting its tourism potential is an ideal option. Developing and maintaining mangrove ecosystem can support several tourism activities.Mangrove"safari"and guided tours can be promoted as year round activity.One of the biggest mangrove forest in India is Pichavaram in Tamilnadu. It is well protected and maintained by local fishermen communities and providing decent livelihood to local communities.At Sindhudurg area women groups are engaged in biodiversity conservation is earning for livelihood by providing local tourism opportunities .

Fish sanctuaries can be promoted in various ways as a fisheries related livelihood and tourism activity.Community can learn the lessons of responsible fisheries (learning by doing) by directly involving in the ecosystem management activities.

CRZ 2

Being the developed areas cities and towns, activities of the beach tourism is very common. Educated youth from the fishing village can be trained for fishing village visits, adventure water sports can be linked, the traditional fisher folk can be inducted into rescue support team for near shore water sports.Components of the eco tourism can be promoted in the backwaters and mangroves adjacent to the towns. Performing the traditional fishing methods like operation of beach seines, angling, can be used to attract the tourists to the community clusters.Affordable home stay is another possibility.

CRZ 3

The no devolepment village zones are protected and traditional communities can utilise it by giving tourism value additions. Maintaining the beaches neat and clean is definitely a task that can be remunerative also. Lifestyle, traditional culture and heritages can be promoted where ever possible.

Community level responsible beach management and providing services like higenic wash rooms, shower and changing roomsand safe adventure trips to the near shore sea are some of the options.

Devoleping an activity plan by involving the local community is crucial . An advisory body of the stake holders at the cluster level will be helpful. Women's participation can be ensured in various micro enterprises suitable to the cluster. The SAF activity groups have technical and management skills to venture in to these type of opportunities.

Possible green options can be adopted for destination development.

AQUA TOURISM

Growing Backwater aquaculture sites such as cage culture for high value fishes, rope culture of mussels and oysters, prawn farming both traditional and intensive will definitely tourist attractions also.Marine and brackish water fish aquariums can be set up at selected tourism clusters .Fish and fishery technology galleries will be another option.Sea and its mysteries can be promoted.Trained youth can be engaged as guides communicators in this facilities.

PROMOTING ECOTOURISM AND FARM TOURISM IN POKKALI AND KAIPPAD FIELDS AS LOCAL LIVELIHOOD OPTIONS.

Pokkali and Kaippad wetlands and the mangrove ecosystem adjoining the rivers and backwaters can be best utilised for eco tourism activities like farm tourism and aqua tourism. Small huts along the bunds near the sluice gates would also give an opportunity to enjoy farming activities. Back water cruise, pesca tourism, sea food restaurants , mangrove walk, bird watching etc are other options .Developing an action plan for responsible tourism is a prerequisite for ensuring sustainable utilisation of these wetlands for tourism development.

TRADITIONAL INDUSTRIES & MICRO-ENTERPRISES

A lot of small scale industries, including house hold industries were already in existence in these areas which have to be promoted. Value added products of Kaippad rice like rice flakes, rice flour, rice bran and value added products of shrimp like dry shrimps and fish; production of bags and mats using reed and pandanus leaves, collection and pre processing of medinal plants and other natural ingredients for Ayurvedic products can very well be promoted. These activities would also support tourism and will increase the livelihood opportunities.

INTEGRATED AQUA PARK PROJECT.

Considering the need and potential of tourism options emerging out of biodiversity conservation and related activities, the government of Kerala has formulated an integrated aqua park project at Puthuvypin of Ernakulam district. The proposed project site is under the CRZ zone IA. The total area all the project site is about 133 acres and out of that 50 acres where transferred to the Department of fisheries government of Kerala. This land is transferred for the oceanarium and related activities. The proposed integrated aqua park project has the following components.

1. Ecotourism activities such as mangrove walk,tree huts,nature trails,construction of roads on stilts and mangrove botanical garden.
2. Demonstration of technologies in aquaculture and fisheries .
3. Extension centre and museums
4. Oceanarium
5. Sea food restaurant
6. Dolphin research centre
7. Water sports

RECOMMENDATIONS

1. The proposed project site is located in the CRZ 1A zone. Only the Projects components that are allowable in the zone can be under taken.
2. All the restrictions and regulations for the CRZ A1 should be observed.
3. The well grown mangrove forest in the proposed site should be kept under strict scientific conservation procedures and maintained as mangrove botanical garden considering its ecological importance.
4. The ecotourism component shall be made sustainable through biodiversity conservation and eco restoration activities.
5. The various activities suggested in the “water sports” are not suitable for the location.It can be a connected activity that can be done in the Vembanad back waters or in the nearshore ares of the sea.
6. All most all the activities can be categorised as infotainment related to fisheries and ocean life.
7. All the major activities that need area development and constructions related to the infotainment including the oceanarium, research and development, extension services

should be done with in the area of the land transferred to the Department of fisheries, strictly observing the CRZ regulations and protecting the mangroves.

8. The project should assure the active participation of the local fisherfolk families especially the educated youths and the women for a sustainable livelihood
9. The integrated aqua park should be developed as a model for responsible and sustainable Aqua-tourism.
10. All stake holder institutions, agencies and departments should uphold the spirit of integration in the process and share the facilities to avoid duplication of activities and unnecessary additions of infrastructures that may lead to the destruction of the mangrove ecosystem.All possible green options shall be considered and keep it eco friendly.
11. All statutory permissions and CRZ clearances should be obtained before starting the project.

DESIGNATED AREAS FOR TOURISM

Tracing back to the development history of current tourism locations with natural beauties as it attraction, we can find that majority are natural habitats of the traditional and ethnic communities.In Kerala it is very evident in the case of the hilly locations and beaches. Most of the locations are inhabited by the tribals and traditional fisher folks respectively. When tourism turned in to a major economic activity and finance capital investment opportunities, this land were either evacuated by acquiring their home land or they were pushed aside by the investors, legally or illegally .Illegal encroachment in to the common land or in to the common beach and entry restrictions were imposed subsiquently. Local communities share their anxiety that this kind of exclusion and marginalisation is going to aggravate in future course of the tourism development.The plight of the coastal area will not be different and that will definitely going to affect the traditional fisherfolk of Kerala also. This fear has been expressed in the meeting of the stakeholders.

Among several other suggestions the major one is to that,

1. Future coastal area tourism expansions should be limited to designated areas properly marked in the CZM Plan.

2. Constituting Coastal tourism management councils with adequate representation from the traditional fisherfolk can monitor the activity with a perspective to protect the livelihood rights of the fisherfolk.

ACTION PLAN AND MANAGEMENT

Constituting "Local level livelihood management councils" at the cluster level is a must .Approriate District and state level co ordination bodies are also needed. Local level bodies should have linkages with concerned LSGI, such as gramma panchayats,

CONCLUSION

Tourism and related activities is not a new area of economic activity.But promoting tourism as a livelihood option to the local community especially marginalised communities needs a different perspective.Here it is pro fisherfolk and is to be gradually and carefully evolved by transforming the traditional community strengths and upholding ecosystem values to ensure its sustainability.

RECOMMENDATIONS

- Inclusiveness of the local fisher folk families and communities should be ensured.
- Consider the tourism options as livelihood diversification for sustainable income generation.
- Community-based collective and clustering approach is needed.
- Consider them as ecosystem people.
- Explore tourism options in the natural resource management with biodiversity conservation.
- It should be a community collective activity and strengthening the local economy
- Priority for the involvement of women and educated youth from the local community.
- Promoting green options as far as possible.
- Promoting ethnic and traditional components of the local community.
- It should aim to reduce the pressure on marine capture fisheries, which is the main source of livelihood.

- Promoting safe and affordable tourism options.
- The tourism clusters shall be marked " local livelihood promoting areas "
- Attitudinal change and hand holding supports are needed. Motivated and committed members from the cluster can coordinate and lead the activities
- Protection from the encroachment of aspirants from out side the local cluster is needed.
- Rights of access to the fisherfolk in to the beaches and sea is to be protected, by maintaining the community owner ship status for the local livelihood cluster .
- Involvement of the local self government is needed as the institutional support.
- Ensuring livelihood through local tourism options needs the synergy of nature, human and institutional components.
- Future coastal area tourism expansions should be limited to designated areas properly marked in the CZMPlan
- Constituting "Coastal tourism management councils" with adequate representation from the traditional fisherfolk can monitor the activity with a perspective to protect the livelihood rights of the fisherfolk.

ANNEXURE

TOURIST ARRIVALS 2015-2019

Tourists Arrival	2015	2016	2017	2018	2019
Tourists(Foreign & Domestic)	13443050	14210954	15765390	16701068	19574004
Percentage of variation over previous yearS	6.73	5.71	10.94	5.94	17.2

FOREIGN AND DOMESTIC TOURIST OF LAST 10 YEARS

YEAR	FOREIGN		DOMESTIC	
	No.of Tourists	% of increase	No.of Tourists	% of increase
2010	659265	18.31	8595075	8.61
2011	732985	11.18	9381455	9.15
2012	793696	8.28	10076854	7.41
2013	858143	8.12	10857811	7.75
2014	923366	7.6	11695411	7.71
2015	977479	5.86	12465571	6.59
2016	1038419	6.23	13172535	5.67
2017	1091870	5.15	14673520	11.39
2018	1096407	0.42	15604661	6.35
2019	1189771	8.52	18384233	17.81

DOMESTIC TOURIST ARRIVALS KERALA 2019

Sl. No.	District	Foreign			Domestic		
		2019	2018	% of variation	2019	2018	% of variation
1	Thiruvananthapuram	310451	342761	-9.43	3038167	2712387	12.01
2	Kollam	12961	9086	42.65	481928	400222	20.42
3	Pathananthitta	2042	1953	4.56	207863	1928813	7.81
4	Alappuzha	116228	95522	21.68	677958	511490	32.55
5	Kottayam	58178	43287	34.4	597424	524821	13.83
6	Idukki	75206	44833	67.75	1820216	1257403	44.76
7	Ernakulam	522232	488175	6.98	4060134	3446889	17.79
8	Thrissur	15691	11333	38.45	2583557	2497278	3.45
9	Palakkad	2147	1967	9.15	560906	509883	10.01
10	Malappuram	25697	17610	45.92	665335	565914	17.57
11	Kozhikode	22515	18388	22.44	1305220	1052783	23.98
12	Wayanad	12302	11607	5.99	1143710	888141	28.78
13	Kannur	6852	5763	18.9	934572	768038	21.68
14	Kasargod	7269	4122	76.35	307243	276599	11.08
	KERALA	**1189771**	**1096407**	**8.52**	**18384233**	**15604661**	**17.81**

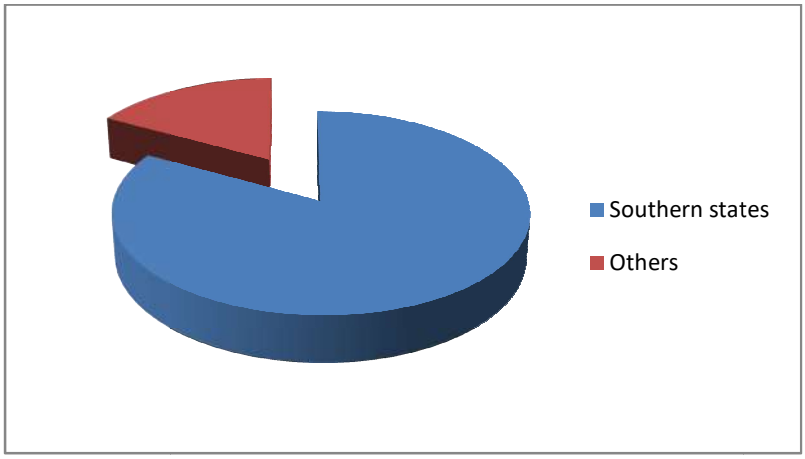
EARNINGS FROM TOURISM 2015 – 2019 (Rs. in Crores)

Year	Foreign Exchange Earnings	% of Increase	Earnings from Domestic tourists	Total Revenue generated from Tourism (Direct & Indirect)	% of Increase
2015	6949.88	8.61	13836.78	26689.63	7.25
2016	7749.51	11.51	15348.64	29658.56	11.12
2017	8392.11	8.29	17608.22	33383.68	12.56
2018	8764.46	4.44	19474.62	36258.01	8.61
2019	10271.06	17.19	24785.62	45010.69	24.14

DISTRIBUTION OF DOMESTIC TOURIST VISIT IN KERALA BY STATE OF ORIGIN DURING 2019

Sl.No	State	No. of Tourist
1	Kerala	11832469
2	Tamil Nadu	1741168
3	Karnataka	1132245
4	Maharashtra	652241
5	Andhra Pradesh	290383
6	Delhi	283283
7	Gujarat	248178
8	Uttar Pradesh	163331
9	West Bengal	147801
10	Telangana	134527
11	Lakshadweep	118827
12	Madhya Pradesh	76554
13	Rajasthan	73197
14	Punjab	53190
15	Haryana	50356
16	Orissa	40774
17	Assam	40098
18	Bihar	35730
19	Goa	29244
20	Jharkhand	26682

Distribution of domestic tourist visit to Kerala



Source: Kerala tourism statistics

Annexure XVI

ECO-RESTORATION AND MANAGEMENT PLAN FOR POKKALI AND KAIPAD

-Dr. Dinesan Cheruvat, Executive Director, ADAK

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ABBREVIATIONS:

ADAK	: Agency for Development of Aquaculture, Kerala
CDRDM	: Centre for Water Resources Development and Managment
DoECC	: Department of Environment and Climate Change (GoK)
GCF	: Green Climate Fund
GIM	: green India Mission
GEF	: Green Environmental Facility
IUCN	: International Union for Conservation of Nature and Natural Resources
KADS	: Kaipad Area Development Society
KCZMA	: Kerala Coastal Zone Management Authority
KIIFB	: Kerala Infrastructure Investment Fund Board
MAP	: Management Action Plan
MoEF & CC	: Ministry of Environment, Forest & Climate Change (GoI)
NAFCC	: National Adaptation Fund for Climate Change
NCSCM	: National Centre for Sustaibnable Coastal Managment
NCZMA	: National Coastal Zone Management Authority
NICRA	: National Initiative for Climate Resilient Agriculture
NPCA	: National Plan for Conservation of Aquatic Ecosystems.
PMMSY	: Pradhan Mantri Matsya Sampadha Yojana
RKI	: Rebuild Kerala Inititiative
RKVY	: Rashtriya Krishi Vikas Yojana
UNFCCC	: United Nations Framework Convention on Climate Change

1

INTRODUCTION

Coastal wetlands are one of the most productive ecosystems on earth. Traditional agriculture, animal husbandry and fisheries in these coastal wetlands have supported the livelihood of local communities immensely over the last many centuries. Coastal wetlands, where saline tolerant paddy cultivation and traditional capture based aquaculture have been practiced are seen in many parts of the world, particularly in tropical countries. Such traditional integrated paddy-shrimp farming system is popular in India and is known by different names locally. Bheries/Bhasabhada of West Bengal, Khazan of Goa, Khar or Gazani of Karnataka, Pokkali of Central Kerala and Kaipad of North Kerala are such traditional integrated farming systems.

The use of salt tolerant, flood tolerant traditional tall paddy varieties for agriculture and brackish water species of shrimp and fish for traditional capture based aquaculture in these coastal marshes offer an opportunity for popularisation of this traditional farming system, which are on decline over the last few decades. This farming system can withstand the vagaries of climatic changes including flooding due to uneven monsoon or rise in water level due to global warming, tidal flow and moderate changes in temperature. More wetlands adjacent to coastal wetland may get inundated by sea level rise in near future. Hence **management of coastal wetland for coastal protection as well as for its continued use for livelihood support need immediate attention**. Management of climate adaptive traditional agriculture and aquaculture systems like Pokkali or Kaipad gets relevance in these contexts.

Traditional brackish water paddy-shrimp farming system of Central Kerala is called *Pokkali* and that of Northern Kerala, *Kaipad* wherein farming is an 'integrated organic farming system', where rotational as well as simultaneous farming of paddy and shrimps are practiced. During monsoon season, when the salinity is very low a crop of paddy is grown here. Shrimps/fish are grown mainly during the rest of the year. The farming practice followed is a traditional capture based aquaculture system known as *shrimp filtration*. Only 2000 hactares out of 24000 hectares of Pokkali and 900 out of 4000 hactare of Kaipad are under farming now.

Sustainable management of coastal wetlands and near-shore marine ecosystems also offer a wide range of co-benefits, including shoreline protection, nutrient cycling, water quality maintenance, flood control, habitat for birds, other wildlife and harvestable resources such as fish. **Improved management of our wetland system would also slow or reverse current loss of carbon sequestration capacity**. Together, these increase the resilience of coupled ecological and social systems to the impacts of climate change. The coastal wetlands of Kerala, occupying 13% of the total geographical area of the state plays important roles in ecology, economy and social well-being of the people. The brackish water tidal mudflats in addition to the carbon sequestration process over the many thousands of years also offer an opportunity for agriculture and aquaculture production for the last two thousand years. The integrated farming system of Pokkali and Kaipad where saline tolerant paddy is cultivated along with integration of fishery

offers an opportunity of climate resilient farming practice in the event of the change in climate scenario particularly in the recent decades.

The degradation of coastal ecosystem including the coastal wetlands and its adverse impacts have drawn the attention of the government to take measures for protectecting these areas. The Coastal Regulation Zone Notification originally published in 1991 and and after incorporation of certain provisions were again notified in 2011 and 2019. The very purpose of the notification is to "conserve and protect the unique environment of coastal stretches and marine areas, besides livelihood security to the fisher communities and other local communities in the coastal areas and to promote sustainable development based on scientific principles taking into account the dangers of natural hazards, sea level rise due to global warming". As such, coastal stretches were notified as regulated zones of coastal sea, coastal land area and inland water bodies and its bordering areas.

As per the CRZ notification dated 18-01-2019 of Ministry of Environment, Forest and Climate Change (MoEF&CC) all coastal state in India need to prepare Coastal Zone Management Plan (CZMP) and obtain approval of the same from Government of India for the comprehensive management and judicious utilization of noticed CR Zone of every coastal state. **Future development activities, land utilisation and management of coastal zones in each states are to be carried out or implemented on the basis of this approved CZMP and hence the CZMP prepared by state have far reaching significances in the utilisation and owner ship of land, resource utilizations for food production, job opportunities and wok related issues of the coastline residents, their housing and other related basic infrastructure developments.** CZMP prepared by the state should cover all aspects of available resources coming under the provisions of the notifications in the coastal regulation zone and should provide realistic, judicious and prospective plans for the utilization of the same.

CRZ in the areas nearer to the sea side is fixed as 500 m. from the High Tide Line (HLT) towards the landward side and in inland regions where there is tidal influence, it is 50 metres towards the lands from the maximum water level during spring tide. The region designated as tidal influenced inland areas is defined as the areas where the salinity of water in the water bodies reaches a minimum of 5 ppt (5 gm. of salt in one litre of water) during the driest period of the year. In the notification, CRZ which are influenced by tide is classified into four zones mainly viz. CRZ-I, CRZ II, CRZ III and CRZ IV. CRZ –I, III, and IV are again sub divided into two zones each viz. CRZ-IA, CRZ-IB, CRZ-IIIA, CRZ-IIIB, CRZ-IVA, CRZ-IVB). Pokkali and Kaipad wetland come under **CRZ-IB**, i.e., Intertidal zone falling between High Tide Line (HLT) and Low Tide Line (LTL) which sometime include ecologically sensitive **CRZ –I A** like mangroves. Thus a management plan for Pokkali and Kaipad which fall under CRZ-I is highly required for inclusion in the Coastal Zone Management Plan of Kerala for ensuring its conservation and sustainable utilization to the dependent communities.

As both Pokkali and Kaipad have common ecological settings, biodiversity, similar farming practices for both paddy and aquaculture, except for its short geographical separations, the details and data available in one system is considered applicable to the other system and described as such in the following chapters.

2

FEATURES OF THE POKKALI/KAIPAD FARMING SYSTEM

2.1. POKKALI/KAIPAD FARMING

The term Pokkali refers to a salt tolerant rice cultivar grown in the coastal saline soils of Kerala. The areas of Pokkali cultivation are famous as Pokkali land and the rice produced in this tract is famous as Pokkali rice. Many value added products are produced from Pokkali rice

Majority of Pokkali lands lie between Vembanad Lake and the Arabian Sea and are distributed in 43 Panchayats, two municipalities and one city corporation area in the districts of Ernakulum, Thrissur and Alappuzha. Kaipad wetlands of N. Kerala are associated with the estuarine areas of the rivers of that area distributed in 57 local bodies and more than half of these are along the Valapattanam-Kuppam backwaters. The fields are submerged with saline water during most of the periods and tidal amplitude has direct impact on the salinity and water level in the field. As distinct from the saline soils elsewhere in India, the origin, genesis and development of these soils are under peculiar climatic and environmental conditions. Soil is stiff impervious clay, rich in organic matter, bluish black in colour and is more than 1 m deep. The soil is hard and it creates deep fissures when dry and sticky when wet. With regard to the nutrient status, the soil is highly fertile with respect to major nutrients

During summer months, due to ingression of salt water from the sea, the soil becomes saline. However, when the salinity is washed off in heavy monsoon rains, the inherent acidity of the soil regenerates. The soil is highly acidic, the pH being 3.0-4.5. Water soluble salts like sulphates and chlorides of Na and Mg are present in high proportion. In dry conditions, white encrustations of aluminium hydroxide develop on the soil surface. With the onset of monsoon, the salinity of the soil gradually decreases and the water becomes fresh and fit for cultivation of paddy. A special system of farming viz. Pokkali rice cultivation has been evolved through ages by the farmers of the area for the maximum utilization of available resources without affecting the ecosystem. After the paddy cultivation, the fields are used for prawn/fish cultivation. In more than 90 percent of single cropped lands, rice cultivation is done during the low saline phase from May-June to September –October.

2.2 POKKALI/KAIPAD VARIETIES AND THEIR IMPORTANCE

Pokkali/kaipad system of rice cultivation is an integrated organic farming in which rice cultivation and aquaculture go together in brackish water marshes. Rice faming is carried out in a peculiar way in a low to medium saline phase of production cycle during June to October. No-chemicals /organic fertilizers are used in rice farming. Soils have always been naturally fertile and possible reasons for high fertility of these areas include organic matter coming along with river water from forested mountains, remnants of sea creatures and excretion of migratory birds. Tidal flows make field highly fertile through a symbiotic relationship between rice crop and

prawn, shrimpand other biota. Rice crop draws nutrients from the excrement and other remnants of sea creatures. On harvest of paddy only the seed part (panicle) is taken as harvest leaving the rest of rice plant to decay in increasing saline water. This decomposing increases fertility of soil and forms food of shrimp and fish in following culture. Another reason for fertility is of high degrading capacity of marine fungi seen in these wetlands (Nambiar, G.R & Raveendran, K, 2009).

