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Government of Kerala

Department of Industry & Commerce

District Industrial Potential Survey Report

KOLLAM

2016-17

District Industries Centre, Kollam

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PREFACE

District Industrial Potential survey Report of Kollam District (2016-2017) has been prepared by District Industries Centre, Kollam. This report provides valuable information on Resources, Infrastructure, and Potential available in Kollam District.

It is hoped that the District Industrial Potential Survey Report will be helpful to the entrepreneurs, policy makers, institutions / other stake holders engaged in the developmental activities. It is also hoped that the report will enable stakeholders in effective implementation of various Government schemes in the Industries sector.

We are grateful to Directorate of Census Operations, Directorates of various State Government Departments, Lead Bank, and other institutions for supporting us by providing data and details.

I place on record my appreciation for Shri R.Sreekumar, Manager (EI) and his team Shri Rajesh, Stat. Assistant Grade I, Smt.R. Bindhu, Stat. Assistant Grade I, Smt. V.N.Divya, Stat. Assistant Grade II , Shri Binu Balakrishnan ADIO & Shri. Jithin J S, IEO, who have put in lot of commendable efforts in preparing this report in spite of stipulated rigid time period. Also the officials ADIOs and IEOs at Taluk level have taken enough effort in making the data available in time. The SWOT analysis report and Industrial scenario of each block has been prepared by respective IEOs and those have been included as such in the potential analysis report of the block.

I sincerely hope that this report will be useful to all, connected with the development of industrial sector. This report will also serve as a valuable guide to the prospective entrepreneurs who are desirous of setting up industries in Kollam District.

Kollam, **Helen Jerome**

30.10.2017 **General Manager**

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1. Directorate of Census Operations, Thiruvananthapuram

2. Directorate of Economics and Statistics, Thiruvananthapuram

3. District office of Economics and Statistics, Kollam.

4. District Animal Husbandry Office, Kollam

5. District Medical Office

6. District Education Office, Kollam

7. District office of Mining na d Geology

8. Department of Fisheries

9. Department of Dairy

10. Department of Tourism

11. Department of Forest and Wildlife

12. Department of Irrigation

13. Local Self Government Institutions in the District

14. SIDCO

15. Lead Bank

16. KSSEB

17. ANERT

18. Kudumbasree

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CHAPTER 1

INTRODUCTION

1.1 KOLLAM AT A GLANCE

Quilon, an old seaport Town on the Arabian Coast, is flanked by the Lakshadweep Sea on the West and the South and the Ashtamudi Lake on the North. The District is named after this Headquarters Town. The word 'Quilon' is an anglicised form of the Malayalam word 'Kollam'. After February 1990, the names of the District and its Headquarters Town had been changed to Malayalam version 'Kollam'.

It is situated on the South-West coast of India between North latitudes 9.10° and 8.45° and East longitudes 76.25° and 77.15°. The District is bounded on the North by Mavelikkara and Karthikappally Taluks of Alappuzha District and on the North-East by Adoor and Kozhenchery Taluks of Pathanamthitta District, on the East by Thirunelveli District of Tamil Nadu, on the South by Nedumangad and Chirayinkeezhu Taluks of Thiruvananthapuram District and on the West by the Lakshadweep Sea.

The Portuguese were the first Europeans to establish a trading centre at Quilon in 1502. Then came the Dutch, followed by the British in 1795. A British Garrison was stationed at Quilon in pursuance of a treaty between the British and Travancore.

Velu Thampi Dalawa of Travancore did much for the development of Quilon Town. He built new bazars and invited merchants from Madras and Thirunelveli to settle here. Quilon later became the capital of the enlightened and liberal rulers of Desinganadu. Quilon was also the nerve centre of the rebellion organised by Velu Thampi against the British.

Once a City of palaces, Quilon has been known to the outside world, by the time honoured proverb, "Once you have seen Kollam, you would no more need an illam (home)".

Location, Size and Area

The District is situated on the South-West coast of India. The District is bounded on the North by Mavelikkara and Karthikappally Taluks of Alappuzha District and on the North-East by Adoor and Kozhenchery Taluks of Pathanamthitta District, on the East by Thirunelveli District of Tamil Nadu, on the South by Nedumangad and Chirayinkeezhu Taluks of Thiruvananthapuram District and on the West by the Lakhadweep Sea.

Kollam District has a total area of 2,483 sq.km. It accounts for 6.39 per cent of the total area of the State. Kollam District ranks the 8th in area among the Districts in the State.

District administration

Kollam district has two Revenue Divisions, with its headquarters at Kollam and Punalur

Kollam district has 6 taluks, 104 villages, 1 corporation, 4 municipalities, 13 blocks and 69 Panchayats. The Kollam Civil Station was built in 1956 to incorporate all government offices in one place.

Taluks

The district has six administrative subdivisions namely taluks (with headquarters in brackets:

1. Pathanapuram(Pathanapuram), 2. Punalur(Punalur), 3. Kunnathur(Sasthamkotta),

4. Kottarakara(Kottarakara), 5. Karunagapally (Karunagappally) and 6. Kollam (Kollam)

Municipalities

There are four municipalities in Kollam District.
Punalur, Paravoor, Karunagappaly and Kottarakara are the municipalities

Lok Sabha and Assembly constituencies

Kollam district has three Lok Sabha (lower house) constituencies; namely Kollam, Alappuzha & Mavelikara and eleven Legislative Assembly Constituencies as shown below: Chavara**,** Kundara**,** Eravipuram**,** Kollam**,** Chathannoor**,** Chadayamangalam and Punalur are the assembly constituencies.

While Kunnathur**,** Kottarakkara and Pathanapuram constituencies are in the Mavelikkara Lok Sabha constituency, the Karunagapally assembly constituency is in the Alappuzha Lok Sabha constituency.

Date of formation	1 July 1949
i) Latitude	76.6N
ii) Longitude	8.88E
iii) Geographical Area	2483 Sq.K.M
Demography	
Total population (2011) census	2635375
Male	1246968
Female	1388407
Sex Ratio (female per 1000 males)	1113
Population Density	1061
Decadal Growth Rate	7.4%(2001)
Child population (0-6years)	254260
Per Capita income (2015-16) Constant price	143552
Total literacy rate(2011)	94.09%
Male literacy rate	96.09%
Female	92.31%
Administrative setup	
Taluks	6
Villages	104
Gramapanchayaths	69
Block panchayaths	11
Corporation	1
Municipalities	4
District panchayath	1
Loksabha seats	1
Niyamasabha seats	11
Educational district	3
Agricultural scenario	
Total cropped area (Ha)	149317Ha

Major agricultural items	Paddy,Tapioca, Coconut,Rubber, Peper,Banana, Mango,Cashew
Land put to non-agri uses	28314
Forest cover	81439
Gross irrigated area	10205Ha
Net irrigated area (2015-16)	6054Ha
Production of rice (2015-16	3351Ton
Productivity of rice (2015-16)	2155Kg/Ha
Area under paddy cultivation	1555Ha
Production of milk (2015-16)	430212MT
Production of egg (2015 - 16) (inThousands)	347759
Production of Meat (2015-16)	17.65MT
Average annual rainfall as on 2016	2700mm
Industrial status (as on 31.3.2017)	
Micro Manufacturing	4876
Micro Service	2169
Small Manufacturing	618
Small Service	230
Medium manufacturing	14
Medium service	2
No of development plot/area	2
No of Mini Industrial Area	5
Industrial Area developed by : (a) District Panchayath (b) Block Panchayath (c) Grama Panchayath	5
Handloom societies (working)	35

Power loom societies (working)	0
Coir societies (working)	74
General Industrial societies (working)	179
Handicrafts societies (working)	179

(Source: Directorate of Census Operations, Directorate of Economics and Statistics and Directorate of Industries & Commerce)

CHAPTER – 2
RESOURCE ANALYSIS

2.1. Agriculture – An analysis

The total extent of land in the district is 248788 hectares and net sown area during 2015-16 comes around 123563 hectares. Paddy, coconut, rubber pepper banana, tapioca, mango and cashew are some of the extensively cultivated crops. A description about the land utilization has been represented in the following table.

Land use pattern in Hectares 2015-16

i) Total Area (Ha)	248788
ii) Forest Land	81438
iii) Non Agriculture Land	28314
iv) Cultivable Waste land	2673
(v) Current fallow	3255
(vi) Other Fallow	1691
(vii) Net Sown Area	123563
(viii) Land Under Miscellaneous tree crops	46
(ix) Permanent Pasture and Grazing land	0
(x) Gross Cropped Area	149317
(xi) Area Cultivated more than once	25754

(*Source: Directorate of Economics &Statistics)*

1. Forest: Forest represents all actually forested area as the lands classed or administered as forest under any legal enactment dealing with forest. The forest area of the District during 2015-16 was 81438 Ha which is 32.73% of the total geographical area of the District.

2. Land put to Non–Agricultural use: The land put to use for purposes other than agriculture such as building, pathways, roads, canals, rivers, bus stands, railways, local

reservoirs, swamps etc. are brought under this category. Area under this classification is 28314 Ha accounting for11.38% of the District's geographical area.

3. Barren and uncultivable land: Land which cannot be brought under cultivation unless at a high cost, whether such a land is in isolated blocks or within cultivated holdings, such as mountains, deserts, hills etc are classified as barren and uncultivable land.

4. Permanent pastures other grazing land:- All grazing lands, whether they are permanent pastures or meadows are considered as permanent pastures and other grazing lands. No area falls under this category in 2015-16.

5. Land under miscellaneous tree crops :- All cultivable lands, which is not included under net area sown, but is put to some agricultural use such as land under casuarina trees, thatching grass bamboo bushes and other groves for fuel etc. are come under this category.

6. Cultivable waste : These includes land available for cultivation but not taken up for cultivation or abandoned after a few years for one reason or the other . Such lands may be either fallow or covered with shrubs or jungles, which are not put to any use. They may be assessed or unassessed and may lie in isolated blocks or within cultivate holdings. Lands once cultivated but remaining uncultivated for five years or more in succession shall also be included in this category.

7. Fallow other than current fallow : Land which were taken up for cultivation but have been temporarily put off cultivation for a period of not less than one year but not more than five years due to abject poverty of the cultivators, inadequate supply of water, silting of canals and rivers etc are treated as other fallow land.

8. Current fallow : Land that are kept fallow off out of the net area sown during the previous year are classified as current fallow for the reporting year.

9. Marshy land : Land which gets permanently or periodically inundated by water and characterized by vegetation which includes grasses and weeds.

10. Still water: The land under still water is broadly the land occupied by water bodies like rivers, lakes, ponds, reservoirs, backwater, canals, tanks including nature made deeps in which water stands still for most part of the period. This is the land on which there is no vegetative growth of any kind.

11. Water logged area : It is the land where water is at / near the surface and stands for most part of the year. It is generally found in low lying areas and it excludes lakes, ponds and tanks

12. Social Forestry : The land under social forestry is the land in which the trees are planted by the side of railway lines, road side, river and canal banks with a view to meet the fuel and the fodder needs of the rural population and to serve the broader goals of soil conservation and provision of shed shelter for crops. It also includes village forests/plantation which is being used by common man.

13. Net Area Sown: In calculating the net area sown, area sown more than once will be counted only once. Area cultivated during any part of the agricultural year should come under net area sown.

Cropping pattern

With respect to the area of cultivation, coconut has the maximum share in the district (51833.9 ha) followed by rubber (37240 ha) where as the area of cultivation under paddy (1554.31ha) is very less compared coconut and rubber.

The area, production and productivity of some major crops in the district are shown below:

(i) Area, Production & Productivity of Agriculture crops 2015-1

Crop	Area(Ha)	Production(Ton)	Productivity(Kg/Ha)
Paddy	1554.31	3351	2155
Tapioca	15146.59	530802	35043
Banana	2883.7	20399	7073
Sugarcane	0.18	0	0
Plantain	5251.06	40324	7709
Pineapple	122.05	873	7156
Coconut	51833.9	358	6907
Areca nut	1930.63	1070	554
Nutmeg	74.99	33	440
Ginger	317.82	742.56	2336
Turmeric	239.59	386.59	1613
Jack(Million)	6687.02	24	3589
Mango(Million)	5651.09	37136	6572
Cashew	2334.25	643.66	276
Pepper	3330.36	1092.6	328

i) Area& Production of Plantation crops

Crops	Area(In Ha)	Production(Tonn)
Rubber	37240	31600
Tea	606	149
Coffee	0	-
Cardomom	0	0
Cashew	2334	644
Oilpalm	17	-

(*Source: Directorate of Economics &Statistics)*

Government Departments/Agencies functioning in the District have been assigned the task of implementing various development programmes in the field of agriculture and allied activities. All the Panchayats of the district are covered by separate Krishi Bhavans. There is an oil palm plantation at Bharatheepuram near Anchal, in an area of 4,000 hectares under the Oil Palm India Limited, a State Government undertaking. The rehabilitation plantations, another State Government undertaking, are located at Kulathupuzha near Thenmala.

2.2 WATER

2.2.1 Surface water resources

Kerala is rich with 44 rivers which together yield 70300Mm³of water annually. However, the total utilizable yield is estimated to be 42000Mm³, only 60% of the annual yield. Kerala possess only four medium rivers and 40 minor rivers.

In the all India perspective the rivers of Kerala are not so significant than even the largest of them cannot find a place among the major Indian rivers. With respect to the national norm Kerala does not have a single major river and has only four medium rivers. The combined discharge of these four rivers is less than half of that of river Krishna. The remaining forty rivers are only minor ones, the combined discharge of all of them together is only about one-third of that of Godavari. Western ghats from where the river originate is devoid of snow and therefore these river systems do not have the benefit of water supplied during the summer seasons as in the north Indian rivers

Rivers

Two rivers, the Kallada and the Ithikkara flow through this District. The Sasthamkotta Lake, the only major fresh water lake in the State is here. Two other major lakes are the Ashtamudi Kayal and the Paravoor Kayal. Edava and Nadayara Kayals lie partly in this District.

The Pamba and the Achancovil Rivers, which have their origin in the hills of Pathanamthitta, traverse for a distance of about 80 kms. and 72 kms. respectively through this district and then flow off into the neighbouring district of Alappuzha.

The Kallada River (121 km.) is formed by the confluence of three rivers the Kulathupuzha, the Chendurni and the Kalthuruthy near Parappar by the side of the Trivandrum-Shenkotta road. During its course, it pours itself over several cataracts, the notable one being those of Minn Motai and Ottakkal. Upto Punalur, the River flows through virgin forests. The famous Punalur Suspension Bridge, the Punalur Railway Bridge, the Parappar Bridge along Trivandrum-Shenkotta road, the Enathu Bridge, etc., are some of the important structures existing across the River. Kallada River has a catchment area of 169 sq.km.

The Ithikkara River (56 km.) is a small river originating from the Madathurikunnu at about 800 feet. It flows in a North-West direction till Irathuramali, where it turns West and flows in that direction till Pampira and then it makes more or less a South-Westerly course till it falls into the Paravoor Lake near Meenad. Important among its tributaries are the Vattaparambu Stream and the Kundumon Stream, which join it near the bridge along Trivandrum-Kollam road. The River has a catchment area of 642 sq.km.

Lakes

Sasthamkotta Lake

The Sasthamkotta Lake, the only major freshwater lake in the State, is in this District. It is situated about 26 km. by road to the North-East of Kollam Town on the right bank of the Kallada River. The Lake is surrounded by high hills on the three sides and is protected in the Eastern side by an earthen bund about 1.5 km. in length. The area of the Lake is about 3.73 sq.km. with maximum depth of 14.1 m. No streams or river lets flow into it.

Ashtamudi Lake

The Ashtamudi Lake with an area of 51.8 sq.km. extends Northwards from Kollam. The name Ashtamudi is derived from the fact that the Lake branches off into eight creeks known by different names. About 3 km. North of Kollam, the Kallada River draining an area of 1,554 sq.km. and with an average annual runoff of 2,152 m3 empties itself into this Lake through an estuary. The extreme length of the Lake is 16 km., breadth of 14 km. and the average width being 3 km. Steep slopes of lateritic cappings and escarpments developed over rocks of the Warkalli formation are visible. A few individual islets (thuruths) with very steep side slopes are also observed within the Lake.

Paravoor Kayal

This Lake, in Kollam dstrict, though small, is very deep and dangerous on account of it being very close to the sea and exposed to sudden land breeze. It has a bar, which opens in the rainy

season. The Ithikkara River, draining a catchment area of 699 sq.km. and with an average annual runoff of 1,189 m3.empties its water into this Lake. The Paravoor Thodu connects this Lake to the South and Kollam Thodu to the North as a continuation of the Trivandrum-Shoranur Canal.

Edava and Nadayara Kayals

These two small Lakes lie further South. They lie partly in Chirayinkeezhu Taluk and partly in Kollam Taluk. They are connected with the sea by bars, which are opened during rainy season.

Sea Coast

There is about a 37 km. long sea coast in the district. Kollam is an important harbour and port in this district. Koilthottam is another minor port in the District.

Surface water resources and natural water resources

Surface water resource	Particulars
Govt. canal (Catchment Area in Ha)	10185.58
Govt. wells (Nos.)	1216
Private wells (Nos.)	286747
Tube wells (Nos.)	11911
Other sources	4515

Surface water natural resource*	Km	Catchment area (Ha)	Availability Mm3	Usage / Year
Ashtamudi Kayal (Area sq.km)	61.4	170000	NA	NA
Paravoor Kayal (Area sq.km)	6.62	662.46	NA	NA
Sasthamkotta Lake (Area sq.km)	3.73	1269	22.4	NA

Kayamkulam Kayal(Area sq.km)	1.41	NA	NA	NA
Ithikkara River	56	64200	489	NA
Kallada River	121	169900	3374.86	NA
Chittumala Chira	NA	1305.3	NA	NA
Pallikal River	42	22000	3374.86	NA
Thenmala Dam(Area sq.km)	2590	NA	NA	NA

2.3 ANIMAL HUSBANDRY

Animal Husbandry and Dairy Development sector is of vital importance in generating additional employment opportunities. The majority of livestock population in the state is concentrated in villages. Hence any development in the sector will strengthen the rural economy.

