

CHAPTER 30

SECTORAL PROPOSALS

Structural proposal and projects for Kannur Corporation were prepared on the basis of the discussion with the Special Committee of working groups on the primary and secondary data collected and the local level analysis and the spatial analysis of the data. The feasible suggestions were incorporated. The economic feasibility and the environmental feasibility, etc. are considered for finalizing the proposals. In this chapter, the details of all projects and proposals including activities and agencies to be involved, proposals and prioritization of projects are given in the subsequent tables.

Most of the proposals and guidelines prepared are based on people's aspirations raised in working groups of Special Committee. The Municipal Corporation can include these proposals in its Annual Plan for implementation.

The components or elements described here for each project are not complete in all aspects, any suitable or essential component required can also be included in the project during the stage of preparation of DPR (Detailed Project Report) or during implementation stage. Location details,

need for the project, project brief, responsible agencies, suggested implementation mechanism, funding and resource mobilization, project period and priority of some selected priority projects are given in Chapter 31 Priority Action Plan, Fiscal Requirement and Resource Mobilization

30.1 RECREATION AND CIVIC AMENITIES

- **Green park at Thottada**

At present recreational area constitute 1.26% of the developed area of Kannur Municipal Corporation, which is far below the standards. As per URDPFI guidelines, medium plain town should have 10% to 12% area as recreational space. To develop recreational space within city area, a Green Park is proposed at Thottada. This organised park shall have the facilities like walkways, jogging tracks, lawns, botanical gardens, exhibition halls, children's play area, open air theatre, artesian emporium, swimming pool, comfort station, and fountains. It helps for physical as well as mental health development of the people.

- **Construction of New Park**

A new park is proposed near Kasanakotta Anganwadi with necessary play units for children, planting trees, gardening, landscaping, beautification works etc.

- **Renovation of Payyambalam Park**

Payyambalam Park is getting damaged due to negligence and improper maintenance. This proposal includes site clearing, fencing, planting trees, gardening, landscaping, beautification works, installation of play units for children, posting of gardener/watchman, maintenance works etc. Necessary funds can be raised by sponsorship and advertisement.

- **Construction of Art Gallery and Town Hall**

Art gallery and Town Hall can promote the socio cultural activities of the resident community of the area. There should be facilities for conducting film festivals, drama, study cum show programmes etc.

- **Mini Stadium Renovation**

Mini stadiums at Chala-Padinharekkara as well as Kakkad are to be renovated by means of providing suitable infrastructure facilities.

30.2 TRADE AND COMMERCE

Kannur city is the district headquarters and the major whole sale trade centre. For promoting the trade and commercial activities of the city, following projects and proposals are made.

- **Market Complex at South Bazaar**

A market complex is proposed at Corporation Land near Ashoka Hospital. It will promote the commercial activities within the city and act as a source of income for the Corporation. The lower floors of building may be allotted for commercial activities and upper floors for proposed Theyyam Museum and Hantex Emporium. The Corporation land in T.S. No.788, Revenue Block-15, Revenue Ward-1, Kannur-2 Village.

- **Renovation of Existing Markets**

The existing markets like Ayikkara fish market, Central market, Kakkad fish market and Vaaram fish markets are proposed to be renovated by providing the basic infrastructure facilities like loading and unloading facilities, comfort station, parking facilities, waste treatment plants and storage facilities etc.

- **Weekly Markets for Farmers and Cottage Industries**

Setting up of weekly markets at

suitable locations can promote the selling of agriculture products of farmers, products of Cottage industries, Kudumbasree products, etc.

- **Trading Centre for Informal Sector**

There are large numbers of informal sector units in the city but there are no organized clusters. Along the important road stretches as well as junctions, a separate location for each type of informal activities can be proposed. It should be done by means of layout plans which represent what type of informal is to be allocated in which stretch or junction. Since the traders are not that much educated, the layout plans should be easy for them to understand. The informal activities should be done by obtaining permit or sanction with respect to the layout plan. Supervision of the activities by the authority is needed to avoid unauthorized establishments and anti-social activities. Informal sector eating places are also proposed near the Stadium area and Payyambalam beach side.

30.3 INDUSTRIES

Kannur Corporation is an industrially backward area in the district. Only three large scale industries are there in the Corporation. Kerala State Handloom

Development Corporation Limited, Cannanore Co-operative Spinning Mills Limited and Milma are the large scale industries. Though there are no medium scale industries, three mini industrial estates exist in the study area.