Pokkali system mainly depends on traditional Pokkali cultivars and high yielding varieties derived from these cultivars. Choottupokkali, Cheruviruppu, Kuruka, Anakodan, Eravapandy, Bali, Orkayama, Orpandi and Pokkali are the traditional cultivars prevalent in this tract. Improved varieties developed from the Rice research Station, Vyttila (VTL-1 to VTL-8) of Kerala Agricultural University, are now popular mainly with respect to high yield. Pokkali/kaipad land races are world famous for their salinity tolerance gene, SalTol QTL, and are in wide use in the international rice improvement programmes for salinity tolerance. They are also tolerant to soil acidity and submergence, which make them suitable for adaptive agriculture in the event of increasing salinity and submergence in the event of rising sea level.

Rice varieties at Kaipad grow to a height of 154 cm on an average. Most common varieties cultivated are Kuthir and Orkayama. Other local varieties which are cultivated at certain pockets of Kannur, Kasaragod and Kozhikode districts and need a revival is Chovverian, Kandarkutty, Bali, Kuttoosan, Orpandi and Orthadiyan. Kaipad varieties are high yielding with an average yield of 2800Kg/Hectares. Harvesting is done by second week of October. Though all are sown at the same period, Kaipad varieties differs in their time of harvest. Kuthir variety can be harvested by end of October while Orhkyma is ripe enough to be harvested only by second week of November. Since the rice plant is 5-6 feet long and cannot be carried for long distance only the panicle is taken as harvest leaving the rest of rice plant to decay in increasing saline water.

In a study conducted at the Rice Research Station, Vyttila, to explore the medicinal values of Pokkali rice, it is proved that the Pokkali varieties are very rich in antioxidants like oryzanol, tocopherol and tocotrienol. These contents are even higher than that of the medicinal rice njavara. The taste of Pokkali/kaipad rice is well known particularly rice flour, rice bran, rice flakes and many breakfast items made out of it. The local people of this tract like the kanji (rice gruel) made out of Pokkali rice. The Pokkali rice is rich in amylase content and hence it can be popularized as rice which is good for diabetic patients.

2.3 TRADITIONAL SHRIMP FILTRATION IN POKKALI AND KAIPAD

Traditional prawn filtration known as chemeenkettu is an age old practice in Kerala. The farming is undertaken in the low lying paddy fields close to the estuaries and lower reaches of rivers. This type of farming is mostly confined in Ernakulum, Thrissur and Alappuzha Districts in Central Kerala and in Kannur, Kozhikkode and Kasaragod districts of North Kerala.

The preparation for prawn filtration starts soon after the harvest of paddy. By this time the rainy season is over and the salinity of water reached a level conducive for large scale ingression of post larvae and juveniles of shrimp in the coastal inlets and adjoining rice fields. November-

April is the normal period of this filtration. As part of the preparation for shrimp filtration, bunds are strengthened and sluices installed/repaired for the exchange of tidal water. In order to facilitate free exchange of water, channels are provided along the periphery and centre of the paddy field.

Once the preliminary preparation is over the field is ready for trapping and holding of the shrimp/fish seed. The water is allowed to enter the fields during high tide with great force through sluices which carry sizable quantity of shrimp/fish seed. As the force of the incoming tide water decrease, the sluice is closed with shutter planks. With the onset of low tide, water is let out through the sluice fitted with screens to prevent the escape of entered animals and to facilitate entry of water during the next high tide. Once the level of water inside the field has reached a minimum, the sluice is closed with shutters. During the next high tide water is allowed to get in again and the process is repeated for 2-3 months. After this period harvesting of shrimp is carried out during the low tide, using a conical filtration net fitted in the sluice gate. Water is allowed to pass thorough the net with force during the low tide. The shrimp carried along the water current are collected in the cod end of the filtration net. This type of harvesting is carried out towards the end of the season for about 8 days in a fortnight in the spring tide phase, just before and after the full and new moon. The final harvesting is done by draining the field and resorting to cast netting and even hand pricking by the middle of April.

Figure 1: Traditional sluice gates

Figure 2 : Bag net in operation

Figure 3 :Harvested shrimp

2.4 WOMEN IN POKKALI/KAIPAD FARMING

The total Pokkali lands were originally estimated to be 24,000 hectares. Large areas are converted for coconut cultivation and other purposes. The present area is estimated to be 8,000 hectares. Year by year the area under Pokkali cultivation is declining. The present area under regular cultivation is 2,000 hectares. In another 5,000 hectares paddy cultivation is done occasionally i.e., only when the climatic conditions are favourable.

Kaipad or Pokkali is a traditional indigenous method of cultivation and have a great role in maintaining the ecosystem of the region. The raising of fish in paddy fields either together with rice or after the harvesting of paddy is an age-old system. The system of fish culture varies

depending on the ecological settings of the rice fields. However it is carried out on a significant scale in the coastal wetlands than on the upland rice fields.

The practice of taking a paddy crop followed by prawn filtration practice provides labour and regular income to the farmers all around the year. The number of farmers involved in regular Pokkali cultivation is estimated to be 11,605[1]. The total labour involved for Pokkali farming in 207 man days per hectare- 84 men and 123 women. Labour requirement of seasonal Pokkali fields for Chemeenkettu is estimated at 246 per hectare-181 man and 65 women. Pokkali work is generally hard because all the work has to be done in muddy water and without needed expertise it is impossible to do the work. On the traditional front of rice – fish cultivation, due to decline in extent of farming, the labour days of women and their income is systematically getting reduced.

The maximum number of work days for an expert female worker can be calculated as 30 days. In reality an expert female worker can expect 15-20 days of work in one season under the best possible environment. During the seasonal Chemeenkettu, i.e. from December to April, prawn peeling and hand picking of fish are the main source of income for women. During the five months of prawn harvest women get prawns for around 60/70 days. Every month there will be two thakkoms (prawn availability period; one thakkam is seven days.). During this time one woman may get around 5 kilos of prawns for peeling. The rate of peeling is ₹4/kg for high quality and ₹ 8 for thelly[2] (currently Rs. 14 and 24). After Kettukalakkal (final harvest) on April 14, traditional practice of rice/ fish farming the maximum workdays of a female worker can be calculated something like 30 days during Pokkali, 70 days during chemeenkettu and 45 days after kettukalakkal. That is, a total of 145 days per annum. From the available 123 man days /hectares for women, an individual woman is getting hardly 30 days of work due to the large number of women labourers available and the consistent decline in the area of Pokkali cultivation.[3]

Conversion of Pokkali and Kaipad fields can ultimately result in displacement of female labourers who are traditionally farm hands. On the traditional front of rice-fish cultivation the labour days of women and their income is systematically getting reduced. There is displacement. Low wage are forcing women folk to move on to other jobs. Concentration of shrimp peeling sheds is providing job opportunity to these displaced women agricultural labourers. Shrimp peeling sheds are capable of providing 150-200 days of employment to these women. Due to the absence of export oriented peeling sheds, the displaced women are not easily absorbed. The age factor along with the geographical structure and lack of transportation facility in the coastal Panchayats prevents the women from finding out job opportunities elsewhere. Moreover our social structure prevents women from migrating.

[1] Shyna, P.A. and Joseph, Sheela," A Micro Analysis of Problems of Displaced Women Agricultural labourers with Special Emphasis to the Pokkali fields of Vypinkara"

[2] Shyna, P.A. and Joseph, Sheela," A Micro Analysis of Problems of Displaced Women Agricultural labourers with Special Emphasis to the Pokkali fields of Vypinkara"

[3] Purushan, K.S. 2004

Revival of Pokkali/ Kaipad farming would provide more employment opportunities to the local community especially women folk. Traditionally, in paddy farming, most of the activities like preparation of seed for sowing, sowing of sprouted seed, harvesting, winnowing and other post-harvest processing are mostly done by women. In traditional shrimp filtration, the sorting of shrimps, its packing is mostly done by women. In addition, collection of shrimps in traditional ways like thappal (hand-picking of shrimps), and therakkal (aggregation and collection of shrimp in shallow waters) are common in Pokkali/ Kaipad wetlands which also give additional income to women. Fodder from Pokkali/ Kaipad wetlands support cattle rearing of nearby areas, which also provides additional income mainly to women.

Figure 4: Women in Pokkali/Kaipad farming

3

EXTENT OF POKKALI/KAIPAD AREAS.

About four decades back, around 24000 ha. of *Pokkali* land was under rice farming in central part of Kerala and 4000 hactares of Kaipad lands in northern part of Kerala. Construction of Thottappally spill way and Thannermukkom regulator in Alappuzha districts and Kattampally regulator in Kannur district which prevented tidal influxes to these wetlands have turned some of these areas unsuitable for pokkali/kaipad farming. Out of the 8000 hectares available for rice or prawn farming in pokkali fields only 2400 hectares are in cultivation now. In kaipad also out of the 4000 hactares available, less than 900 hactares are under cultivation now. Extent of Pokkali and Kaipad lands, its extent and presently farmed area and areas that can be revived with proper management are provided in table 1 and table 2 respectively. The area details on Pokkali were collected in a rapid survery by ADAK in 2015 and details on kaipads of Kasaragod and Kozhikkode provided by KAU (personal communication).

Table : 1

Area of Pokkali lands in various local bodies of Ernakulam Thrissur and Alappuzha districts:

S. No.	Name of Local body	Total Area (ha)	Presently farmed area (ha)	Area that can be revived(ha)
	ERNAKULAM DISTRICT			
	N.Parur Taluk			
1	Puthenvelikkara	9.39	2.80	6.57
2	Vadakekkara	27.37	8.21	19.16
3	Parur	29.08	8.72	20.36
4	Karumallur	16.67	5.00	11.67
5	Kottuvally	328.42	98.52	230.00
6	Ezhikkara	382	115.00	267.00
7	Varappuzha	227.18	68.15	159.00
8	Chittattukara	4.86	1.50	3.36
	Sub Total	**1024.97**	**307.90**	**717.12**
	Kanayannur Taluk			
1	Kadamakudy	507.22	152.00	355.22
2	Cheranallur	167.41	50.00	117.41
3	Kochi	21.69	6.50	15.69
4	Mulavukad	372.32	111.00	261.32
5	Thrippunithura	135.93	40.00	95.93
6	Maradu	196.11	50.00	146.11
7	Kumbalam	75.64	22.00	53.64
8	Udayamperoor	96.99	29.00	67.99
	Sub Total	**1573.31**	**460.50**	**1113.31**

	Kochi Taluk			
1	Pallippuram	54.66	16.00	38.66
2	Kuzhuppilly	287.07	86.00	201.07
3	Edavanakkad	212.80	63.84	148.96
4	Nayarambalam	418.6	125.58	293.02
5	Narakkal	182.42	54.73	127.69
6	Elamkunnapuzha	101.34	30.40	70.94
7	Palluruthy	201.79	60.53	141.26
8	Kochi	48.18	14.45	33.73
9	Kumbalanghi	584.32	175.00	409.32
10	Chellanam	349.21	104.00	245.21
	Sub Total	**2440.39**	**730.53**	**1709.86**
	THRISSUR DISTRICT			
	Kodungallur Taluk			
1	Poyya	123.00	37.00	86.00
2	Mala	45.00	13.50	31.05
3	Puthenchira	152.57	45.77	106.79
4	Vellangallur	396.60	119.00	277.60
5	Kodungallur	226.40	67.92	158.48
6	S.N.Puram	10.00	3.00	7.00
7	Padiyoor	4.00	1.20	2.80
	Sub Total	**957.57**	**287.39**	**670.17**
	ALAPPUZHA DISTRICT			
	Cherthala Taluk			
1	Aroor	235.00	100.50	134.50
2	Ezhupunna	515.00	160.00	355.00
3	Kodamthuruth	432.00	200.00	232.00
4	Kuthiathode	111.00	38.00	73.00
5	Thuravoor	393.00	138.00	255.00
6	Pattanakkad	190.00	72.00	118.00
7	Arookutty	10.00	3.00	7.00
8	Thykattussery	110.00	53.00	57.00
9	Pallippuram	33.00	10.00	23.00
10	Vayalar	145.00	44.00	101.00
11	Kadakkarappilly	10.00	3.00	7.00
12	Panavally	33.00	10.00	23.00
13	Perumbalam	6.00	1.80	4.20
	Sub Total	**2223.00**	**833.30**	**1389.70**
	TOTAL	**8219.24**	**2619.62**	**5600.00**

Table 2.

Area of *Kaipad* lands in various local bodies of North Kerala

Name of Local Body	Area of *kaipad* land (ha)	Presently farmed area of *kaipad* land (ha)	Area of *kaipad* land that can be revived(ha)
KANNUR DISTRICT			
Ezhome	425	149	60
Pattuvam	213	108	105
Cherukunnu	234	85	149
Kunhimangalam	16	00	16
Ramanthali	26	08	18
Karivellur-Peralam	36	00	35
Cheruthazham	40	05	35
Kannapuram	151	46	105
Mattool	06	00	06
Papinnisserry	35	00	15
Taliparamba (Municipality)	60	25	35
Anthur (Municipality)	36	09	27
Pinarayi	70	05	65
Eranholi	36	10	27
Chokli	86	04	82
Kariyad	08	00	08
Chirakkal	80	0	80
Narath	260	10	250
Kannur (Corporation)	294	10	284
Kolachery	120	40	80
Munderi	198	90	108
Kuttiyattoor	20	01	19
Mayyil	05	0	0
TOTAL	**2455**	**605**	**1609**
KOZHIKKODE DISTRICT			
Chengottkavu	68	00	68
Chemmenchery	33	04	29

Payyoli	30	02	28
Thikkodi	236	113	123
Koyilandi	06	00	06
Ulliyeri	36	04	32
Atholi	07	00	07
Cheruvannur	51	12	39
Meppayur	53	00	53
Thurayur	24	00	24
Keezhariyur	51	10	41
Thalakulathur	20	00	20
Kozhikode Corporation	28	01	27
Maniyur	115	10	105
Ayinchery	202	26	176
Thiruvallur	88	00	88
Velam	34	06	28
Eramala	40	00	40
Edassery	03	00	03
Total	**1125**	**193**	**937**
KASARAGOD DISTRICT			
Pilicode	06	01	05
Padanna	54	18	36
Thrikkaripur	28	01	27
Valiyaparamba	16	01	15
Cheruvathur	14	03	11
Nileswaram	07	01	06
Kanjangad	76	24	52

Ajanoor	43	28	15
PullurPeriya	01	00	01
Pallikkara	22	18	04
Udma	11	01	10
Kasaragod Municipality	37	01	36
Kumbala	99	04	95
MugralPuthur	31	14	17
Mangalpady	31	20	11
Manjeswaram	10	00	10
Total	**486**	**135**	**351**
TOTAL FOR 3 DISTRICTS	**4066**	**933**	**2897**

Data on Kaipad collected by KAU from Karshakasamithies formed in each Panchayat which consists of President of the LSG, Agriculture Officer, ward members, farmer convenors and 9-10 farmers as members.

A conservative estimate indicates that about 5600 hectare of fallow Pokkali lands in Central Kerala and 2900 hactares of *kaipad* lands in N. Kerala can be revived. By adopting group farming and by better management of rice and fish, new employment opportunities to the rural farming community of the area can be generated. Since traditional paddy-shrimp farming is labour intensive, it can generate a large number of man days of employment especially to the women as discussed in the earlier chapter. With proper management of rice and fish, income from unit area of the land can also be enhanced perceptibly.

Most of the Pokkali Rice cum prawn filtration fields of Central Kerala is now fallow due to heavy influx of saline water in the pokkali fields due to absence of proper bunds and increasing high tide levels. This increase in tide levels has caused the wide spread of viral diseased in prawn filtration fields due to over flow of water from one farm to another and destruction of bunds of fields in many farms. This increase in water level and destruction of bunds affected pokkali paddy cultivation in many of the padasekharams. Out of the 8200 hectares available for rice or prawn farming in pokkali fields only 2400 hectares are in cultivation now. The rest of the area is fallow or used partially in a year. This was because of the lack of strong outer bunds and other necessary infrastructures like sluice, pumps etc. So in order to motivate farming activity the farmers or farms are to be assisted for heightening and strengthening of bunds, installation of proper sluice gate and pumps. They are also to be assisted with necessary input for the farming operations.

4

BIODIVERSITY OF POKKALI AND KAIPAD

Biodiversity and fishery of Paddy Shrimp Farming systems of India were investigated by various authors (Pillay, TVR, 1954; George, M.J, 1962; Kurup et.al., 1992, Purushan, K.S., 2003; Cheruvat, D, 2014). The biodiversity details are largely extracted from the studies of the last author from kaipad wetlands of Kannur district.

4.1. PLANT DIVERSITY

Altogether 121 species of plants inclusive of mangroves, 345 species of animals excluding planktonic forms and minor invertebrate phyla were recorded in kaipad. Plants could be classified into three community level associations, i.e., of marsh lands, of the table lands and mangroves. Eleven species are mangroves and 16 species considered mangrove associates. Grasses (Family: Poaceae) with 23 species and Sedges (Family: Cyperaceae) with 13 species dominated the floral community. 34 species were found to be medicinal plants. Families and number of species are shown in Table-3.

Table – 3
Floral diversity of kaipad

Family	No. of species	Family	No. of species	Family	No. of species
Poaceae	**23**	Araceae	**01**	Sapotaceae	**01**
Cyperaceae**	**13**	Laminaceae	**01**	Sphaenocleaceae	**01**
Fabaceae**	**13***	Tiliaceae	**02**	Amaryllidaceae	**01**
Asteraceae	**09**	Scorphulariaceae	**05**	Lythraceae	**02**
Verbnaceae**	**04***	**Lentibulariaceae**	**01**	Onagraceae	**01**
Acanthaceae**	**04**	Geraniaceae	**01**	Myrsinaceae*	**01**
Amaranthaceae	**01**	Commelinaceae	**02**	Caesalpiniaceae**	**01**
Malvaceae**	**03**	Zingiberaceae	**01**	Annonaceae*	**01**
Euphorbiaceae*	**04**	Apiaceae	**01**	Pteridaceae*	**01**
Rubiaeceae	**04**	Convolvulaceae**	**04**	Najadaceae	**01**
Avicenaceae*	**02**	Sonneraceae*	**02**	Ptridophytes	**03**
Rhizophoraceae*	**04**	Pandanaceae**	**01**	Thallophyta	**01**

***families with mangrove representatives** ****families represented with mangrove associates**

Plants shows marked seasonal variations in paddy cultivation areas, and showed successional changes in paddy fields abandoned for varying periods. A few species like *Cynodon dactylon* (72%), *Cyperus pangorei* (19%), *Schoenoplectus litoralis* (7%) and few others(2%) are seen at wet area in summer whereas Paddy – Oryza *sativa* (52%), followed by *Isachne setosa* (12%), *Cynodon dactylon*(11%), *Diplachne fusca* (4%), *Panicum sp.*(4%), *Sacciolepis interrupta* (4%),

Leptocloa chinensis (3%),*Schoenoplectus litoralis*(3%) , *Sphaeranthus sp* (3%), *Eleocharis dulcis,*(2%)., and few others,(2%) dominate the monsoon/crop period vegetation during June-October. During harvest of paddy only top part of the plant (panicle part) is cut and the rest of the stubble is left in the field which slowly decays. The post harvest vegetation emerging over the decaying paddy straw during November-February comprised *Cynodon dactylon*(51%), *Leptocloa chinensis* (10%), *Panicum sp.*(8%), *Furaena umbellate* (7%), *Schoenoplectus litoralis* (6%) *Sacciolepis interrupta* (5%), *Cyperus pangorei* (5%), *Eleocharis dulcis* (4%) and few others (4%). Maximum growth of sub merged hydrophytes – *Najas, Enteromorpha* – is also seen during this period. Most of the post harvest vegetation decays with increasing salinity during February-March. The floral composition of kaipad marshes left fallowed for 3-4 years comprised *Cynodon dactylon* (62%), *Cyperus pangorei* (12%), *Schoenoplectus litoralis* (7%), *Diplachne fusca* (6%), *Panicum sp.* (5%), *Leptocloa sp.* (4%) and few others (4%). Paddy fields abandoned for 5-10 years is an advancing stage towards mangroves comprising *Cyperus pangorei* (29%), *Cynodon dactylon*(27%), *Acanthus ilicifolius (18%), Avicennia sp. (6%), Rhizophora (4%), Sonneratia (3%), Kandelia kandel (2%), Bruguiera cylindrica (2%),* mangrove associates and others 9%. Fields abandoned for more than ten years were dominated with mangrove vegetation having *Avicennia sp. (33%), Rhizophora (18%), Sonneratia (8%), Aegiceras corniculatum (09%), Acanthus ilicifolius (8%), Bruguiera cylindrica (3%), Acrosticum aureum (5%), Excoecaria agollocha (4%), Kandelia kandel (2%),* mangrove associates and others (10%). The feature of kaipad like open marshes, scattered table lands which raise just above the tide line, the peripheral dikes along the river side along with traditional farming practices, varying wetness conditions, change in pH, salinity and fallowing of lands were the major factors responsible for the floral diversity and its spatial and temporal distribution. The seasonal emergence and decay of vegetation including submerged hydrophytes are also partly responsible for nutrient enrichment in soil. The role of submerged hydrophytes in absorption of nutrients like nitrates even in very low concentrations in water (Barr & Rees, 2003) is relevant in this context. Decaying vegetation along with the organisms associated with it form food to the aquatic fauna. Decaying vegetation serving as a part of diet of shrimp has been suggested by various authors (George, 1974). Diversity of flora also support birds like granivores, omnivores, and birds feeding on vegetable matter.

4.2 ANIMAL DIVERSITY

Faunal diversity of kaipad is shown in table -4. Among the invertebrates, the occurrence of a single species of flatworm, *Pseudoceros sp*. having seasonal fluctuation in their population was a ubiquitous feature observed in kaipad lands. The abundance of benthic fauna such as polychaetes was high and was influenced by change in salinity. Birds especially mud probing migratory waterfowls were observed feeding intensely on these polychaetes. The abundance of these birds was seen correlated with the abundance of polychaetes. Polychaetes also form an item of food for shrimps crabs and carnivorous fish (Jhingran, 1991). Eighteen species of odonates and 33 species of lepidopterans were recorded in kaipad. The mosquito, *Culex sitiens*, was abundant in in their larval phase, during April-May in the kaipad marsh, when salinity (33-34 ppt.) and pH (9-9.5.) of waters were notably very much high.