2.3.1 Live-stock population (As per Livestock census 2012)

Category	Numbers
Cattle	102279
Buffalo	5792
Goat	11342
Sheep	9
Pig	969
Poultry	804381
Rabbits	12688
Dogs	87055
Elephants	70
Horse	9

(Dist wise from Animal Husbandry Dept)

2.3.2 Milk Production in the District

Kollam District ranks the 5th in livestock wealth in the State as per XV Quinquennial Census 2007. Dairy farming is fairly well developed. There are about 334 Milk Co-operative Societies in the District and three Chilling Plants located at Kollam, Kottarakkara and Eroor. The dairy at Kollam under Kerala Co-operative Milk Federation with a capacity of 1,00,000 litres per day had procured 169.4 litres and sold 291.9 lakh litres in 2010. The Kerala Livestock and Dairy Development Board have master plan for increasing dairy activities. The District is covered by the Integrated Dairy Development Project. 'Mini Dairy' Special Project sponsored jointly by MILMA and NABARD is under implementation in the District

Year	District	Kerala	% w r t Kerala
2014-15	275.344	2711.13	10.16
2015-16	240.01	2649.72	9.06
2016-17	207.24	2520.29	8.22

(Dist wise from Eco&Stat or Dairy Dev. dept)

2.3.3 Society Milk Procurement

Year	Total milk procurement	Society milk procurement(Lr.)	% w r t total milk production
2014-15	NA	35954406	
2015-16	NA	41588776	
2016-17	NA	41593176	

(Source: Dist wise from Dairy Development Department)

2.3.4 Dairy Production

Per capita per day availability of milk in the block	NA

2.3.5 Meat Production – MT

Item	2015-16	2016-17
Total meat production excluding poultry	17.65	18.19
Total Poultry Meat	7.51	10.78

(Dist wise from Animal Husbandry Dept)

2.4 FISHERIES

Kollam is an important maritime District of the State with a coastal line of 37.3 km. Fishing has prominent place in the economy of the District. Neendakara on the South-West coast, situated close to the Ashtamudi Lake and Sakthikulangara are the two Villages which thrive in fishing. Kollam District is in the 1st place in the number of fisher folk population. The fishermen population in the District was 1.39 lakh with a break-up of 1.02 marine and 0.37

inland. Cheriazheekkal, Alapad, Pandarathuruthu, Puthenthura, Neendakara, Thangasseri, Eravipuram and Paravoor are the eight among the 26 important fishing Villages in the District. There are 24 inland fishing Villages also. During the Ninth Five Year Plan, a fishing harbor at Neendakara had been completed to augment fish production. The Indo Norwegian Fisheries Project is also located in Neendakara. This was established in 1953, aiming to trap the fishing potentialities of this region and this Project was set up under a Tripartite Agreement signed by the United Nations and Governments of Norway and India. The fish landing in the District in 2010 was 1,10,818 tonnes. It was one-fifth of the marine fish landing in the State in the corresponding year. Shore based facilities suitable for the development of fishing industry has developed very fast during the past two decades.

In the fisheries sector, there are two credit co-operatives and one marketing co-operative. There are 38 Fishermen Development Welfare Co-operative Societies in the District. The Fish Farmers Development Agency functioning at Kollam, extends all basic support and assistance in the development of inland fish farming. In the District there are 2042 fishing vessels out of which 1302 are motorized non mechanical, 678 motorized mechanical and 62 non motorized vessels during 2009-10. FFDA (Fish Farmers Development Agency) and BFFDA (Brackish Water Fish Farmers Development Agency) are promoting fresh water fish culture and prawn farming respectively. These agencies extend technical and financial help to the farmers. A model-fishing Village with 100 houses has been completed at Eravipuram. A model prawn farm is coming up at Ayiramthengu and a few new hatcheries are also coming up to cater to the needs of the aqua culturists. About 19 per cent of the production of prawn in the State is from this District during 2010. The programme of Janakeeya Matsya Krishi has also been introduced in the District for fresh water and brackish water farming, seed rearing, setting up of hatcheries, etc.

The production of Marine as well as Inland fish in **metric ton** is shown below

Year	Marine	Inland
2014-15	72270	19447
2015-16	108686	19757
2016-17	143653	18817

2.5 MAJOR MINERAL RESOURCES

The District is immensely rich in mineral sources and is endowed with large deposits of beach sands containing ilmenite and monozite, clays, bauxite, graphite and laterite which offer scope of exploitation for industrial purpose. Ilmenite and monozite bearing sands extend over a stretch of about 160 km from Kayamkulam to Manavalakurichi in Tamil Nadu. Rich concentrations are found at Chavara, Neendakara and Koilthottam in Kollam district. The mineral deposit of the Kollam Coast containing monozite is one of the richest in the world and are reported to have the highest content of Thorium. These deposits were discovered in 1909

and since then, mining has been going on more or less continuously. These mineral resources are being mined and processed by Indian Rare Earths Limited and Kerala Minerals and MetalsLimited, Kollam. These companies are now engaged in the separation of valuable minerals such as Ilmenite, rutile, zircon, sillimanitie, luecorene and monozite from beach sand. Ilmenite is used for the manufacture of synthetic rutile, titanium tetrachloride, titanium dioxide, pigment titanium salts, titanium metal, and alloys and for welding electrodes. It is a good source of titanium dioxide pigments and other titanium compounds. Leucorence is used for the manufacture of welding electrodes and titanium dioxide. Zircon is used in ceramic refractories and foundaries and for manufacture of zirconium metal which has important applications in nuclear technology. Sillomanite is used in high temperature refractories. Monozite is used in Rare Earths Industry and Nuclear Technology.

Details of Individual Mineral Deposits

1. Mineral Sand: The Heavy Mineral Sand deposits in Kerala contain an assemblage of Ilmenite, Rutile, Leucoxene, Monazite, Zircon and Sillimanite. The State possesses one of the world class deposits of mineral sands in the coastal tracts between Neendakara and Kayamkulam. This, commonly known as the Chavara deposit, after the main locality, covers a total length of 22 km and a width of about 8 km in the northern side and 6 km in the southern side. The Chavara barrier beach portion contains concentration of heavy minerals above 60%. The Chavara deposit is estimated to contain 127 million tonnes of heavy minerals with ilmenite content of 80 million tonnes from the total reserve of raw sand of the order of 1400 million tonnes. In the northern portion beyond Kayamkulam Pozhi extending up to Thottappally in Alappuzha district, the total reserve of heavy minerals estimated to the order of 17 million tonnes with ilmenite content of 9 million tonnes from the raw sand of 242 million tonnes.

Chavara barrier beach with a width of 225 m is divided into 8 blocks numbered I to VIII for separating ilmenite for the manufacture of TiO_2. The blocks are apportioned between Kerala Minerals and Metals Ltd. (KMML), a State Government undertaking and Indian Rare Earths Ltd. (IRE), a Government of India enterprise under the Department of Atomic Energy. Apart from the Chavara heavy mineral deposits a number of heavy mineral placers have been delineated in different parts of the State.

No	Locality	Total heavy Minerals (in MT)	Ilmenite (in MT)	Rutile (in MT)	Zircon (in MT)	Monazite (in MT)	Sillimanite (in MT)
1	Chavara Major Deposit	127.09	79.45	5.38	4.82	0.82	28.72

2	Northern contiguity of Chavara Deposit	16.93	9.03	0.64	0.40	0.17	5.66
3	Southern Kerala	1.83	1.15	0.11	0.12	0.05	0.27
4	Northern Kerala	3.35	0.53	0.01	0.05	0.003	0.80

2. Bauxite: Bauxite occurs in close association with laterite all along the west coast of the State. Traces of bauxite are seen in almost all laterite cappings. But bauxite deposits of economic significance in south Kerala are a few and are located at Sooranad, Vadakkumuri, Chittavattom, and Adichanallur in Kollam district and Mangalapuram, Chilambil, Sasthavattom and Attipra areas of Thiruvananthapuram district. Geological Survey of India (GSI) and Mineral Exploration Corporation Ltd. (MECL) have conducted extensive studies of bauxite occurrence of Kasargod and Kannur districts in North Kerala during the period between 1968-74 including geological mapping, pitting, drilling and sampling. Based on various investigations, the total bauxite reserves in the State are estimated at 12.5 million tonnes. The largest bauxite deposits are in Nileswaram with a reserve of 5.32 million tonnes of grade around 45% $AI2O_3$ and SiO_2 less than 5%.

3. China Clay: China clay (kaolin) consisting dominantly of kaolinite is one of the most sophisticated industrial minerals with a host of applications, viz., in ceramics, refractories, paper coating, filler for rubber, insecticides, cement, paint, textiles, fertilizers and others including abrasives, asbestos products, fibreglass, chemicals, cosmetics, pharmaceuticals, electrical ware, foundry and glass. The Department of Mining and Geology through their past investigation campaigns in parts of Kerala, identified two major china clay zones viz., the southern china clay zone between Thiruvananthapuram and Kundara (Thiruvananthapuram and Kollam districts) and the northern china clay zone between Kannapuram Madayi-Cheruthazham in Kannur district to Nileswarm-Manjeshwaram in Kasargod district. An estimated reserve of 172 million tonnes (probable reserve of 80 million tonnes and possible reserve of 92 million tonnes) of china clay of sedimentary and residual origin has been arrived at. Kerala china clay is one of the finest quality clay and is world class. In fact, Kaolin marketed by English Indian Clays Ltd. (EICL), Thiruvananthapuram claims to have similar or even better properties compared to imported clays.

4. Graphite: Graphite occurs in nature in the form of vein, dissemination (flaky) and amorphous variety. The first two types of occurrences are found in Kerala. The vein-type graphite mined earlier around Veli, Vellanad and Changa is confined only to the Thiruvananthapuram district. The flake type of graphite is extensive in occurrence in

Thiruvananthapuram, Kollam, Kottayam, Idukki and Ernakulam districts which have been studied by Geological Survey of India and are quite akin to the celebrated flaky graphite mined in the Malagasy Republic. The graphite occurs as thin flakes distributed more or less evenly in the rock constituting on an average about 5%-10% of the bulk of the rock, although rich pockets are not uncommon.

5. Mica: Two types of mica are available in Kerala- phlogopite and muscovite mica. But mining has not advanced so far. The geographical distribution of mica includes Punalur in Kollam district and Kayana in Kozhikkode districts of Kerala.

Source: ENVIS Centre Kerala

Category	Area covered (in cents)
Granite (Building stone)	5656
Laterite (Building stone)	36579
Clay (Bricks)	Available but mining restricted in West Kallada
Lime shell	NA
River Sand	81473
Others, specify (sea shell, Mineral ore, etc...) (Chavara & Sasthamkotta)	Heavy Metals like Ilmenite, Rutile, Zircon, Monazite, Sillimanite in Chavara-Oachira Coastal Region, Heavy metals like ilmenite, Rutile, Zircon, Monazite, Sillimanite in Chavara Oachira Costal Region.

(Source : Mining & Geology Dept)

2.6 FOREST RESOURCES

According to Government of Kerala estimates 81,438 hectares (314.43 sq mi) of land are under forest cover, mainly in the eastern portion of the district (including the Thenmala, Punalur and a portion of the Achencoil forest divisions. The Thenmala Range, Aryankavu Range and Shendurney Sanctuary comprise the Thenmala division and the Achencoil, Kallar and Kanayar Ranges make up the Achencoil division. The Pathanapuram and Anchal Ranges constitute the Punalur division.

2.6.1 Forest plantation with Division (In Hectare)

Item	Area in Ha

Hard wood	7972.35
Soft wood	1366.626
Bamboo/cane	138.96
Others	5531.317
Total	15009.253

*Area includes Achencoil Division fully, while only part of this division is in Kollam district

(Source: Forest Statistics 2016, Kerala Forest Department)

2.6.2 Availability of Industrial Wood

Distribution/Species wise distribution of plantation area

Plantation	Area (in Ha.)
Teak	6127.11
Accacia & Mangium	1321.18
Eucalyptus	1311.956
Cane	0
Bamboo	138.96
Rose wood	0
Mahagoni	0
Pepper	0

*Area includes Achencoil Division fully, while only part of this division is in Kollam district

(Source: Forest Statistics 2016, Kerala Forest Department

2.7 HUMAN RESOURCES - 2011 CENSUS

District Highlights 2011 Census

Kollam District came into existence on the 1st July, 1949.

a) The District has the 3rd position in sex-ratio (1113) and 2nd in child sex-ratio (973).

b) The District occupies the 8th position in literacy rate (94.09 per cent).

c) In female work participation rate (19.28 per cent), the District holds the 9th place.

d) Forest accounts for 28.52 per cent (710.44 sq. km.) of the total area of the District.

e) Kollam District ranks the 3rd in livestock wealth.

f) Punalur is the hottest place in Kerala.

g) Sasthamkotta Lake is the only major fresh water lake in the State.

2011 CENSUS FINDINGS

The population of the District has increased from 2,585,208 in 2001to2,635,375 with 1,246,968 males and 1,388,407 females. The District, with 6.4 per cent of the total geographical area of the State, accommodates 7.9 per cent of the total population. The District is sub-divided into five Taluks, namely, Karunagappally, Kunnathur, Pathanapuram,Kottarakkara and Kollam. All the Taluks have retained their rank in population size in 2001, also in 2011 Census. Kollam Taluk was the most populous Taluk of the District in 2001 with 9,69,891persons, followed by the other Taluks, viz., Kottarakkara (5,77,778), Pathanapuram (4,32,954), Karunagappally (4,10,570) and Kunnathur (1,94,015). The percentage of the population of the Taluk to the population of the District was 37.5 per cent in Kollam, 22.4 per cent in Kottarakkara, 16.8 per cent in Pathanapuram, 15.9 per cent in Karunagappally and 7.5 per cent in Kunnathur Taluks. In 2011 Census, the most populous Taluk of the District is Kollam (987,779) followed by the other Taluks, viz., Kottarakkara (586,434), Pathanapuram (432,904), Karunagappally (428,802) and Kunnathur (199,456). The percentage of the population of the Taluk to the District population is 37.5 per cent in Kollam, 22.3 per cent in Kottarakkara, 16.4 per cent in Pathanapuram, 16.3 per cent in Karunagappally and 7.6 per cent in Kunnathur Taluks.

The Census data of the district is shown below:

(A)	Population Total	2635375
	SC	328263

	ST	10761
	Others	2296351
(B)	Sex-wise	
	i) Male	1246968
	ii) Female	1388407
	Population Density/Sq.Km	1061
	Sex ratio (No.of females/1000 males)	1113
(C)	Rural Population	
	i)Male	680687
	ii)Female	767530
(D)	Urban Population	
	i)Male	566281
	ii)Female	620881
(E)	Population in age group 0-6	
	i)Male	128899
	ii)Female	125361
	Sex Ratio	973
(F)	Worforce availability	
	i)Male	644362
	ii)Female	236770
	Sex ratio	367.45
(G)	No of Literates(Total)	
(H)	Main workers Total	695299
	i) Male	1074345
	ii) Female	1165928
	Cultivators	41467
	Agriculture laborers	56640
	Household Industry workers	13851
	Other workers	583341
(I)	Marginal workers Total	216726
	Cultivators	56693
	Agriculture labourers	92193
	Household Industry workers	21511
	Other workers	741628
(k)	Work participation rate	33.43

2.8 EDUCATION

According to the 2011 census, Kollam has an overall literacy rate of 94.09 percent; the male literacy rate is 96.09 percent and the female rate

is 92.31 percent. These statistics are consistent with the state average, which is higher than the national average.

Kollam has a number of privately owned and state-owned educational institutions.

Education Institutions	**Govt.**	**Aided**	**Unaided**	**Total**
(a) Lower Primary school	278	179	44	501
(b) Upper Primary schools	63	133	26	222
(c) High Schools	86	127	19	232
(d) Higher Secondary schools	55	49	12	116
(e) VHSE	20	35	0	55
(f) Technical Schools	2	0	0	2
(g) Polytechnics	3	1	0	4
(h) (IT @ School)	18	6	0	24
Colleges				
(a) Arts & Science	1	14	3	18
(b) Engineering College	4	1	13	18
(c) Medical College	1	2	2	5
(d) Veterinary College	0	0	0	0
(e) Diary Science College	0	0	0	0
(f) Kerala Agricultural College	0	0	0	0

(g) College of Agriculture & Banking Management	0	0	10	10
(i) Nursing College	2	0	11	13
(j) Pharmacy College	0	0	2	2
(k) Training College	2	4	19	25
(l) Ayurvedic College	0	2	0	2
(m) Dental College	0	0	1	1
(o) Law College	0	0	2	2
(p) Arabic College	0	0	2	2
(q) Fine arts college	0	0	1	1
Research and Development institutions	0	0	2	2
(r) Agricultural University	0	1	0	1
(s) Medical University	0	0	0	0
(t) Food Craft institute	0	1	0	1
(s) Others; Specify, if any	0	0	0	0

(Block wise from Eco&Stat)

2.9 HEALTH

Medical facilitie

Public Health	2014-15	2015-16	2016-17
Allopathic hospitals	11	11	12
Beds in allopathic hospitals	1799	1799	2299
Govt. Ayurveda hospitals	9	9	9
Ayurveda dispensaries	59	59	59
Homoeo hospitals	3	3	3
Homoeo dispensaries	40	40	40
Community health centers	17	17	17
Primary health center	57	57	58
Leprosy hospital	0	0	0
Mental health care	1	1	1
Sub health center	421	421	421
District T.B centers	1+1 (HCD Knply)	1+1	1+1

2.10 EMPLOYMENT

Unemployed persons registered under Employment Exchange as 31.03.2017 including that of Professional Employment Exchange and R.I centres

	General	Scheduled Caste	Scheduled Tribe	Total

Male	123338	22486	292	146116
Female	197287	36481	327	234095

Below X	X	+2	Graduate	P G	Technically Qualified		
					Graduate	Diploma	Certificate course
33647	234272	77137	19741	1534	0	3543	11666

(Source : District Employment Exchange)

2.11 TOURISM

The district is blessed with evergreen vegetation with a large variety of flora and fauna, spreading over Thenmala, Punalur and a portion of Achencoil forest division.