Some small scale industries have also been set up in and around the city area. The major issues that the production sectors face are lack of experienced labourers, raw materials, land, financial support etc. Thus focus is to be given for strengthening the existing units as well as industrial estates with all necessary infrastructures.

- **Industrial Park at Pallipoyil**

The famous handloom and beedi industries that flourished decades ago and supported the economic base of the city region have now declined. An industrial park is essential for the city to revitalize its industrial base. An industrial park which envisaged to house all types of industrial units, IT/ITES/ Software/ Hardware units, engineering industries, handloom/apparel units, service industries etc. is proposed at Pallipoyil.

Land identified: - Resurvey number 64 (P) at Kappadu Desom and resurvey numbers 92 & 93 at Mecheri Desom of Chelora Village.

Area: - 10.7 Ha

Cyber Park at Eachur

The city and its immediate region has many technical institutions including engineering colleges offering IT and computer courses. At present, there is no Cyber Park within Kannur district. In this context a Cyber Park is proposed at Eachur. This project is expected to enhance the economic base of the city and generate thousands of direct and indirect employment.

Land identified: - Resurvey numbers 3(P) of Macheri Desom, 14, 15 & 63(P) of Chelora Desom of Chelora village.

Area: - 9.3 Ha

- **Strengthening of Mini industrial Estates**

The mini industrial estates at Marakkarkandy and Edakkad are to be strengthened by promoting the establishment of new units along with necessary infrastructure facilities. The industrial estate at Chelora located in Valannur Desom of Chelora Village has an area of 0.789 acre. Considering the strategic location, it is proposed to expand it with inclusion of a part of adjacent municipal land (Resurvey. No. 2 (P) of Valannur Desom of Chelora Village).

Land identified: - Resurvey Number 2 (P) of Valannur Desom of Chelora Village

Area: - 2.184 acre

- **Agro-Based Cottage Industries**

Coconut handicrafts, mats like “Thazhappai” are economically important to supplement the income of marginal farmers and labourers. Traditional areas of such activity will be selected and promoted. Advanced technologies can be incorporated to suit international demand. Tourism can also be associated with the proposal. Making of bags, kits etc. of these types shall also be encouraged.

- **Fish Processing, Exporting Unit and Ice Plant**

A sea food as well as the inland fish products processing and exporting unit along with an ice plant is proposed near Mappila Bay which will increase the economic development of the study area. The potential of the fishing activities of the study area will be the key factor for the development of this industrial unit.

- **Entrepreneurship Development Training Centre**

Entrepreneurship development training is conducted by the industrial department. But there is no permanent hall for conducting these programs. Hence a training centre is proposed in the premises of District Industrial Centre. Necessary support should be given by the Municipal Corporation.

- **Handloom & handicraft emporium**

A modern showroom exhibiting all indigenous handloom and handicraft items in association with Hantex at SN park area can market the Kannur brand product.

- **Exhibition cum trading centre**

Marketing is the major problem faced by industrialists working in small scale and cottage industrial sectors. A permanent outlet for their products is necessary for strengthening these units. A suitable location can be identified.

- **Encouragement to household industries**

30.4 WATER SUPPLY

- **Installation of New Water Storage Tanks in Water Scarce Areas**

The proposal includes activities like selection of locations, purchase /acquisition/relinquishment of land, installation of water tanks at elevated areas, supply of water to this tank with the co-operation of Ground Water Department and KWA.

Location –Kasanakotta Anganwadi

- **Construction of Public Wells and Deepening of Existing Wells**

The proposal includes activities

like selection of locations, purchase/acquisition/relinquishment of land, digging of wells, deepening of existing wells, repair and maintenance works, etc. with the co-operation of Ground Water Department and Kerala Water Authority.

- **Rain Water Conservation Projects**

Ground water is found depleting in the area and therefore all practical measures for replenishing and recharging of ground water are to be adopted.

- **Conservation of existing natural water bodies**

30.5 DRAINAGE, SANITATION AND SOLID WASTE MANAGEMENT

- **Sewage Treatment Plant at Neerchal**

The sewage generated in houses and various establishments are disposed-off through on-site sanitation systems (septic tanks or leach-pits). An STP is proposed at the mouth of Neerchal Thodu. Project helps to reduce wastewater stagnation, ground and surface water pollution, odour nuisance, insanitary conditions, mosquito breeding, and the spread of water borne & vector borne diseases.