Table- 4:
Faunal diversity of kaipad

Phylum	Class	Order	No.of Families	No.of Genera	No.of Species
Platyhelminthes	Turbellaria	Polycladida	01	01	01
Annelida	Chaetopoda	Polychaeta	03	07	09
Arthopoda	Crustacea	Stomatopoda	01	01	01
		Decapoda	07	15	27
	Insecta	Odonata	02	16	18
		Lepidoptera	05	29	33
		Diptera	01	01	01
Mollusca	Gastropoda	Archeogastropoda	01	01	01
		Mesogastropoda	03	04	05
		Soleolifera	01	01	01
	Pelycypoda	Pterioidea	01	02	02
Chordata	Pisces	Elopiformes	02	02	02
		Anguilliformes	04	06	09
		Clupeiformes	02	04	05
		Gonorhynchiformes	01	01	01
		Cypriniformes	01	02	02
		Siluriformes	02	03	07
		Mugiliformes	01	03	05
		Beloniformes	03	04	05
Chordata		Cyprinodontiformes	01	02	02
		Synbranchiformes	01	01	01
		Scorpaeniformes	01	01	01
		Perciformes	20	30	41
		Pleuronectiformes	02	02	02
		Tetrodontiformes	01	01	01
	Amphibia	Anura	2	2	03
	Reptilia	Testudines	2	2	02
		Squamata	8	11	11
	Aves	Pelicaniformes	01	01	01
		Ciconiformes	03	15	19
		Anseriformes	01	02	03
		Falconiformes	03	10	13
		Gruiformes	01	04	04
		Charadriformes	06	18	29
		Columbiformes	01	02	02
		Psittaciformes	01	01	02
		Cuculiformes	01	02	02
		Strigiformes	02	03	03
		Apodiformes	01	03	03
		Coraciiformes	04	06	09
		Piciformes	01	01	01

		Passeriformes	18	25	43
Chordata	Mammalia	Insectivora	01	01	01
		Chiroptera	01	01	01
		Carnivora	04	04	04
		Rodentia	02	05	06
Total No. of taxa	**11**	**46**	**113**	**258**	**345**

Among the 10 species of molluscs recorded, none was commercially harvested in most of the kaipad areas. Smaller mollusks occurring in large numbers like *Cerithidea cingulata and Thiara sp*. form the favourite food of mud probing birds like plovers. Three species of Amphibians, 13 species of Reptiles and 12 species of mammals were also recorded in kaipad. Amphibians and few species of reptiles were recorded during the low saline phase during monsoon. Kaipad marshes adjoining the land area provide suitable breeding grounds for frogs during the early monsoon periods. The table lands of kaipad provide a suitable protective area for Jackals and Otters.

4.2.1. FISHERY RESOURCES

Fishery of Kaipad resources comprises 84 species of fishes, 16 species of crabs and 11 species of shrimp/prawn. Shrimps constituted 73-77% of the fishery yield. *Scylla serrata* and *Scylla tranquebarica* are the two high value crab species caught from kaipad wetlands constituting about 7-8% of the total fishery. Commercial fishes constituted 17-19%. (Cheruvat, 2014) Composition of commercial shrimps and fish are shown in table- 5. The yield of various shrimps in various seasons is almost same as reported in backwaters of Cochin George (1962), whereas the composition of various shrimps differ slightly from that was reported from that of the similar system of pokkali in Cochin by Mathew (1991) and Purushan (2003). Smaller fishes such as *Aplocheilus blocki, Horaichthys setnai, Puntius vittatus, Etroplus maculatus and Psedosphromenus cupanus*, though visibly seen as species of no commercial importance, serve many ecological and economic benefits as potential source of larvivorous fish, ornamental fish and also forming natural prey to economically important aquatic fauna and piscivorous birds.

Table-5:

Composition of commercial shrimps and fish in Kaipad

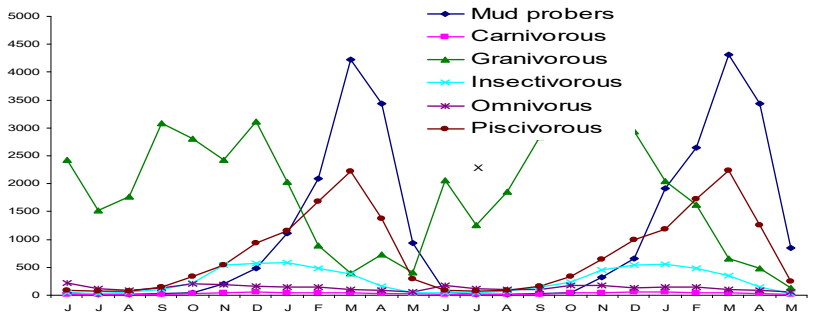
SHRIMP/FISH	Common Name	Scientific Name	Percentage composition
SHRIMPS	White shrimp	*Penaeus indicus*	31-31 %
	Tiger shrimp	*Penaeus monodon*	02-03%
	Brown shrimp	*Metapenaeus dobsoni*	50-53%
	Brown shrimp	*Metapenaeus monoceros*	15%
FISH	Mullets	*Mugil sp., Liza sp.*	40-42%
	Cichlids	*Etroplus sp., Oreochromis sp.*	37-41%
	Silver biddies	*Gerres sp.*	04-06%
	Goby	*Glossogobius sp.*	03-05%
	Carangids	*Caranx sp.*	02-03%
	Barracuda	*Sphyraena sp.*	01-02%
	Others		04-05%

4.2.3. AVIAN DIVERSITY

Pokkali and Kaipad wetland serves as foraging, roosting, nesting and protective ground for many species of birds including rare and migratory species. 134 species of birds belonging to 44 families were recorded from kaipad wetlands, 75 of them being wetland or wetland associated species. Out of the 134 species, 69 are resident, 45 migratory and 17 locally moving (Cheruvat, 2014). Residency status of birds was classified according to Ali & Ripley (1987) and Arun Kumar et. al. (2003). Migratory birds are the most abundant group. Diversity and abundance of birds are high during December-April, due to migratory arrival during this period. Maximum number of birds prefers the open marsh, mostly represented by migratory waterfowls. Computation of different indices of diversity parameters (using the software developed by Henderson & Seaby, 2001) show that the habitat has high species diversity (Margalef's D =11.399, Simpson's Diversity Index = 12.22, Shannon Wiener = 3.09) and pattern of distribution of different species are moderate (Equitability index = 0.6309). The values of Shanon Weaver index for natural communities are generally between 1.5 and 3.5. The values of alpha diversity indices also indicate the heterogeneity of the habitat (Cheruvat, D 2014).

Kaipad paddy wetlands form an important bird area in North Kerala, especially that of migratory birds which have high conservation value. Undisturbed habitat having abundant food organisms – Polychaetes/mollusks for mud probers, fish for piscivores, grains for granivores, prey for predators, insects for insectivores etc. attract large number of birds to these unpolluted wetlands. Scattered tablelands and patches of mangrove vegetation and coconut groves serve as perching place, shelter and also as nesting sites for many birds. Though certain groups like weaverbirds/munias/pigeons/parrots damage paddy crops and others like cormorants/egrets are destructive to fisheries, the damage is minimal due to the farming practices and biodiversity of the kaipad. Granivores prefer the lush growth of minor grains that grow among paddy and in uncultivated patches, where most of the Piscivores feed on small fish with less economic value and small shrimps like *Metapenaeus dobsoni*. Abundance of different categories of birds as shown in figure 5, indicate the particular ecological conditions and farming periods prevailing in kaipad lands.

Fig-5: Abundance of different categories of birds in different months



Coastal wetlands especially shallow mud flats being highly productive support a wide variety of plants and animals, besides providing a field for coastal agriculture and aquaculture. In Pokkali/kaipad mudflats, where integrated organic farming of both agriculture and aquaculture are practiced are also responsible for preserving the biodiversity of these wetlands. The diversity and abundance of biota like Plants, Polychaetes, Pisces and Birds and their interactions in supporting the system and the role of agro-ecosystems with its traditional farming practices in preserving the biodiversity is evident.

5.

ECOLOGICAL ASPECTS OF RICE FARMING, AQUACULTURE AND NUTRIENT ENRICHMENT

The rice-shrimp system of Pokkali/kaipad forms an example for eco-friendly farming system where external input is the least. Organic or inorganic fertilizers or pesticides of any kind are never applied in this system. Agricultural activity is restricted to preparation of land (mount preparation), scattering of seedlings and harvesting. Removal of weeds is not generally done. For traditional aquaculture also, inputs in the form of feed, fertilizers or chemicals are not applied. Aquaculture activity is restricted to strengthening of dikes, opening and closing of sluices and harvesting (filtration) at the sluices. The soil and water maintain the fertility level to support the traditional agriculture and aquaculture. Thus Pokkali/kaipad system could be categorized as "an integrated natural farming system". The agrifarming practices, aquaculture practices and biological and natural processes maintain the nutrient level and also control the weeds, pests and diseases. Some of the features, which were noted as factors responsible for nutrient enrichment and general quality of the system are, 1. Hydrology of wetland system, 2. Soil characteristics, 3. Farming practices 4. Aqua farming practices 5. Turnover of marsh plants and 6. Faunal diversity.

5.1. HYDROLOGY OF POKKALI/KAIPAD SYSTEM

Obvious is the fact that hydrologic conditions in a tidal marsh system such as Pokkali/kaipad fields, is extremely important for the maintenance of its own ecological functions. Hydrology affects or determines main abiotic factors or attributes, including salinity, soil redox potential (a measure of intensity of oxidation or reduction), and nutrient availability which are, in turn, integrally linked with the development and diversity of flora and fauna—the productive potentials--associated with the system. In a much more elaborated perspective, hydrology affects the species composition (of both plants and animals), primary productivity, organic accumulation, and nutrient cycling of the kaipad system. In this hydrologic system, its hydro period, often termed as hydrologic signature, is resulted by the balance between the hydrologic pathways, the inflows---such as precipitations, surface run offs, flooding river flows and groundwater (as freshwater inputs), and also the tidal inflows from the coasts and outflows, which transport energy and nutrients to and fro to this tidal marsh wetland system, influenced by the landscape contours and the subsurface conditions. In addition to the river flow and tidal actions, many streams also drain into Pokkali/kaipad wetlands. Thus, in the Pokkali/kaipad systems, the hydrology-mediated inputs improve the nutrient cycling processes thus increasing the nutrient availability, as can be seen in the soil nutrient data, in the system to the utilization of any dispensing component of the biota, not only to the floral faunal components of this ecological system, but also to the human factor that make use of this natural aquatic system for traditional mode of farming cultivation.

The Pokkali/kaipad wetlands occupy an intermediate position in terms of spatial arrangement, between the coastal uplands and the lowland aquatic systems. Its ecotonal position also gets reflected in the amount of water this eco-habitat system stores and processes, at the same time with its sensitivity to changes in the normal patterns pertaining to the hydrology, which may directly modify or change chemical and physical properties such as nutrient availability, levels of substrate anoxia, soil salinity, sediment properties, and pH. While water inflows act as major

input sources replenishing the nutrients to the system, the outflows often take away the abiotic and biotic components from the system as well. Such alterations in the physiochemical environment of the system invariably make a causal effect on the biotic responses and productivity (Gosselink and Turner, 1978), and that is why even the slight changes in the hydrologic conditions of a very sensitive wetland system, like the type found in the Pokkali/kaipad fields, may elicit the responding changes, in the biota, affecting the species richness and ecosystem productivity. So long as the hydrologic pattern of this system remains similar, the way the system has come into its natural settings, perpetuating mode, its ecological structural and functional integrity continue to persist. There are instances for collapse of the system when the flow characteristics of these wetlands were prevented by construction of barriers as discussed in the following chapter.

5.2. THE SOIL CHARACTERISTICS

Analysis of soil from different plots of kaipad in different season shows variation of different soil properties. These changes are more profound in different seasons than of samples form different plots. As the presence of nutrients from samples did not show much variation, an average value is presented for showing a general level of nutrients and properties in different periods.

5.2.1. TYPE OF SOIL

Physical examination of the soil on various parts shows that the type of soil is clay or clay loam.

5.2.2 PH OF THE SOIL

The pH of soil in different seasons varies from 4.6. to 6. Variation in pH is also noticed in different areas in the same month. Much variation in pH is not observed during monsoon and other seasons except for low values in August and September. Salinity and decaying vegetation influence the pH value in these areas.

5.2.3.ELECTRICAL CONDUCTIVITY

Electrical conductivity vary from a value of zero to 2.43. Electrical conductivity was high during October/November and also in March.

5.2.4. ORGANIC CARBON/AVAILABLE NITROGEN

Organic carbon is determined as an indicator of nitrogen availability in soil. Since soil organic matter possesses a C: N ratio of 10:1. Organic carbon in different seasons varies from 0.56 to 1.0 %. Highest value of organic carbon is observed during February and lowest during October. The value of organic carbon in a coastal wetland like kaipad where paddy is cultivated is relatively high.

4.2.5. PHOSPHORUS

Available phosphorus varies from 7.2. to 34.5 (kg/ha). Lowest values of phosphorus were observed during November to January period and highest value during May to August period.

4.2.6. POTASSIUM

Available potassium varies from 115 to 500 kg./ha. The highest value were seen during April-May whereas the lowest, during November-December.

5.3. PADDY FARMING PRACTICES

The different stages of kaipad fields in different seasons are provided in figure 6. By the middle of April when sluices were closed, most of the kaipad start drying up and get fissured and this dryness of soil for more than a month i.e., till the end of May imparts profound influence on paddy cultivation and aquaculture. Kaipad lands are waterlogged during all other months. Greene (1960) states, "yield of paddy are increased by 10 per cent or more if paddy field can be dried of between crops, due to greater production of ammonia than in continuously flooded soil". He has also reported that the increase of nitrogen may be as much as 22 kg./ha. Air drying may also influence the availability of phosphate. Thus drying and fissuring of kaipad lands increases the availability of these nutrients. Data on soil parameters also supports this statement as available phosphorus was seen to be high during peak summer and the subsequent few months. Sedimentation of flora of kaipad also increases the soil fertility. The rate of cycling of nutrients in kaipad paddy fields become affected if fields are abandoned for years.

5.3.1. PREPARATION OF MOUNTS

The preparation mounts for raising seedlings sprouted rice also influences the agriculture and aquaculture. Elder farmers report that production of paddy is more after introduction of mounts preparation practice some eight decades back. Before that, seeds were directly sown on leveled soil on the onset of monsoon. Mount preparation has the following functions.

1. Mounts are prepared for reducing the salt content of soil before sowing as the early rain of monsoon washes the excess salt away so that paddy seedlings grow healthy in less saline soil.
2. Mount preparation also has a tilling effect on the soil. This also creates a favorable condition for seedlings to spread the root system rapidly.
3. During mount making, the soil is scooped with a hoe and dropped inverted. Thus humus-nutrient rich top soil is protected from leaching by the heavy downpour of early monsoon, before soil is covered by the growing paddy.
4. In the process of mount preparation, the seeds of the other marsh plants are kept below the surface so that paddy seedling get competitive advantage fast suppressing growth of other plants (eradication of weeds).

5.3.2. SCATTERING OF MOUNTS/SEEDLINGS

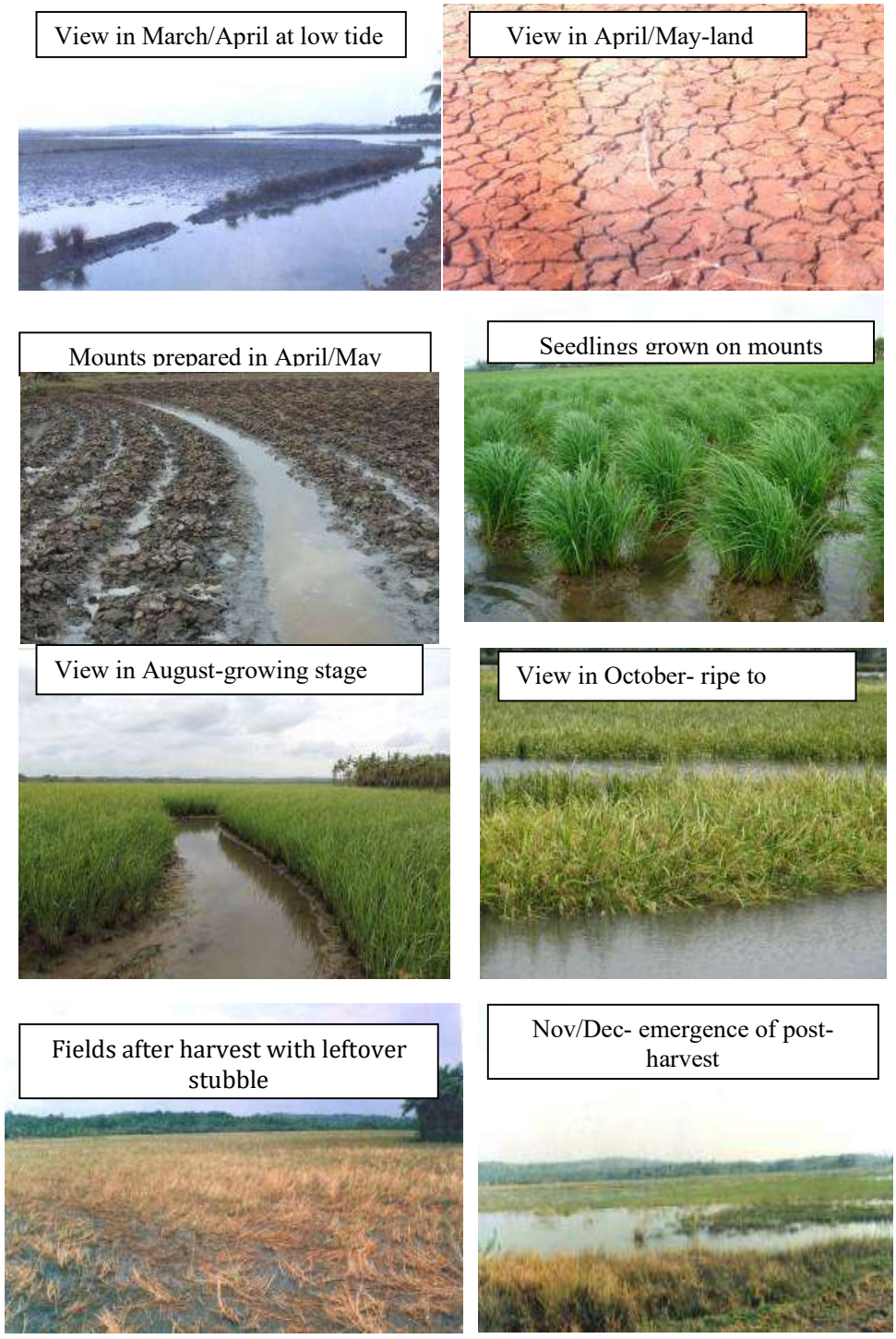
Seeds sown within a few days after the onset of southwest monsoon grow to about 1.5 to 2 feet tall by the middle of July, and are then scattered. The method of scattering is that, parts of mounts with seedlings on it are lifted with the help of a hoe and scattered around. This practice also reduces the growth of other plants growing between the mounts as mud with seedlings on it is dropped on these. Scattering provides more space for seedlings as well as help in absorbing nutrients from more surface area after an initial growth for more than a month on mounts.

5.3.3. LEAVING HAY IN THE FIELD

During harvest, the panicles are cut at the top part of the straw and the major part of straw is left in the field itself. This is done apparently because tidal water level start rising during this period, and physical transportation of whole cut wet plant is difficult in knee deep Pokkali/kaipad mud. Thus, much of the straw decays and settles as sediments to form part of the

soil enriching the nutrient level. Soil analysis showed that there is an increase in organic carbon content during

Figure 6: Different stages of Pokkali/Kaipad fields



November to February period, apparently due to the decaying of straw and other vegetative matter. This practice is also an essential practice followed in Fukuoka model of farming (Fukuoka, 1992) for enriching the soil. Decaying straw also form feed to the shrimps growing in Pokkali/kaipad fields. Decaying vegetation serving as a part of diet of shrimp has been suggested by various authors (George,1974). By these processes the cycling of nutrients is enhanced in Pokkali/kaipad. This aspect of paddy culture is favorable for traditional aquaculture like shrimp filtration.

5.3.4. ROLE OF WEEDS

Many plants grow along with rice are not generally eradicated. Plants like *Cynodon dactylon, Isachne setosa, Panicum sp., Diplachne fusca, Schoenoplectis littoralis, Furaena umbellate., Eleocharis dulcis, Hygrophila ringens, Sacciolepis interrupta* etc. thrive well with rice and also in abandoned kaipad marshes. Some of these plants reduce attack of grainivorous birds and pests. Luxuriant growth of the sedge *Eleocharis dulcis* in uncultivated area may function as a trap plant in controlling rice pests as reported by Ranganath (2002) as destruction by pests is minimum in kaipad lands. The observation by Dover & Talbort (1987) that diversity and succession of communities reduces weeds and pests in farming system that result in an evolving system with increasing diversity and reduced susceptibility is very much true in pokkali/kaipad farming system.

5.4. AQUA FARMING PRACTICES

The traditional capture based fishery known as shrimp filtration in kaipad lands do not require external inputs in the form of fertillisers, feed or any aquaculture chemicals, yet the system maintains the productivity by the natural turnover of nutrients. In many fields where paddy cultivation has ceased to exist, may affect the shrimp production in future. The following practices of traditional shrimp farming in Pokkali/kaipad influence in maintaining the general quality of the system.

5.4.1. LEAST INPUTS

In the traditional shrimp filtration practice of Pokkali/kaipad, inputs in the form of fertilizers, fish feed or chemicals are not used. There is no elimination or control of other fauna, which are competitors of valuable fish/shrimp. This is responsible for the diversity and abundance of fauna that is not seen in modern rice fields and shrimp farms.

5.4.2. SUSPENSION OF FISHING DURING CERTAIN PERIODS

Seasonal fishing at the sluices comes to an end by the middle of April and thereafter commences in June for the monsoon catch. April-May is the period of dryness in most parts of kaipad except at deeper parts near sluices. The sun drying of soil has a positive influence on aquaculture. Drying of pond bottom is advised in aquaculture for stabilization of nutrients in soil, for the release of noxious gases and to eliminate competitors, predators, pathogens and parasites of fish. During this period, the remaining fish and crabs migrate to the adjoining deeper parts of reed bed and mangroves.

No fishing is done during the period of Nov-January. The dikes on the river side and also those between different traditional shrimp fields are strengthened or repaired during this

period. This is the period when most of the late larval stages of shrimps from the sea migrate to the backwaters including the traditional fields like Pokkali/kaipad for further growth. The shrimps get attracted to such places owing to the availability of food and other suitable conditions. Thus the fishing holidays for 2-3 months allow fish to grow well for their subsequent catch at sluices.