The city of Kollam located around 65kms from state capital, is the centre of Cashew trading and processing industry. 30% of the historic city is covered by the renowned Ashtamudi lake, making it a gateway to the magnificent backwaters of Kerala. A large number of tourists from all parts of the world is visiting Kollam every year to enjoy the enchanting beauty of the place. The specialty of Kollam is that it offers all that Kerala can offer, i.e. beaches, backwaters, wildlife etc in a short stretch.

The tourism sector in Kerala has been growing in importance both in terms of generation of local employment as well as contribution to India's international tourism.

Tourist Centres

The tourist centres and the average number of arrivals of tourists are described below:

Name & location	Name of tourist facilities (Boating/Trucking/Land scape/Museum/Art Gallery/Historical/Pilgrimage)	average no. of tourists visited during in a year
Neendakara Harbour	Fishing	360000
Clappana	Beach	100000
Kattilmekku Temple, Chavara	Pilgrime	
Azheekkal Beach	Beach & Landscape	300000
Oachira Temple	Pilgrim & Landscape	5000000
Munroethuruth	Boating, Historical lace	72000
Adventure Park	Boating, Land Scape, Adventure & Gymnasium	180000
Children's Park	Playing Equipments, Swimming, Refreshment Stall	200000
Thangasserri Light House	Land Scape	36000
Kollam Beach	Land Scape, Park, Refreshment Stall, Rides	2000000
8 Point Art Gallery	Museum/Art Gallery	18000
Police Museum	Historical	15000
Govt.Guest House	Historical	7000
Asramam Sree Krishna Temple	Historical	5000000

Kollam Boat Jetty	Boating & Land Scape	1080000
Thirumullavaram Beach	Beach & Pilgrim	2500000
Paravoor Thekkumbhagam Beach	Beach & Lake	1000000
Kottarakkara Temple	Pilgrim	3000000
Chadayamangalam Jadayu Para	Historical & Pilgrim	40000
Punalur Hanging Bridge	Historical Place	600000
Thenmala	Boating, Trucking, Land Scaping	200000
Palaruvi	Waterfalls	100000
Kudukkathupara	Historical	16000
Kottukkal Cave Temple	Pilgrim, Historical	25000
Malamel	Pilgrim, Historical	30000

A major portion of Kollam Municipal Corporation is occupied by Ashtamudi Lake. It is the most visited backwater and lake of Kerala, with a unique wetland ecosystem, a palm-shaped (also called octopus-shaped) large water body, next only to the Vembanad estuary ecosystem of the state. This lake is extremely famous for House Boat and Backwater Resorts.

All the Islands in Kollam are situated in Ashtamudi Lake. Munroe Island and Chavara Thekkumbhagom are the most important among these islands. Islands are the eye-catching factors as well as the beauty of Lake Ashtamudi. Most of

these islands are potential tourism spots in the state. Even Indian Railways also planning to develop one of the islands in Kollam for a tourism project. There are big as well as small islands which are inhabited and uninhabited by human beings. The important islands in Kollam are:

- Munroe Island
- Chavara Thekkumbhagom
- Pallanthurthi
- St. Sebastian Island
- San Thome Island (Thomasthuruth)
- Vincent Island
- Our Lady of Fatima Island (Fatimathuruth)
- Pezhumthuruth
- Kakkathuruth
- Pattamthuruth
- Paliyanthuruthu (Palliyamthuruthu)
- Neettum thuruth
- Puthenthuruth
- Poothuruth
- Pannaykkathuruth
- Veluthuruth
- Neeleswaram thuruth
- Cheekenthuruth
- Kerolithuruth
- Kanakkanthurth
- Pushpamangalamthuruth
- Josephthuruth
-

CHAPTER 3

INFRASTRUCTURE FACILITIES

The infrastructure facilities of a country are the most decisive factor in its economic growth. Kollam is well-connected to all parts of the state by bus and train service. It is also connected to neighboring states by frequent bus service operated by the KSRTC.

3.1. Transportation

The road network plays the most vital role in the all round development of any area. The existing road network in the district consists of National Highways, State Highways, Major District Roads under Keral Public Works Department and other roads under the Local Self Government Department. The details are shown below.

3.1.1 Roads

Category	No	Name	Distance in km
National highways	NH – 66 NH – 744 NH – 183	Panavel - Kanyakumari Kollam - Thirumangalam Kollam - Theni **TOTAL**	57.4 73.75 29.8 **160.95**
State High ways	1.SH – 2 2.SH – 8 3.SH – 37 4.SH – 48 5.SH – 59 6.SH – 64 7.Old NH 8.Old NH 9.Old NH 10.Old NH	1. Chalimukku - Thenmala 2. TB Jn. Punalur - Kallumkadavu 3. 7th mile - Sasthamkotta 4. Ayoor - KSRTC Punalur 5. Ayoor - Kulathupuzha 6. Paripally - Madathara 7. Ochira North - Puthiyakav 8. Pulliman Jn - Neendakara 9. Sakthikulangara Kavanad 10. Vellayittambalam - Chinnakada	30.3 13.8 7.05 19.09 18.9 23.5 2.25 3.6 1.6 3.7 **123.79**

		TOTAL	
PWD Roads - 517 nos.	Main District Roads Old Main District Roads New	 **TOTAL**	1435.513 620.066 **2055.579**
Other roads			**4067.36**

(Source: Website of PWD , Kerala

3.1.2 Railways

Kollam Junction is the one and only rail head in the district. The district has a good railway network, with 25 stations and about 132 kilometres of track. Kollam district boasts the record of having most numbers of railway stations in the state.

The Railway stations in Kollam district are Ochira, Kaurnagappally, Sasthamkotta, Munrothuruthu,Perinad, Kollam Junction, Eravipuram, Mayyanad, Paravoor, Kilikollur, Chandanathope, Kundara, Kundara East, Ezhukone, Kottarakara, Kura, Aavaneeswaram ,Punalur, Edamon,Ottakkal, Thenamala, Kazhuthuruthy, Edappalayam and Aryankavu.

Kollam is an important railway junction. The Thiruvananthapuram-Ernakulam (via Kottayam and Alappuzha) line, Thiruvananthapuram- Kollam-Punalur line passes through Kollam

3.1.3 Airports

Nearest Airport is atThiruvananthapuram which is about 65KM and next international airport near to Kollam is Nedumbassery Airport at Kochi which is at a distance of 168kms.

3.1.4 Waterways

The Water Transport Department operates boat services to Kollam, Muthiraparambu (West Kallada), Guhanandapuram, Ayiramthengu, Munrothuruthu and Alappuzha. The West coast canal system which starts from Thiruvananthapuram in the South and ends at Hosdurg in the North, passes through Kollam and Karunagappally Taluks. The Thiruvananthapuram-Shornur Canal, which forms part of the above system, runs a distance of about 62 km. in the District. The canals are Paravur Canal, Kollam Canal and Chavara Canal.

3.1.5 Ports

Neendakara and Kollam are the two ports in the District, the former an intermediary port while the latter is a minor port. Port operations are now carried out only through Neendakara. Kollam Port is an open roadstead located at 73 km. North of Thiruvananthapuram and 80 km. South of Alappuzha. The Port is closed to traffic during South-West monsoon. Neendakara is situated about 10 km. North of Kollam.

3.2 Communication

BSNL and all prominent cellular network providers including Vodafone, Airtel, Idea,Reliance etc give good coverage throughout the region. The other important mode of communication like post offices is quite accessible to the all people.

Post offices

Head Post Offices	-	4
Sub Post Offices	-	91
Branch Post Offices	-	122
E.D. Post Offices	-	28

Telecom

Telephone Exchange	-	77
SCDA	-	3

STD Codes

Karunagappally SCDA	-	0476
Kollam SCDA	-	0474
Punalur SCDA	-	0475

3.3 Electric power

The general sources of electricity are Hydel, Thermal, Wind, Solar, Tidal, Nuclear and Biomass. Of these sources Hydel and Thermal sources are conventional energy sources and others are considered as non conventional energy sources.

a) Conventional Energy:

Consumption pattern (Conventional)

Category	Noof connections	Percentage to total
Domestic	781503	81.95
Commercial	141517	14.45
Agriculture	6204	0.6
Industry	9998	1
Others	19227	1.85

(Source: Dy. Chief Engineer, Distribution/ Transmission,KSEB, Kollam)

b. Non Conventional Energy:

Consumption pattern (solar energy)

Category	Capacity
Domestic	88
Commercial	21
Agriculture	0
Industry	15

(Source: ANERT ,Kollam)

Power transmission network;

Description	Nos	Reserve Power Available in MW/MVA

400 Kv Sub-station	0	0
220 kv "	2	600
110 kv "	12	335
66 kv "	4	76.3
33 kv "	8	80

(Source: Dy. Chief Engineer, Distribution/Transmission, KSEB, Kollam)

Distribution (as on 31.3.2017)

Sl No	Particulars	KSEB	Others
1	Number of distribution transformer	5175	234
2	Number of consumers	958449	
3	Length of HT line (km)	4789.19	
4	Length of LT line (km)	21410.65	
5	Number of street lights	27267	

(Source: Dy. ((Source: Dy. Chief Engineer, Distribution/Transmission, KSEB, Kollam)

3.4 Markets registered

Location	Whole sale Market (items handling)	Retail markets (items handling)	Other trading activity,	Ex por

				t age ncy
Sasthamkotta	Banana,Mango	Agricultural Product		
Oachira	Livestoack	Herd		
Kottiyam		Fish, Vegetable & Meat		
Kalluvathukkal		Fish, Vegetable & Meat		
Parippally		Fish, Vegetable & Meat		
Chathanoor		Fish, Vegetable & Meat		
Kannanalloor		Fish, Vegetable & Meat		
Kundara		Fish, Vegetable & Meat		
Mayyanadu		Fish, Vegetable & Meat		
Chadanathope		Fish, Vegetable & Meat		
Decent Junction		Fish, Vegetable & Meat		
East Kallada		Fish, Vegetable & Meat		
Thekkemuri		Fish, Vegetable & Meat		
Karoothrakadav		Fish, Vegetable & Meat		
Mulavana		Fish, Vegetable & Meat		
Mukkada		Fish, Vegetable & Meat		
Pallimukku		Fish, Vegetable & Meat		
Panayam		Fish, Vegetable & Meat		
Thrikkaruva		Fish, Vegetable & Meat		
Mundakal Market		Fish, Vegetables, Fruits, Meats		
Valiyakada Market		Fish, Vegetables, Fruits, Meats		
Polayathodu Market		Fish, Vegetables, Fruits, Meats		
Kadappakada Market		Fish, Vegetables, Fruits, Meats		
Ramankulangara Market		Fish, Vegetables, Fruits,Meats		
Thankassery Market		Fish, Vegetables, Fruits, Meats		
Nellimukku Market		Fish, Vegetables, Fruits, Meats		
Thevally Market		Fish, Vegetables, Fruits, Meats		
Pallimukku Market		Fish, Vegetables, Fruits, Meats		
Punthalathazham Market		Fish, Vegetables, Fruits, Meats		
Eravipuram Market		Fish, Vegetables, Fruits, Meats		
Moonamkutti Market		Fish, Vegetables, Fruits, Meats		
Kavanad Market		Fish, Vegetables, Fruits, Meats		
Chandanathope Market		Fish, Vegetables, Fruits, Meats		

Anchalummoodu Market		Fish, Vegetables, Fruits, Meats		
Kottarakkara	Nil	Fish, Meat	Mobile sales, DTP, Snacks Bar, Tea Shop	
Pooyapally	Nil	Fish, Meat	Mobile sales, DTP, Snacks Bar, Tea Shop	
Kareepra	Nil	Fish, Meat	Mobile sales, DTP, Snacks Bar, Tea Shop	
Ezhukone	Nil	Fish, Meat	Mobile sales, DTP, Snacks Bar, Tea Shop	
Neduvathoor	Nil	Fish, Meat	Mobile sales, DTP, Snacks Bar, Tea Shop	
Pooyapally	Nil	Fish, Meat	Mobile sales, DTP, Snacks Bar, Tea Shop	
VALAKAM	NIL	FISH, MEAT	MOBILE SALES, DTP, SNACKS BAR, TEA SHOP	NIL
VALAKAM	VIPANI(HORTICULTURE)	NIL	MOBILE SALES, DTP, SNACKS BAR, TEA SHOP	NIL
KALAYAPURAM	NIL	FISH/VEG	MOBILE SALES, DTP, SNACKS BAR, TEA SHOP	NIL
MYLOM	NIL	FISH/VEG	MOBILE SALES, DTP, SNACKS BAR, TEA SHOP	NIL
UMMANNOR	NIL	FISH/VEG	MOBILE SALES,DTP,SNACKS BAR,TEA SHOP	NIL
VAYAKKAL	NIL	FISH/VEG	MOBILE	NIL

			SALES,DTP,SNACKS BAR,TEA SHOP	
VETTIKKAVALA	NIL	FISH/VEG	MOBILE SALES,DTP,SNACKS BAR,TEA SHOP	NIL
CHEGAMANADU	NIL	FISH/VEG	MOBILE SALES,DTP,SNACKS BAR,TEA SHOP	NIL
PUTHOOR	NIL	FISH/VEG	MOBILE SALES,DTP,SNACKS BAR,TEA SHOP	NIL
KULAKKADA	NIL	FISH/VEG	MOBILE SALES,DTP,SNACKS BAR,TEA SHOP	NIL
KADAKKAL	NIL	FISH, MEAT	Mobile sales,DTP,Snacks Bar,Tea shops	Nil
NILAMEL	NIL	FISH, MEAT	Mobile sales,DTP,Snacks Bar,Tea shops	Nil
CHITHARA	NIL	FISH, MEAT	Mobile sales,DTP,Snacks Bar,Tea shops	Nil
KUMMIL	NIL	FISH, MEAT	Mobile sales,DTP,Snacks Bar,Tea shops	Nil
KIZHAKKUMBHA	NIL	FISH, MEAT	Mobile	Nil

GAM			sales,DTP,Snacks Bar,Tea shops	
MADATHARA	NIL	FISH, MEAT	Mobile sales,DTP,Snacks Bar,Tea shops	Nil
ELAMADU	NIL	FISH, MEAT	Mobile sales,DTP,Snacks Bar,Tea shops	Nil
CHUNDA	NIL	FISH, MEAT	Mobile sales,DTP,Snacks Bar,Tea shops	Nil
OYOOR	NIL	FISH, MEAT	Mobile sales,DTP,Snacks Bar,Tea shops	Nil
KOTTTUKKAL	NIL	FISH, MEAT	Mobile sales,DTP,Snacks Bar,Tea shops	Nil
Sreeramapuram	Nil	Vegetables, Fruits, Meat, Fish, General Provision Stores	Mobile Sales,DTP,Snacks Bar	Nil
Kalayanadu	Nil	Vegetables, Fruits, Meat, Fish, General Provision Stores	Tea Shops	Nil
Pathanapuram	Nil	Veg,Fruits,Meat,Fish,Gen.Provision Store	Mobile Sales,DTP,Snacks Bar,Tea shop	
Pattazhy	Nil	Veg, Fruits, Meat, Fish, Gen.Provision Store	Mobile Sales, DTP, Snacks Bar, Tea shop	
Chelikuzhy	Nil	Veg, Fruits, Meat, Fish, Gen.Provision Store	Mobile Sales, DTP, Snacks Bar, Tea shop	
Avaneswaram	Nil	Veg, Fruits, Meat, Fish, Gen.Provision Store	Mobile Sales, DTP, Snacks	

			Bar, Tea shop	
Kunnikode	Nil	Veg, Fruits, Meat, Fish, Gen.Provision Store	Mobile Sales, DTP, Snacks Bar,Tea shop	
Elampal	Nil	Veg, Fruits, Meat, Fish, Gen.Provision Store	Mobile Sales, DTP, Snacks Bar, Tea shop	
ANCHAL PANCHAYATH (2Nos)	Nil	Veg, Fruits, Meat, Fish, Gen.Provision Store	Mobile Sales, DTP, Snacks Bar, Tea shop	Nil
YEROOR (2Nos)	Nil	Veg, Fruits, Meat, Fish, Gen.Provision Store	Mobile Sales, DTP, Snacks Bar, Tea shop	Nil
KARAVALOOR (3Nos)	Nil	Veg, Fruits, Meat, Fish, Gen.Provision Store	Mobile Sales, DTP, Snacks Bar,Tea shop	Nil
EDAMULAKKAL (2Nos)	Nil	Veg, Fruits, Meat, Fish, Gen.Provision Store	Mobile Sales, DTP, Snacks Bar, Tea shop	Nil
ARYANKAVU (2Nos)	Nil	Veg, Fruits, Meat, Fish, Gen.Provision Store	Mobile Sales, DTP, Snacks Bar, Tea shop	Nil
THENMALA (2Nos)	Nil	Veg, Fruits, Meat, Fish, Gen.Provision Store	Mobile Sales, DTP, Snacks Bar, Tea shop	Nil
KULATHUPUZHA (2Nos)	Nil	Veg, Fruits, Meat, Fish, Gen.Provision Store	Mobile Sales, DTP, Snacks Bar, Tea shop	Nil
ALAYAMON (2Nos)	Nil	Veg, Fruits, Meat, Fish, Gen.Provision Store	Mobile Sales, DTP, Snacks Bar, Tea shop	Nil