Land identified: - T.S. number 1144(P) at Block 15, Revenue Ward 5, of Kannur-1 Village.

Area: - 0.1 Ha

- **Drainage with covering slabs to Major Roads**

Roads without side drains are easily vulnerable for deterioration due to the stagnation of storm water in monsoon season. And drains without proper cover slabs cause several health hazard issues and accidents to passengers. A well designed cover slab system with pavements can be used as sidewalks for pedestrians and also for the beautification of the city. Therefore, this project shall be implemented to major roads within the Corporation

- **Rejuvenation of Existing Thodes (Riverlets)**

Rejuvenation of river lets by removing grass weeds, silt deposit, mud etc. and deepening as well as protection works of their sides are to be done.

- **Comfort Stations**

Comfort stations are proposed at markets, bus stands, truck terminals, bus bays, parks and other public places. Regular maintenance as well as the cleaning is to be ensured.

- **Waste Collection Bins**

Waste collection bins are proposed

to be placed along major roads as well as other public places like bus stands, bus bays, parks etc. The bins should be separate for bio degradable and non-bio degradable wastes.

- **Bio-gas plants at Markets, Slaughter house, farms, etc.**

Bio-gas plants are proposed at major markets, bus stand, slaughter houses and farms, etc. for the disposal of generated waste in the source point itself. Some of the slaughter wastes can be used as food for the proposed rescue cum rehabilitation centre for stray dogs. Human excreta fed biogas plant system can also be implemented in various comfort stations within the city.

- **E-Waste Treatment Facilities**

A secondary e-waste collection centre at Chelora trenching ground is proposed and a ward wise door to door collection is to be provided.

- **Modern Slaughter House**

A modern slaughter house where scientific and hygienic slaughtering of animals with proper waste management as per pollution control norms and compliance of environmental laws, so as to ensure supply of safe and hygienic meat to the consumers with minimum manual handling. A suitable location can be identified.

30.6 TOURISM, CULTURE AND HERITAGE

Tourism, Heritage and Culture are linked sectors and most of the tourist spots are historically important. Tourism, with its strong potential, is one of the most important sectors in the development scenario of the city and has got an essential role to play.

- **Theyyam Museum**

Theyyam is usually performed in a particular season in the small shrines called Kavus and many tourists domestic and foreign pay a visit during this Theyyam season. If a theyyam museum is arranged with video show of recorded performances, the tourists will get a chance of enjoying this folk lore art in off-season also. The miniatures of different Theyyams can be made and sold here with the help of Theyyam artists. Upper floors of proposed commercial complex building proposed near Ashoka Hospital, South Bazar is identified for Theyyam Museum.

Location – T.S.No.788, Revenue Block-15, Revenue Ward-1, Kannur-2 Village.

Area - The total land extend for this complex is 13 Ares.

- **Kakkad River Side Park**

A park is proposed near Kakkad River. A walkway is proposed along the side of this road and all facilities

like resting places, comfort stations/e-toilets, Wi-Fi facility, FM radio, display of major tourist destinations in the surrounding area, dust bins etc. are to be provided to get a calm atmosphere for people gathering there. Acquisition of surrounding land is required.

Location – Resurvey Nos. 21, 22 (P). Athirakam Desom, Elayavoor Village

- **Bio Park at Edakkad**

The mangroves near Thottadapuzha and its adjacent area are proposed to be protected and more mangrove plants can be planted. A walkway along the banks of the river to neighbouring beach, as well as a suspension bridge to cross the river is also proposed here without affecting the ecosystem.

Location – Thottada Desom {33(P), 34, 37 (P)} and Kannurkkara Desom {(120,119, 118(P))}

- **Bird Watch Tower at Vaaram Kadavu**

A bird watch tower is proposed at Vaaram Kadavu which will promote the tourism activities. The nearby Munderikkadavu area in Munderi Grama Panchayat is now growing as a centre for bird watching and many people use this area as a picnic spot. Similarly, the Varam Kadavu area can also be promoted as a picnic spot by

installing a watch tower for observing birds. The watch tower can provide a panoramic view of the vast water stretches of Kattamballi backwater area.