5.5. USE OF REEDS FOR STRENGTHENING DIKES

Mud and reeds are used for making and strengthening dikes. Huge quantity of the reed – *Cyperus pangorei* – available in abandoned kaipad lands are cut and used for this. The decaying reeds at the dikes were seen attracting innumerable young shrimps. They were seen schooling more near the dikes and feeding on the biota of decaying reeds. Thus apart from the decaying hay at the rice fields, decaying reed and associated biota also form an important moiety of the food of shrimps in Pokkali/kaipad fields. Decaying vegetation forming a part of shrimp diet has already been cited earlier.

5.6 STANDING CROP OF RICE AS A SHELTER FOR AQUATIC FAUNA

Most fish and crabs breed mainly during monsoon. This is also the period of rice cultivation. Capture of fish and crab is difficult among the standing crop of rice which grows to about 5 feet or more. As flooding during monsoon affect the filtration at sluices less quantity of shrimps/fish are caught at this time. Moreover this is not the period of availability of shrimps of high commercial value such as *Penaeus indicus.*

5.7. MARSH PLANTS AND SOIL FERTILITY

Apart from paddy, the emergence and decomposition of seasonal vegetation of Pokkali/kaipad lands influence the fertility of soil, which in turn increases production of rice and fishery. The emergence and subsequent decay of partially or fully submerged hydrophytes like *Enteromorpha sp.* and *Najas sp.* also have the same effect.

5.7.1 SUBMERGED HYDROPHYTES

Enteromorpha sp. (a nitrophilous green alga) and *Najas sp.* (a nitrogen fixing alga) are abundant in shallow areas of Pokkali/kaipad lands. *Enteromorpha* increases during monsoon and are abundant during late cropping period which then decline thereafter. Abundance of *Najas* is more during post harvest period, which subside by the month of March. The maximum abundance of aquatic macrophytes during winter in west coast has also been observed in Goa by Sima (2003). These two submerged hydrophytes absorb the nutrients from tidal waters and are then transferred to the soil when they decay. *Najas* and *Enteromorpha* are opportunistic in that they are also able to absorb nutrients in very low concentrations. Biological nitrogen fixation by *Najas* also fixes nitrogen in this habitat. Investigation of nitrogen status and metabolism in *Enteromorpha* by Barr & Rees (2003) is relevant in this context. They have observed that when these plants were immersed for 90 minutes at high tide, the plants took up sufficient ammonium to increase their nitrogen content by 10%. Naturally in kaipad lands, the toxic ammonia liberated by the abundant aquatic fauna, would be absorbed by the abundant aquatic submerged

hydrophytes like *Enteromorpha and Najas*. Thus toxicity of ammonium is reduced as well as the nitrogen availability increased in the habitat.

Sulphide injury to flora and fauna in acid sulphate soils is an established fact (Subramony, 1960; Subramony,1965; Murthy, 1971; Nair & Subramony, 1969). Though sulphide is produced in these lands, injury must be minimum as the flora and fauna are diverse and abundant than the conventional paddy fields. Here, *Enteromorpha* function as a control agent in minimizing sulphide injury to other biota. Preferential sulphur absorption by these plants is an established fact. The abundance of *Enteromorpha* during cropping period absorbs much of the sulphur and some quantities of these plants are removed to the river through the sluices. Thus in addition to the inactivation of sulphide by the large amount of Fe present in kaipad soils, *Enteromorpha* also helps in absorbing the sulphide minimizing the sulphide injury to other biota. The decomposition of these dense algal mat in Pokkali/kaipad soil also liberate the H_2S gas to the atmosphere and increases the nutrient level of soil by sedimentation and decay in soil.

5.7.2 POST-HARVEST VEGETATION

The dense growth of post-harvest vegetation (described in chapter 4), make use of the nutrients and space available in the field after harvest of paddy. The subsequent decomposition of this emergent vegetation due to increasing salinity, pH, dryness of land etc., return much of the minerals fixed in these plants. The higher level of organic carbon, phosphorus and potassium following post-harvest period noticed was probably due the decay of paddy stubbles, hydrophytes as well as by the dense growth of post-harvest vegetation.

5.7.3. MANGROVES AND SOIL FERTILITY

Leaf litter of mangroves on its decay, facilitated by microbes, increase the humus content as well as the process of trapping of nutrients liberated in the decay process by the aquatic macrophytes suggested above, increases the nutrient level of the habitat. Decaying matter also form food to the planktonic forms of many crustaceans.

5.8.FAUNAL DIVERSITY AND NUTRIENT ENRICHMENT

The abundance and interactions of different faunal elements greatly contribute to the fertility of the kaipad lands. Influence of major faunal groups such as Polychaetes, Fish and Birds on fertility of the kaipad paddy fields were described below.

5.8.1 INFLUENCE OF POLYCHAETES

The diversity and abundance of this group were discussed in chapter 4. Polychaetes of Pokkali/kaipad influence the properties of soil just in the same way that earthworms do in fresh water soil conditions. The soil surface appears porous when tide recedes primarily due to the action of polychaetes in most part of Pokkali/kaipad lands. Very small to moderately large pores are made by these polychaetes. Small polychaetes such as Capitellids make small burrows and are more confined to the surface soil whereas large ones like *Marphysa sp.* make moderately large burrows penetrating more than one foot deph in the soil. These burrows in peculiar colours are visible in vertically cut soil sections.

Though primarily carnivorous feeding on small organisms, polychaetes also ingest mud in the process of feeding and burrowing. Worm casts are visible throughout the kaipad lands. Thus in addition to the nutrient enrichment by ways of worm casts, the pores made by them helps in aeration as well as infiltration of surface layer of soil rich in organic matter and nutrients. These distribute the nutrient rich soil in different surface layers helping in paddy growth.

5.8.2 INFLUENCE OF FISHERY

Fish culture improves the fertility of rice fields and increase in rice production by 15 % was reported (Hora and Pillay, 1962), in rice-fish culture systems by way of nutrient enrichment. In kaipad fields, the abundant growth of hydrophytes like *Najas sp.* and *Enteromorpha sp.* absorb ammonia excreted by fish and other aquatic organisms and thus ammonia toxicity is reduced and nitrogen content of soil increased when these hydrophytes are decayed to form part of top soil.

5.8.3. BIRDS

Avian utility to kaipad fields in the form of guano deposit were mainly during the period November to May (the migratory period of birds). The number of piscivorous birds was high during November-February period when the tidal level was high. It is during the same period the luxuriant growth of *Najas sp.* takes place. It is highly probable that the nutrients of excreta dissolved in water could be one reason for such growth. During April-May period when tide recedes form most of kaipad lands, the guano is deposited on the wet soil and a white mat of guano is visible in most areas. This guano rich topsoil is pushed down the surface during the process of mount preparation for rice farming, thus protecting this nutrient rich top soil from the early showers of rain.

Plovers and Sandpipers, that feed on crabs and mollusks, and do not have visible economic value, convert these into guano. Birds such as plovers feed upon the most abundant mollusk, *Cerithidium cingulata,* of kaipad, which is considered a pest in aquaculture. Thus in intergrated natural farming systems like kaipad have its own control mechanism to check the exponential growth of certain organisms which may harmfully affect others.

5.8.4. MOLLUCS

Innumerable number of molluscs especially that of smaller one mentioned above laid over the years also helps for decreasing the acidity of soil to facilitate paddy and fish farming.

6

ECO-RESTORATION & MANAGEMENT PLAN.

As in other coastal wetlands of Kerala about half of the Pokkali and Kaipad land were lost during the last 30-50 years. Paddy cultivation is restricted to one fourth of these wetlands that exists now. Being a very important coastal wetland system supporting rich biodiversity and contributing to the ecosystem service values including flood mitigation to the coastal community for centuries and considering the emerging issues of climate change urgent measures are to be taken for restoration of these important coastal wetlands and proper management strategies adopted without further delay. UN Millenium Wetland Ecosystem Assessment under the UNEP – TEEB (The Economics of Ecosystem & Biodiversity) shows that the ecosystem service values of coastal wetlands are more than four times that of inland wetlands and it was caluculated to be more than Rs. one core per hectare per year. Thus if these wetlands are conserved as such, it will continue to provide these services including food, employment, oxygen, flood control and climate resilience.

The pokkali/kaipad agroecosystem, evolved as a result of human need and endeavour for developing agriculture and aquaculture many centuries back, are facing many threats now. The system having suitable climatic conditions, tidal action, floral and faunal interactions, ideally suited for paddy/fish production would soon vanish unless the various threats faced by the system are avoided or minimized. Actually the destruction of this eco-friendly farming system has started about five decades back with the construction of barriers to prevent saline ingression to the inland areas followed by large scale reclamation for conversion of these wetland for other purposes.

6.1. THREATS FACED BY THE SYSTEM

Some of the major adverse factors that were identified as detrimental to Pokkali kaipad lands are,
1. Construction of barriers. 2. Fallowing of lands. 3. Change in land use pattern 4.Pollution. 5. Poor government intervention.

6.1.1. CONSTRUCTION OF BARRIERS

Out of the 4000 hectares of Kaipad lands existed in North Kerala four decades back, nearly 1000 ha. were lost in Kattampally region of Kannur taluk after the commissioning of the Kattampally project in 1966. The project, the first multipurpose scheme in the district for providing irrigation, prevention of salt water intrusion, flood control and navigation, infact, has failed to achieve its major objectives, as has happened for similar projects, viz. the Thaneermukkom barrier in the Vembanad backwaters become baneful. The cross bar at Pullangode – Perapuzha in Kunhimangalam Gramapanchayat, Chemballikund-Mulakkeel weir, Muttil weir etc. (Kannur district) also have had the ill-fated function. The unique features of saline marsh lands influenced by the tidal action, monsoon, and interaction of microbes, flora and fauna were disturbed by these barriers and the lands turned unsuitable for any kind of rice cultivation. The traditional shrimp/fish filtration practice ceased to exist in these areas. These areas are now dominated by a few species of plants of the families, Poaceae and Cyperaceae.

Thus, these projects launched to promote freshwater paddy cultivation for three crop cycles in a year turned out to be an ecological disaster in these areas contrary to the benign expectations of the people. Moreover, hundreds of people engaged in rice cultivation and shrimp filtration were deprived of their jobs.

6.1.2. FALLOWING OF LANDS

As rice cultivation turned out to be an uneconomical or less profitable affair, many farmers stopped the cultivation in their Pokkali and kaipad lands. The study on the socio-economics of kaipad farming by Nair et al. (2002) points to this situation. Moreover, the major part of the profit from shrimp filtration goes to the traditional owners of the shrimp filtration sluices, who manage the shrimp filtration. The fallowing of lands results in the growth of other floral elements, later to be succeeded by mangroves. The *kaipad* wetlands once get dominated by mangroves will make it very difficult to be reclaimed back for rice cultivation. Besides, the legal protection to mangroves as per Coastal Regulation Notification of MoEF &CC further complicates this issue. Fallowing of lands also results changes in ecological processes and in the reduction of the fishery yield of the area.

6.1.3. CHANGE IN LAND USE PATTERN

The backwaters of Ernakulam, Alapuzha,Thrissur and Kannur where the *pokkali/Kaipad* fields located in the fringes of these water bodies have undergone major ecological transformation during the past two decades, such as shrinkage of backwater both horizontally and vertically, reduction in depth, reduction in water holding capacity to less than 30 %, heavy siltation in open water bodies, feeder canals and *pokkali* fieds, reduction in the intensity of tidal amplitude and volume of seawater reaching backwaters, reduction in larval ingress during high tide etc. Heavy siltation of backwaters and associated feeder canals and the consequent reduction on the tidal intensity had adversely affected the productivity and sustainability of fish/ shrimp farming in *pokkali* fields. There is an urgent necessity to desilt the adjoining water bodies and feeder canals by resorting to dredging. Many areas Pokkali and Kaipad lands have gradually been converted for modern shrimp farming and for planting other crops like coconut, so also for infrastructure development as well as establishment of industrial units. Some of these major factors which led to the decline are,

Modern Shrimp farming

The next single factor, after the commissioning of the irrigation projects and reclamation for infrastructure purposes, for the decline of Pokkali/kaipad cultivation, was the establishment of modern shrimp farms. The study by Nandakumar and Salim (1997) to identify the extent of impact of on the wetland ecosystem including traditional rice-shrimp system of Kannur district by modern development process, have concluded that modern shrimp aquaculture as being a major factor for the destruction of these habitats. About 350 ha of modern shrimp farms in Kannur district were supported by governmental agencies and most of these farms were established in kaipad lands or mangrove areas. The nutrient rich wastewater of these farms is often released to the neighboring kaipad lands. The recent genesis of shrimp/crab diseases could be attributed to these modern farms, as such mortality had never been noticed earlier in kaipad wetlands, till three decade back.

Infrastructure development

Contruction of roads, residential complexes and other infrastructure development have taken a heavy toll in decline of Pokkali and Kaipad wetlands. Reclamation for port development,

container terminals, expansion of the city and other infrastructure facilities in Cochin area have taken a heavy toll on loss of Pokkali lands. As happend on the case of Pokkali, the construction of many roads, Payangadi – Muttukandi – Ezhome road, Avathekkai – Panakkad road and Chootayam road, and a bus station and neighboring commercial complexes at Payangadi, were made in the heart of the *kaipad* wetlands of Ezhome panchayat in Kannur district. The second track for railways was also made through the *kaipad* wetlands of Cherukunnu panchayat. Construction of road and railway lines also obstructed the water flow. Commercial complexes, residential complexes and hospital complexes at Thalassery in the district are best example for such blatant violation of laws which caused decline of these wetlands.

Industrial establishments

Modern industries, Sawmills, plywood factories and a few other establishments constructed in the Pokkali/*kaipad* wetlands in various parts of the districts were another reason for the decline of these wetlands. The wastewater released from some of these establishments was also a threat to the fauna and flora of the surroundings.

Pollution

Solid wastes, organic and inorganic pollutants released into the rivers often find their ways to the Pokkali/kaipad wetlands due to tidal effect and settle there. The *kaipad* wetlands and mangroves of Pappinisseri, Ezhome and Cherukunnu receive a lot of wastes. People find it very convenient to throw wastes from bridges to rivers. Animal/organic wastes from slaughterhouses, poultry shops, hospitals etc., often packed in polythene bags thrown in river eventually get settled in Pokkali/kaipad wetlands. Dead animals thrown in rivers also reach such wetlands posing serious health problems. Chemical industries including resin and dye industry also release pollutants directly into these wetlands or associated river systems causing serious issues.

6.2 MANAGEMENT PLANNING

Managing an ecologically important ecosystem especially the human managed ecosystems should take into account various aspects for sustaining its natural settings and continued service to humanity. Ecological factors including ecosystem services, Legal issues in land use, Traditional land use features, Socio-economic aspects involved, Existing institutional mechanisms involved in management, threats faced by the system and certain issues arising from climate change have to be taken into account when framing a Eco-restoration and Management Plan for ensuring the sustainability of Pokkali/kaipad wetland systems. Among these; Ecological features, Biodiversity, Traditional farming practices and its role in maintaining the system are discussed in different chapters. Awareness on the uniqueness or importance of these farming systems is to be generated to all the levels of governance and to different other stakeholders. Some of the important aspects are noted below before suggesting an eco-restoration and management plan.

6.2.1RESTORATION OF THE HABITAT

Pokkali fields are under serious anthropogenic threats as they are being converted for other purposes like roads, bridges, hospitals, residential or commercial activities. Also these areas appear to be one of the most preferred landfills for dumping solid waste and an ultimate point for discharging untreated industrial and domestic effluents. Invasion of weed, over exploitation of fish and prawn are some of the other reasons for the decline of the paddy and fishery in these wetlands. These threats have to be reversed.

Heavy siltation and consequent reduction in the depth of the backwaters and feeder canals demands urgent desilting of the water bodies by resorting to dredging there by the depth can be maintained at the desired level. Dredging is very essential in those parts of the estuary where the areas are utilized for pokkali shrimp aquaculture such as the Mulavukad to Chattanad (Veerean puzha), Cheenkannithodu and Vebhayi Thodu in Kuzhupilly in Ernakulam district and Ezhome-Cherukunnu-Kannapuram-Pattuvam areas of Kuppam River in Kannur district. Kattampally area of Kannur district also required desiltation and reconstruction of bunds. Removal of the material dumped due to dredging in the backwaters and other unused dumped materials used for construction of bridges and roads will ensure free water movement in the backwaters and restoration of tidal amplitude. The smaller channels within the paddy polders also required annual maitenence as practiced earlier to ease drainage of water to maintain the soil quality. The dredged soil should only be used for restoration/reconstruction of bunds adjoining these wetlands.

6.2.2 MANAGING BIODIVERSITY & ECOLOGICAL FACTORS INCLUDING ECOSYSTEM SERVICES

As discusse in ealier chapter, biodiversity of Pokkali/kaipad wetlands are one of the important factors responsible for nutrient enrichment and sustability of the farming. Any release of pollutants or use of chemical fertilizers or pesticides may completely affect the biological balance of the system. The use of such chemicals is to be completely banned in this farming practice to protect the biota like planktons, polychaetes, mollusks, nitrogen fixing algae and marine fungi. Conservation of fishery resources and avian resources should also figure in the management of such wetland system as they profoundly influence the fertility of these wetlands. Widespread diseases, especially the attack of viral diseases in farmed shrimps also causes serous threat to biodiversity. Cultivation of high value indigenous finfish species in place of shrimp, through species diversification ensuring the availability of seed, feed and technological inputs in areas of pond preparation, feed management, health management and marketing are need of the hour.

Management of mangrove is another area which can be best utilized for protection of the farming areas from the vagaries of climate induced calamities of tidal surges, flood and heavy downpour during monsoon. At present annual maintenance of peripheral bunds of the padasekharams turns to be a costly affair to the farmers. Planting of mangrove in the outer periphery of the bunds boardering with the rivers/backwaters would help in protecting the bunds as done in the case of the NAFCC project implemented by ADAK in Pokkali/kaipad areas. Further details are provided under the Mitigation and adaptation to the impact of Climate Change below. Mangroves which are growing the paddy farming areas have to be

controlled and planted to the outer periphery of the bunds, which would facilitate paddy farming, protection of bunds and increase fertility of the surrounding wetlands and would also help in enhancing the biodiversity especially the fishery resources.

Managing genetic biodiversity also is equally important. The SALTOL (Salt Tolerance) QTL (Quantitative Trait Loci) and Sub 1 (Submergence Tolerance) genes of pokkali are highly valuable and world famous. This QTL is being used throughout the world for saline tolerant varietal development programme. Hence, protection of pokkali genetic resources as a field germplasm in the form of pokkali Rice Park has to be taken up. The medicinal properties of pokkali rice is because of its high antioxidant contents like oryzanol, tocopherol and tocotrienol contents higher than that of medicinal rice, njavara which needs to be popularized and a high price equivalent to njavara rice. The pure organic nature and the geographical indication registry of this rice indicate great scope to use in baby foods, soups etc. and hence demands procuring of this rice at higher price. High amylose content (>25%) of this rice provides an opportunity to promote this rice as an anti diabetic rice.

6.2.3 ENSURING TRADITIONAL LAND USE PATTERN FOR SUSTAINABLE RESOURCE UTILIZATION.

Apart from reversing from various anthropogenic activities like reclamation mentioned earlier, another important measure to be practiced regularly is the traditional crop rotation. One of the most important impediments to the development of shrimp aquaculture in *pokkali* fields in Kerala is the recurring disease out breaks. Treatment of diseases of aquatic animals is rather difficult and cost prohibitive. Paddy crop rotation is accepted as one of the farming systems which is widely practised for improving sustainability and combating outbreak of diseases. Many pathogens of aquatic animals are host specific and rice crop rotation helps in abating the pollution load of *pokkali* fields and thus will he helpful in combating the recurrence of diseases**.** Farming practice in *pokkali* fields is more structured and environment friendly. The tidal flow in to the highly fertile wetland and to highly efficient productive system over an extended time span has resulted in the transformation of one system into another through selected pathways. The problems of disease and environmental deterioration with the advent of semi intensive monoculture of shrimp has been due to heavy dependence on extrinsic feed and excessive organic loading, hampering all natural mechanisms to absorb and recycle the wastes generated viz., feed remains , the sloughed of exoskeleton, metabolic wastes and so on. There is an essential need to for restoration of energy flow and return to the practice of recycling of materials both within and outside through healthy Paddy- fish integration. This includes sustenance of drainage system and ground water regime. Hence a crop of Paddy during low saline freshwater phase shall be made mandatory. Shift from traditional practice to perennial prawn farming in most of the *pokkali* fields by farmers by leasing out land for round the year shrimp farming, instead of the six months, traditionally earmarked for rice farming have also resulted in doing away with paddy farming. This has often led to social tensions as the residents living on the polder dykes are affected by salinity problems, damage to residential houses, depriving of freshwater sources and near decimation of biodiversity. Mandatory provision for raising one crop of paddy shall be enforced as per provisions of existing laws. Conversion of rice lands in to perennial aquaculture system should not be permitted and shall be dissuaded. The displacement and replacement of paddy based concept for comparative profit should not be allowed since farming also has a social objective. It is within the rights of the Government to impose

restraints in the overall interest of the state. The local self governments may be empowered to enforce this restraining power of social control.

Management of Pokkali along with Mangroves can also open a new avenue for self employment such as ecotourism (as provided in CRZ notification, 2019), fishing, cottage industries based on mangrove forest produce and other vegetation like reeds, helping to improve the socio-economic conditions of the local communities.

6.2.4 SOCIO-ECONOMIC CONSIDERATIONS IN MANAGEMENT.

Paddy farmers of other areas can not be compared with farmers of Pokkali/kaipad because they undertake a unique and costly system of farming in the larger interest of the society. This high cost of production shall have to be compensated by providing/ fixing a higher support price for procurement of *pokkali* rice and other incentives to offset this high labour cost and low rice productivity. The *pokkali* rice shall be procured with a support price of Rs 60 /kg as organic rice by Civil Supplies Corporation. Agriculture department shall take the steps to procure the unique indigenous *pokkali* paddy seeds to farmers by maintaining a seed bank.

The entire cost on infrastructure shall be borne by the Government, while the maintenance should be vested with farmers. Annual support for strengthening and construction of feeder canals, polder bunds, installation of pumping devises, *enginethara* and motor shed etc. are other requirements. The management of infrastructure to be vested with farmer groups/organizations and no discrimination shall be shown between fish and paddy farmers as the income from fish farming is essential for sustaining paddy culture**.** A large number of *pokkali*-fish farming units are located in remote areas with little road access and electrical connectivity. Inadequate infrastructure facilities make intensification of farming systems all the more difficult. Aeration is perhaps one of the most important means to improve fish production from aquaculture systems. In the absence of electrical connectivity, most farms do not use aerators to enhance dissolved oxygen content of the rearing water. Thus the farms have to restrict to low stocking density there by resulting in low production. Provision of road and electrical connectivity will certainly improve the productivity of farming systems. This will also help to improve the quality of the end products as refrigerated.