3.5 BANKING

Lead Bank of District *Indian Ban*

Nationalized Banks

Sl No	Name of Bank	Urban	Rural
1	Allahabad Bank	1	0
2	Andhra Bank	3	0
3	Bank of Baroda	5	0
4	Bank of India	4	1
5	Bank of Maharashtra	1	
6	Canara Bank	28	2
7	Central Bank of India	16	
8	Corporation Bank	11	
9	Dena Bank	1	
10	IDBI	2	
11	Indian Bank	30	1
12	Indian Overseas Bank	12	
13	Oriental Bank of Commerce	1	
14	Punjab National Bank	5	
15	State Bank of India	30	
15	State Bank of Travancore	58	1
17	Syndicate Bank	13	
18	UCO Bank	5	
19	Union Bank of India	11	
20	Vijaya Bank	4	
21	South Malabar Grameen Bank	20	
	Total	261	5

Private Sector Bank

Sl No	Name of Bank	Urban	Rural
1	AXIS Bank	4	0
2	Catholic Syrian Bank	9	

3	City Union Bank	1	
4	Dhanalakshmi Bank	10	
5	Federal Bank	46	
6	HDFC	5	
7	KarurVysya Bank	1	
8	Lakshmivilas Bank	1	
9	South Indian Bank	19	
10	ING Vysya Bank	0	
11	Indus Ind Bank	1	
12	ICICI	11	1
13	Kotak Mahindra	3	
	Total	111	1

Co-operative Sector Banks

Sl.No.	Bank	No. of Branches
1	State Co-operative Bank	1
2	District Co-operative Bank	64
3	Service Co-operative Bank	129
4	KSARDB	5

District level Banking Statistics(Rs in Crores)(From Dist wise Credit Plan

Sl. No	Description	Mar-13	Mar-14	Mar-15
1	No. of branches	324	354	370
2	Deposits	14234.85	18650.61	21470.71
3	Advances	10746.94	11855.93	13760.68
4	P.S. Advances	8241.93	9462.41	10362.42
5	C.D. Ratio	75.49	63.56	64.09

Credit flow to MSME & Rural Industries Sector (Rs in Lakhs) (From Dist wise Credit Plan

Schemes	2012-13	2013-14	2014-15	2015-16
Handloom and Power loom	Scheme wise	Figures are not Available		
Tiny Industries				
Village Industries				
Rural Artisans				
SSI				
Miscellaneous				
Total	304325	293908	346212	283427

CHAPTER 4
INDUSTRIAL SCENARIO

Industrial development is a major factor in accelerating the growth of the economy. The State has played an important part in the industrialisation of Kollam District. Out of the 23 Prominent/Large/PSUs/Major industries as listed in Table 4.2, in the District of which two are Central Government undertakings, viz.,Indian Rare Earths Limited and Parvathy Mills (which is not working) and eight units are Kerala State Government Undertakings, viz., 1.M/s Kerala Minerals & Metals Ltd. Chavara,2.M/s Chitosan Plant,, Matsyafed,. 3. M/s Kerala Feeds, Edakulangara, Karunagappally, 4.M/s Kerafed Oil Complex, Karunagappally 5. Kerala Ceramics Kundara 6.KEL, Kundara. 7. KUEL, Pallimukku and 8. Kerala Agro Fruit Products, Elampal. The unit in the Co-operative sector in the District is Quilon Co-operative Spinning Mills Ltd, Karamcode, Chathannoor other units mentioned in the Table 4.2 falls under Private sector.

4.1 Industry at a Glance

SL.NO	HEAD	PARTICULARS
1	REGISTERED INDUSTRIAL UNITS	7909
2	TOTAL INVESTMENT(In Lakhs)	95766.56
3	TOTAL EMPLOYMENT(No)	51384
4	EMPLOYMENT IN LARGE AND MEDIUM INDUSTRIES(Nos.)	1900
5	NO. OF INDUSTRIAL AREA(DA/DP)	2
6	NO.OF MINI INDUSTRIAL AREA	23

4.1.1 Category wise MSMEs

	Micro	Small	Medium	Total
Number	7045	848	16	7909
Investment (in lakhs):	50911.46	23969.22	20885.88	95766.56
Employment	39847	9612	1925	51384

4.1.2 DETAILS OF EXISTING MICRO & SMALL ENTERPRISES AND ARTISAN UNITS IN THE BLOCK/ DISTRICT (As on 31.03.2017)

Sl. No.	TYPE OF INDUSTRY	NUMBER OF UNITS	INVESTMENT (Lakh Rs.)	EMPLOYMENT
1	Agro & Food based	1672	28845.08	20041
2	Soda water/Packaged drinking water	146	1368.4	384
3	Cotton textile	32	878.38	588
4	Woolen, silk & artificial Thread based clothes.	0	0	0
5	Ready-made garments & embroidery	1081	5136.35	4852
6	Wood/wooden based furniture	625	4641.63	3163

7	Paper & Paper products	260	3507.38	1240
8	Leather based	56	295.63	249
9	Chemical/Chemical based	160	1246.07	853
10	Rubber, Plastic & petro based	120	1765.15	827
11	Mineral based	225	18396.53	2582
12	Metal based (Steel Fab.)	257	2046.68	1042
13	Engineering units	870	6378.32	3843
14	Electrical machinery and transport equipment	104	925.22	661
15	Repairing & servicing	895	5157.73	3203
		0	0	0
16	Gem designing	0	0	0
		0	0	0
17	Fashion designing	6	38.5	29
18	Others	1385	15098.86	7760
19	Artisan Units	15	40.51	67
	Total	**7909**	**95766.42**	**51384**

4.1.3 Year wise growth of MSMEs (last 5 years)

(Source: EM Part II (filed up to 2015-16), UAM and New unit started report (since 2016-17)

No of units		2012-13	2013-14	2014-15	2015-16	2016-17
Micro	Manufacturing	758	758	682	861	695
	Service	151	175	182	285	382
Small	Manufacturing	101	79	72	73	56
	Service	18	14	12	48	36
Medium	Manufacturing	2	2	0	0	0
	Service	0	1	0	0	0

4.1.4 Sector wise growth of MSMEs (last 5 years)

TYPE OF INDUSTRY	**NUMBER OF UNITS**				
	2012-13	2013-14	2014-15	2015-16	2016-17
Agro & Food based	249	279	234	304	270
Soda water/Packaged drinking water	7	7	11	4	12
Cotton textile	0	0	0	0	0
Woolen, silk & artificial Thread based clothes.	0	0	0	0	0
Ready-made garments & embroidery	125	160	145	199	161
Wood/wooden based furniture	61	92	60	74	43
Paper & Paper products	32	23	21	37	33
Leather based	8	4	3	8	12
Chemical/Chemical based	27	18	30	21	14
Rubber, Plastic & petro based	17	15	17	16	8
Mineral based	55	19	16	22	6

Metal based (Steel Fab.)	53	35	35	38	22
Engineering units	152	135	75	108	95
Electrical machinery and transport equipment	13	16	30	12	22
Repairing & servicing	80	107	111	207	255
Gem designing	0	0	0	0	0
Fashion designing	1	0	0	0	0
Others	132	140	142	190	215
Artisan Units	57	49	71	43	43
Total	1069	1099	1001	1283	1211
	INVESTMENT IN LAKHS				
TYPE OF INDUSTRY	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Agro & Food based	2861.5	2082.49	2236.84	2988.9	2643.5
Soda water/Packaged drinking water	83.5	262	122.8	74	109.2
Cotton textile	0	0	0	0	0
Woolen, silk & artificial Thread based clothes.	0	0	0	0	0
Ready-made garments & embroidery	456.5	648.6	572.05	754.56	565.35
Wood/wooden based furniture	557.51	716.36	418.94	506.12	455.4
Paper & Paper products	517.6	173	256.84	524.94	466.15
Leather based	34.4	20.1	9	35.1	40.51
Chemical/Chemical based	156.11	84	108.72	79.7	83.76

Rubber, Plastic & petro based	154.15	143.15	192.95	126.4	72.85
Mineral based	1148.5	373.85	312.32	436.15	95.5
Metal based (Steel Fab.)	386.35	271.9	296.92	382.7	81.9
Engineering units	922.19	660	420.52	542.48	425.1
Electrical machinery and transport equipment	83.76	116.16	185.36	144.4	148.76
Repairing & servicing	326.41	426.45	476.58	982.72	1115.3
Gem designing	0	0	0	0	0
Fashion designing	105	0	0	37	0
Others	1056.1	985.56	1046.15	1271.96	1776.2
Artisan Units	613.54	454.95	657	202	209.44
Total	9463.1	7418.57	7312.99	9089.13	8288.9
	NUMBER OF EMPLOYMENT				
TYPE OF INDUSTRY	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Agro & Food based	1248	1516	1285	1661	1364
Soda water/Packaged drinking water	26	50	34	14	28
Cotton textile	0	0	0	0	0
Woolen, silk & artificial Thread based clothes.	0	0	0	0	0
Ready-made garments & embroidery	475	498	551	740	502
Wood/wooden based furniture	254	339	229	253	146

Paper & Paper products	165	124	141	152	103
Leather based	31	17	14	30	30
Chemical/Chemical based	93	41	91	63	46
Rubber, Plastic & petro based	64	47	70	50	31
Mineral based	306	124	90	87	28
Metal based (Steel Fab.)	192	133	90	90	52
Engineering units	501	433	208	308	262
Electrical machinery and transport equipment	33	52	89	45	66
Repairing & servicing	211	331	349	583	621
Gem designing	0	0	0	0	0
Fashion designing	4	0	0	0	0
Others	582	498	483	590	653
Artisan Units	279	171	272	174	124
Total	4464	4374	3996	4840	4056

4.1.5 Employment growth of MSMEs (last 5 years)

Employment		2012-13	2013-14	2014-15	2015-16	2016-17
Micro	Manufacturing	3002	3185	2700	3250	2400
	Service	539	573	595	901	955
Small	Manufacturing	825	582	488	502	363
	Service	132	153	145	245	193
Medium	Manufacturing	34	41	0	0	0
	Service	0	4	0	0	0

4.2. List of PSUs/ prominent/major Industries (working) in the block

Name and address of the entrepreneur	Name and address of the unit	Products manufactured /services rendered	Investment (in Rs lakhs)	Employment	Export details	TIN number
Roy Kurian. K.K, Managing Director, KMML, Chavara	1.M/s Kerala Minerals & Metals Ltd. Chavara	Mining of Titanium, Ilmenite, Rutile &Other ferrous metal ores	23762	753		
A.J.Janarthanan, Unit Head, Indian Rare Earths Ltd, Chavara	2.M/s Indian Rare Earths Ltd, Chavara	Mining of Titanium,Ilmenite,Rutile &Other ferrous metal ores	2025	296		
Rex Harold, M/s Chitosan Plant, C/o Matsyafed, Neendakara	3.M/s Chitosan Plant,, Matsyafed,	Chitone Capsules Prawn Pickles, Fish Net, Cages etc	3315.07	69		
Shine, M/sKerala Feeds, Karunagappally	4.M/s Kerala Feeds, Edakulangara, Karunagappally	Cattle Feeds	100	50		
George P.J, Plant Manager(i/c)	5.M/s Kerafed Oil Complex, Karunagappally	Kera brand Coconut Oil	728.88	153		
The Managing Director, Quilon Co-operative Spinning Mills Ltd, Karamcode,Chathannoor	6.Quilon Co-operative Spinning Mills Ltd, Karamcode,Chathannoor	Handloom Yarn	700Lakh	250		

Sathish Kumar IAS (MD)	7.Kerala Ceramics Kundara	Mfg, Ceramics Spray dried kaolin	11.02 Crore	95		
Col.Shaji M Varghese (MD)	8.KEL Kundara	Mfg, Alternature	1.24 Crore	177		
MD, KUEL LTD	9.KUEL, Pallimukku	Electrical Machines	450	120		
Parvathy Mills	10.Parvathy Mills, Chinnakkada, Kollam	Thread Manufacture	272	258		Not Working
MIE KAREEPRA	11. MIE KAREEPRA	ENGG/WOOD/ TYRE	100 Lakhs	30		
SIDCO/MIE	12. MIE, Chithara,	furniture, wood	120 lakhs	24		
SIDCO/MIE	13. MIE, Chadayamangalam	wood,engg,chemical	250 lakhs	34		
MIE, Jilla panchayath	14. MIE, Jilla panchayath, Nilamel	Paper cup, Furniture	40 lakhs	10		
Prakash Babu PT, Jayabharatham, Pine apple Jn. Punalur	15. Bharath Vaidyasala, Pine apple jn: Punalur	Ayurvedic Medicines	125	25	No	3202117761 3
Sudheer Kumar, Saraswathi Bhavan, Tholicode, Punalur	16.Solve Plastic Products Pvt Ltd, Tholicode	PVC Pipes,bends and other plastic productss	93.75	55	No.	3202023854 2
Manager, Kerala Agro Fruit Products, Elampal	17. Kerala Agro Fruit Products, Elampal	Mango Juice, Squash, Syrup,Pickles,Jam, Honey	200	7	No	3202027736 5

		Processing				
Suja Lal,Pournami, Ayilara,Yeroor ,04752202401, 9048105270	18. M/s Ponnu Food Products Ayilara, Yeroor	Food products	5Crores	80	26lakh	32021 446195
Sudhir Kumar, Solved Plastics,93870 22080	19. M/s Solved Plastics Edamon	PVC Pipes	220	35	Nil	
El-shedai canine foods, vazhathoppu, piravanthoor	20. Anu g thankachen, mulavil veedu, vazhathopu	Pet food	70	6	Nil	32anq pt1557 j1zj
Nalikera oil industries, mie,thalavoor	21. Prasanth v nair, visanth bhavan, naduthery, thalavoor po, kollam	Coconut oil	25	7	Nil	32021 121521
Sas plastics,mie, piravanthoor	22. Shaji, pavoor veedu, manjalloor	Mirror frames, ladies combs	32	15	Nil	32BIA PS654 61Z2
C 360 marketing solutions private limited	23.mandirathil house, near panchayath office, pathanapuram po,kollam-689695	Prospector software	40	25	Nil	

4.3. Major industrial activity of the Panchayath

Name of the panchayath	Name of activity	No of households	No of persons involved in Household	Investment (in Lakhs)	Remarks (Associated with Govt. scheme ?)
Ithikkara Block	Cashew Processing	148	196	620	
Elampalloor	Cashew Processing	45	96		
Kottamkara	Cashew Processing	24	42		
Mayyanad	wood	15	32		
Nedumpana	Cashew & Wood Processing	32	68		
Thrikovilvattom	Cashew & Wood Processing	41	90		
Chittumala Block	Cashew Processing	132	176	510	
Kollam Corporation	Cashew Processing	156	268	346	
Kollam Corporation	Marine Processing	112	216	312	
Ezhukone	Engg/food/hollow bricks/readymade				
Neduvathur	Engg/food/hollow bricks/readymade				
Kareepra	Engg/food/hollow bricks/readymade				
Veliyam	Engg/food/hollow bricks/readymade				
Pooyapally	Engg/food/hollow bricks/readymade				
Ezhukone	Engg/food/hollow bricks/readymade				
Melila	Engg/food/hollow bricks/readymade				
Chadayamangalam	Engg/food/hollow bricks/readymade				
Chithara	Engg/food/hollow bricks/readymade				

Elamadu	Engg/food/hollow bricks/readymade				
Ittiva	Engg/food/hollow bricks/readymade				
Kadakkal	Engg/food/hollow bricks/readymade				
Kummil	Engg/food/hollow bricks/readymade				
Nilamel	Engg/food/hollow bricks/readymade				
Velinallur	Engg/food/hollow bricks/readymade				
Anchal	Reed /Bamboo	30	50		
Edamulakkal	Reed /Bamboo	20	30		
Alayamon	Reed /Bamboo	25	40		
Kulathupuzha	Reed /Bamboo	50	60		
Yeroor	Reed /Bamboo	15	15		
Karavaloor	Reed /Bamboo	15	15		
Thenmala	Reed /Bamboo	15	20		
Ochira	Sea Food processing	11	25	3	Nil
	Food processing	15	32	2.5	Nil
Alappadu	Sea food processing	20	75	55	Nil
Kulasekharapuram	Sea food processing	10	21	2.5	Nil
	Wooden furniture	8	22	3.5	Nil
Clappana	Food processing	20	30	4.5	Nil
	Wooden furniture	12	23	5.5	Nil
Thazhava	Thazha(Screw pine)	20	35	2.5	Nil
Thodiyoor	Food processing	15	25	8.5	Nil
Karunagapally Muncipality	Food processing	12	25	7	Nil
	Readymade cloth items and ornaments making	8	22	2.5	Nil
Panmana	Food Processing	13	25	3.5	NO
	General Engineering	12	19	3	

	Readymade	9	15	4	
Chavara	General Engineering	14	23	3.5	
	Readymade	11	18	3.5	
	Sea Food Processing	14	28	5	
Thevalakkara	Food Processing	7	11	1.5	
	Readymade	9	17	2.5	
Neenadakara	Sea Food Processing	20	42	8	
	Readymade	6	10	1	
Thekkumbhagom	Food Processing	5	11	1.5	
	Readymade	4	8	1	
Sasthamkotta	Food Processing	15	28	4.5	No
	General Engineering	14	25	4	
	Natural Cotton Mattresses	25	55	10	
Kunnathur	General Engineering	18	38	6.5	
	Readymade	10	16	3	
	Food Processing	12	19	3	
Poruvazhy	Food Processing	9	14	3.5	
	Bamboo	8	14	2.5	
Sooranadu South	Readymade	9	17	2.5	
	Food process	14	19	3.5	
Sooranadu North	Food Processing	8	12	2.5	
	Readymade	14	21	4	
West Kallada	Wooden Furniture	12	22	6	
	Readymade	9	17	2.5	
	Food Processing	6	11	2	
Mynagappally	Food Processing	12	18	2.5	