- **Encourage Water Sports and Air Sports Activities in Beaches**

It is proposed to promote various water sports activities like boating, diving, kite boating, fishing, swimming as well as air sports activities such as parachuting, paragliding etc. in the beaches. The safety should be ensured. All the activities should be provided with reasonable prices.

- **Heritage Conservation**

The historically important buildings such as Arakkal Palace, Parsi Bungalow etc. are proposed to be protected. All necessary measures for the preservation of these valuable inheritances are to be taken. Mobilization of financial grants and aids, prevention of encroachments, repairs and maintenance works, people's participation in the conservation works, etc. are some activities involved in this project. This will promote the tourism activities in these places.

- **Boat Service and Rope Way Along Kattampallypuzha**

The Kattambally River is a

tributary of Valapatanam River and spreads over a vast extent of area with its tidal backwater entry. A boat service is proposed through Vaaram Kadavu Pullooppi Kadavu and Munderi Kadavu.

A well designed rope way to reach Munderi Kadavu and back to Pullooppi Kadavu is also proposed here. Rope way is a pleasurable experience to tourists. The panoramic view of the vast river and its beautiful islands, the bird sanctuary as well as the proposed butterfly park all will constitute a pleasant experience to the tourists.

30.7 HOUSING

- **Housing Scheme for Urban Poor**

New housing schemes can be proposed to the urban poor consisting of homeless and land less BPL families. The Life Mission project recently launched by Govt. of Kerala may be taken as model for this.

30.8 ENERGY

- **Streetlights in Every Street and Colony**

Street lights are proposed at every street and colony.

- **Solar panels in all Government Offices and Public Buildings**

Solar energy is an infinite non-

conventional energy resource and should be utilized in all possible manners to avoid future energy crisis. Government offices and public buildings are the best places to install solar panels as an illustration for the public. Installation of Solar heaters for hospitals can also be included in this project.

- **Establishing More Electric Charging Stations for Vehicles along major roads**

30.9 EDUCATION

- **Students Facility Centre at 'Thottada Educational Hub'**

Thottada area which is having a large number of educational institutions is now developing as an educational hub. Around 13 educational institutions are there in this area, which include primary schools to professional Colleges. The higher educational institutions viz, SN Arts & Science College, Govt. Polytechnic College, Govt. Industrial Training Centre, Govt. Industrial Training Centre for Woman, Institute of Handloom Technology, Chinmaya Arts and Science College Chala, Chinmaya Institute of Technology etc. offer different courses and career development opportunities for students all within a short area. In addition to this, a Technical High

School is also located in this region which helps to improve the technical skills at school level itself and is very helpful to the higher education in technical studies.

A student facilitation centre is proposed for this education hub. Library, reading room, internet facilities, photostat machine, career development counselling cell, Civil Service Coaching Centre, Job fair etc. shall be the component of this project

- **'Vidyaveethi'- Student's walkway from Chalakkunnu to Polytechnic**

Most of the students from Koothuparamba side to the above mentioned educational institutions in Thottada area get down from bus at Chalakkunnu and make a walk to the institutions through Polytechnic Campus. They have to cross the railway track and the path is not completely safe. A safe and student friendly walkway is proposed from Chalakkunnu to Polytechnic Bus Stop. A foot over bridge over railway line, resting places and roof covering at necessary areas, CC TV surveillance, drinking water facility, comfort Station, paintings on walls etc. are the components of this project.

30.10 HEALTH

- **Mini Gym**
Location- Town square and other parks
- **Life Style Disease Detection Centres**
Location- Bus stands and Corporation office area
- **Isolation Hospital for Epidemics**
- **Paramedical Research and Training Institute**
- **Ayurveda Dispensary at Vaaram**
- **Renovation and modification of Thottada ESI Hospital**

30.11 SOCIAL WELFARE

- **Improvement Works for SC/ST Colonies**
The proposal includes construction, repair and maintenance of approach roads, construction and repair of houses to eligible families, installation and maintenance of water supply schemes, community septic tank, construction and repair of community halls, cultural centres, burial grounds, Study room facilities, compound walls etc.
- **Ladies Rest Rooms and She-Toilets at Major Centres**
Ladies rooms, feeding room and

toilet facilities are essential for female passengers and working are to be built at different parts of the city.