Mechanization of paddy farming is inescapable and most desirable requirement in *pokkali* tracts, if rice production has to survive. This calls for urgent interventions to develop and introduce suitable machinery for land preparation and harvesting of rice in *pokklai* lands. Introducing new technologies-possibility of introducing mechanical transplanting of paddy also may be addressed so as to save on preparatory stages of cultivation. There is an acute shortage of labour force for both agriculture and aquaculture in *pokkali* fields. The Agro industries development corporation or College of Agriculture Enginnering, Thavanoor may develop minor tractors, ridgers, floating paddy harvesting machines etc which are suitable for *pokkali* fields. Machineries at medium scale for bund construction, mount formation, dredging, Paddy harvesting etc are to be designed specifically for *pokkali* through Kerala Agro Industries Development Corporation and KAU as an urgent measure and necessary financial assistance may made available to the farmers for its procurement

6.2.5 MITIGATION AND ADAPTATION TO THE IMPACT OF CLIMATE CHANGE.

Bunds which protect the Pokkali/kaipad wetlands from tidal waves and flood which also helps to regulate water level requires annual maintenance. A lot of money and manpower is expended for repair of bunds and sluices. Traditional sluices are made of wood and would last for 2-3 years. The rising sea level and frequent flood often cause demage to the traditional bunds and sluices. Erection of massive earthern bunds especially that boarder the river or backwater protected on its outer periphery by mangroves would helps to reduce the maintenance cost and also would protect the paddy polders from uneven flood, heavy downpour and wave action. A photograph showing such a mangrove belt protecting the river side along Kuppam-Payangadi River in Kannur is shown in figure 7. The contruction such massive bunds planted with mangroves done in the NAFCC project "Promotion of integrated farming system of Kaipad and Pokkali in coastal wetlands of Kerala by ADAK (Department of Fisheries) during 2016-21 is one of the best examples for this. Mangrove being planted under NAFCC project is shown in figure 8.

Figure -7

A natural mangrove ridge along Kuppam-Payangadir river in Kannur

Figure-8

Mangroves planted along the bunds under NAFCC project in Ernakulam

Figure-9

Concrete Sluice built under NAFCC project in Ernakulam

Figure-10

Inner view of Concrete Sluice built under NAFCC project

Most of such bunds constructed under this project withstood the destructive flood of 2018 and 2019. Upgrading the wooden sluices to masonry/concreate sluice gates would also help farmers in avoiding frequent maintenace or replacement. Such masonry or concrete sluices were constructed for NAFCC project implemented in Pokkali fields (figure 10).

6.2.6 LEGAL FRAMEWORK INVOLVED IN MANAGEMENT

Apart from the involvement of Local Self Government as per provisions of Kerala Panchayati Raj/Municipalirt Act, 1994 and rules a few other acts/rules/notification provides provisons for conservation and management of Pokkali/Kaipad lands. These are Kerala Conservation of Paddy Land and Wetland Act, 2008 (GoK), Wildlife (Protection) Act, 1972, Biological Diversity Act, 2002 (GoI) along with Kerala Biological Diversity Rules, 2008 (GoK), Coastal Aquaculture Authority Act, 2005 (GoI), Inland Fisheries and Aquaculture Act, 2010, The Kerala Tourism (Conservation and Preservation of Areas) Act, 2005, The Water (Prevention and Controll of Pollution) Act, 1972 and CRZ notifications (GoI - 1991, 2011, 2019) issued under the sub-section (1) of section and clause (V) of sub-section (2) of section 3 of Environment (Protection) Act, 1986. Now CRZ notification governs management of the tidal

influenced mudflats of Pokkali and kaipad, other legal instruments may have to be considered along with this for some of the specific aspects of management like declaration of protected areas or for prevention of Pollution.

Kerala is leading other states of India in ensuring community led planning and development through local self government institutions (PRIs – Panchayati Raj Institutions). The PRIs presently manage the development programmes for agriculture and allied sectors along with other developmental areas including regulation of tourism. So LSGIs can play a key role in implementation of various projects/schemes associated with sustainable utilization of of wetland resources.

As per CRZ notification 2019, all the tidal influenced Pokkali/kaipad wetlands fall under CRZ-I B category. Hence a NDZ of 50 metres from HTL boardering these wetlands are to be demarcated. As mangroves also seen along the periphery of these wetlands, sometimes overgrown inside the paddy wetlands, CRZ-I A category also naturally falls under these areas. Thus two issues are to be addressed while managing Pokkali/kaipad lands where managroves are also a component. One is the management of mangroves associated with these wetlands and other is the livelihood issues including the housing problems along the periphery of these wetlands in a thickly populated state of Kerala. If the bunds and sluices boardering the Pokkali/kaipad lands with river/backwaters are considered as HTL as was recommended by NCSCM for Kazan lands of Goa, thereby delineating the NDZ to 50 metres along these bunds, housing and some of the livelihood issues boardering these wetands could be addressed. But it necessitates protection of the wetland beyong 50 metres of NDZ of these HTL by invoking provisions of other acts.

Kerala Conservation of Paddy Land and Wetland Act, 2008 aims to regulate the conversion and development of paddy fields and protect wetland areas in order to promote agriculture growth, ensure food security and sustain the ecological system in the state of Kerala. If the bunds and sluices boardering the Pokkali/kaipad lands with river/backwaters are considered as HTL, the protection of rest of the wetland has to be brought under the purview of this act. Under such a situation the entire Pokkali/kaipad has to be included in the data bank of paddy wetlands to ensure its protection beyong the NDZ under CRZ of these wetlands

Existing legislations for protection and management of mangroves especially that is involved with Pokkali/kaipad wetlands of private ownership are largely inadequate to its implementation at field level. Indian Forest Act, 1927, Forest Conservation Act, 1980, Kerala Forest (Vesting and Management of Ecologically Fragile Lands) Act and Kerala Promotion of Tree Growth in Non Forest Areas Act, 2005 lagely fails to manage mangrove in Private lands and that of Pokkali fields. The notification of community reserve as per provisions of Wildlife (Protection) Act, 1972 as ammnded 2002 provided another option for conservation of Pokkali/Kaipad lands with mangroves involving local people by protecting their traditional rights. Kadalundi Vallikkunu Community Reserve in Kozhikkode & Malappuram districts includes the intertidal zone of Kadalundi estuary. The management model adopted in Sindudurg in Maharashtra incorporating mangrove tourism and fishery is another best example that can be adopted for manging mangroves with active participation of local communities by ensuring increased livelihood opportunities for them. Ecotourism activities such as mangrove walks, tree huts, nature trails etc. subjected to ecotourism plan featuring in the approved CZMP are permitted

under proviso 5.1.1. of the notification. Management committees involving LSGs, local stakeholders, NGOs and stakeholder departments could manage the affairs of these wetlands with an approved management plan under CZMP.

Along with provisions of CRZ notifications, provisions of Coastal Aquaculture Authority Act, 2005 (CAA, 2005) have also to be invoked while giving registration of aquaculture farms in Pokkali/kaipad and associated mangrove areas. Except for traditional paddy and prawn filtration in Pokkali/kaipad system, permission should not be given to new aquaculture farms in these wetlands and associated mangroves. Converstion of mangroves, use of exotic species and use of certain chemical which are strictly regulated under CAA, 2005 should not be permitted.

An enforcement mechanism for implementation of various acts/rules/notifications for conservation and management of Pokkali/Kaipad are required at local, district and state level, which suggested under **"Management strategies and action plan"** detailed below.

6.2.7 MANAGEMENT STRATEGIES AND ACTION PLAN.

Conservation and management of a biodiversity rich integrated coastal farming system of Pokkali have to consider various legal as well as ecological, social, institutional and emerging isssues of global climate change.

Institutional Arrangements

A. Establishment of State/District/Local Level Authorities

The role of LSGIs for management of wetlands has been briefly stated above. To support LSGIs for management of wetland like Pokkali/kaipad specific institutional arrangements at different levels would be helpful. The cross sectoral and multi-stakeholder needs for wetland management can be best served by designating a separate institution responsible for ensuring cross sectoral coordination and balancing the interests of stakeholders while ensuring ecological integrity of the wetland system (Ref: MAP for Vembanad- CWRDM). For example, KADS (Kaipad Area Development Society) with a governing body headed by Honourable Minister for Agriculture and an Executive Committee headed by MLA are functioning for management of kaipad wetlands of N. Kerala. Since Pokkali wetlands are more in area (8200 hactares) it would be good to have a common institution for management of both Pokkali and Kaipad at the state level. As various departments/agencies are involved like Agriculture, Fisheries, Forest, Tourism, Irrigation; the governing council consisting of Ministers of these departments and an Executive Committee consisting of Secetaries to Government and heads of the department/agencies at state level may be constituted in place of the separate committees for pokkali and kaipad. Distict Level Committee chaired by District Collector who is also the Chairman of DLC of KCZMA with district level officers of all stakeholder departments/agencies and heads of LSGs having the Pokkali/kaipad lands can be constituted at district levels. District Level Committee can recommend and take actions for various violations like pollutions, reclamations, encroachment etc. At the LSG level a committee headed by the head of the concerned LSG and with implementing officers of various departments and farmers

groups/farmer representatives also can be constituted. KCZMA and DLCs of KCZMA can guide and approve the various activities, management plans and any further delineation of boundaries etc.to be taken up in these wetlands. A technical committee for formulating plan, preparations projects under various schemes may also be useful for sourcing of fund.

B. Delineation of Boundaries, Inventory and Monitoring

Presently mapping of Pokkali/kaipad wetlands in vaiours districts are largely unrepresented in CZMP maps. In many areas farm lands were shown as mangroves or buffer zone of mangrove. Land use maps of all the local bodies/villages where these wetlands are present are to be surveyed so as to include all the available area of the integrated farming of Pokkali/Kaipad. Inventory of village wise area details of Pokkali/kaipad wetlands are to be prepared and updated every five years. The LSG level committee can monitor the activites taken up in these wetlands and any changes required may be reported to District Level Committee for approval. The committees at various levels can monitor the activities at various levels as per reports made available from the local levels and from the concerned stakeholder departments.

C. Capacity Building.

Capacity building of farmers, farmer groups/associations, government departments, agencies need to be undertaken through professional training in wetland management for its sustainable resouce utilization at various level. Apart from conservation related aspects of farming, the requirements for popularization of paddy and aquafarming can also be taken up in capacity building programmes. A dedicated web site, training manuals, thematic brochures etc. would also be helpful for this purpose. Mechanisation for both paddy farming and aquafarming have to be taken up in association with KAU, Engineering institutes or start up companies for easing the manual work which are very much required now. Scope for convergence of existing programmes/projects of the departments of Agriculture, Fisheries, Animal Husbandary, DoECC, Dairy and Forest etc. has to be worked out for maximum livelihood support to the wetland dependent communities.

Ecosystem conservation

Various Pokkali/kaipad areas associated with different back waters/river systems are to be separately marked for preparing plans considering the ecological sensitivity, hydrological regimes, biodiversity, wetland processes, infrastructure and socio-economic requirements for restoration and conservation of these ecosystem entities. Some of these wetland areas like that of the Kattampally and the wetlands upstream of Thottappally and Thanneermukkom regulators in Alappuzha where waterflow is regulated through a barrier has to consider the operational aspects of these regulators.

A. Management Zoning

Zoning of Pokkali/kaipad associated with a particular river/backwater system would be helpful for management of that ecosystem entity, considering the hydrological regimes, biodiversity characteristics and ecosystem functioning. For example some of the Pokkali/kaipad areas like Kattampally and Ezhome in Kannur district are famous for wetlands birds' especially migratory

waterfowls. Kattampally has already been identified as Important Bird Areas (IBAs with A1 criteria) by Bird life International. Such zoning would also add to the livelihood options of the local people as has been done in Sindudurg (Maharashtra) or in Chilika Lake (Odisha).

B. Improvement of Hydrological regimes

Improved hydrological connectivity, reduction of siltation and general improvement of water quality are to be ensured for sustainability of the system. The collapse of ecological processes due to construction of Thanneermukkom Regulator in Alappuzah and Kattampally regulator in Kannur are classic examples. In Kattampally having more than 1000 hactrares of Kaipad lands became barren by three years after commissioning of the regulator in 1966. Thus the environmental flow has to be ensured for sustainability of the wetlands of Pokkali and Kaipad. Heavy siltation as discussed earlier also affects the tidal and monsoon flow affecting these wetlands adversely. Thus desiltation as practiced in earlier time has to be resorted under the supervision of the committees or LSGIs. Release of any sort of pollutants and chemicals by industries have to be strictly regulated to protect these biodiversity rich wetlands.

C. Biodiversity Conservation

A detailed survey of biodiversity of various pokkali/kaipad systems have to be taken up by Kerala State Biodiversity Board to prepare a conservation plan for biodiversity. The Biodiversity Management Committees (BMCs) of LSGIs can take a lead role in these aspects with support of research institutions or educational institutions. Avian diversity, mangrove biodiversity, fishery biodiversity etc. may help to prepare the management plan for many of the locations as cited earlier for Kattampally (an Important Bird Area) or Kadalundi-Vallikkunnnu (Mangrove wetland famous for migratory waterfowls). This would also open up new avenues for ecotourism or biodiversity based enterprises to the benefit of local community.

D. Management of Mangroves

Legal issues of managing mangroves were briefly discussed earlier. Growth of mangroves when pokkali/kaipad areas are fallowed for even few years would physically and legally cause hardship to the farmers. Thus a management plan for mangroves in and around the Pokkali/kaipad wetlands is required at local levels. Maximum afforestation of mangroves could be taken up on the periphery of these wetlands boardering the river or backwates. At the same time planting should not be promoted in the fertile mudflats used for paddy farming and shrimp filtration. Eco-tourism and farm tourism can be promoted in the Pokkali/kaipad wetlands and associated mangrove areas. Small huts, mangrove mangrove walks, tree huts, nature trails etc as permissible along with bird watching, ankling, sea food restaurents may be promoted as additional livelihood options for the local people.

Sustatinable Resource Utilisation

Sustainable utilization of wetland for agriculture, aquaculture, ecotourism and other livelihood activities are to be promoted by proper planning and funding.

A. Sustainable Paddy farming

Increase awareness on pokkali/kaipad farming systems and mechanisms for increasing the area for more production of branded eco-products that fetch high price in domestic and international markets would grately support the farmers. Physical infrastructure like massive bunds, strong sluices and use of saline tolerant traditional paddy varieties for farming and strictly following a crop calendar aligned with changing ecological conditions due to climate change are much essential for ensuring sustaibality of farming.

B. Sustainable Aquaculture

Traditional capture based aquaculture system of Pokkali/kaipad called Shrimp filtration should continue along with paddy by following a crop calendar. To compensate the declining recruitment of fish larvae into these wetlands, additional imputs of indigenous euryhaline fish/shrimp varieties have to be stocked in the Padasekharams. Best aquaculture practices suitable to these wetlands should be promoted. As fish harvested from these fields are purely organic, a marketing strategy to get best price have to be ensured. Value added fish products also have to be promoted.

C. Ecotourism/Farm Tourism Development

Pokkali/kaipad wetlands adjoining rivers/backwaters and mangroves can be best utilized for eco tourism activities like farm tourism and aquatourim. Small huts along the bunds near the sluice gates would also give and opportunity to enjoy farming activities, back water cruice, pesca tourism, sea food delicacies, mangrove walk, bird watching and such events. Developing an action plan for regulating tourism below the carrying capacity is a prerequisite for ensuring sustainable utilization of these wetlands for tourism development.

D. Traditional industries & Microenterprises.

A lot of small scale industries, sometimes household industries were in existence in these areas which have to be promoted. Value added products of rice like rice flakes, rice flour, rice bran and value added products of shrimp like dry shrimps and fish; manufacture of bags and mats using reed and pandanus leaves, collection and pre processing of medinal plants and ingradients for ayurvedic products which were in vogue have to be further promoted. These would also support tourism and increasing livelihood opportunities.

Specific Projects & Funding

Specific project with adequate funding like that of National Adaptation Fund for Climate Change (NAFCC) of MoEF & CC are very much required for erecting huge bunds for protection of paddy polders and for promoting integrated farming. Suitable details on the climate related issues of Pokkali/Kaipad has to be incorporated in State Actio Plan for Climate Change (SAPCC) for facilitating approval of funds under United Nations Framework Convention on Climate Change (UNFCCC), NAFCC, Green Climate Fund (GCF), Global Environment Facility etc. Funding under specific programmes announced by GoI during various periods like National Initiative for Climate Resilient Agriculture (NICRA), Rashtriya Krishi

Vikas Yojana (RKVY), Prdhan Mantri Matsya Sampadha Yojana (PMMSY), Green India Mission etc. can be made available for implementing specific projects in Pokkali/Kaipad wetlands. National Plan for Conservation of Aquatic Ecosystems (NPCA) is another proggramme on which funds could be made available for various aspects of these wetlands. Possibility of sourcing of funds from specific programmes announced by GoK like KIFFB, Rebuild Kerala Intitive (RKI) can also be explored.

Convergence of various schemes, programmes and progencts implemented by various state government departments like Agriculture, Fisheries, Environment & Climate Change, Animal Husbandary, Dairy, Poultry etc. and also that of LSGIs would also could support in implementing integrated projects for sustainable utilization of Pokkali/kaipad wetlands.

SUMMARY OF RECOMMENDATIONS

- Survey and inventorying of Pokkali lands for preparation of a data bank.
- Specific action plan for reversal of the threats posed by these wetland system and restoration of habitat.
- Establishment of an instituitional mechanism for conservation and management.
- Restrict development within the legal framework and ensure legal protection in case of any delineation of NDZ of CRZ.
- Ensuring Traditional Land Use pattern including mandatory crop rotation.
- Capacity building at all levels of stakeholders for sustainable resource utilization.
- Sustainable development of Paddy farming, Aquaculture, Ecotourism, Traditional Industries dependent on these wetland systems.
- Adoption of a plan for conservation and sustainable use of biodiversity.
- Ensure funding from different sources for various eco-developmental activities.
- Explore all possibilities of livelihood options available from these wetlands considering the ecological and socio-economic aspects of the locality.
- Adoption of suitable mitigation and adaptation strategies like construction of massive bunds, strong sluices, planting of mangroves to combat with the emerging issues of climate change.

CONCLUSION:

Considering the unique nature of Pokkali/Kaipad farming systems like its coastal settings, high biodiversity, ecosystem services, traditional farming practices, concerted efforts by various stakeholders having a proper implementation and monitoring mechanisms for sustainable utilization of these wetlands is to be adopted and the plan approved in Coastal Zone Management Plan (CZMP) of Kerala. Promotion of traditional agriculture, aquaculture, traditional small scale industires and ecotourism in these wetlands would help in additional livelihood support and ensure the sustainability of these wetlands.

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APPENDIX - 1

*FLOR*AL DIVERSITY OF KAIPAD

Family	Scientific name	Vernacular name	Specific Value
POACEAE	***Cynodon dactylon***	Karuka	Med./
	Diplachnae fusca		
	Panicum auritum	Ponon pullu	
	Panicum miliaceae		
	Panicum gardneri		
	Leptocloa chinensis		
	Isachnae setosa		
	I. globosa	Varinellu	
	Echinocloa colona		
	E. stagnina		
	Sachiolepis interrupta	Poochavalu	
	S. indica		
	Ischaemum indicum		
	Paspalum conjugatum	Naikkalla/Jobimani	
	Oriza rufipogon		
	Oplismenus burmanii		
	Pseudanthistia umbellata		
	Digitaria ciliaris		
	Arundinella meltizi		
	Pennisetum polystachyon		
	Dendrocalamus sp.		
	Coix lachryma		
	Eragrostis uniloides		
CYPERACEAE	***Cyperus pangoeri****	Payipotta	Dike repair
	Fimbrystylis dicotoma*	Keechi	
	Fimbrystylis miliaceae*		
	Schoenoplectus litoralis*	Urunipotta	Cattle feed
	Furaena umbellata		
	F. ciliaeros		
	*Mariscus javanicus**		
	Cyperus iria		Cattle feed
	Cyperus sp.		
	Cyperus rutundus	Muthanga	Med
	Pycreus polystachyes		
	Eleocharis dulcis		
	E. capitata		
FABACEAE	*Aeschynomena aspera*		
	Aeschynomena sp.		
	Pongamia pinnata	Ungu/Pongu	Med
	Geispsis tenella		
	Glyricidia sepium	Seemakonna	
	Indigofera telufolia	Nilamparanda	Med
	Crotalaria juncea	Kilukilukki	Med

	*C. quinquifolia**		
	C. striata		
	Mimosa pudica	Thottavadi	Med
	Desmodium triflorum	Oorila	Med
	Abrus precatorius L.	Kunni	Med
ASTERACEAE	*Synedrella nudiflora*		
	Chromelina odorata	Communistu	
	Emelia sonchifolia	pacha	Med
	Aegeratum conysoides	Muyalchevian	Med
	Sphaeranthus indicus		Med
	Sphaeranthus africanus	Adaikkamaniyan	Med
	55. Wedelia chinensis		Med
	Eclipta alba	Kayyonni	Med
	57.Solena amplexicaulis		
VERBNACEAE	*58. Premna latifolia**	Mutha	Med
	59.Vitex sp.	Nochi	Med
ACANTHACEAE	*60.Justicia gendarussa*	Vathamkolli	Med
	61. Hygrophila schulli	Vayalchulli	Med
	62. ***Hygrophila ringens***		
AMARANTHACEAE	*63. Achyranthus aspera .*	Kadaladi	Med
MALVACEAE	*64. Urena lobata*	Oorakam	Med
	*65. Hibiscus tiliaceaus**	Thalipparuthi	
	66. Sida acuta	Kurunthotti	Med
EUPHORBIACEAE	*67. Phyllanthus amarus*	Keezharnelli	
	68. *P. airy-shawii*		
	69. P. fraternus sensu		
RUBIAECEAE	*70. Spermacocae sp.*		
	71. Ixora coccinia	Thetti/Chekki	Med
	72. Hedyotis corymbosa	Parpadakapullu	Med
	73. Hedyotis auricularia		
ARACEAE	*74. Colocasis sp.*		
LAMINACEAE	*75. Hyptis suaveolns.*		
TILIACEAE	*76. Corchorus olitorius*		
	77. Triumfetta rhomboidea	Ottupullu	Med
SCORPHULARIACEAE	*78. Lindernia ciliata*		
	79. Scoparia dulcis	Kallurukki	Med
	80. Limnophila aromatica	Manganari	Med
	81. Bacopa monnieri	Brahmi	Med
	82. Lindernia sp.		