	Wooden Furniture	10	21	3.5	
Pathanapuram Block	Bamboo/Reed	30	62	3.5Lakh	

4.4. Geographic indication availed/applied for, if any.

Name of the panchayath	Area	Products	No of workers involved	Turnover (in Rs)	CFSC if any	Issues related
Thazhava	Screw Pine Craft	250	400			
Anchal	Reed /Bamboo	30	50			
Edamulakkal	Reed /Bamboo	20	30			
Alayamon	Reed /Bamboo	25	40			
Kulathupuzha	Reed /Bamboo	50	60			
Yeroor	Reed /Bamboo	15	15			
Karavaloor	Reed /Bamboo	15	15			

Thenmala	Reed /Bamboo	15	20			

4.5 Kudumbasree

An initiative for poverty alleviation, this model was Launched on May 17th 1998. It is now one of the largest women empowerment related movement in Asia, having a total participation of about 37.8 Lakhs. This mission is a joint initiative of the Government of Kerala and NABARD. It defines poverty as the deprivation of basic rights and money. By its attempt to bring poor women in the state within its range, Kudumbasree is now present in each & every Gram Panchayat,every welfare and development activity is related and dependent on kudumbasree to provide the community interface. This mission is mainly centred on providing entrepreneurial, marketing and management opportunities to poor women and thus making them self dependent in financial terms through vegetable farming and selling/marketing of farm products. There are 19070 neighbourhood groups (NHG) functioning in Kollam District. Kudumbashree was conceived as a joint programme of the Government of Kerala and Nabard implemented through Community Development Societies (CDSs) of Poor Women, serving as the community wing of Local Governments.Kudumbashree is formally registered as the "State Poverty Eradication Mission" (SPEM), a society registered under the Travancore Kochi Literary, Scientific and Charitable Societies Act 1955. It has a governing body chaired by the State Minister of LSG. There is a state mission with a field officer in each district. This official structure supports and facilitates the activities of the community network across the state.Kudumbashree differs from conventional programmes in that it perceives poverty not just as the deprivation of money, but also as the deprivation of basic rights. The poor need to find collective voice to help claim these rights. The grassroots of Kudumbashree are Neighbourhood Groups (NHG in short) that send representatives to the ward level Area Development Societies (ADS). The ADS sends its representatives to the Community Development Society (CDS), which completes the unique three-tier structure of Kudumbashree.

4.5 Details of Kudumbasree

Name of Panchayath	**No of Kudumbasree units**	**No of micro enterprises set up**	**Major activity**		**No of members involved**	**Remarks**
			Service	**Micro manu:**		
Chavara	443	40	10	30	200	
Panmana	390	50	10	40	250	
Thevalkkara	289	37	12	25	185	

Thekkumbhagom	185	3	1	2	15	
Neendakara	163	4	3	1	20	
Kunnathoor	225	24	5	19	294	
Mynagappally	400	36	24	12	354	
Poruvazhy	325	28	10	18	250	
Sasthamkotta	270	20	8	12	210	
Sooranad North	390	14	6	8	165	
Sooranad South	250	6	3	3	90	
West Kallada	380	28	14	14	394	
Alappad	353	29	18	11	420	
Clappana	210	18	7	11	242	
Thazhava	410	30	11	19	463	
Karunagappally	480	34	19	15	498	
K.S.Puram	570	18	9	9	280	
Oachira	210	15	11	4	206	
Thodiyoor	450	31	18	13	472	
Adichanalloor	222	11	6	5	96	
Chathannoor	287	13	8	5	113	
Chirakkara	296	16	7	9	124	
Kalluvathukkal	320	23	9	14	152	
Poothakulam	195	9	5	4	86	

Elampallor	262	12	5	7	108	
Kottamkara	243	13	5	8	117	
Mayyanadu	264	18	6	12	144	
Thrikkovilvattom	265	16	5	11	128	
Nedumpana	302	22	7	15	154	
Muntrothuruth	110	8	4	4	98	
East Kallada	139	17	10	7	201	
Perayam	153	21	7	14	214	
Kundara	181	14	8	6	170	
Panayam	254	16	9	7	184	
Pernad	301	17	7	10	206	
Thrikkaruva	226	12	6	6	138	
Kollam Corporation	154	25			210	
Paravur (M)	220	220			4100	
Ezhukone	265	52	15	37	205	
Neduvathur	250	35	10	25	110	
Kareepra	320	62	22	40	230	
Veliyam	310	50	15	35	210	
Pooyapally	230	45	10	35	180	
Vettikkavala	310	45	5	40	245	
Melila	290	30	7	23	160	
Mylam	300	40	5	35	205	
Pavithreswaram	340	60	15	45	280	

Kulakkada	320	55	10	45	300	
Ummannoor	310	50	10	40	290	
Chadayamangalam	270	60	20	40	240	
Chithara	530	25	5	20	100	
Elamadu	240	42	12	30	170	
Ittiva	600	20	0	20	80	
Kadakkal	356	35	10	25	140	
Kummil	395	34	11	23	156	
Nilamel	255	30	8	22	135	
Velinallur	278	90	10	80	300	
Pattazhy	210	35	3	32	175	
Pattazhy Vadakkekara	157	32	5	27	160	
Pathanapuram	386	15	4	11	75	
Piravanthoor	434	25	5	20	125	
Vilakkudy	338	25	6	19	150	
Thalavoor	353	35	7	28	140	
Anchal	323	2	1	1	25	
Alayamon	232	0	0	0	0	
Aryankavu	190	7	0	7	42	
Kulathupuzha	435	9	0	9	40	
Edamulakkal	395	3	0	3	35	
Karavaloor	223	3	0	3	8	
Yeroor	356	3	0	3	11	

Thenmala	320	1	0	1	5

4.6.Artisans' Status

Category	Number of persons	Whether all registered with KADCO
Wood based handicrafts		
Other than wood based handicrafts		
Handloom (Anchal Block)	14	Yes
Gold based		
Metal based		
Others , specify-(Screw Pine Mat)(Oachira Block)		100
Others , specify-Straw Pic (Kollam Corp.)		150

4.7. Land under Industry Department

Kerala, comparing with the other states of India, is densely populated one and the land as a whole, is deemed to be scarce for even to provide ample accommodation to its people. Needless to say that land for Industrial purpose is commonly out of reach for the needy people. The industrial activities in residential areas or its vicinity attracts protests and disturbance from the other walks of life, as it is portrayed as a menace for habitation and vegetation. On the other hand, in remote areas where at the land, can rather be spared, faces acute deficit of other infrastructure such as Power, transportation facilities etc. The remedial measures against these

hindrances pave the way to Industrial Areas /Plots, generally known as Industrial Estates.

4.7.1 DA/DPs and multistoried gala in the block

Name of plot/area	DP Mundakkal	DP Chathannoor
Area in acres	20.67	20.75
Land for dev .		
Allotted area	18.08	13.91
No of units	53	1
No of units working	50	0
Not working units	3	1
SC/ST units		
Women enterprises	16	
Total Investment(in Rs lak	1750	
Total Employment	710	
Export in Rupees		
Area of Unutilized Land	0	4.62

4.7.2 Major industrial Estates (SIDCO)

Name of plot/area	**Edakulangara, Karunagappally**	**Industrial Estate, Umayanalloor**	**Chithara**	**Chadayamangalam**
Area in acres	8.64	26.0343Acre	91.7Cent	77.1cent
Land for Develo	Nil	13cent apprxmt	4cent appr	2cent appro.
Allotted area	8.64	21acres apprxm	87.7cent a	72.159cent Appr.
No of units	30	85	7units	7units
No of units work	25	8	6units	7units
Not working uni	5	13cent	1unit	Nil
SC/ST units	Nil		0	0
Women enterpri	2		0	0
Total Investmen (in lakhs)	775Lakh		0	0
Total Employme	85		0	0
Export in Rupe	Nil		0	0

Area of Unutiliz **Land**	Nil		4cent	2cent

4.7.3 Mini Industrial Estate(SIDCO)

Name of plot/area	**Thrikkovilvattom**	**SIDCO industrial Estate,Umayanalloor**	**Mini Industrial Estate**
Area in acres	97cent	26Acres	1Acre
Land for Development	10cent appro.		
Allotted area	92cent		
No of units	8units	64units	2Units
No of units working	2units		
Not working units	6units		
SC/ST units	0		
Women enterprises	0		
Total Investment (in lakhs)	0		
Total Employment	0		
Export in Rupees	0		
Area of Unutilized Land	10cent		

4.7.4 Mini Industrial Estate(Co-operative series)

Name of plot/area	Chavara	Thevalakkara	Sasthamkotta	Perinad	Kareepra
Area in acres				1.2	1.06
Land for Developmen t	105cent	102cent	106cent	16.5	16.5
Allotted area(Sq.Feet)	7200	7200	7200	7200	7200
No of units	10	10	10	10	10
No of units working	10	4	7	7	6
Not working units	0	0	1	0	1
SC/ST units	0	0		0	0
Women enterprises	0	1		2	2
Total Investment(i nlakhs)	0	0	36	NA	NA

Total Employment	43	32		22	16
Export in Rupees				NA	NA
Area of Unutilized Land				103.5	89.5

4.7.5 KINFRA/INKEL/KSIDC/other industrial parks

Name of plot/area	**KINFRA, Piravanthoor**	**KINFRA,Mundakkal**
Area in acres	6400 cents total- 1433 cents for industrial estate and 4967 cents for Rubber Park	6.06Acres
Land for Development	64 acres	6.06Acres
Allotted area	Nil	Nil
No of units	Nil	Nil
No of units working	Nil	Nil
Not working units	Nil	Nil
SC/ST units	Nil	Nil
Women enterprises	Nil	Nil
Total Investment(inlakhs)	Nil	Nil
Total Employment	Nil	Nil
Export in Rupees	Nil	Nil
Area of Unutilized Land		

4.7.6 DETAILS OF INDUSTRIAL LAND IDENTIFIED FROM LOCAL BODIES

Name of Block / Municipality	Name of Panchayath/ Village	Survey No.	Extent of Land	Type of Land	No. of Sheds	Vacancy/ Availability of land
Oachira	**Thodiyoor**		**0.96Acres**		**17**	**3**
	14 Sheds in above land are already allotted by the Oachira Block panchayath					
Paravur Muncipality	**Paravur Village**	**81/15,81/16&88/10,88/9-2**	**125Cent**	**Wet**	**2**	**vacant**

4.7.7 FUTURE LAND AVAILABLITY IN THE BLOCK/TALUK/DISTRICT

Agency	Name of Block ,GramaPanchayath/ Municipality	Name of Village	Survey No	Extent of Land
DIC	NA	NA	NA	NA
KINFRA	NA	NA	NA	NA
INKEL	NA	NA	NA	NA
SIDCO	Mukhathala Block	Thazhuthala	318/1	26.03Acre
MIE, Chithara	Pathanapuram Block	Chithara	686/52	91.7cent

MIE, Chadayamangalam	Chadayamangalam Blk	Chadayamangalam	244/12	77.1cent
MIE, Thrikovilvattom	Mukhathala Blk	Thrikovilvattom	38/1	97cent
KSIDC				
Private party				
Other Agencies				

Industrial Cooperative Societies –Handloom,Handicrafts

Category	Name of the society	No of members registered	No of workers	Whether SC/ ST	Extent of Land& Area of the Building	Extent of Land& Area of Building unutilized	Present status of the society
HANDLOOM	1. Kulathupuzha HWICS Ltd.No.QH 20	150	20		50	2500	Working
	2. Kulathupuzha HWICS Ltd.No.QH 22	0	0	SC	19	0	Liquidation
	3. T V Thomas Memmorial HWICS Ltd.QH 11	0	0		98		Liquidation
	4. Puthusserry HWICS Ltd.No.QH 48	288	20		90	7000	Working
	5. Karigannoor HWICS Ltd.No 3384	395	12		50	4800	Working
	6. KottiyamHWICS Ltd.No.3350	315	2		5	944	Working

	7. Chathannoor New HWICS Ltd.No.QH 5	22	8		6	1500	Working
	8. Adichanalloor Pattikajhati HWICS Ltd.No QH 21	160	11	SC	50.5	6000	Working
	9. VarinjamHWICS Ltd.No.3378	444	16		24	3000	Working
	10. Chrakkara HWICS Ltd.No.H 71	579	15		33	6005	Working
	11. Nedugolom HWICS Ltd.No.H5	249	11			Rent	Working
	12. Chathannoor HWICS Ltd.No.QH 3	367	8		60	6050	Working
	13. Ambedkar HWICS Ltd.No.QH 19	198	4	SC	28	2015	Working
	14. Mulluvila HWICS Ltd.No.QH6	254	10		52.5	7655	Working
	15. VadakkevilaHWICS Ltd.No.3346	475	25		37.5	2200	Working
	16. Maruthoorkulangara HWICS Ltd.No.QH 9	380	16		100	6400	Working
	17. Karunagappally HWICS Ltd.No.QH2	426	30		50	5795	Not Working
	18. KudavattoorHWICS Ltd No.H1	149	15		56.5	6000	Working
	19. Kattayil HWICS Ltd.no.3703	178	22		50	6600	Dormant
	20.Veliyam padinjattinkaraHWICS Ltd.No.H43	504	45		55	13300	Dormant
	21 Veliyam HWICS Ltd.No.QH 1	406	18		103	8200	Working
	22. Kottara harijan HWICS Ltd.No.QH 15	241	12	SC	60	5000	Working

	23. Kottara Deshabhimani HWICS Ltd.No.QH 17	206	7		35	3300	Working
	24. Mylode National HWICS Ltd.No.3452	359	0		23	0	Liquidation
	25.Kottathala HWICS Ltd.No.QH 4	250	14		30	4000	Dormant
	26. Ezhukone HWICS Ltd.No.QH 3444	100	5			Rent	Working
	27. Edakkidam HWICS Ltd.No.H 7	80	5			Rent	Working
	28. Puliyila HWICS Ltd.No.3337	262	11		22.5	4860	Dormant
	29. Pattazhy HWICS Ltd.No.QH 18	200	10	SC	35	2500	Dormant
	30. Vinayakar HWICS Ltd.NoH212	560	15		200	8000	Not Working
	31. Puthenkulam Harijan HWICS Ltd.No QH 16	0	0		53		Liquidation
	32. Sasthamkotta HWICS Ltd.No.QH 10	225	10		100	8000	Working
	33. Thekkumpuram HWICS Ltd.No.QH42	150	7			Rent	Dormant
	34. Pavithreswaram HWICS Ltd.No.QH 7	210	25		105	6000	Dormant
	35. Pavithreswaram HWICS Ltd.No.H55	150	3			Rent	Dormant
	36. Puthoor HWICS Ltd.No.QH 3394	130	4			Rent	Dormant
HANDICR	37. Chavara Block Artisans Ics Ltd.No.SIND.Q.190	163	5	No	No land	Rent	Dormant
	38. Arinallor Pottery Ics Ltd No.Sind.Q.201/Arinalloor				No land	Rent	Working
	39. The Chavara Block Mahila Cottage Ics CIND.Q.208	163	5		8cent,Sy.No.423/1-5	Fully utilized	Not Working

AFT(wood, gold, metal, Clay based and others)	40. Panmana Match Ics Ltd No.SIND.Q.244,Chavara				No land	Rent	Dormant
	41. Chavara Block Gold Workers Ics Ltd No.SIND.Q.249				No Land	Rent	Dormant
	42. Chavara Block Lime Shell Cottage Ics IND Q.266				No Land	Rent	Not Working
	43. The Ceramics Workers Workshop Ics Ltd.No.267				No Land	Rent	Dormant
	44. Sakthikulangara Textile Workers Ics.Ltd.No.SIND.Q.287						Working
	45. Naduvilakkara HC Ics Ltd.No.SIND Q.365				8cent	Fully utilized	Dormant
	46. Kunnathoor thaluk Artisans Ics Ltd.No.158,Kadampanad	10			20Cent	Fully utilized	Working
	47. West Kallada Bricks and Tiles SIND Q.205	20			No land	Rent	Working
	48. Sasthamkotta Mahila Small Scale Ics SIND.Q.228	16			No land	Rent	Not Working
	49. Kunnathu Granite & Beil Metal Ics.Ltd.No.245				52cent	Fully utilized	Not Working
	50. Sooranad Watch Workers Ics.SIND.Q.264				No Land	Rent	Dormant
	51. Chekkulam Harijan Screw Pine Handicrafts Ics ,West Kallada	10	7	SC	7cents	Fully utilized	Working
	52. Grama deepam Ics Ltd No.SIND Q 404 Kunnathur				No land	Rent	Not Working