- **Infrastructure Development of Anganwadis**
It is proposed to provide own land to Anganwadis along with basic infrastructure facilities, mini park, etc.
- **Encouragement of Kudumbasree**
The Kudumbasree activities can be encouraged by giving them financial assistance and support to start new ventures like hotels, handicrafts making, small scale industries etc. Small scale industrial activities and necessary trading centres should be given. Necessary training programs can be provided.
- **Cultural Centres**
- **Establishing Buds School**
- **Women Friendly Night Stay Facilities**
- **Renovation of Vayojanakendram**
- **Training centres for women**
- **Men's Hostel**

30.12 AGRICULTURE AND ALLIED SECTORS

30.12.1 AGRICULTURE

Some of the areas of former Panchayats, now annexed to Corporation have still rural nature. And therefore, agriculture and related sectors like animal husbandry and fisheries have to play an unavoidable role in the development scenario of Kannur city. High concentration of agricultural land use is seen in wards situated apart from the city centre. Agriculture oriented wards in Kannur Corporation include Thilalur, Elayavur South and Kunnavu. Mappila Bay is the only one marine fish landing centre in the Corporation area while Kattampally and Vaaram Kadavuhave potential for inland fishing. Since the entire city has about 17km long coastal stretch, the fisheries sector has a great potential in the local economy.

Paddy cultivation needs to be promoted for maintaining the environmental balance. Active paddy cultivation is to be brought back in all paddy fields which are now kept idle and uncultivated. Shortage of trained labourers is also a major problem in paddy cultivation. Fragmentation of land and small scale farming, etc. often result in less profit and methods like group farming and collective farming are the remedial measures for this. Cultivation of rice varieties like Basmati rice, Nhavara rice,

Jeerakasala, Gandhakasala, Matta rice etc. can be experimented with arrangement for sufficient processing and marketing facilities. Existing irrigation facilities are to be improved and new projects are to be set up for supporting the agricultural activities. Also, as a matter of policy, organic farming and homestead cultivation practice are to be encouraged for better health of the people and for a clean environment.

Coconut and cashew are the major cash crops cultivated. Production, productivity and processing of these cash crops with value addition are to be enhanced for the economic growth of the city. Apart from these, vegetables are also cultivated. The high demand for vegetables from organic farming both at domestic and outside should be utilized.

The Kannur International Airport at Mattannur is a major thrust for export of vegetables as well as fish products.

The city has high potentials for animal husbandry sector with its vast services. Even though the infrastructure facilities are good in the case of animal husbandry, the production is not up to the mark. So, necessary steps have to be taken for utilising the maximum potential.

Considering these facts following projects and proposals are made in agriculture and allied sectors.

- **Agriculture Labourer Bank**

Shortage of trained labourers is one of the main problems being faced by agriculture sector at present. But, in contrast, the problem of unemployment also exists in Kerala. In this context, an agriculture labourer bank can be formed with the labourers interested in agriculture sector and can be made readily available for the agriculturalists. The labourer bank can be attached to the Krishi Bhavan or Municipal Corporation Office.

- **Agriculture Information Centre**

A knowledge sharing centre namely, 'Agriculture Information Centre', with facilities for training and coaching for farmers, sales and hiring of tools and implements, introduction of new trends and methods of agriculture, etc. is proposed near Krishi Bhavan or Municipal Corporation Office, as a part of Master Plan.

- **Cultivation of Medicinal and Special Rice's**

The proposal aims to promote the cultivation of special rice varieties like, Njavara, Chennellu, Basmati, Jeerakasala, Gandhakasala, Matta etc. which have got high demand in market now. The cultivation of medicinal paddy may help to maintain health security as well as the

commercialization through value addition product development. The existing paddy lands and uncultivated paddy lands can be utilized for this project. Processing is the main issue regarding these varieties and if adequate mills and implements are provided this issue can be resolved.

- **Herbal Garden**

Since the medicinal and aromatic plants are invaluable biological resources, closely associated with health care, traditions, and culture, they are used to treat diseases and some of these traditional medicines are still included as part of the habitual treatments. Hence it is necessary to promote Herbal Gardens at school level also, which will be a fun-filled learning activity for the children where they get the opportunity to learn about the medicinal plants by actually planting the medicinal herbs and watching them grow in their gardens, and by exploring information about them from various sources. The task of making the garden itself has been enriching in terms of making children realize the importance of team work such as detailed planning and allocation of tasks within a team.