LENTIBULARIACEAE	*83. Utricularia sp.*		
GERANIACEAE	*84. Oxalis corniculata*		
COMMELINACEAE	*85. Commelina benghalensis* *86. Cynotis sp.*		
ZINGIBERACEAE	*87. Zingiber zerumbet*		Med
APIACEAE	*88. Centella asiatica*	Kudangal	Med
CONVOLVULACEAE	*89. Ipomoea companulata* *90. Argyreia sp.* *91. Merremea tridentata*	Palmuthukku Prasarini	Med Med Med
SAPOTACEAE	*92. Aegeratum conysoides*		Med
SPHAENOCLEACEAE	*93. Sphaenoclea zeylanica*		
AMARYLLIDACEAE	*94. Crinum defixum*		
LYTHRACEAE	*95. Ammania buccifera* *96. Rotala indica*	 Kaloor vanchi	Med
ONAGRACEAE	*97. Ludwigia sp.*		
NAJADACEAE	*98.* ***Najas sp.***		
PTRIDOPHYTES	*99. Adiantum philipense.* *100. Marsilia minuta.* *101. Ceratopteris sp.*		
THALLOPHYTA	*102.* ***Enteromorpha intestinalis***	Ennappayal	

Plants shown in bold are the dominant marsh plants
Med. = medicinal plants
* species included in Appendix-II also.

APPEENDIX – II

MANGROVES AND MANGROVE – ASSOCIATES OF KAIPAD

FAMILY	Sl. No	Scientific name	Common English Name
ACANTHACEAE	1.	Acanthus ilicifolius	Sea Holly/ Holly mangrove
AVICENACEAE	2.	*Avicennia officianalis*	White mangrove
	3.	*Avicennia marina*	Grey mangrove
RHIZOPHORACEAE	4.	*Rhizophora mucruonata*	Long fruited stilted mangrove
	5.	*Rhizophora apiculata*	Tall stilted mangrove
	6.	*Kandelia candel*	
		Bruguiera cylindrica	Small leaved orange mangrove
SONNERATIACEAE	7.	*Sonneratia caseolaris*	Mangrove apple
	8.	*Sonneratia alba*	
EUPHORBIACEAE	9.	*Excoecaria agallocha*	Blinding tree
MYRSINACEAE	10.	*Aegiceras corniculatum*	River mangrove
PTERIDACEAE	11	*Acrosticum aureum*	Mangrove Fern
CAESALPINIACEAE	12.	*Caeselpinia nuga*	
FABACEAE	13.	*Derris trifoliate*	
	14.	*Pongamia pinnata*	
	15	*Glyricidia sepium*	
	16	*Crotalaria quinquifolia*	
ANNONACEAE	17	*Annona scabra*	
VERBANACEAE	18.	*Clerodendron inermae*	
	19.	*Premna serratifolia*	
MALVACEAE	20.	*Hibiscus tiliaceous*	
PANDANACEAE	21.	*Pandanus tectorius*	
CONVULVALACEAE	22.	*Ipomea biloba*	
CYPERACEAE	23.	*Fimbrystylis dicitoma*	
	24.	*Fimbrystylis miliacea*	
	25.	*Schoenoplectus litoralis*	
	26.	*Cyperus pangorei*	
	27.	*Mariscus javanicus*	

APPENDIX – III

INVERTEBRATE FAUNA OF KAIPAD

Group and species	Remarks
Phylum : Platyhelmithes	
Class : Turbellaria	
Order : Polycladida	
Sub-order : Cotylea	
Family : Pseudocerotidae	
1. *Psedoceros sp*.	BM
Phylum : Annelida	
Class : Chaetopoda	
Order : Polychaeta	
Family : Nereidae	
2. *Lycastis indica* Southern	BM
3. *Dendroneris arborifera* Peters	BM
4. *Nereis (Neanthes)* sp.	BM
5. *Nereis* sp.	BM
Family : Eunicidae	
6. *Marphysa sanguinea* Montagu	BM
7. *Marphysa graveli* Southern	BM
8. *Eunice sp.*	BM
9. *Lysidice sp.*	BM
Family : Capitellidae	
10. Unidentified species	BM
Phylum : Arthropoda	
Class : Crustacea	
Order : Stomatopoada	
Family : Squillidae	
11. *Oratoquilla nepa*	BW
Order : Decapoda	
Family : Portunidae	
12. *Charybdis (Charybdis) lucifera* (Fabricius)	BM/BW
13. *Charybdis sp.*	BM/BW
14. * *Portunus pelagicus* (Linnaeus)	BW
15. * *Scylla serrata* (Forskal)	BM/BW
16. * *Scylla tranquebarica* (Fabricius)	BM/BW

Family: Grapsidae

17.	*Metapograpsus messor* (Forskal)	BM/BW
18.	*Clistocoeloma merguiens* (De Man)	BM/BW
19.	*Parasesarma plicatum* (Latreille)	BM/BW
20.	*Parasesarma sp.*	BM/BW
21.	*Varuna litterata* (Fabricius)	BM/BW

Family: Ocypodidae

22.	*Dotilla sp*.	BM/BW
23.	*Ocypode sp.*	BM/BW
24.	*Uca inversa inversa*	BM/BW
25.	*Uca virans excisa*	BM/BW

Family: Pilumnidae

26.	*Neosarmatium smithi*	BM/BW
27.	*Neosarmatium malabaricum* (Henderson)	BM/BW

Sub-order : Dendrobranchiata

Family: Penaeidae

28. *	*Penaeus indicus*	BW
29. *	*Penaeus monodon*	BW
30. *	*Penaeus semisulcatus*	BW
31. *	*Metapenaeus monoceros*	BW
32. *	*Metapenaeus dobsoni*	BW
33. *	*Metapenaeus affinis*	BW

Sub-order : Pelocyemata

Family: Palaemonidae

34. *	*Macrobrachium rosenbergii* (de Man)	BW/FW
35. *	*Macrobrachium idella*	BW
36. *	*Macrobrachium equidens*	BW/FW
37. *	*Macrobrachium scabriculum*	BW/FW

Family : Alpheidae

38.	*Alpheus* sp.	BW

Class : Insecta
Order : Odonata
Suborder : Zygoptera
Family : Coenagrionidae

39.	*Aciagrion occidentale* Laidlaw	TL
40.	*Agriocnemis pygmaea* (Rambur)	TL
41.	*Ceriagrion cerinorubellum* (Brauer)	TL
42.	*Ceriagrion coromandelianum* (Fabricius)	TL
43.	*Ischnura aurora aurora* (Brauer)	TL
44.	*Pseudagrion microcephalum* (Rambur)	TL
45.	*Mortonagrion varalli* (Fraser)	TL

Suborder : Anisoptera

Family: Libellulidae

46.	*Brachythemis contaminata* (Fabricius)	TL
47.	*Crocothemis servilia servilia* (Drury	TL
48.	*Diplacodes trivialis* (Rambur)	TL
49.	*Neurothemis tullia tullia* (Drury)	TL
50.	*Orthetrum chrysis* Selys	TL
51.	*Orthetrum sabina sabina* (Drury)	TL
52.	*Pantala flavascens* (Fabrius)	TL
53.	*Rhyothemis variegata variegata* (Linnaeus)	TL
54.	*Tholymis tillarga* (Fabricius)	TL
55.	*Tramaea limbata* (Dasjardins)	TL
56.	*Trithermis pallidinervis* (Kinby)	TL
57.	*Urothemis signata signata* (Rambur)	TL

Order : Lepidoptera

Suborder : Rhopalocera

Family: Papilionidae

58.	*Pachliopota aristolochia* (Fabricius)	TL
59.	*Pachliopota hector* (Linnaeus)	TL
60.	*Papilio polytes* (Linnaeus)	TL
61.	*Papilio polymnestor* (Cramer)	TL
62.	*Graphium sarpedon* (Felder & Felder)	TL

Family: Pieridae

63.	*Catopsilia pomona* (Fabricius)	TL
64.	*Catopsilia pyranthe* (Linnaeus)	TL
65.	*Eurema hecabe* (Linnaeus)	TL
66.	*Leptosia nina* (Fabricius)	TL
67.	*Cepora nerissa* (Fabricius)	TL
68.	*Delias eucharis* (Drury)	TL

Family: Nymphalidae

Subfamily : Satyrinae

69.	*Melanitis leda* (Linnaeus)	TL
70.	*Elymnias hypermnestra* (Linnaeus)	TL
71.	*Mycalsesis perseus* (Fruhstorfer)	TL
72.	*Orsotriaena medus* (Fabricius)	TL

Subfamily :Heliconiinae

73.	*Acraea violae* (Fabricius)	TL

Subfamily : Nymphalinae

74.	*Neptis hylas* (Moore)	TL
75.	*Euthalia aconthea* (Cramer)	TL
76.	*Ariadne merione* (Cramer)	TL
77.	*Junonia almana* (Linnaeus)	TL
78.	*Junonia atlites* (Linnaeus)	TL

79.	*Hypolimnas misippus* (Linnaeus)	TL
Subfamily	**: Danainae**	
80.	*Tirumala limniace* Gmelin	TL
81.	*Danaus chrysippus* (Linnaeus)	TL
82.	*Euploea core* (Cramer)	TL
Family: Lycaenidae		
83.	*Zizula hylax* (Fabricius)	TL
84.	*Jamides celeno* (Fabricius)	TL
85.	*Curtetis thetis* (Drury)	TL
Family: Hesperiidae		
86.	*Hasora chromus* (Cramer)	TL
87.	*Suastus gremius* (Fabricius)	TL
88.	*Grangara thyrsis* (Fabricius)	TL
89.	*Telicota ancilla* (Moore)	TL
90.	*Pelopidas mathias* (Fabricius)	TL
Order	**: Diptera**	
Family: Cuculidae		
91	*Culex sitiens*	*BW*
Phylum	: Mollusca	
Class	: Gastropoda	
Subclass	: Prosobranchia	
Order	: Archeogastropoda	
Family: Neritidae		
92.	*Neritina (Dostia) violacea* Gmelin	BW
Order	**: Mesogastropoda**	
Family: Littorinidae		
93.	*Littorina (Littorinopsis) scabra* Linnaeus	BW
94.	*Littorina* sp.	BW
Family: Potamididae		
95.	*Cerithidea cingulata* Gmelin	BW
96.	*Telescopium telescopium* (Linnaeus)	BW
Family	**: Thiaridae**	
97.	*Thiara (Melanoides) tuberculata* (Muller)	BW/FW
Order	**: Soleolifera**	
Family: Onchididae		
98.	*Onchidium verruculatum* Cuvier	BW

Order	**: Pterioidea**	
Family	**: Ostreidae**	
99.	Cassosterea madrassensis	BW
100.	Saccostrea cuculata (Born)	BW
	Family: Veneridae	
101.	*Meretrix meretrix* (Linnaeus)	BW

***** Commercially important species

BW- brackish water dwelling FW- freshwater dwelling
BM- living in brackish marsh TL – living in tablelands

APPENDIX – IV

VERTEBRATE FAUNA OF KAIPAD

		Remarks
PHYLUM	: CHORDATA	
	Group : Vertebrata	
	Subphylum : Gnathostomata	
	Class : Pisces (List of Pisces provided vide Annexure - II)	
	Class : Amphibia	
	Order : Anura	
	Family : Bufonidae	
1.	*Bufo melanostictus* Schneider	TL
	Family: Ranidae	
2.	*Rana cyanophlyctis* Schneider	FW
3.	*Rana hexadactyla* Lesson	BW
	Class : Reptilia	
	Order :Testudines	
	Family : Emydidae	
4.	*Melanochelys trijuga*	FW/TL
	Family: Testudinidae	
5.	*Lissemys punctata*	FW
	Order : Squamata	
	Suborder : Sauria	
	Family: Gekkonidae	
6.	*Hemidactylus sp*.	TL
	Family: Agamidae	
7.	*Calotes versicolor* (Daudin)	TL
	Family: Scincidae	
6.	*Mabuya carinata* (Schneider)	TL
	Family: Varanidae	
7.	*Varanus bengalensis* (Schneider)	TL
	Suborder : Serpentes	
	Family: Typhlopidae	
8.	*Ramphotyphlops braminus* (Daudin)	TL

Family: Boidae

9.	*Python molurus* (Linnaeus)	TL

Family: Colubridae

10.	*Xenochropis piscator*	FW
11.	*Cerberus rhynchops*	BM/BW
12.	*Coluber mucosus* (Linn.)	TL/FW/BW
13.	*Amphiesma stolata* (Linn.)	TL

Family: Elapidae

14.	*Naja naja*	TL

Class : Aves (list of birds provided vide appendix- VI)

Class : Mammalia
Order : Insectivora
Family: Soricidae

15.	*Suncus murinus* (Linnaeus)	TL

Order : Chiroptera
Family: Pteropodidae

16.	*Pteropus giganteus* (Brunnich)	TL

Order : Carnivora
Family : Canidae

17.	*Canis aureus* Linnaeus	TL

Family: Mustellidae

18.	*Lutra perspicillata* I. Geoffroy	TL/BW/FW

Family: Herpestidae

19.	*Herpestes edwarsii* (Geoffroy)	TL

Family: Felidae

20.	*Felis chaus* Guldenstaedt	TL

Order : Rodentia
Family: Sciuridae

21.	*Funambulus palmarum* (Linnaeus)	TL

Family: Muridae

22.	*Bandicoota bengalensis* (Gray)	TL
23.	*Bandicoota indica* (Bech.)	TL
24.	*Rattus rattus* (Linnaeus)	TL
25.	*Tatera indica* (Hardwicke)	TL
26.	*Mus musculus* Linnaeus	TL

***** Commercially important species

BW- brackish water dwelling FW- freshwater dwelling
BM- living in brackish marsh TL – living in tablelands

APPENDIX – V

FISH FAUNA OF KAIPAD

	Group and species	Remarks
	ORDER : ELOPIFORMES	
	Family ELOPIDAE	
1	*Elops machnata* (Forsskal)	CV
	Family MEGALOPIDAE	
2	*Megalops cyprinoids* (Broussonet)	CV
	ORDER : ANGUILLIFORMES	
	Family ANGUILLIDAE	
3	*Anguilla bengalensis bengalensis* (Gray)	CV
	Family: MURAENIDAE	
4	*Lycodontis tile* (Hamilton-Buchanan)	
5	*Thyrsoidea macrura* (Bleeker)	
	Family: OPHICHTHIDAE	
6	*Lamnostoma orientalis* (McClelland)	
7	*Pisodonophis boro* (Ham.-Buch.)	
	Family: MURAENESOCIDAE	
8	*Congersox talabon* (Cuvier)	
9	*Congresox talabonoides* (Bleeker)	
10	*Muraenesox bagio* (Ham.-Buch)	
11	*Muraenesox cinereus* (Forsskal)	
	ORDER : CLUPEIFORMES	
	Family: CLUPEIDAE	
12	*Nematalosa nasus* (Bloch)	
13	*Dayella Malabarica* (Day)	EI
14	*Ethirava fluviatilis* Deraniyagala	
	Family: ENGRAULIDIDAE	
15	*Stolephorus commersonii* Lacepede	CV
16	*Stolephorus indicus* (van Hasselt)	CV
	ORDER : GONORHYNCHIFORMES	
	Family: CHANIDAE	
17	*Chanos chanos* (Forsskal)	CV
	ORDER : CYPRINIFORMES	
	Family: CYPRINIDAE	
18	*Puntius vittatus Day*	EI
19	**Rasbora daniconoius* (*Ham.-Buch.*)	EI

	ORDER : SILURIFORMES	
	Family: BAGRIDAE	
20	**Horabagrus brachysoma* (Gunther)	CV
21	*Mystus cavasius* (Hamilton-Buchanan)	
22	*Mystus gulio* (Hamilton-Buchanan)	
23	**Mystus oculatus* (Valenciennes)	
24	*Mystus vittatus* (Bloch)	
	Family ARIIDAE	
25	*Arius arius* (Hamilton-Buchanan)	CV
26	*Arius caelatus* Valenciennes	CV
	ORDER : MUGILIFORMES	
	Family MUGILIDAE	
27	*Liza macrolepis* (Smith)	CV
28	*Liza parsia* (Hamilton-Buchanan)	CV
29	*Liza subviridis* (Valenciennes)	CV
30	*Mugil cephalus* Linnaeus	CV
31	*Rhinomugil corsula* (Ham.-Buch.)	CV
	ORDER : BELONIFORMES	
	Family : ADRIANICHTHYIDAE	
32	*Horaichthys setnai* Kulkarni	EI
	Family : BELONIDAE	
33	*Strongylura strongylura* (van Hasselt)	CV
34	**Xenentodon cancila* (Ham.-Buch)	CV
	Family HEMIRAMPHIDAE	
35	*Hyporhamphus limbatus* (Valenciennes)	CV
36	*Hyporhamphus xanthopterus* (Val.)	CV
	ORDER : CYPRINODONTIFORMES	
	Family: APLOCHEILIDAE	
37	*Aplocheilus blocki* (Arnold)	EI
38	**Aplocheilus lineatus* (Valenciennes)	EI
	ORDER : SYNBRANCHIFORMES	
	Family: SYNBRANCHIDAE	
39	*Ophisternon bengalense* McClelland	
	ORDER: SCORPAENIFORMES	
	Family: PLATYCEPHALIDAE	

40	*Platycephalus cantori* Bleeker	CV
	ORDER: PERCIFORMES	
	Family: CENTROPOMIDAE	
41	*Lates calcarifer* (Bloch)	CV
	Family: CHANDIDAE (AMBASSIDAE)	
42	*Ambassis commersoni* Cuvier	
43	*Ambassis gymnocephalus* (Lacepede)	
44	*Ambassis nalua* (Hamilton-Buchanan)	
45	*Parambassis dayi* (Bleeker)	
	Family: SERRANIDAE	
46	*Epinephelus tauvina* (Forsskal)	CV
	Family : SILLAGINIDAE	
47	*Sillago sihama* (Forsskal)	CV
48	*Sillago vincenti* McKay	CV
	Family: CARANGIDAE	
49	*Alepes para* (Cuvier)	CV
50	*Carangoides praeustus* (Bennet)	CV
51	*Caranx sexfasciatus* Quoy & Gaimard	CV
	Family: LEIOGNATHIDAE	
52	*Gazza minuta* (Bloch)	CV
53	*Leiognathus bindus* (Valenciennes)	CV
54	*Leiognathus sp.*	
	Family LUTJANIDAE	
55	*Lutjanus argentimaculatus* (Forsskal)	CV
56	*Litjanus johni* (Bloch)	CV
	Family LOBOTIDAE	
	Family GERREIDAE	
57	*Gerreomorpha setifer* (Ham.-Buch)	CV
58	*Gerres abbreviatus* Bleeker	CV
59	*Gerres filamentosus* Cuvier	CV
	Family: POLYNEMIDAE	
60	*Eleutheronema tetradactylum* (Shaw)	
61	*Polydactylus indicus* (Shaw)	
62	*Polydactylus sextarius* (Bloch)	
	Family: SCIAENIDAE	
63	*Daysciaena albida* (Cuvier)	CV
64	*Johnius belangerii* (Cuvier)	CV
65	*Johnius carutta* Bloch	CV
66	*Protonibea diacanthus* (Lacepede)	CV
	Family: NANDIDAE	
67	*Nandus nandus* (Hamilton-Buchanan)	
	Family : CICHLIDAE	
68	*Etroplus maculates* (Bloch)	CV / EI
69	*Etroplus suratensis* (Bloch)	CV

70	*Oreochromis mossambica* (Peters)	CV / E
	Family : TERAPONIDAE	
71	*Terapon jarbua* (Forsskal)	CV
72	*Terapon sp.*	CV
	Family: SPHYRAENIDAE	
73	*Sphyraena jello* Cuvier	CV
	Family: GOBIIDAE	
74	*Awaous gutum* (Hamilton-Buchanan)	
75	*Glossogobius giuris* (Ham.-Buch)	CV
	Family: ELEOTRIDIDAE	
76	*Butis butis* (Hamilton-Buchanan)	
77	*Eleotris fusca* (Schneider)	
	Family: GOBIOIDIDAE	
78	*Taenioides angullaris* (Linnaeus)	
	Family: TRYPAUCHENIDAE	
79	*Trypauchen vagina* (Bloch & Schneider)	
	Family: SCATOPHAGIDAE	
80	*Scatophagus argus* (Linnaeus)	CV
	Family: BELONTIIDAE	
81	*Pseudosphromenus cupanus* (Val.)	
	ORDER : PLEURONECTIFORMES	
	Family: CYNOGLOSSIDAE	
82	*Cynoglossus macrostomus* Norman	CV
	Family : SOLEIDAE	
83	*Euryglossa orientalis* (Bloch)	CV
	ORDER : TETRAODONTIFORMES	
	Family: TETRAODONTIDAE	
84	*Chelonodon fluviatilis* (Ham.-Buch)	

Remarks

CV – Commercially valuble EV – Ecologically important

E - Exotic * Freshwater species migrating to very low saline waters

APPENDIX - VI

AVIAN FAUNA OF KAIPAD

NO.	COMMON NAME	SCIENTIFIC NAME		
	Cormorants/Shags	**Phalacrocoracidae**		
1	Little Cormorant	*Phalacrocorax niger* (Vieillot, 1817)	R	Sch.IV
	Herons, Egrets & Bitterns	**Ardeidae**		Sch.IV
2	Little Egret	*Egretta garzetta* (Linnaeus, 1766)	LM	Sch.IV
3	Western Reef-Egret	*Egretta gularis* (Bosc, 1792)	LM	Sch.IV
4	Grey Heron	*Ardea cinerea* Linnaeus, 1758	LM	Sch.IV
5	Purple Heron	*Ardea purpurea* Linnaeus, 1766	LM	Sch.IV
6	Large Egret	*Casmerodius albus* (Linnaeus, 1758)	LM	Sch.IV
7	Median Egret	*Mesophoyx intermedia* (Wagler, 1829)	LM	Sch.IV
8	Cattle Egret	*Bubulcus ibis* (Linnaeus, 1758)	LM	Sch.IV
9	Indian Pond-Heron	*Ardeola grayii* (Sykes, 1832)	R	Sch.IV
10	Little Green Heron	*Butorides striatus* (Linnaeus, 1758)	R	Sch.IV
11	Black-crowned Night-Heron	*Nycticorax nycticorax* (Linnaeus)	R	Sch.IV
12	Little Bittern	*Ixobrychus minutus* (Linnaeus, 1766)	R	Sch.IV
13	Yellow Bittern	*Ixobrychus sinensis* (Gmelin, 1789)	R	Sch.IV
14	Chestnut Bittern	*Ixobrychus cinnamomeus* (Gmelin,)	R	Sch.IV
15	Black Bittern	*Dupetor flavicollis* (Latham, 1790)	R	Sch.IV
	Storks	**Ciconiidae**		
16	Asian Openbill-Stork	*Anastomus oscitans* (Boddaert, 1783)	LM	Sch.IV
17	White-necked Stork	*Ciconia episcopus* (Boddaert, 1783)	LM	Sch.IV
	Ibises & Spoonbills	**Threskiornithidae**		
18	Glossy Ibis	*Plegadis falcinellus* (Linnaeus, 1766)	M	Sch.IV
19	Oriental White Ibis	*Threskiornis melanocephalus* (Latham)	LM	Sch.IV
20	Eurasian Spoonbill	*Platalea leucorodia* Linnaeus, 1758	M	Sch.IV,
	Swans, Geese & Ducks	**Anatidae**		
21	Lesser Whistling-Duck	*Dendrocygna javanica* (Horsfield)	R	Sch.IV
22	Northern Pintail	*Anas acuta* Linnaeus, 1758	M	Sch.IV
23	Garganey	*Anas querquedula* Linnaeus, 1758	M	Sch.IV