53. Select Vanitha Ics SIND Q 441 Sasthamkotta	12	8		No land	Rent	Dormant
54. Venus Industyrial SC/ST Co operative Society Sasthamkotta SIND Q 497	15	10	SC	10ccent	Fully utilized	Working
55. Padijara kallada Bricks & Tiles Ics SIND Q 205,West Kallada				No land	Fully utilized	Dormant
56. Kunnathur Taluk Auction Ics Ltd No.SIND Q 158,Kadampanadu				20cent	Rent	Dormant
57. Alappad Ladies Cottage Ics,SIND.Q.17	25			No land	Rent	Dormant
58. Mynagappally Tile Ind.Workers Co operative Society,SIND.Q.114	78			167 Cent	Fully utilized	Dormant
59. Karunagappally Artisans Ics Ltd.No.SIWO.Q.173,Karunagappally	10			No land	Rent	Dormant
60. Karunagappally Mahila Cottage Ics Ltd No.198				No land	Rent	Dormant
61. Karunagappally Mahila Screw Pine Ics,SIND.Q.212				No land	Rent	Dormant
62. Thodiyoor Harijan Granite workers Ics Ltd No.SIND Q 397						Not Working
63. Kulasekharapuram Vanitha Ics Ltd SIND Q 398						Not Working
64. Karunagappally Block Ready made Garment Ics SIND Q 406						Working
65. Mynagappally Harijan Ics SIND Q408 Mynagappally						Not Working
66. Thazhava Harijan Tailoring and Readymade Ics 412			SC			Not Working
67. Electrical and Electronics Ics Ltd No.SIND Q 413						Not Working

68. Harisree women Ics Ltd No.SIND Q 415						Dormant
69. Sree budha Vanitha Ics Manappally Thazhava				No land	Rent	Dormant
70. Gurudeva Bakery Ind.SIND Q 499				No land	Rent	Dormant
71. Alappad Grama panchayath Vanitha ICS Sind Q 510 Alappad,Karunagappally	12	4		No land	Rent	Dormant
72. Bamboo Cane Ics SIND Q 512 Vayyanam				No land	Rent	Dormant
73. Cement Bricks Owners and workers Ics Ltd.No.SIND Q513				No land	Rent	Not Working
74. Pavumba jayanthi Harijan Mahila Screw Pine Handcrafts Ics Ltd.No.SIND Q.362 Pavumbha				10cent	Fully utilized	Dormant
75 Sakthikulangara Women Cottage Ind.Ics.186	10			No land	Rent	Dormant
76. Oachira SoapIcs.Ind.Q.258,Oachira				No Land	Rent	Dormant
77. Oachira Kasthurba Memorial Ics.IND.Q.259				No Land	Rent	Dormant
78. The Kaithakuzhy Ics Ltd.No.SIND Q.7,Adichanalloor	10	10		No land		Dormant
79. Chathanoor Bricks and Tiles WICS Ltd.No.SIND.Q.187,Chathannoor				No land	Rent	Working
80. Kottiyam Garments Ics Ltd.No.490	10			No land	Rent	Dormant
81. Chathannoor Artisans Ics.Ltd.No.SIND.Q.217				No land	Rent	Dormant
82. Nedugolum Kasthurba Smaraka Cottage Ics	18			No Land	Rent	Dormant

83. Chathannoor SSI Industrial workers Ics				No land	Rent	Dormant
84. Chathannoor Beedi Workers Ics Sind Q						Dormant
85. Chathannoor Kalluvathukkal Panchayath (CKP) Haarijan Ics Ltd No.SIND q 400				No land	Rent	Dormant
86. Kairaly Printing and Publishing Ics Ltd No.428,Kalluvathukkal	10	8		No land	Rent	Dormant
87. Karimballoor vanitha Ltd No.Ics SIND Q 436,Puthenkulam				No land	Rent	Dormant
88. Chirakkara Ready Made Garments Ics Ltd No 444,Paravur				No land	Rent	Dormant
89. Eravipuram Kora Grassmat weaving Ics SIND.Q3	25	10	0	No land		Dormant
90. Nedumpana Village Oil Ics SIND.Q.17	25			No land	Rent	Dormant
91. Eravipuram Ex-ServiceMen Ics.SIND.Q.71	10			No Land	Rent	Dormant
92. Venpalakkara Mahila Bakery Workers Ics CIND.Q.273				No Land	Rent	Dormant
93. The Venpalakkara Match Ics.Ltd.No.SIND.Q.274				No Land	Rent	Dormant
94. Mukhathala Harijen Workers Ics Ltd No.337				No land	Rent	Dormant
95. Punukkannoor Priyadarshini Vanitha Ics SIND Q Ltd.No.333						Not Working
96. Kundara Beedi Workers Ics SIND Q 375						Dormant

97. Mayyanadu Vanitha Ics Ltd No.SIND Q 393 Ayathil				No land	Rent	Dormant
98. Vadakkumthala Vanitha readymade Garments Ics SIND Q 395				No land	Rent	Dormant
99. Pretheeksha Harijan Printing Ics Ltd No.SIND Q 399,Umayanalloor						Working
100. Eravipuram Bakery Vanitha Ics Ltd No.SIND.427						Dormant
101. Chaithanya Sc Ics Ltd No.SIND Q445 Kanannalloor			SC	No land	Rent	Dormant
102.Dr.Ambedkar SC ics,Kundara			SC	No land	Rent	Dormant
103.The Mundroisland Tiles Ics SIND.Q.78				No Land	Rent	Dormant
104.Perinad Kasthurba Memorial Cottage Ics Ltd.No.Q.122				No land	Rent	Dormant
105.Ashtamudi Lakes Statement Wrkers FISH Ics Ind Q.124				No land	Rent	Dormant
106.Multi Industrial Co-Operative Society Ltd No.134 Kundara				29Cent,Sy.No. 578/13	Fully utilized	Dormant
107.Kundara General Engg.Workers Ics Ltd.No.200				No land	Rent	Liquidation
108.Chittumala Block Lime Shell Ics Ltd.No.C.IND.Q 226				No land	Rent	Dormant
109.Anchalummodu Gold Workers Ics,CIND.Q.249				No Land	Rent	Dormant

110.Perinad Starch and Sugar Ics Ltd No.SIND.Q.256	25			No Land	Rent	Working
111.Anchalummood Women Ics Ltd.No.CIND.Q.303				No land	Rent	Working
112.Perinad Net & Netting Ics 335				No land	Rent	Working
113.Anchalummoodu Block Vanitha Ics.Ltd,No.SIND Q 380						Under Auction
114.Perinad Pattikajathil Ishtika Ics Ltd.No.SIND Q 391	30		SC	58Cent	Fully utilized	Dormant
115.Perinad Vanitha Ics Ltd No.SIND Q 396 Punnala						Dormant
116.Chittumala Block Kettida Nirmana Iccs SIND Q 443				No land	Rent	Dormant
117.Venadu Pattikajathi Vanitha Ics SIND Q 502			SC	No land	Rent	Dormant
118.Ashtamudi Handicraft Perinadu	25	12		No land	Rent	Dormant
119.Quilon Taluk Artisans Ics Ltd.No.SindQ2	0	0	0	0	0	Dormant
120.Kollam Jilla Ics.Sind.Q.208,Chavara.P.O,Kollam	0	10	SC	101.37Are	Fully utilized	Dormant
121.Quilon Taluk Cashew Workers Ind.Co.Operative Society Ltd.No.SIND.Q.49,Kilikolloor				No Land	Rent	Dormant
122.Kilikolloor Ind.Co-Operative Society SIND .Q.51	15			No Land	Rent	Dormant
123Kilikolloor Cottage Industrial Co-operative Society SIND.Q.No.64	20			No Land	Rent	Dormant
124.Sakthikulangara Timber	15			No Land	Rent	Dormant

Ind.Workers Ics Ltd.No.95						
125.Uliyakovil wood Ind.Co operative Society Ltd No.SIND.Q.96	25			No Land	Rent	Dormant
126.The Quilon Tailors Ics Ltd.No.SIND.Q.102	25			No Land	Rent	Liquidation
127.Printing Ind.Co-operative Society Society SIND .Q.103,Kadappakada	25			No Land	Rent	Dormant
128.Quilon Tannery Worker Ics Ltd No.SIND.Q.107,Kollam	15			No Land	Rent	Dormant
129.Bakery and Soda Ics Ltd.No.SIND.Q.108,Kollam	15			No Land	Rent	Dormant
130.The Automobile Engg.Ics Ltd.No.117,Kollam	25			No land	Rent	Dormant
131.The Kerala Cashew Ics Ltd.No.SIND.Q.119,Kollam	30			No land	Rent	Dormant
132.Vadakkevila Electrical Engg.Workers Ics Ltd.No.136				No land	Rent	Dormant
133.Thrikkadavoor Printing Ics SIND Q.169,Thrikkadavoor				4cent	Fully utilized	Dormant
134.Ashramam Ribbon Ics Ltd No.SIND.Q.194,Kollam	20			No land	Rent	Dormant
135.Thrikkadavvoor Clay Ind.Co operative Society.Q.204	18			No land	Rent	Working
136.Kilikolloor General Engg.Ics.Ltd.No.CIND.Q.219				No land	Rent	working
137.Port Quilon Mahila Cottage SIND.Q.231,Kollam-6				No land	Rent	Working

138.Kolloorvila Pulpa Neythu kudi Vyavasaya Ics SIND.Q.233				No land	Rent	Dormant
139.Quilon District Gold workers Pilot Ics,SIND Q.253				No Land	Rent	Dormant
140.Permanent Watch Ics.Ltd.No.SIND Q.260				No Land	Rent	Dormant
141The Vivekananda Ics Ltd.No.263				No Land	Rent	Dormant
142.The Quilon District Ayurveda Medicines Mfg.Ics.SIND.Q.279				No Land	Rent	Dormant
143.Eravipuram Vanitha Cottage Ics,Ltd.No.289				6cent	Rent	Dormant
144.Quilon District Engg.Tech.IWCS	10	4		No land	Rent	Working
145.Thangassery Mahila Valakettu Ics Ltd.No.CIND.Q.301				No land	Rent	Dormant
146.Quilon Taluk Powerloom Weavers Ics Ltd.IND.Q.308				No land	Rent	Dormant
147.Gokulam Mahila Handi Crafts Ics Ltd No.CIND.Q.309				No land	Rent	Dormant
148.Valathungal Moments cottage Ics CIND .Q.300				No land	Rent	Working
149.Marine Engg.IWCS.Ltd.No.314				No land	Rent	Dormant
150.Quilon Women's small scale Ics Ltd.No.315				No land	Rent	Dormant
151.Priyadarshini women Umbrella Ics SIND.Q.320	10	5		10.5cent,Sy 685/6	Fully utilized	Working
152.West Kollam Womens Ics SIND.Q.322				No land	Rent	Liquidation

153Vadakkevila Womens Ics SIND .Q.323				No land	Rent	Dormant
154.Palkulangara Womens Ics Q.324				No land	Rent	Working
155.RS Unni Memmorial Ics SIND Q 329				14cent,Sy.301 /9	Fully utilized	Dormant
156.Quilon Garment Making Ics Ltd.No.330				No land	Rent	Dormant
157.Uliyakovil Vanitha Ind.Co-operative Society				No land	Rent	Dormant
158.Kollam Handicrafts Ics SIND.Q.333				7cents	7cents,Fully Utilized	Dormant
159.Quilon Crockery & Metal utensils Ics Ltd.No.334				5.98Cent	Fully utilized	Dormant
160.Kollam Jilla Ex-trainers Ics SIND Q.345				30cent	Fully utilized	Dormant
161.Kollam Auto spares Electrical SC Ics SIND Q.353	25	20	SC	13.88Cent	Fully utilized	Dormant
162.Perinad Harijan Workers Ics Ltd.No.SIND.Q335						Dormant
163.Quilon District Kalimon workers Ics Ltd.No.357				15cent	Fully utilized	Dormant
164.Kollam jilla Marine Products Ics SIND Q 359						Dormant
165.Kollam Harijan Printing & Publishing Ics Ltds No.SIND Q 364,Mathilil						Dormant
166.Valathungal C Ward Tailoring Ics Ltd.No.SIND.Q.367						working
167.Gulf refurnees Ics Ltd.No.SIND Q 369						Dormant

168.Kollam Beedi workers Ics Ltd.No.SIND Q 373						Dormant
169.Eravipuram Beedi Workers Ics Ltd No.SIND>Q>376						Dormant
170.Kallumthazham Agranite Ics SIND Q 384						Dormant
171.Kollam Jilla Vanitha Service Engineering Tech Ics Ltd 386						
172.Gurunagar Sreenarayan Vanitha						Dormant
173.Kollam Dist.Priyadarshini Vanitha Mooka Badra Ics Q 388	13	10		No land	Rent	Dormant
174.Kollam Dist.Handicapped Vanitha Ics Ltd.SIND Q 390				No land	Rent	Dormant
175.Mythiri vanitha Ics Ltd No.SIND Q 393 Ayathil PO				No land	Rent	Liquidation
176.Kuzhiyil Bhagam Harijan Granite workers Ics SIND Q 404				No land	Rent	Dormant
177.Matha Vanitha Ics SIND Q 417 Thirumullavaram						Dormant
178.West Quilon Mahila Printing workers Ics Ltd						Dormant
179.Mentally Retarded children and mother Ics Ltd No.SIND Q 429 Neeravil						Working
180.Thrikkadavoor Knitted Weavers Vanitha Ics Ltd No.430 Neeravil,Perinad				No land	Rent	Not Working
181.Kollam jilla vanitha Handicraft Ics Ltd No.SIND Q 433,Kollam				No land	Rent	Not Working
182.Surya Vanitha Ics SIND Q 434				No land	Rent	Working

183.Kannanalloor Vanitha Women Ics Ltd.No. SIND Q.435				No land	Rent	Not Working
184.Soundrya Vasthra nirmana Womens Ics 437,Mundakkal				No land	Rent	Working
185.Vivek Vanitha Ics SIND Q 439				No land	Rent	Working
186.Dr.B R Ambedkar Memorial Ics SIND Q 461				No land	Rent	Dormant
187.Global computers Ics Ltd No SIND Q 485 kollam				No land	Rent	Dormant
188.AKTA Readymade Ics ,Near Nair's Hosp.Ashramam				No land	Rent	Working
189.The West Auto Workers SIND Q 511 Kollam	15	5		No land	Rent	Dormant
190.Kollam Bus body building Ics SIND Q 514				No land	Rent	Dormant
191.Kollam wood Ics Ltd No.SIND Q 4094	18	15		97.44cent	Fully utilized	Dormant
192.Environmental Resource Development Co-operative Society SIND Q 517	25	25		No land	Rent	Dormant
193.Paravoor Thekkumbhagam Small Scale Industry Ltd.No.SIND.Q.157				No land		Liquidation
194.Surabhi Ics Ltd No.SIND Q 432,Paravur				No land	Rent	
195.The Kottarakkara Thaluk Printing and publishing Ics Ltd No.Q.10	20	16		5Cent Sy.No.182/12	Fully utilized	Dormant
196.The Chegamanad ICS SIND.Q.14 Vettikkavala.P.O,MelilaPakkutty ,Kottarakara				10Cent Sy.No.182/2		Working

197.The Kottarakara Fruit Industrial Co-operative Society Ltd.No.SIND.Q.16,Thekkumbhagam	25			No land	Rent	Dormant
198.Kottarakkara Block Artisans Ics,Co-operative Society Ltd No.Q.43,Odanavaattom	10			10cent Sy.No.185/2,212/9	Fully utilized	Liquidation
199.Chenkulam Cashew Workers Ics.SIND.Q.80 Oyoor						Working
200.Veliyam Handicrafts Co-operative Society Ltd.No.109	25			No Land	Rent	Working
201.Kottarakkara BlockTapioca Starch mfg Ics Ltd.No.149						Not Working
202.Chengamandu Cottage Ics IND.Q.155,Chengamanad				6Cent	Fully utilized	Working
203.Vilangara Vanitha Ics Ltd.No.CIND.Q.265				8cent,Sy.No.42/5	Fully utilized	Under Liquidisation
204.Kottarakkara Taluk Bricks Workers Ics SIND Q 336						Working
205.Weltech Ics Sind Q 440,Veliyam	15			19.5cent	Fully utilized	Dormant
206.Kottarakkara Taluk Handicraft Ics Ltd.No.SIND Q 442	10	6		15cent	Fully utilized	Dormant
207.Kottarakkara Taluk Bhodi Ics Ltd No.SIND Q 504	12	5		No land	Rent	
208.Kottarakkara Karinkal Quari Operators Ics SIND Q 508 Kottarakara				No land	Rent	Dormant
209.Kollam Jilla Karinkal Quary Operators Ics Ltd.No.SIND Q 516,Nedumonkavu	25	25		No land	Rent	Dormant

210.Puthoor Tile Ics SIND.Q.24 Pavithreswaram,Kottarakara	25					Dormant
211.Kulakkada Artisans Ics SIND Q.213	10	3		15Cent Sy.No.55/15	Rent	Working
212.Vettikavala Women Ics Ltd.No.CIND.Q.223,Vettikavala				No land	Rent	Working
213.Cheghamanad Textile Workers Ics Ltd No.SIND.Q.292				No land	Rent	Liquidation
214.Cherupoika Marginal Farmers & Agricultural Labours				No land	Rent	Working
215.Arakkal Vanitha Garments Ics SIND Q 383						Liquidation
216.Edakkal Malanadu Harijan Bricks Ics Ltd No.SIND Q 410			SC			Dormant
217.Chaithanya Women Ics Ltd No.SIND Q 411						Working
218.Velamannoor sreedevi vilasom Ics SIND Q 424	12	5		No land	Rent	Dormant
219.Ittiva Panchayath Cane and Bamboo Workers Ics SIND q.509 Chunda,Cherukulam	10	5		No land	Rent	Dormant
220.Pathanapuram Block Women Ind.Co-Operative Society Ltd No.SIND.Q.160	12			No land	Rent	Dormant
221.Punalur Tailoring and Granite/Garment Making Ics	10	3		No land	Rent	Dormant
222.Pathanapuram Rubber Workers Ics SIND Q 338				25cent	Fully utilized	Working
223.Women Electrical Ics Ltd no.340				No land	Rent	Working
224.Manjakkala SC Paper Products Ics SIND Q 370				50cent	Fully utilized	Working

	225.Blaze Vanitha Ics Ltd.No.SIND Q.379						Liquidation
	226.Edamon SC Granite Workers ics381						Dormant
	227.S.N.Akshara Vanitha Ics Ltd SIND Q 409						
	228.B R Ambedhkar SC Carpentary SIND Q 492 Pathanapuram			SC	5cent	Fully utilized	
	229.Pathanapuram Taluk SC Industries Society	10	7	SC	No land	Rent	
	230.Pathanapuram Taluk Vanitha Ics Ltd No.SIND Q 503	12	8		No land	Rent	
	231.Anugraha SC/ST Era Ics Ltd.Pathanapuram	10	4	SC	No land	Rent	
	232.T V Thomas Memmorial HWICS Ltd.QH 11	0	0				
	233.Kulathupuzha Girivarga Handicraft Ics SIND Q.336				No land	Rent	
Power loom	Not working						
Other Industrial Cooperative Societies							

CHAPTER 6

OTHER IFRASTRUCTURE FACILITIES

6.1 Research and Development centers

1	Kerala Agro Fruit Products, Pine apple Jn:, Elampal P O, Punalur. Tel :0475-2222528
2	KVK & Farming System Research Station, Sadanandapuram, Kottarakara
3	CEPCI (Cashew Export Council of India), Cashew Bhavan, Mundakal, Kollam 691001. Tel: 0474 – 2742704
4	Kerala Maritime Institute, Neendakara, Kollam
5	The upcomingIndian Institute of Infrastructure and Construction at Chavara

6.2 Incubation Centres:

A Business Incubator will be a coordinating mechanism for Enterprise and Employment Generation which provides Technology & Infrastructure support, Skill & capacity building with market requirements, Business Planning, mentoring support, Financial & Market linkages, hand holding and Intensive technology infusion etc. for new entrepreneurs who have innovative ideas but are unable to invest heavily at the initial stage.