- **Homestead Vegetable Cultivation**

All possible measures and

promotional activities are to be adopted for homestead vegetable cultivation to avoid the use of poisonous vegetables obtained from the market. The methods like grow bags, terrace cultivation, etc. can be adopted to overcome the problem of land constraint.

- **Restoration of Vegetable Cultivation at Uncultivated Lands**

The available fields in the city that are kept idle without cultivation can be used for promoting vegetable cultivation. The land can be obtained on lease from the owners and the involvement of farmer's societies and school children can be effectively utilized for the success of the project. If any land is available in the school premise, that can also be used for this project. The participation of children can develop a new culture of agriculture among the new generation and make them aware of the benefits of agriculture.

- **Organic Farming**

Organic farming refers to agricultural production systems reliant on green manure, compost manure, biological pest control, and crop rotation to produce crops, livestock, and poultry. Organic farming is dependent on developing ecological biodiversity in

the plantation farm to interrupt the habitation of pests and diseases, and ensuring meaningful maintenance and improvement of soil fertility. It uses the technology of crop rotation and biological pest control methods. Products yielded through organic farming have been in great demand since the last decade or so. And now it is a Government policy to promote organic farming for the better health of the citizens and also for making self-sufficiency in vegetable production.

- **Polyhouse/Greenhouse Cultivation**

It is the cultivation of crops under completely controlled environmental conditions like temperature, humidity, fertilizers, etc. with the automated system. Generally cucumber, brinjal, tomato, bell pepper and cut flowers like rose, orchid etc. are cultivated in polyhouse condition. As the crops grown in open field are exposed to varied environmental conditions like attack of insects, pests and diseases, the poly houses provides more stable and suitable environment for the crops.

- **Promote the use of Bio Fertilizers**

Bio fertilizers contain living organisms which promotes the growth by increasing the availability of

primary nutrients to the host plant. It can be effectively used in cultivation of rice and other staple crops, commercial crops such as cotton, sugarcane, etc. and also in vegetable and fruit cultivation.

- **Agriculture Exhibitions**

In order to augment agriculture and allied sectors, related exhibitions should be conducted at Police Maidan or Collectorate ground every year. In such expos, introduction of organic farming, traditional farming with their methods, equipment used in Kerala in the past years etc. can be shown. Also, ornamental fish exhibition can be conducted here.

- **Encourage agriculture in schools**
- **Promote Coconut Cultivation in Dry Agriculture Fields**
- **Lift Irrigation Projects**
- **Urban Terrace Farming**
- **Training centres for agricultural labours**

30.12.2 ANIMAL HUSBANADRY

The livestock population of the study area is mainly concentrated in Chelora zone. At present, the activities of the sector are very poor though

there are so many infrastructure facilities. So, to bring more people into animal husbandry sector, it is necessary to establish mobile veterinary clinic units. This can reduce the inconvenience and hardships of farmers to take sick animals to the veterinary hospital.

- **Rescue Cum Rehabilitation Centre for Stray Dogs**

A rescue cum rehabilitation centre is proposed by following ABC (Animal Birth Control) Rule strictly. The slaughter wastes can be used as food for these animals which will be useful to reduce the slaughter wastes. Suitable location for the project is to be identified.

- **Small Scale Dairy Farms**
- **Small Scale Goat/Pig Farm Units**
- **Poultry/Quail Farm Units**
- **Fodder Cultivation**
- **Mobile Veterinary Clinic Unit**

30.12.3 FISHERIES

- **“Malsyakendram”- Fisheries Activity Centre At Vaaram**

Inland fishing activities are active in Vaaram Kadavu and Pullooppi Kadavu area and there are some fish

farms in the waterlogged areas of Kattampally River; a tributary of Valapattanam River. A fisheries activity centre, namely “Malsyakendram” can be started in the nearby area in order to strengthen the fisheries activities there. This can be worked as a facilitation centre for the fish farmers for promoting the inland fisheries activity. Vaaramkadavu as well as Pulloopikadavu area is now emerging as a tourist spot. The centre can also be worked out, as an outlet of fish catch and processed fish food products.

- **Marine Fish Landing Centre**

At present, Mappila Bay is the only one marine fish landing centre in the study area. Ezhara, Kizhuna and Adikadalayi have great potential for marine fishing. Hence it is necessary to promote the fishing activities there by means of providing basic infrastructure.