Accipitridae

	Hawks, Eagles, Buzzards, Old World Vultures, Kites, Harriers			
24	Black-shouldered Kite	*Elanus caeruleus* (Desfontaines, 1789)	R	Sch.I
25	Black Kite	*Milvus migrans* (Boddaert, 1783)	LM	Sch.I
26	Brahminy Kite	*Haliastur indus* (Boddaert, 1783)	R	Sch.I
27	White-bellied Sea-Eagle	*Haliaeetus leucogaster* (Gmelin, 1788)	R	Sch.I
28	Western Marsh-Harrier	*Circus aeruginosus* (Linnaeus, 1758)	M	Sch.I
29	Pallid Harrier	*Circus macrourus* (S.G. Gmelin, 1770)	M	Sch.I
30	Montagu's Harrier	*Circus pygargus* (Linnaeus, 1758)	M	Sch.I
31	Shikra	*Accipiter badius* (Gmelin, 1788)	R	Sch.I
32	Lesser Spotted Eagle	*Aquila pomarina* Brehm, 1831	M	Sch.I
33	Greater Spotted Eagle	*Aquila clanga* Pallas, 1811	M	Sch.I
34	Booted Eagle	*Hieraaetus pennatus* (Gmelin, 1788)	M	Sch.I
	Osprey	**Pandionidae**		
35	Osprey	*Pandion haliaetus* (Linnaeus, 1758)	M	
	Falcons	**Falconidae**		
36	Peregrine Falcon	*Falco peregrinus* Tunstall, 1771	M	App-I
	Rails, Crakes, Moorhens, Coots	**Rallidae**		
37	Slaty-legged Crake	*Rallina eurizonoides* (Lafresnaye,)	R	Sch.IV
38	White-breasted Waterhen	*Amaurornis phoenicurus* (Pennant)	R	Sch.IV
39	Ruddy-breasted Crake	*Porzana fusca* (Linnaeus, 1766)	R	Sch.IV
40	Purple Moorhen	*Porphyrio porphyrio* (Linnaeus, 1758)	R	Sch.IV
	Jacanas	**Jacanidae**		
41	Pheasant-tailed Jacana	*Hydrophasianus chirurgus* (Scopoli, 1786)	LM	Sch.IV
42	Bronze-winged Jacana	*Metopidius indicus* (Latham, 1790)	R	Sch.IV
	Plovers, Dotterels, Lapwings	**Charadriidae**		Sch.IV
43	Pacific Golden-Plover	*Pluvialis fulva* (Gmelin, 1789)	M	Sch.IV
44	Little Ringed Plover	*Charadrius dubius* Scopoli, 1786	M	Sch.IV
45	Kentish Plover	*Charadrius alexandrinus* Linnaeus	M	Sch.IV
46	Lesser Sand Plover	*Charadrius mongolus* Pallas, 1776	M	Sch.IV
47	Greater Sand Plover	*Charadrius leschenaultii* Lesson, 1826	M	Sch.IV
48	Yellow-wattled Lapwing	*Vanellus malabaricus* (Boddaert,1783)	R	Sch.IV
49	Red-wattled Lapwing	*Vanellus indicus* (Boddaert, 1783)	R	Sch.IV

SCOLOPACIDAE

	Sandpipers, Stints, Snipes, Godwits & Curlews			
50	Pintail Snipe	*Gallinago stenura* (Bonaparte, 1830)	M	
51	Common Snipe	*Gallinago gallinago* (Linnaeus, 1758)	M	Sch.IV
52	Jack Snipe	*Lymnocryptes minimus* (Brunnich)	M	Sch.IV
53	Bar-tailed Godwit	*Limosa lapponica* (Linnaeus, 1758)	M	Sch.IV
54	Whimbrel	*Numenius phaeopus* (Linnaeus, 1758)	M	Sch.IV
55	Eurasian Curlew	*Numenius arquata* (Linnaeus, 1758)	M	Sch.IV
56	Common Redshank	*Tringa totanus* (Linnaeus, 1758)	M	Sch.IV
57	Marsh Sandpiper	*Tringa stagnatilis* (Bechstein, 1803)	M	Sch.IV
58	Common Greenshank	*Tringa nebularia* (Gunner, 1767)	M	Sch.IV
59	Wood Sandpiper	*Tringa glareola* Linnaeus, 1758	M	Sch.IV
60	Common Sandpiper	*Actitis hypoleucos* Linnaeus, 1758	M	Sch.IV
61	Little Stint	*Calidris minuta* (Leisler, 1812)	M	Sch.IV
62	Dunlin	*Calidris alpina* (Linnaeus, 1758)	M	Sch.IV
63	Curlew Sandpiper	*Calidris ferruginea* (Pontoppidan)	M	Sch.IV
	Ibisbill, Avocets & Stilts	**Recurvirostridae**		
64	Black-winged Stilt	*Himantopus himantopus* (Linnaeus)	M	Sch.IV
65	Pied Avocet	*Recurvirostra avosetta* Linnaeus, 1758	M	Sch.IV
	Coursers & Pratincoles	**Glareolidae**		Sch.IV
66	Small Pratincole	*Glareola lactea* Temminck, 1820	M	
	Gulls, Terns & Noddies	**Laridae**		Sch.IV
67	Brown-headed Gull	*Larus brunnicephalus* Jerdon, 1840	M	
68	River Tern	*Sterna aurantia* J.E. Gray, 1831	M	Sch.IV
69	Whiskered Tern	*Chlidonias hybridus* (Pallas, 1811)	M	Sch.IV
	Pigeons & Doves	**Columbidae**		
70	Blue Rock Pigeon	*Columba livia* Gmelin, 1789	R	Sch.IV
71	Spotted Dove	*Streptopelia chinensis* (Scopoli, 1786)	R	Sch.IV
	Parakeets & Hanging-Parrots	**Psittacidae**		
72	Rose-ringed Parakeet	*Psittacula krameri* (Scopoli, 1769)	R	**SCH.IV**
73	Plum-headed Parakeet	*Psittacula cyanocephala* (Linnaeus)	R	Sch.IV

CUCULIDAE

	Cuckoos, Malkohas & Coucals			
74	Asian Koel	*Eudynamys scolopacea* (Linnaeus)	R	Sch.IV
75	Greater Coucal	*Centropus sinensis* (Stephens, 1815)	R	Sch.IV
	Barn Owls	**Tytonidae**		
76	Barn Owl	*Tyto alba* (Scopoli, 1769)	R	Sch.IV

	Owls	**Strigidae**		Sch.IV
77	Mottled Wood-Owl	*Strix ocellata* (Lesson, 1839)	R	
78	Spotted Owlet	*Athene brama* (Temminck, 1821)	R	Sch.IV
	Swifts	**Apodidae**		
79	Asian Palm-Swift	*Cypsiurus balasiensis* (J.E. Gray)	R	Sch.IV
80	Alpine Swift	*Tachymarptis melba* (Linnaeus, 1758)	R	Sch.IV
81	House Swift	*Apus affinis* (J.E. Gray, 1830)	R	Sch.IV
	Kingfishers	**Alcedinidae**		
82	Small Blue Kingfisher	*Alcedo atthis* (Linnaeus, 1758)	R	Sch.IV
83	Stork-billed Kingfisher	*Halcyon capensis* (Linnaeus, 1766)	R	Sch.IV
84	White-breasted Kingfisher	*Halcyon smyrnensis* (Linnaeus, 1758)	R	Sch.IV
85	Black-capped Kingfisher	*Halcyon pileata* (Boddaert, 1783)	R	Sch.IV
86	Lesser Pied Kingfisher	*Ceryle rudis* (Linnaeus, 1758)	R	Sch.IV
		MEROPIDAE		
	Bee-eaters			
87	Small Bee-eater	*Merops orientalis* Latham, 1801	R	Sch.IV
88	Blue-tailed Bee-eater	*Merops philippinus* Linnaeus, 1766	LM	Sch.IV
	Rollers	**Coraciidae**		
89	Indian Roller	*Coracias benghalensis* (Linnaeus,)	R	Sch.IV
	Hoopoes	**Upupidae**		
90	Common Hoopoe	*Upupa epops* Linnaeus, 1758	LM	Sch.IV
				Sch.IV
		PICIDAE		
	Woodpeckers			
91	Lesser Golden-backed Woodpecker	*Dinopium benghalense (Linnaeus)*	R	**SCH.IV**
	Larks	**Alaudidae**		
92	Ashy-crowned Sparrow-Lark	*Eremopterix grisea* (Scopoli, 1786)	R	
93	Greater Short-toed Lark	*Calandrella brachydactyla* (Leisler)	M	Sch.IV
94	Malabar Crested Lark	*Galerida malabarica* (Scopoli, 1786)	R	Sch.IV
	Swallows & Martins	**Hirundinidae**		
95	Common Swallow	*Hirundo rustica* Linnaeus, 1758	M	Sch.IV
96	Wire-tailed Swallow	*Hirundo smithii* Leach, 1818	R	Sch.IV
97	Red-rumped Swallow	*Hirundo daurica* Linnaeus, 1771	R	**SCH.IV**
	Wagtails & Pipits	**Motacillidae**		
98	Paddyfield Pipit	*Anthus rufulus* Vieillot, 1818	R	Sch.IV
	Bulbuls & Finchbills	**Pycnonotidae**		
99	Red-whiskered Bulbul	*Pycnonotus jocosus* (Linnaeus, 1758)	R	Sch.IV
	Shrikes	**Laniidae**		

100	Brown Shrike	*Lanius cristatus* Linnaeus, 1758	M	Sch.IV
101	Rufous-backed Shrike	*Lanius schach* Linnaeus, 1758	R	Sch.IV
	Thrushes, Shortwings, Robins, Forktails, Wheaters	TURDINAE		
102	Oriental Magpie-Robin	*Copsychus saularis* (Linnaeus, 1758)	R	Sch.IV
103	Common stone chat			
	Babblers, Laughingthrushes, Babaxes, Barwings, Yuhinas	**Timaliinae**		
104	Jungle Babbler	*Turdoides striatus* (Dumont, 1823)	R	Sch.IV
105	White-headed Babbler	*Turdoides affinis* (Jerdon, 1847)	R	Sch.IV
	Goldcrest, Prinias, Tesias, Warblers	**Sylviinae**		
106	Ashy Prinia	*Prinia socialis* Sykes, 1832	R	Sch.IV
107	Plain Wren Warbler			
108	Blyth's Reed-Warbler	*Acrocephalus dumetorum* Blyth, 1849	M	Sch.IV
109	Franklin's Wren Warbler			
110	Indian Great Reed-Warbler	*Acrocephalus stentoreus*	R	Sch.IV
111	Common Tailorbird	*Orthotomus sutorius* (Pennant, 1769)	R	Sch.IV
	Monarch-Flycatchers & Paradise-Flycatchers	**Monarchinae**		
112	Asian Paradise-Flycatcher	*Terpsiphone paradisi* (Linnaeus, 1758)	LM	Sch.IV
	Flowerpeckers	**Dicaeidae**		
113	Tickell's Flowerpecker	*Dicaeum erythrorhynchos* (Latham)	R	Sch.IV
	Sunbirds & Spiderhunters	**Nectariniidae**		
114	Purple-rumped Sunbird	*Nectarinia zeylonica* (Linnaeus, 1766)	R	Sch.IV
115	Purple Sunbird	*Nectarinia asiatica* (Latham, 1790)	R	Sch.IV
116	Loten's Sunbird	*Nectarinia lotenia* (Linnaeus, 1766)	R	Sch.IV
	Munias (Estrildid Finches)	**Estrildidae**		
117	White-rumped Munia	*Lonchura striata* (Linnaeus, 1766)	R	Sch.IV
118	Spotted Munia	*Lonchura punctulata* (Linnaeus, 1758)	R	Sch.IV
119	Black-headed Munia	*Lonchura malacca* (Linnaeus, 1766)	R	Sch.IV
	Sparrows & Snowfinches	**Passerinae**		
120	House Sparrow	*Passer domesticus* (Linnaeus, 1758)	R	Sch.IV

	Weavers	**Ploceinae**		
121	Baya Weaver	*Ploceus philippinus* (Linnaeus, 1766)	R	Sch.IV
	Starlings & Mynas	**Sturnidae**		
122	Grey-headed Starling	*Sturnus malabaricus* (Gmelin, 1789)	LM	Sch.IV
123	Brahminy Starling	*Sturnus pagodarum* (Gmelin, 1789)	LM	Sch.IV
124	Rosy Starling	*Sturnus roseus* (Linnaeus, 1758)	M	Sch.IV
125	Common Myna	*Acridotheres tristis* (Linnaeus, 1766)	R	Sch.IV
	Orioles	**Oriolidae**		
126	Eurasian Golden Oriole	*Oriolus oriolus* (Linnaeus, 1758)	M	Sch.IV
127	Black-naped Oriole	*Oriolus chinensis* Linnaeus, 1766	M	Sch.IV
128	Black-headed Oriole	*Oriolus xanthornus* (Linnaeus, 1758)	R	Sch.IV
	Drongos	DICRURIDAE		
129	Black Drongo	*Dicrurus macrocercus* Vieillot, 1817	R	Sch.IV
130	Ashy Drongo	*Dicrurus leucophaeus* Vieillot, 1817	M	Sch.IV
131	Greater Racket-tailed Drongo	*Dicrurus paradiseus* (Linnaeus, 1766)	R	Sch.IV
	Crows, Jays, Treepies, Magpies	**Corvidae**		
132	Indian Treepie	*Dendrocitta vagabunda* (Latham)	R	Sch.IV
133	House Crow	*Corvus splendens* Vieillot, 1817	R	Sch.IV
134	Jungle Crow	*Corvus macrorhynchos* Wagler, 1827	R	Sch.IV

DESCRIPTIONS OF ABBREVIATIONS

Residency status	R = Resident, M = Migratory LM = Locally moving
Conservation status Appendix of IUCN list	Sch. = Schedule of Wildlife (Protection) Act, 1972

Annexure XVII

SOCIAL AND FISHERIES INFRASTRUCTURE DEVELOPMENT

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SOCIAL INFRASTRUCTURE

State government has constituted a committee for preparing the Integrated Fisheries Development Plan for incorporation into the CZMP (2019) of Kerala vide G.O (Rt) No. 290/2021/F&P dated 11/06/2021. As part of preparation of integrated fisheries development plan, it was decided to prepare sub plans for activities in the fisheries sector. This report addresses the social infrastructure sub plans and specific recommendations to achieve the same without compromising the true spirit of the new CRZ notification.

INTRODUCTION

Kerala is synonymous with exotic fish varieties and fishermen constitute a larger chunk of the population. Fishing is a traditional occupation for many in the state and fetch a huge some by export of fish catch. Fishermen are traditionally settled in places where they could venture for fishing and land their catches safely in a good number of days of the year.

Compared to other coastal states of the country, Kerala has large number of fishing harbours and landing centres. These harbours are located at places where there were fishing activities in the earlier days and a fair concentration of fishermen settlements. In the context of the coastal zone regulations that came into existence in the country, there are several complaints from the fishermen community basically regarding difficulty in getting their constructed houses sanction from the local body. In several instances, the fishermen were historically residing at beaches in semi permanent dwellings (which later would have converted into a permanent structure in the later years). One of the reasons for this being that these dwellings were not marked in the respective town/ country planning maps of the local self government, since majority of them were set up in Puramboke Government lands. The demarcation of NDZ without consideration for any reference to this traditional human settlement made things further worst.

In view of the above, it is high time that there has to be some protection mechanism made in the state CZMP map to be prepared. Before going into the suggestions, let us discuss about the various regulations in the just published CRZ notification 2019 that have bearing on fishermen settlements.

a. Just like the previous notifications, this notification also permits setting up of fisheries infrastructure like fishing harbours, landing centres, auction halls, net mending sheds, fish curing yards, hatcheries, fish processing centre etc.

b. The new CRZ notification (2019) describes various activities that are permitted in different CRZ zones. While scrutinizing the notification, it can be seen that some of the basic concerns of the fishermen are addressed, but require some more specific clarification in the to-be prepared CZMP. Following paragraphs lists the social infrastructure sub plans as addressed in the notification under various CRZ zones:

c. CRZ IA: In the ecologically sensitive areas, no relaxation for fishermen dwellings are mentioned, but setting up of ecotourism activities are permitted. Even roads and roads on stilts are permitted in this zone. This is brought to the attention of all.

d. CRZ IB: Hatcheries and fish drying is permitted and also expansion of fish processing units in this region.

e. CRZ II: Dwellings and other social infrastructure components are permitted on the landward side of existing roads and on landward side of existing buildings. However there are specific relaxations to tourism infrastructure in this zone - development of vacant plots in “designated areas” for construction of beach resorts/ hotels/ tourism development projects, which are mentioned in the “approved CZMP”

f. CRZ III: Infrastructure like auction halls, fish curing yards, boat building yards etc are allowed in the NDZ of this zone. NDZ is 50m from HTL in the in CRZ-III A (if it’s approved in the CZMP as per the notification, failing which, a NDZ of 200 meters shall apply). All other infrastructure including dwellings and settlements of fishermen are to be beyond NDZ.

AREAS REQUIRING SPECIAL ATTENTION:

As mentioned earlier, fishermen are traditionally settled in safer seashores and it is quite natural that they have to reside very close to the fishing zones/ fish landing areas. They were not settled in any

ecologically sensitive areas or other vulnerable locations. So their dwellings were mostly concentrated in CRZ II or CRZ III areas. Almost all the fishing harbours established in the state are located either in CRZ II or CRZ III areas only. But, what is happening in the real situation is that even persons residing close to a fishing harbor is not able to get their dwellings legalized due to demarcation of no development zones or other statutory lines described in the CRZ notification. Flowing points require special attention in the preparation of CZMP for fishermen settlement.

a. Of the four CRZ zones, two zones (viz CRZ II and CRZ III) are the ones requiring most attention region as far as the social infrastructure is concerned, as majority of the state falls in this.

b. While analyzing the specific provisions in the notification as above, it is clear that inclusion of proper provisions in the CZMP will guarantee relief to the fishermen community, without compromising on the basic intention of the notification.

c. CRZ II areas: As per the notification, these areas are already substantially developed up to the shoreline and hence dwellings and social infrastructure can be created without difficulty. These are urban areas of the state and no specific issues are anticipated unless the city/ town master plans include the entire infrastructure in place (basically the coastal roads running parallel and adjacent to the coast and the authorized buildings on the coasts- see 1.e above). Also in CRZ II, care should be taken that there are no chances of conflict between the "designated tourism areas in the approved CZMP" and the interest of the fishermen of the region- for this, CZMA may be asked to share the already prepared tourism plan with the stakeholders in the fisheries sector.

d. CRZ III areas: This would be the area where lots of issues are expected and the basis of all issues would be demarcation of NDZ in the approved CZMP. As clear from the section 1.f above, the NDZ will be 200m from HTL in all areas and the same will be 50m in CRZ IIIA, if properly approved in the CZMP. Population density of the village is the deciding factor. Unlike other states, coastal regions of the state are thickly populated irrespective of the village. It can be easily concluded that if the threshold population density of 2161/ sq km is not achieved in a particular region, it is because of some geographical constraints like presence of water bodies/ wet lands/ rocky cliffs etc. So, recalculating population density on the basis of net area of inhabitable land will resolve this issue- proper dialog with KZMA is warranted to address this.

e. Another major issue is the difficulty in obtaining building permits for dwellings and other social infrastructure immediately on the landward side of existing fishing harbours that are properly protected by breakwaters. In order to safeguard the interest of the fishermen community, areas

close to fishing harbours are to be designated as "fishermen settlement areas" irrespective of their distance from the seashore (provided they are located at the shadow of breakwaters). It is quite certain that if a harbor with breakwaters is present, the entire infrastructure created inside the harbor as well as that on the landward side of it will be safe against any normal coastal hazards. As per note under 2.3.3 of the CRZ notification, "The NDZ shall not be applicable in the areas falling within notified Port limits". So if all fishing harbours of the state are considered as notified ports for the purpose of implementation of CRZ notification for regularization of fishermen dwellings, the issue with NDZ in the regions immediate to the landward side of the harbours will be resolved. What must be kept in mind is that only those areas that come within the shadow of two breakwaters are considered as safe, and hence the limits of fishing harbours will be geo coordinated foots of breakwaters (however, this has to be exercised only for those harbours based on the recommendation by Harbour Engineering Department as per the model studies of the respective harbours).

RECOMMENDATIONS

a. Make sure that the city/ town master plans include the entire infrastructure in place (basically the coastal roads running parallel and adjacent to the coast and the authorized buildings on the coasts are properly marked in the CZMP).

b. KCZMA may be asked to share the already prepared tourism plan in order to make sure that there are no chances of conflict between the "designated tourism areas in the approved CZMP" and the interest of the fishermen of the region.

c. Recalculating population density on the basis of net area of inhabitable land with the help of KZMA/ Town planning department in order to classify as CRZ III A/ III B.

d. Demarcating the landside of fishing harbours that are well protected by breakwaters as fishermen settlements in order to facilitate the construction of new dwellings for fishermen/ reconstruction of existing structures.

e. Inventory of existing hatcheries/ processing centres/ ice plants etc in government and private sector (as documented by the fisheries department in the handbook or any other statutory document) and location of any potential social infrastructure proposed and already identified by the department can be shared for inclusion into the integrated plan.