Presently, an incubation centre at district level is working in the District Industries Centre at Ashramam, Kollam. Entrepreneurs can contact the incubation centre in the following number or emai id. Tel: 0474- 2748395

Email id: mbicklm@gmail.com

6.3 Startups

6.4 Entrepreneurship Development clubs

Department of Industries & Commerce, Government of Kerala formulated a scheme to set up Entrepreneurship Development Clubs in schools and colleges of the State to inculcate Entrepreneurial Culture amongst youth and equip them with the skills, techniques and confidence to act as torch-bearers of Enterprise for the new generation.The objectives of Entrepreneurship Development Club are to inculcate entrepreneurship qualities, to sensitise industrial scenario of the state, to nurture the latent entrepreneurial talent, develop awareness among its members of the attitudes, values, and skills of successful entrepreneurs around the globe etc.

Entrepreneurship Development clubs in Kollam district are given below

SlNo	Name of Club / Institution	Status
1	Govt. Model HSS, Vettikkavala	Functioning
2	Govt. Polytechnic College, Ezhukone	Functioning
3	S.N.College, Chathannoor	Functioning
4	St.Stephens College, Pathanapuram	Functioning
5	SV VHSS, Thamarakkudy	Functioning

6	College of Engineering, Pathanapuram	Functioning
7	Govt H.S.S Paravur	Functioning
8	KPMHSS ,Cheriyavelinalloor	Functioning
9	MSNM Institute of Management & Technology, Chavara	Functioning
10	Boys HSS,Karunagappally	Functioning
11	Besalious Mathews II College of Engineering, Sasthamcotta	Functioning
12	Govt.Boys HSS, Chavara	Functioning
13	St.Johns College, Anchal	Functioning
14	Govt VHSS, Kadakkal	Functioning
15	Govt. HSS, Kulasekharapuram	Functioning
16	Govt.VHSS,Kottankulangara	Functioning
17	Govt. VHSS, Muttara	Functioning
18	KSM VHSS, Edavattom	Functioning
19	Govt HSS, Eravipuram	Functioning
20	Govt HSS, Punalur	Functioning
21	Kristhuraj HSS, Kollam	Functioning
22	Govt VHSS for Boys, Kottarakkara	Functioning
23	Sri. Vidyadhiraja Memorial Model Vocational Higher Secondary School, Vendar	Functioning
24	Devi vilasom Vocational Higher Secondary School, Mylam	Functioning

25	St. Johns Vocational Higher Secondary School, Kottarakkara	Functioning
26	Yunus Institute of Technology, Kannanalloor, Kollam	Functioning
27	SN Trust Private ITI, Kottiyam	Functioning
28	St. George VHSS, Chowalloor	Functioning
29	Govt Boys HSS, Kottarakkara	Functioning
30	Govt. VHSS, Muttara	Functioning
31	Govt Model Boys HSS, Thevally	Functioning
32	AKMVHSS, Thadicadu	Functioning
33	Govt. H S S, Karukone	Functioning.
34	Edamon VHSS, Punalur	Functioning
35	APPM VHSS, Aavaneeswaram	Functioning
36	SNGD VHSS, Kuzhikkalidavaka, Puthoor	Functioning
37	Govt. HSS, Kulakkada	Functioning
38	Mannam Memmorial N.S.S College, Kottiyam	Functioning
39	R.V.V.HSS,Valakom	Functioning
40	DVV HSS, Thalavoor	Functioning
41	Gurudev Institute of Management Studies, Kadakkal	Functioning
42	Yunnus College of Engineering,Thalachira	Functioning
43	Govt H.S.S.Anchalummoodu	Functioning
44	Govt VHSS for Girls,Kottarakkara	Functioning
45	S.K.V.H.S.S. Thrikkannamangal	Functioning
46	St. Gregorious College, Kottarakkara	Functioning
47	SN Polytechnic, Kottiyam	Functioning
48	Govt Polytechnic College,Punalur	Functioning

49	Govt H.S.S& V.H.S.S, Thadicadu	Functioning
50	A.K.L.M.H.S.S. Kannanalloor	Functioning
51	S.M.H.S.S, Patharam	Functioning
52	John. F .Kennedy Memorial Vocational Higher Secondary School, Karunagappally	Functioning
53	Basic Training Center, Chandanathoppe	Newly registered ED Club
54	N.S.V.V.H.S.S, Valakom	Newly registered ED Club
55	Govt. Industrial Training Institute, Oachira	Newly registered ED Club
56	Govt. Industrial Training Institute , Chathannoor	Newly registered ED Club

6.5 Ancillary Industries : NIL

6.6 Cluster activities

The Ministry of Micro, Small and Medium Enterprises (MSME), Government of India (GoI) has adopted the cluster development approach as a key strategy for enhancing the productivity and competitiveness as well as capacity building of Micro and Small Enterprises (MSEs) and their collectives in the country. A cluster is a group of enterprises located within an identifiable and as far as practicable, contiguous area and producing same/similar products/services. The essential characteristics of enterprises in a cluster are (a) Similarity or complementarily in the methods of production, quality control and testing, energy consumption, pollution control, etc (b) Similar level of technology and marketing strategies/practices (c) Channels for communication among the members of the cluster (d) Common challenges and opportunities.

Name of Block/Municipality/Corp.	**Cluster Activity**
Chittumala	Nil
Mukhathala	Nil
Ithikkara	Nil
Paravoor Municipality	Nil
Kollam Corporation	Nil
Oachira	Nil

Chavara	Nil
Sasthamkotta	Nil
Karunagappally Muncipality	Nil
Kottarakkara	Nil
Chadayamangalam	Wood Empire Consortium
Vettikavala	Nil
Anchal	Nil
Pathanapuram	Nil
Punalur Municipality	Nil

6.7 Traditional sectors in the block

Name of Block/Municipality/Corp.	**Traditional Sectors**
Chittumala	Coir,Cashew,Handloom
Mukhathala	Cashew,Handloom
Ithikkara	Cashew,Handloom
Paravoor Municipality	Coir,Cashew,Handloom
Kollam Corporation	Coir,Cashew,Handloom
Oachira	Coir,Cashew,Screw Pine Mat,Handloom
Chavara	Coir,Handloom,Cashew
Sasthamkotta	Handloom,Cashew
Karunagappally Muncipality	Coir,Handloom,Cashew,Screw Pine Mat
Kottarakkara	Cashew,Pottery
Chadayamangalam	Cashew,Handloom,Pottery

Vettikavala	Cashew,Handloom,Pottery
Anchal	Cashew
Pathanapuram	Cashew
Punalur Municipality	Cashew

6.8 Major exports in the block/ Export potential based on MSME

Name of Block	**Major Exports in the Block/Export Potential**
Chittumala	Software
Mukhathala	Cashew Kernels
Ithikkara	NIL
Paravoor Municipality	NIL
Kollam Corporation	Cashew Kernels, Marine Products and Inland Products
Oachira	Marine Products
Chavara	Vegetables, Readymade Garments
Sasthamkotta	NIL
Karunagappally Muncipality	Halwa
Kottarakkara	Packaging Machines, Ayurvedic Products

Chadayamangalam	NIL
Vettikavala	NIL
Anchal	Handicraft products (based on Reed and Bamboo)
Pathanapuram	Cashew, Software
Punalur Municipality	Great Potential for export of Ayurvedic Product-Planning for ayurvedic cluster formation.

CHAPTER 7

7.1 SWOT ANALYSIS WITH RESPECT TO THE DISTRICT

7.1.1 SWOT ANALYSIS - INDUSTRIES SECTOR

A. Strengths

1. **Cashew Capital of Kerala –** Presence of cashew processing industries (mostly in Kollam, bank for cashew sector in Kollam, Karunagappally and Kottarakara taluks). This provides employment to many (mainly women) and creation of a skilled labour
2. **PSUs & other major industries –** Presence of Public Sector Undertakings like Kerala Minerals and Metals Limited (Chavara, Kollam), Kerala Electrical and Allied Engineering Company Limited (Kundara, Kollam), Oil Palm India Ltd (Anchal, Kollam), KMML Sponge (KMML in collaboration with the Department of Space, Govt. of India), Kerala Agro Fruit Company (Punalur, Kollam), Indian Rare Earths Corporate Research Centre (Chavara, Kollam), Chitosan Plant (by Matsyafed at Chavara, Kollam), Kerala Ceramics Ltd. (Kundara, Kollam) etc.
3. **Information Technology –** Technopark, Kundara Kollam – presently houses 7 IT companies & when fully functional can accommodate about 40-50 units in the

IT & ITES sector; Corporate 360 (Pathanapuram, Kollam) which outsources It works from several foreign countries.

4. **Marine Products –** Production, processing & export oriented Marine units operating mainly in Kollam and Karunagappally taluks. Presence of Kollam Harbour aids this sector.
5. **Handicraft Sector –** Presence of handicraft industries mainly in Karunagappaly, Kottarakara and Pathanapuram taluks; presence of KADCO(Kerala Artisans' Development Corporation) Regional Office at Chinnakada, Kollam to cater to the needs of the handicraft sector.
6. **Tourism Industry –** Presence of tourist spots like Ashtamudi Backwaters, Kollam Beach, Jadayu Rock, Punalur Hanging Bridge, Thenmala Eco Tourism etc.
7. **Support from Govt. of India –** Schemes by Govt. of India like PMEGP, MUDRA, CGTMSE, Credit Linked Subsidy Scheme, Stand Up India, Digital India;
8. **Support from Govt. of Kerala - Schemes** by Govt. of Kerala like ESS, IT Subsidy, ASHA, and the New Ease of Doing Business
9. **Financing –** Industrial loans offered by Nationalized banks, Scheduled Commercial banks, District Co-operative banks, Service Co-operative societies and Government bodies like Kerala Financial Co-operation (Beach Road, Kollam), Khadi & Village Industries Board (Karbala Junction, Kollam), Kerala State Backward Class Development Corporation (Opp. S N Women's' College, Kollam).
10. **Support from Local Self Governments –** Industrial Projects being implemented by Industries Extension Officers at Block/ Municipality/ Corporation level and by General Managers at District Panchayath level. Industrial Projects include setting up of industrial units by individuals/groups, subsidy for purchase of raw material by traditional units, setting up of incubation centres, purchase of auto rickshaws and she taxis
11. **Single Window Clearance –** Providing all the necessary sanctions/clearances/licenses for industrial units under a single roof in a time bound manner.

12. **Industrial Land –** Development Plots at Mundakkal (houses 53 working units) and Chathannoor (houses 1 working unit), land under KINFRA (Mundakkal and Pathanapuram), SIDCO Industrial Estate (Umayaneloor, Kollam) and Mini Industrial Estates (23 Nos.)
13. **SIDCO Raw Material Bank –** At Development Plot, Mundakkal, Kollam which provides raw materials like wax.
14. **Vacant Land for Industrial Purpose –** Land identified at Paravoor Municipality, Kollam
15. **Public Procurement by PSUs –** 20% of the total requirements of raw materials/ production intermediates by any Public Sector Undertaking is to be met through Public Procurement from registered MSME units.
16. **Training Institutions –** Kerala Maritime Institute (@ Neendakara offering training in Marine studies). Also there are Food Craft Institute of GoI, KVK at Kottarakara

B. Weaknesses

1. **Lack of Marketing Support –** The main problem faced by the entrepreneurs is in marketing their produce. Absence of public trading centres and support to publicize their products through print & digital media is the main reason. Entrepreneurs face a shortage of Sales Emporium for solving many issues associated with marketing.
2. **Non-availability of raw materials –** Raw Materials for almost all sectors including food, textiles, general engineering, chemicals are being sourced from other districts and even from other states.
3. **Skilled Labour Shortage –** Absence of skilled labour in major labour oriented industries like general engineering, Chemical, Electrical and even food sector (to an extend). The labourers here are mostly from other states.
4. **Transportation –** Presence of inaccessible areas mainly in Anchal, Chittumala & Ithikara Block Panchyaths.
5. **Coastal Regulation Zone Guidelines (CRZ) –** Prevents setting up of industries in the coastal land upto 500 m from High Tide Line and a stage of 100 m along the banks of creeks, estuaries, backwater and rivers. This mainly affects Kollam

and Karunagappally Taluks.

6. **Power Shortage & Fluctuations –** Affects almost all areas including the Industrial Estates at Mundakkal, Umayanelloor and Chathannoor.
7. **Lack of Industrial Land –** The industrial estates are almost filled. The scope for identification of other industrial land for new entrepreneurs is very dull.
8. **Wetland Conservation Act –** Even the land is unsuitable for Agricultural purpose, this land cannot be used for industrial purpose as per the act which cuts short the industrial land availability.

C. Opportunities

1. **Kausal Kendras –** Proposed to impart training on entrepreneurship and overall personality development (@Chavara, Kollam)
2. **Kollam Harbour** - Provides a cheap means for export of goods.
3. **Fibre Park** – First natural fibre park of the state proposed to be set up at Chavara at an investment of Rs. 3 Crores.
4. **Indian Institute of Infrastructure and Construction** – Proposed to be set up at Chavara for Civil and Architecture enthusiasts.
5. **National Waterways** – Proposed national waterways from Trivandrum to Kozhikode provides a cheap means of transportation for finished products.
6. **Presence of NRIs –** Huge presence of NRIs mainly in Kollam and Karunagappally Taluks who are prospective investors on one hand vocationally/ professionally trained on the other.
7. **Food Processing** – Great scope for value addition in milk, rice, rubber. Presence of Dairy training Institute in Oachira aids this. Presence of vast stretches of rubber estates in Punalur, Pathanapuram and Kollam Taluks aids the growth and diversification in the rubber sector.

D. Threats

1. **Opinion from peers –** Prospective entrepreneurs are distracted by the views of other entrepreneurs regarding the hurdles involved in getting clearances from different Line Departments.
2. **Indifferent attitude from Private and Nationalized lenders –** Banks are hesitant in granting loans to new entrepreneurs and in most cases, the entrepreneurs are under financed whereby their working gets affected and the entrepreneur ultimately turns out to be a Non Performing Asset (NPAs). The presence of such NPAs is being cited by many lenders as the prime reason for staying back from lending to MSMEs. Banks usually cut short on the Working Capital requirements of MSMEs and further the norms for getting Working

Capital loan are very strict which includes collateral security.

3. **Lack of entrepreneurial culture among youth** – The present day youth are more concerned about job security and hence prefer a salaried job rather than an entrepreneurial venture.
4. **Handicraft Sector and Traditional Sector on the verge of extinction** – The present generation is not interested in going ahead with the handicraft sector owing to its labour intensive nature, low profitability and marketing difficulty.
5. **Competition from Cheap imported products -** Mainly from the Chinese market.
6. **Competition from Peers –** This occurs mainly in the food, construction materials (Cement blocks), textiles and General Engineering Sector.
7. **Revision of master plan** - The local bodies revises the respective industrial area without consulting Industries department

7.1.2 SWOT ANALYSIS - OTHER SECTORS

A. STRENGTH

1. District has a population of 2,635,375 (Male - 1,246,968 & Female - 1,388,407) and work participation rate 34.61% which is almost near to state average of 34.78%. Literacy rate is Kerala 94% and that of district is 94.09%

2. The fallow land other than current fallow, scattered in different parts of the district comes around 4364ha. The district consistently been placed first in the state in case of Tapioca cultivation which comes around 14584.96 and produces 530801.8 tons(19.9% of the state's production). The climate is ideal for tapioca cultivation in the entire district.

3. Forest area is 81438 ha. That is 32.7% of area of district is forest. Conserved biodiversity in eastern forests of the district is a rich source of medicinal plants.