- **Aquaculture in Ponds**

Aquaculture is proposed in Anakulam, Chettyarkulam, Valiyakulam ponds and also in Kanampuzha, Kakkadpuzha and Thottadapuzha. The proposal includes fresh water fish culture, paddy cum fish culture, integrated pig cum fish culture, integrated duck cum fish culture, integrated poultry cum fish culture, etc.

- **Aqua Park**

The marine ornamental species offer immense export potential in the global markets. It is proposed to establish an aqua park with marine aquarium, fresh water aquarium, ornamental fisheries training centres, aquarium shops, ornamental fish breeding facilities, lab etc.

- **Renovation of Existing Fish Markets**

It is proposed to develop the infrastructure facilities of Ayikkara, Varam and Kakkad Fish markets immediately by means of providing storage, transportation, assembling and selling, drying facilities, comfort station, parking facilities, drainage system, waste disposal system etc.

30.13 ENVIRONMENT AND DISASTER MANAGEMENT

- **Multipurpose rescue shelter (MRS) with life line store**

Multi-purpose rescue shelters are to be built as a disaster mitigation projects near flood prone zones for accommodating people during emergency situation. If the camps prolong for a long time, the normal function of institutions which act as temporary rescue shelters may get affected. In addition, these shelters may not have sufficient Kitchen and bathroom facilities. Therefore, multi-purpose rescue shelters can be

proposed at Thaze Chovva, Kuruva, Marakkarkandy, Padannathode, Athazhakunnu, Varam, Parathiyil etc. During the time of disaster, it can be used as Rescue shelter and other time can be functioned as Auditorium, Skill development centres, marketing place for Kudumbasree and Cottage industries etc.

The facilities in Multi-purpose Rescue Shelters included

- Bed space accommodation
- Ample toilets
- Kitchen and dining arrangements (Stock of firewood/cooking gas, vessels etc.)
- Store room for medicines and provisions,
- First Aid facilities
- Bore well and hand pumps
- Dress washing and drying facilities
- Wireless communication facilities with control room, hospitals, etc
- Solar lighting, Solar water heater, Inverter facilities

Necessary items to be store in life line stores are fiber boat and life jackets, hammers, wood cutter, Generator, Pumps, Motors, Cutting Machines, Drilling machines, Axes, Petrol, Diesel, Kerosene, First Aid facilities and Oxygen Cylinders, Lanterns, torch, lights, cantles, matchbox, lighters, Stretchers, Ropes,

ladders, Testers, Wireless communication facilities, loudspeakers, etc.

The responsible agencies for the project are Corporation, Revenue Department, District Disaster Management Authority (DDMA), Kerala State Disaster Management Authority (KSDMA), Fire and Rescue Department, Police Department, etc.

- **Renovation and beautification of rivers**

It is proposed to renovate Kanambuzha, Kakkad Puzha, Thottadapuzha by constructing side walls, installation of nets for prohibition of waste dumping, installation of CC camera, etc.

- **Protection of Rivers Shores and Streams**

Shore protection of Kattampally River and other streams is proposed and a green belt zone with no construction is preserved around it. Buffering with trees, screw-pine cultivation, bamboo cultivation, mangrove plantation and other eco-friendly activities also can be provided.

- **General proposals for Reducing Pollution**

I) Air Pollution

1. The enforcement of PUC Test

- (Pollution under Control Test) is now mandatory at 3 or 6 months interval and the MVD (Motor Vehicle Department) and Traffic police can monitor this.
2. Reduce the number of private vehicles on road by implementing efficient and convenient public transport system like mini bus services to all remote routes with adequate time interval.
 3. Organization of car-free day at least once in a week.
 4. Odd even number system (vehicle number ending in odd number and even number may be allowed to enter the city only on alternate day in turn) can be adopted to reduce the number of vehicles.
 5. Put up safe and attractive walking and bicycle lanes to encourage walking and cycling to reduce pollution to an extent.
 6. Initiatives for shared transport systems like carpooling, shared auto-rickshaws, cabs, etc. should be considered seriously as alternatives to combine the comfort of private and affordability of public transport. Collection of special fee for cars/private vehicles with single passenger through Motor Vehicle Department and Traffic Police.
 7. Checking of adequate tyre pressure should be made mandatory for public as well as private vehicles, because a low tyre pressure can increase pollution and fuel consumption.
 8. Burning of waste without segregation along road sides and open plots should be regulated to curb plastic fumes from polluting the atmosphere.
 9. Industrial norms are to be abided by, and Kerala State Pollution Control Board has to strictly implement it. Shift from fossil fuel based engines to clean technology like solar, electricity, battery powered, CNG, etc. should be encouraged by reducing tax for those who implement it.
 10. Adequate green belt should be provided around all industrial units/buildings/roads to reduce pollution by dust as well as carbon emissions.