ESTUARY TRAINING PROJECTS

NEED FOR THE ESTUARY TRAINING PROJECT

- The fishermen village on the south side of the estuary used to face flood waters entering the dwellings and rehabilitation during monsoon season. A large area of the land has already been lost to the sea.
- The natural phenomenon of siltation at the river mouth forces the fishermen to depend on high tide to cross. Migration of the river mouth from south to north and back causes confusion and fear while navigating. Occurrence of total siltation and closure of the mouth turns out to be death traps. Every year, with the commencement of Monsoon, the blocked estuary poses threat of flood on the upstream side as the sand bar acts as a barrage that blocks the runoff from the river to the sea when early monsoon storms occur in the hills.
- Cutting the barrier manually to open the waterway is the practice adopted to mitigate the issue. Temporary protection of the dwellings using sand filled bags and rehabilitation of the residents were also done occasionally. Recently, following the death of two fishermen, government has arranged to mechanically dredge the sand bar. Continuous dredging during storms is not a practical and sustainable solution.
- Training of the estuary is the one and only practical solution to keep the estuary open.

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Ongoing estuary training projects

Sl. No.	***District/ Local Body***	***Name of Estuary***	***Present Status***	***Co-ordinate latitude/ longitude***	***Remarks***
1	Kannur District/ RamanthaliPanchayath/Madayi Panchayat	Palakkod	Work to be commenced.	12°1'19.09"N 75°13' 30"E	
2	Kasargode District/ Mangalpadi Panchayat	Shiriya	Work to be commenced.	12°36'19.50"N 74°55'48.72"E	

GROYNE FIELDS/ SHORE PROTECTION/BEACH STABILIZATION WORKS

A groyne is a shore protection structure built **perpendicular to the shoreline of the coast** (or river), over the beach and into the shore face (the area between the near shore region and the inner continental shelf), to reduce long shore drift and trap sediments.

Groynes were originally installed along the **coastline** in 1915. **Groynes** control beach material and **prevent** undermining of the promenade seawall. **Groynes** interrupt wave action and **protect** the beach from being washed away by long shore drift. Long shore drift is the wave action that slowly erodes the beach.

Groyne fields are constructed or in progress in the state

District/ Local Body	***Sl. No.***	***Name of Project***	***Present Status***	***Co-ordinate latitude/ longitude***	***Remarks***
Thiruvananthapuram	*1*	*shore protection works at hawa beach at kovalam*	*Investigation stage*	*Hawa beach 8.3887287 N76.9755534 Esamudra8.4004972N 76.9722060E*	
	2	*shore protection works at Valiyathura*		*8.4646° N, 76.9276° E*	
	3	*shore protection works at Poonthura*		*8.4410° N, 76.9485° E*	
	4	*shore protection works fromPoonthura to Sanghumugham*		*8.4410° N, 76.9485° E to* 08°28'50.6244N 76°54'38.1528"E	
	5	*shore protection works at Muthalapozhy FH*		*8° 3'N 76 ° 50" E*	
	6	*shore protection works at Munjamoodu to Nedunganda in Chirayinkeezhu LAC*		*8.6538° N, 76.7714°E to 8.7156° N, 76.8490° E*	
Kollam	*7*	*Kollam beach to Thanni*		*8.8757° N, 76.5889° E to 8.8393° N, 76.6362° E*	
	8	*Kayamkulam FH*		*9° 7' N 76° 28' E*	

Alappuzha	*9*	*Thottappally FH*		*9.3222° N, 76.3840° E*	
Ernakulam	*10*	*Chellanam FH*		*9 °58 E 76 °16 N*	
Thrissur	*11*	*Shore protection work from Azheekode to Eriyadu*	*The length, spacing and design can only be finalized after conducting detailed investigation work and model study*	*10.2005° N, 76.1639° E to 10.2224° N, 76.1639° E*	
	12	*Chettuva FH*		*10.5242° N, 76.0479° E*	
	13	*Shore protection work from Thalikulam to Vadanappilly*	*The length, spacing and design can only be finalized after conducting detailed investigation work and model study*	*10.4446° N, 76.0908° E to 10.4738° N, 76.0697° E*	
	14	*Shore protection work from Thrithallur to Engandiyur*	*The length, spacing and design can only be finalized after conducting detailed investigation work and model study*	*10.4841° N, 76.0726° E to 10.5028° N, 76.0595° E*	
	15	*Shore protection work from Munakkakadavu to Anjangadi*	*The length, spacing and design can only be finalized after conducting detailed*	*10.5102° N, 76.0366° E to 10.5221° N, 76.2244° E*	

			investigation work and model study		
Malappuram	*16*	*Ponnani Municipality*		*10.7677° N, 75.9259° E*	
	17	*Tanur Municipality*		*10.9820° N, 75.8754° E*	
	18	*Parappanangadi Municipality*		***75° 51' 30.7" E 11° 2' 55.4" N***	
Kozhikode	*19*	*Shore Protection works at Kappad – Koyilandy Road*		*11.394788 N 75.713055 E*	
	20	*Shore Protection works at Gurukulam Beach*		*11.443896 N 75.685555 E*	
	21	*Providing the groynes between Gurukulam Beach to Ezhukudikkal Temple*	*AS obtained*	*11.415989 N 75.702603 E*	
	22	*Investigation works for groyne at EdakkalButtroad Beach in between Puthiyappa FH and Vellayil FH*	*AS obtained*	*582798.7307 1247870.58 581416.6099 1251092.7305*	
Kannur	*23*	*Moplabay FH*		*11º 51' N 75º 22' E*	
	24	*Thalai FH*	*Proposal to be prepared.*	*11º 43' N. 75º 30'E.*	
	25	*New Mahe FLC*	*Proposal to be prepared.*	***11.7067N 75.5331**.E*	.
Kasargod	*26*	*Shore protection works from Chettukund to Ajanur FLC*	*Construction of Geotube Protection*	*(12. 22' 46. 26" N- 75. 02' 39.72" E) to (12. 20' 08.95" N- 75. 03' 33.41" E)*	
	27	*Shore protection works from HosdurgKadappuram to Ajanur FLC*		(12. 18' 43. 41" N- 75. 04' 30.61" E) to (12. 18' 53.41" N- 75. 04' 29.97" E)	
	28	Shore protection works to Soth side of Southern BW of Cheruvathur Fishery Harbour (24 Km shore		(12. 03' 07. 07" N- 75. 10' 48.52" E) to (12. 10' 59.36" N- 75. 07' 25.86" E) (MLA Directed	

		of Valiyaparamba Island)		to Irrigation Department to conduct investigation for shoreprotection)	
	29	Shore protection works to Kappil beach Uduma GP	Proposal to be prepared.	*12.4238° N, 75.0117° E*	
	30	Shore protection works to Cheramkai kadappuraminKasaragod Municipality	Proposal to be prepared.	*12.4996° N, 74.9869° E*	
	31	Shore protection using geo tubes on north side of Existing northern Breakwater of Kasaragod FH for 400m	Proposal to be prepared.	*12.4783 N 74.9869 E*	
	32	Construction of Seawall near proposed BW area of Shiriya at Mangalpady Panchayath		12°42'26..2512N 74°53'18.7872"E	
	33	Construction of Groyne Field on Manimunda at Magalpady Grama panchayat	Work already arranged under KDP	12°38'33.3960"N 74°55'80.1912"E	
	34	Shore protection using geo tubes near koyippadikadappuram FLC at kumbla Gramapanchayth for 200m	Proposal to be prepared	*12.5946° N, 74.9472° E*	
	35	Construction of Groyne Field on Manimunda(Near ongoing groyne work at Manimunda	Proposal to be prepared	*12.6723° N, 74.9103° E*	

Annexure XVIII

INTER SECTORAL CONFLICTS/OVER LAPS EXPECTED

-Anilkumar. S, Deputy Director of Fisheries

The major stake holder sub plan overlaps/conflicts expected with Integrated Fisheries Development Plan are with Tourism, Agriculture, Irrigation, Forest, Ports and Environment.

3.1 TOURISM

Most coastal degradation has been caused by anthropogenic actions, threatening the ecosystem services (ESs) humans depend on. Marine protected areas are a solution to protect ESs, such as fish stocks, although this could potentially lead to conflicts with fisheries and tourism. The coastal tourism development plan should be always in harmony with the socio-economic activities of the fishermen community and their livelihood. The selection of location, nature of development, extent of conversion and change in land use pattern for tourism development are some of the factors which may lead to conflicts with fisheries sub plan. Displacement of traditional dwellers from the developing tourist areas, infrastructure development associated with tourism development, loss of work places *(Thozhilidangal),* disparity in income levels, social tensions, tourism related pollution of land and water bodies and associated decline of fishery resources, health issues to the coastal communities are some of the areas of probable conflicts. There should be a healthy dialogue between the respective stake holders so as to arrive a consensus involving the participation of local inhabitants in the agreed areas before implementing the plans.

3.2 AGRICULTURE

The traditional integrated paddy-fish/paddy shrimp farming is an age old production system in many parts of the world. In Kerala the traditional Pokkali/Kaipad coastal wet lands were utilized by the local communities for the last 2000 to 4000 years for production of saline tolerant paddy varieties and for a capture based aquaculture system known as shrimp filtration. Only one crop of paddy is possible during the low saline phase of monsoon which is followed by shrimp filtration during the post monsoon periods. Fish farming in paddy lands increases the fertility of the land so that cost of paddy cultivation is reduced, production increased and in turn support additional

income generation from fishery from these paddy lands. It also improves the general fertility and biodiversity of the wetland. Recently department of agriculture is opposing fish farming in such wetlands of the coastal area. This conflict has to be resolved by mutual consensus of each stake holder Department so as to support the farmers for better sustenance in production sector.

3.3 IRRIGATION

The major areas interventions of the Irrigation Department in Costal area are in Shore protection measures and construction of saline intrusion barriers. The shore protection activities planned by the irrigation department should always be fishermen friendly and environment friendly. The future plans in shore protection must focus more on soft measures rather than the traditional hard structures. The Punargaeham project of fisheries department will helps to create a buffer zone along the cost free of settlements for adopting the soft measures such as development of bio-sheild of economically useful plants which will also provide additional livelihood opportunities. Appropriate location specific coastal protection measures at appropriate areas rather than resorting to excusive uniform hard structures should be discouraged. As barriers which prevent tidal influxes turned to be an ecological disaster in most of the areas including near termination of fisheries both in inland and marine environs, such construction should be permitted only after detailed EIA studies and EMP.

3.4 FOREST

Mangroves and its associate vegetation are an important ecological association in coastal wetland ecosystem. Mangroves are also associated with Pokkali, Kaipad wetlands. Mangrove wetlands also support fishery resources by way of its breeding, nursery and foraging grounds. It also act as a protective sanctuary for aquatic fauna especially fish. Many of the mangrove species are also used traditionally for various purposes like fodder, fuel wood, medicine, small-scale industries etc. Thus management of mangroves should involve the interest of various stake holders. A management plan for mangrove wetlands of Kerala ensuring participation of all the stake holders should be in place so as to ensure its continued ecosystem services to the state.

3.5 PORTS

Construction of ports and its associated infrastructure cause wide changes in Coastal ecosystem thereby affecting fishery resources and fishermen livelihood opportunities. The impact of construction of ports on the adjoining coastal stretches is an established fact. So in future the development of new ports and expansion existing ports has to consider the possible impacts it make in the adjoining coastal areas and apprehensions of the stake holders. The pollution, spillage of oil, entry of exotic invasive alien species through ships often cause serious damages to local ecology and biodiversity. Utmost care should be taken to address these serious issues in future plans.

3.6 ENVIRONMENT

Conflicts between marine nature conservation and fishery interests are common and increasing, and there is often a glaring lack of dialogue between stakeholders representing these two interests. There is a need for a stronger and enforced coordination between fishing and environmental conservation authorities when establishing marine protected areas for conservation purposes. We propose that an appropriate instrument for such coordination is a broad ecosystem-based marine spatial planning procedure, representing neither nature conservation nor fishery.

Any regulation or notification of the coastal area inhabited or used for livelihood has to consider the traditional customary rights of the coastal population especially the ecosystem people-the fishermen. In preparation of CZMP all the customary rights on land and water bodies has to be sufficiently incorporated for conserving their resources, housing needs and associated coastal social infrastructure. The issues arising out of global climate change has to be properly assessed and addressed in every developmental plan for the coastal areas.

Annexure XIX

PUNARGAEHAM –A FLAGSHIP PROJECT OF DEPARTMENT OF FISHERIES FOR THE REHABILITATION OF FISHERMEN LIVING WITHIN 50M HIGH TIDE LINE (HTL)

-Sreelu. N.S, Additional Director of Fisheries

In Kerala, 80% of the total population resides in the nine coastal districts. Kerala is one among the top states where erosion is more than 40%. The livelihood of the coastal communities in the state are seriously affected due to natural hazards like coastal erosion, high tides, cyclones and climate change. These make huge damages to the dwelling places of the fisher population. Every year 100s of houses are damaged and the poor families are being forced to shift to temporary shelters. A quick survey was conducted by the Department of Fisheries along the coastal districts to collect the data on houses within 50m of HTL as a part of planning to implement a rehabilitation scheme in all the coastal districts of the states for rehabilitating the residents living within 50m from HTL. A detailed survey was also conducted on 2017-18 to collect more details regarding the inhabitants within 50m of HTL and it is found that 18685 families are residing within 50m of HTL.

As per GO(Rt) No.1009/2019/F&PD dt: 26.12.2019 Government has granted permission for the implementation of a project for rehabilitation of fishermen families residing within 50m High Tide Line (HTL). The total project cost is Rs.2450 crore in which Rs.1398 crore is allocated from CMDRF and the remaining Rs.1052 crore is allocated from the budget provision of Fisheries Department. The project is named as 'PUNARGAEHAM' and is implemented in three phases. In the first phase, the amount for the project is Rs.998.61 crore, the second phase is Rs. 796.54 crore and the third phase is 654.85 crores. In 1st phase it is aimed to rehabilitate 8487 families, 2nd& 3rd phase 5099 families each.

The main objectives of the project are:-

1. Rehabilitation of the fishermen families who are residing within 50 m High Tide Line (HTL) so as to protect their life and properties
2. Completion of all the rehabilitation programmes undertaken by the Department of Fisheries in the previous years.

3. To provide a green buffer zone within 50m High Tide Line (HTL) of the coast of entire Kerala so as to prevent coastal erosion.
4. To provide safe housing and protection for fishermen who are in relief camps due to coastal erosion and other disasters including cyclone.
5. To improve the socio-economic status of coastal fishermen families.

The project is proposed for providing rehabilitation of families residing within 50m of HTL and also to provide assistance to the beneficiaries already included in the rehabilitation programmes being implemented by the Department which are in different stages of implementation. The project also aims for the creation of a buffer zone in the coastal belt.This is a programme in which Government will be providing Rs.10 lakh for the purchase of land and construction of house in that land (Rs.6 lakh for land purchase + Rs.4lakh for house construction)

Beneficiaries are selected by the District Level Approval Committee (DLAC) chaired by District Collector. The structure of DLAC is is given below.

1. District Collector – Chairman
2. Deputy Collector, LA – Member
3. Finance Officer, Collectorate – Member
4. Fisheries Joint Director (Zonal) – Member
5. District Manager, Matsyafed – Member
6. District Co-ordinator, Life Mission – Member
7. Fisheries Deputy Director – Convenor

The purchase of the land will be done after the approval of District Level Monitoring Committee (DLMC). Structure of the DLMC is same as DLAC. After registration of the land the documents will be submitted to the District office for scrutiny. The procedure for providing assistance includes four stages. An amount not exceeding 6 lakhs rupees will be provided for land value, registration fees, stamp duty etc. and 4 lakh rupees will be for house construction. Eventhough the amount used for land purchase is lesser than 6 lakhs, then also the remaining amount can be used for house construction along with 4 lakhs. The land value will be given to the owner of the land and the registration expenditure will be given to the beneficiary (Fishermen) through DBT. The remaining

amount in 10 lakh after the purchase of land will be given to the beneficiary for house construction. The amount for house construction will be provided in the ratio of 40:40:20 after receiving the stage certificate provided by the Matsyabhavan officer. The old house situated within 50m HTL must be demolished and the land must be relinquished.

Provision for purchase of land including house is also there in the project. The suitability of the land will be checked by Inter Departmental Team and the durability of the building will be checked by a Technical Committee which includethe Matsyabhavan officer and officer of HED or LSGD, not below the rank of Assistant Engineer. The assistance of 10 lakh rupees will be provided after DLMC approval. There is a provision for registering land in the name of a residents group. Beneficiaries can form a group and each member will receive maximum of 10 lakh rupees for construction of flat apartments.

The project also aims the rehabilitation of beneficiaries through the construction of flat complexes either in Government land or by purchase of private lands.

The project implementation will be strictly monitored for the time bound execution and completion by the following bodies.

1. **State Level Apex Committee**

   The State Level Apex Committee under the chairmanship of Hon'ble Chief Minister shall be convened as and when required for the state level review of the progress of implementation of the scheme and for inclusion of any policy level change in the implementation of the scheme. The committee consists of,

1. Chief Minister, Chairman
2. Fisheries Minister – Co-Chairman
3. Revenue Minister – Co- Chairman
4. Revenue Secretary – Member
5. Fisheries Secretary – Member
6. Finance Secretary – Member
7. Director of Fisheries – Convenor

2. **District Level Monitoring Committee**

The District Level Monitoring Committee under the chairmanship of District Collector shall be convened every month in the district for reviewing the progress of implementation of the scheme in the concerned district and for deciding on any intervention needed for the hindrance free implementation and completion of the scheme within the time limit prescribed.

3. **Project Implementation Unit (PIU)**

The Project Implementation Unit constituted for the Vizhinjam Rehabilitation Scheme will be the PIU for the current proposal. The Deputy Director of Fisheries (PIU) will be the State Level Co-ordinator for the project. The district fisheries officers of the coastal districts will be the district level implementing officers.

4. **Department Level Steering Committee**

The Department Level Steering Committee shall be convened bi-weekly to review the progress of the implementation of the project and to decide on the matters pertaining to the implementation of the project placed by the State Level Project Co-ordinator and Deputy Director of Fisheries (PIU). The Committee consists of

1. Director of Fisheries – Chairman
2. Additional Director (HQ) – Member
3. Senior Finance Officer, Fisheries Directorate – Member
4. Fisheries Joint Director, Project – Member
5. Fisheries Deputy Director, PME – Member
6. Fisheries Deputy Director, FD – Member
7. Fisheries Assistant Director, Project – Member
8. Fisheries Deputy Director, PIU – Convenor

Details of Fisherfolk families living within 50 M HTL

Sl.No.	Name of District	No. of fisher folk families	No. of members	No. of children
1	Thiruvananthapuram	3339	18292	4468
2	Kollam	1580	6351	1343
3	Alappuzha	4660	20332	3680
4	Ernakulam	1618	7302	1449
5	Thrissur	408	1855	366
6	Malappuram	1806	12600	3684
7	Kozhikkode	2609	15691	3827
8	Kannur	1512	9120	2049
9	Kasargode	1153	7418	1483
	TOTAL	**18685**	**98961**	**22349**

Annexure XX

STATKE HOLDER CONSULTATION

LIST OF PARTICIPANTS

1. Sri. Dinakaran EX MLA, General Secretary, Akila Kerala Dheevara Sabha.
2. Sri. Ummer Ottummal, MatsyaThozilali Federation (STU)
3. Sri. Koottayi Basheer, President, Kerala State Fishermen Federation.
4. Sri. A.T. Sreedharan, Janatha Matsyathozhilali Union.
5. Sri. Austin Gomez, President, Matsyathozhilali Congress.
6. Sri Charles George, TUCI
7. Sri. Prasad, AII India Trade Union Congress.
8. Sri. Udaya Gosh, Bharathiya Matsyathozilali Sangh
9. Sri Jacson Pollayil, Kerala Swantnathra Matsyathozhilali Federation
10. Sri. P.R.Kunjachan, Coastal Area Development Agency for Liberation (CADAL)
11. Smt. Sonia George, SEWA.
12. Sri. Sabbas, Trivandrum Social Service Society (TSSS)
13. Sri. Joseph Jude, KMTF
14. Dr. K.V.Thomas, Scientist , NCESS (Rtd)
15. Dr. Dinesh Cheruvat, Additional Director of Fisheries (ADAK)
16. Smt. Sreelu N.S, Additional Director of Fisheries (Head Quarter)
17. Sri. Ignatious Mandro, Joint Director of Fisheries (Aqua)
18. Sri. Anilkumar .S., Deputy Director of Fisheries, PME

IMPORTANT SUGGESTIONS FROM STAKE HOLDERS

1. Exemptions given to Tourism may be excluded from the CZMP plan.
2. There should be a master plan regarding coastal settlement [Housing plan].
3. Separate Island Integration Management plan should be formulated.
4. Coastal erosion zones may be separately mapped in the CZMP plan.
5. CZMP plan may include suggestions regarding the conservation of Inland waterbodies.
6. Coastal protection zone may be marked and mapped in the CZMP
7. Separate zones may be marked for the upkeep and storage of Fishing implements.
8. CZMP committee may include Fisherman representatives also.
9. There should be a clear cut picture about tidal influence in theCZMP plan.
10. Designated tourism areas may be decided and included in the CZMP.
11. Proper documentation of coastal erosion may be undertaken in the CZMP plan.

12. A detailed VembanadKayal management plan may be prepared and annexed with CZMP.
13. Coastal roads, schools, place of worship and other social infrastructures may be specifically marked in the CZMP plan.
14. CZMP plan may reflect the inherent properties of coastal regions/areas/zones.
15. High Tide Linesmay be physically verified and marked in theCZMP plan.
16. Detailed discussions regarding district CZMP may be conducted with the stakeholders.
17. Ethnic tourism may be promoted large scale tourism projects may be excluded from the CZMP.
18. Tourism development may be planned in such a way that fisherme becomes the beneficiaries of the particular tourism project.
19. Coastal pollution points [sites] may be mapped in the CZMP plan. Polluted coastal waters should, not only be marked but should also have a time bound plan incorporated in CZMP, so that industries will be liable to have corrective measures put in place within the stipulated time.
20. All eroding stretches of Kerala coast shall be marked in CZMP,so that in future no more construction of ports take place in those areas.
21. The important fishing areas and the fishing grounds used by various crafts and gears of the fishers in the territorial waters may be marked in the CZMP. So that livelihood of the small scale fishers can be protected from other non-fishery activities.
22. CZMP plan has not included the map of VallikkunnuPanchayath and Tanur Municipality of Malappuram district. This may be incorporated in the CZMP maps.
23. Within 12 NM territorial waters (CRZ IVA) EcologicalSensitiveAreas as well as fishing grounds may be marked in the CZMP.