II) Water Pollution

1. Promotion of organic farming and use of organic manures instead of chemical fertilizers.
2. Use of biological control of pests instead of pesticides.
3. Strict prohibition of washing of vehicles at streams and rivers.
4. Replacing of existing leach pit tanks with septic tanks especially at river side and stream sides.

5. Mandatory use of septic tanks for new houses and buildings
6. Installation of sewage treatment plants at major drains and streams.
7. Frequent testing of ground water and rivers for contamination and adopting remedial measures to control water pollution as per the directions of Kerala State Pollution Control Board, KWA and Ground water Department
8. Monitoring of industries and hospitals for abiding norms of Kerala State Pollution Control Board

III) Land Pollution

1. Adherence to 3-R, Reduce waste, Reuse any item that we can and to Recycling of possible things.
2. Personal litter should be disposed properly. We can separate household waste at home for recycling. More than half of the household waste could be recycled or re-used but once it is mixed up, it becomes difficult to separate different components for recycling.
3. Prohibition and ban on plastic items of hazardous type.
4. Promoting the culture of using paper bags and cloth bags.
5. Promoting organic farming
6. Avoiding use of pesticides
7. Installation of collection point for collecting e-wastes including batteries
8. Promoting and buying of bio-degradable products
9. Active participation of Kudumbasree units for the collection of solid waste
10. Installation of more dust bins at various parts of the city
11. Use of different coloured dust bins for the segregated collection of solid waste

IV) Noise Pollution

1. Noise level norms need to be strictly enforced for vehicles and monitored regularly. Restrict the running of heavy vehicle during day time.
2. Use of diesel engine fitted autos, which are noisy should be avoided in the city.
3. Public transport buses should be properly maintained and lubricated to avoid noise pollution.
4. Resurfacing roads with low noise materials for areas with extremely high traffic.
5. Houses near busy roads should be provided with noise insulation packages consisting of Venetian blinds and materials for secondary glazing.

6. Public and private official buildings near busy roads should install noise insulation for the comfort of employees there.
7. Planting of trees at road sides and residential areas is a good way to reduce noise.
8. Use of loud speakers/crackers for public and private functions (rallies, demonstrations, religious rituals in temples, cultural programs and festivals) should adhere to the noise pollution norms and it should be strictly enforced.
9. Proper training and equipment should be provided to police to ensure noise control.
10. Plantation of trees around buildings (schools, hospitals, houses, offices) should be encouraged.
11. Noise zoning should be established as described to in Chapter 31 (Silence Zone) and awareness among residents should be generated.
12. Proper maintenance of mechanical components of equipment should be strictly followed in all industries.
13. Ensure that all industries abide by CPCB (Central Pollution Control Board) specifications for noise standards.

14. Adequate lubrication to machine parts and providing removable insulation jackets to machines can reduce noise to a large extent.

30.14 MUNICIPAL FINANCE AND GOVERNANCE

- **Good Governance**

For becoming a smart city, smart governance is required and the components include

1. Strengthening of e-governance, RTI Cell, RTS Cell, Citizen Forum, etc.
2. Renewal and publication of brieflets for municipal services.
3. Awareness and training program for public participation and co-ordination.
4. Monitoring cell for accountability and transparency.

- **New Office Complex for Municipal Corporation**

The existing Corporation office is very old and not spacious for accommodating the routine functions. Construction of new building complex for Corporation Office shall be completed urgently.

- **Proposals for Sustainable Income Generations**

Sustainable income generation

proposals and financial aids from various funding agencies are essential for developing a stable financial background for the Corporation in the coming years. Some proposals for income generation are as follows:

1. Plantation of commercial trees like Teak, Mahagony, Jack, tamarinds, etc. on Corporation lands, vacant lands and on road sides.
2. Men's Hostel
3. Municipal Guest House
4. Conducting mini bus services
5. Paid parking systems
6. Construction of commercial and residential buildings for rent
7. Promoting tourism activities
8. Preparation of resource plan
9. Reforms in tax collection
10. Installation of LED display advertisements on major roads