4.Sasthamkotta lake is the only major fresh water lake in the State

5. Transportation - District has good transportation facility through Road, Rail

a.Road

Kollam is well-connected to all parts of the state by bus and train service. It is also connected to neighboring states by frequent bus service operated by the Kerala State Road Transport Corporation (KSRTC) and Indian Railways

There are 3 National Highways ; namely NH-66, NH - 83 and NH 744 and 2 State Highways; namely Main Central Road and Main Eastern Highway connecting Punalur with Muvattupuzha via Pathanamthitta. The interstate bus service in the district are operated by KSRTC as well as by Tamil Nadu and Karnataka states.

b.Rail

There are 2 major railway lines covering 132 kms and 25 railway stations in the district. Kollam district is the only district in the state having most number of railway stations

c. Water

The district is having a fairly good network of waterways. The Thiruvananthapuram-Shornur canal, which forms a part of the Thiruvananthapuram-Hosdurg system, runs a distance of about 62 km.

6. Fisheries sector- Kollam occupies a leading position in fisheries sector in the state and is first among the districts in India to introduce mechanization of boats. Kollam district is abundantly rich with marine, brackish water and fresh water resources. Ashtamudi lake and surroundings are found suitable for inland fishing

7. Mineral resources - Mineral sand deposits at the coastal line, China clay, Granite building stone and bauxite deposits are the major mineral resources

8. Tourism - Kerala is one of the major destinations of Backwater tourism in the international map and Ashtamudi in Kollam is one of the major destinations in Kerala. also the district has a tremendous opportunity for Adventure tourism

B.Weaknesses

1.Decadal Population growth (2001 - 2011) Kerala is 4.91% and District is only 1.94%

2.Density of population of the state is 860/sq.km while that of district is 1061/sq.km

3.District is far behind in production of Cashew with an area of 2334.24 ha and production of 643.655tons which is only 2.6% of state's production. Over the past 25 years or so there has been a sharp decline in the area, production of Cashew in the district.

4. Cultivation of tapioca in the district is not industry oriented . Absence of organized procurement and marketing systems has resulted in the closure of starch producing units in the district.

C. Opportunities

1.The ongoing Port development at Thangassery in Kollam, if it is developed with proper road facility for cargo movement , will help in the economic development of the district.

2. Medicinal Plants - A number of ayurvedic medicine preparing units in the district is in need of good quality medicinal plants. There is an increasing trend among people to use ayurvedic medicines. Large-scale cultivation of medicinal plants has to be taken up to meet the ever increasing demand of ayurvedic drug manufacturers' and aromatic industry.

3. Horticulture and Floriculture has good prospects considering the fertility and demand among people are considered. Also, wide range of value added can be made from tapioca and coconut.

4. With regard to Cashew immense demand for value added products in the foreign market is encouraging.

D. Threats

1. High population density of the district in general and in coastal areas in particular and

the presence of fragile ecosystems comprising water bodies, forest and paddy lands impose restriction on high level of industrialization of the district.

2. Forest area within the district is one of the main environmentally sensitive areas of the district

3.a. Lack of boat jetties and basic amenities on the wayside,

b. Lack of waste management system in tourist centres

c. Pollution of back waters generated by the house boats tourists

CHAPTER 8

8.1 Potential sectors identified at District Level

Category	Potential Sectors identified	Strategies for Development of identified sectors	Interventions needed for development of identified sectors identified sectors

Nano	Food Processing units	Providing finance through banks and subsidies through PMEGP.	Need a scheme to provide working capital assistance as Banks are hesitant in lending in this regard. Also to start common marketing centres to market the products.
	Tailoring	Providing finance through banks and subsidies through PMEGP. For group activities plan fund can also be utilised.	Easy loan sanction from banks to be assured and a new scheme for small household units is needed.
Micro	Automatic service stations	Providing finance through banks and necessary clearances through Single Window System.	New scheme for service sector needed in this regard.
Small	Rubber based industries.	Provide efficient licensing through single window system and fast financing from banks.	Delay in getting different consents from other departments need to be addressed.

CHAPTER 9

EMERGING SECTORS IN THE DISTRICT

Emerging sector in the District	**Ayurveda**
	Food processing Especially - Jack Fruit, Sea Food etc

CHAPTER 10

RESOURCE AND SKILL ANALYSIS

Sl No	Name of Block /Municipality	Resources available	Skilled Potential	Remarks
1	Mukhathala	Agriculture(paddy, Tapioca, Jack fruit,Cashew, Pepper,Pineapple …),Water, Minerals, Inland water tourism, Marine fish, Readymade garments	Cultivators,Food, Cashew processing,Tailoring	
2	Ithikkara	Agriculture(paddy, Tapioca, Jack fruit,Cashew,Pineapple, Pepper, …),Water, Minerals(Granite and Laterite), Inland water tourism, Marine fish, Readymade garments	Cultivators,Food, Cashew processing,Tailoring, Wood craftsman	

3	Chittumala	Milk products,Paultry, Agriculture(paddy, Tapioca, Jack fruit,Cashew,Pineaaple, Pepper, …),Water, Minerals (Rivwe sand&Laterite), Inland water tourism, Marine fish, Readymade garments	Cultivators, Food,Cashew processing, Fish processing	
4	Chavara	Water, Minerals (Ilmenite, Monosite etc), Marine fish, Readymade garments, heavy metals	Mining,Fish procesing, Tailoring, Food	
5	Sasthamkotta	Milk products,Paultry, Agriculture(paddy, Tapioca, Jack fruit,Cashew,Pineaaple, Pepper, …),Water, Minerals(brick's clay), Inland water tourism,	Cultivators,Mining,Fish procesing, Tailoring, Food and Wood processing, General Engg., Bamboo craftsmen	
6	Oachira	Milk , Water, Tourism, seafood	Food, Seafood processing, ScrewPine artisans &Ornaments craftsmen	
7	Vettikkavala	Milk products,Paultry, Agriculture(paddy, Tapioca, Jack fruit,Cashew, Pepper, …),Water, Minerals,	Cultivators,Food, Meat processing, Hollow Bricks and Ready made garments	
8	Chadayamangalam	Milk products,Paultry, Agriculture(paddy, Tapioca, Jack fruit,Cashew, Pepper, …),Water, Minerals	Cultivators,Food, Meat processing, Gen Engg.,Hollow Bricks and Ready made Garments	

9	Anchal	Milk products,Paultry, Agriculture(paddy, Tapioca, Jack fruit,Cashew,Pineapple, Pepper, …),Forest Resources, Water, Minerals, Reed , Bamboo	Cultivators,Food, Meat processing, Reed , Bamboo Craftsmen	
10	Pathanapuram	Agriculture(Tapioca, Jack fruit,Pineapple, Pepper, …), Minerals, Reed, Bamboo handicrafts	Cultivators, food processing, Crafts men, Furniture,Reed, Bamboo craftsmen	
11	Kottarakkara	Milk products,Paultry, Agriculture(paddy, Tapioca, Jack fruit,Pineapple, Pepper, …),tourism,minerals, handicrafts	Cultivators, food,Meat processing, Crafts men, Furniture,Gen Engg, Hollow Bricks, Ready made garments	
12	Punalur(M)	Agriculture(paddy, Tapioca, Jack fruit,Cashew,Pineapple, Pepper, …), Milk	Cultivators, Food processing	
13	Paravur (M)	Agriculture(paddy, Tapioca, Jack fruit,Cashew,Pineapple, Pepper, …),	Cultivators, Food processing	
14	Kottarakkara(M)	Agriculture(paddy, Tapioca, Jack fruit,Cashew,Pineapple, Pepper, …),Minerals	Cultivators, Food processing	
15	Karunagappally (M)	Agriculture(paddy, Tapioca, Jack fruit,Cashew,Pineapple, Pepper, …),Light Engineering, Readymade garments	Cultivators, Food processing, Gen.Engg., Tailoring	
16	Kollam ©	Marine fish, Inland Water tourism,Minerals(River sand), Paultry	Fish processing , Cashew processing and Meat processing	

CHAPTER 11

Suggestions and Recommendation to improve Industrial Scenario

i. The interest, positive outlook, managerial efficiency and capacity of the emerging entrepreneaurs to face the challenges shall be given utmost importance in selecting prospective entrepreneaurs. Others are given effective motivation and effective follow up in moulding an industrial community.

ii. Provide easy facility for emerging entrepreneaurs to provide necessary information in connection with industry; like incubation centres at Taluk/Block level.

iii. Facility for hassle free loan availability should be made and avoid delay in paper processing in giving grant/subsidy.

iv. Fix targets to service area financical institutions in providing loans to entrepreneaurs.

v. Prospective entrepreneaurs shall be given traing in Management of human resources as well.

vi. The Land scarcity is a major problem for industries other than Nano, Micro categories. Hence, LSGs can play a very important role in finding out available land.

vii. Ensure eco-friendly strategies in setting up an industry. Ensure sustainable development

viii. Online single window clearance system should be strengthened for granting permissions, addressing grievances , offering assistance and expediting approvals from line departments

ix. As far as Kollam district is concerned, Tourism sector is a promising area.considering the vast potential of Backwaters and hilly tracts

APPENDIX

PROJECT PROFILE

AYURVEDIC MEDICINES

Introduction

There is more recognition for no allopathic system of medicines in the country now than the past few decades. The concept of alternative system of treatment notably herbal and Ayurvedic medicines therapy is gaining ground and attracting attention worldwide. There is more and more scientific research being conducted in our country for treatment of various diseases by Ayurvedic and herbal therapy. A large number of diseases have Ayurvedic treatment much superior to the other system of medicines and this has been recognized world over. Thus Ayurvedic medicines/drugs are becoming popular day-by-day and demand for its usage is increasing not only in the country but also worldwide the inherent quality of Ayurvedic treatment of having negligible side/after effects, has made great potential for its production. A large number of medicinal plants, herbs, shrubs etc. are available in our country in the hilly/forest regions. In order to boost the production of Ayurvedic/herbal drugs, Govt. of India has also set up a Board namely Indian system of Medicine and Homeoepathy to encourage production of Ayurvedic medicines specially in the regions where basic raw materials are available in plenty. Moreover Kerala is famous for its Ayurvedic tradition. Thus there is a great potential for Ayurvedic medicines not only in the country but for export purpose also.

ECONOMICS OF THE PROJECT

1 Land		
		Own/Lease/Rented
2 Building		Rs. 500,000.00
3 Plant & Machinery		
1 Leaf Juice extractor	1 No.	Rs. 140,000.00
2 Disintegrator	1 No.	Rs. 31,000.00
3 D S Pulvarisor	1 No.	Rs. 28,400.00
4 10 HP Motor	1 No.	Rs. 19,750.00
5 Sealing machine	1 No.	Rs. 12,100.00
6 Cap Sealing	1 No.	Rs. 4,600.00
7 Steam Jacketed Kettle	1 No.	Rs. 218,000.00
8 Stirrer with 2 HP Motor	1 No.	Rs. 53,800.00
9 Triple Stage Baby Boiler	1 No.	Rs. 210,000.00
10 Wet Grinder	1 No.	Rs. 15,100.00

11 Feed Pump	1 No.	Rs. 13,500.00
12 Lab Equipments LS		Rs. 75,000.00
2		
13 Vessels LS		Rs. 128,300.00
14 Plumbing & Electrification		Rs. 50,450.00
Total		Rs. 1,000,000.00
4 Raw Material Required pe r month		
(25 days cycle)		
1 Plants		Rs. 38,000.00
2 Sugar/ Jaggary		Rs. 47,000.00
3 Honey		Rs. 15,000.00
4 Minerals		Rs. 12,500.00
5 Roots		Rs. 18,500.00
6 Twiners		Rs. 8,000.00
7 Bark of Trees		Rs. 10,500.00
8 Milk & Milk products		Rs. 15,000.00
9 Rhizomes		Rs. 12,500.00
10 Other Consumables		Rs. 30,000.00
11 Packing materials		Rs. 8,000.00
Total		Rs. 215,000.00
5 Staff & Labour per month		
1 Manager	1	Rs. 10,500.00
2 Accountant/ Store Keeper	1	Rs. 8,000.00
3 Peon	1	Rs. 4,000.00
4 Ayurvedic Pharmacist	1	Rs. 9,000.00
5 Lab Chemist	1	Rs. 9,000.00
6 Skilled Labours	2	Rs. 21,000.00
7 Semi Skilled	3	Rs. 22,500.00
8 Helpers for Packing , Labeling etc	15	Rs. 80,000.00
TOTAL	25	Rs. 164,000.00
Total		Rs. 164,000.00
6 Other Expenese per mont h		
1 Fuel & Electricity Charges		Rs. 6,500.00
2 Travelling & Trasporting Expenses		Rs. 18,000.00
3 Rent		
4 Postage & Stationery		Rs. 1,500.00
5 Communication		Rs. 1,500.00
6 Repair & Maintanance		Rs. 1,000.00
7 Other Unfore seen expenses		Rs. 1,500.00
Total		Rs. 30,000.00
7 Working Capital		
1 Stock of Raw Materials 45 Days		Rs. 387,000.00
2 Raw Materials in Process 15 Days		Rs. 129,000.00
3 Stock of Finished Goods 7 Days		Rs. 60,200.00
4 Credit Sale 21 Days		Rs. 180,600.00
5 One Month working expenses		Rs. 194,000.00
Total		Rs. 950,800.00
Say		Rs. 950,000.00
8 TOTAL CAPITAL INVESTMENTS		

1 Land Own	
2 Building	Rs. 500,000.00
3	
3 Plant & Machinery	Rs. 1,000,000.00
4 Working Capital	Rs. 950,000.00
5 Pre-oprative Expenses	Rs. 50,000.00
TOTAL	Rs. 2,500,000.00
9 SOURCE OF FINANCE	
1 Promoters Contribution	Rs. 662,500.00
2 Term Loan for Building	Rs. 375,000.00
3 Term loan for machinery	Rs. 750,000.00
4 Working Capital Loan	Rs. 712,500.00
5 Margin Money Loan	
TOTAL	Rs. 2,500,000.00
1 0 Cost of Production per m onth	
1 Raw materials	Rs. 215,000.00
2 Staff & Labour	Rs. 164,000.00
3 Other Expences	Rs. 30,000.00
4 Interest on Term Loan	Rs. 13,125.00
5 Interest on Working Capital Loan	Rs. 8,312.50
6 Interest on MML Rs. -	
7 Depreciation	Rs. 12,500.00
8 Sales Promotion Expenses	Rs. 10,200.00
TOTAL	Rs. 453,137.50
1 1 Revenue Per month	
1 By sale of various Ayurvedi c Medicin es	510,000.00
Total	Rs.510,000.00
1 2 Profit Per month	Rs.56,862.50
1 3 Profit per year	Rs.682,350.00
1 4 Provision for Taxes	Rs.150,705.00
1 5 Net Profit	Rs.531,645.00
1 6 Return on Investment	21.27%
1 7 Return on Sales	8.69%
18 Debt Service Coverage R atio	
for a repayment period of 5 years	2.03
19 Break-even based on 2nd year	35.79 %

Profile on Bakery Products

INTRODUCTION

Bakery Products have very good market in rural as well as urban areas of the District. Govt assistance can be availed from state govt as well as other schemes.

MARKET POTENTIAL

Fresh and hi quality bakery items are in good demand everywhere. Processing machinery and skilled labour are easily accessible. Finding a good location is essential.

Process of Manufacture

The raw materials are prepared, dough made with the requisite ingredients and cooked to the right finish in ovens. Packing of the products is done and taken to market.

Production Capacity [per annum] Quantity: 1252800 Nos. Value: Rs. 4600224

Motive Power 20KW (Approx.)

Pollution Control

Necessary pollution control measures should be taken to minimise sound, smoke, and for efficient waste disposal.

ECONOMICS OF THE PROJECT

ECONOMICS OF THE PROJECT

1 Land Rented
2 Building Rented

3 Plant & Machinery

1	Diesel roto Rack Oven having Capacity 144 Bread/half hour with 2 trolly,2 HP 440 V Electric Motor	1	7,25,000.00 Rs.7,25,000.00
2	50 Its (25kg)capacity Cake Kneading Mechine with Motor	2	72,000.00 Rs.1,44,000.00
3	Bread slicer	1	57,000.00 Rs.57,000.00
4	40 kg Flour Kneading machine with motor	2	70,000.00 Rs.1,40,000.00

5 Office furniture
Rs.50,000.00
6 Errection Transportation etc
Rs.1,00,000.00

Total
Rs.12,16,000.00

4 Raw Material Required per month

		Qty	Rate	
1	Maida	60	12	Rs.720.00
2	Sugar	12	840	Rs.10,080.00

3	ghee lilly red	840	8	Rs.6,720.00
4	ghee lotus	8	4	Rs.32.00
5	GSM for Cake	4	11200	
	Rs.44,800.00			
6	Egg	11200	8	
	Rs.89,600.00			
7	Palm oil	8	16	Rs.128.00
8	Sunflower oil	16	50	Rs.800.00
9	Icing Suger	50	40	Rs.2,000.00
10	jam	40	70	Rs.2,800.00

Total

Rs.1,57,680.00

Staff & Labour per month

1	Manager	1 NO.	17,500.00
2	Skilled Workers	3NOs.	52,500.00
3	Helpers	2 NOs	15,000.00
5	Marketing Staff	2NOs.	25,000.00
	Total	10 Nos.	**1,10,000.00**
	Add 20% Benefits		**22,000.00**
	Total		**1,32,000.00**

6 Other Expenese per month

1	Electricity Charges `	9,500.00
2	Travelling Expenses `	2,500.00
3	Postage & Stationery `	250.00
4	Communication `	1,000.00
5	Repair & Maintanance `	2,533.33
7	Transportation Expenses `	2,000.00
6	Other Unfore seen expenses	2,216.67
Total	`	20,000.00

7 Working Capital

1	Stock of Raw Materials	25	Days	`	1,57,680.00

2	Raw Materials in Process	1	Days	`	6,307.20
3	Stock of Finished Goods	1	Days	`	6,307.20
4	Credit Sale	5	Days	`	76,670.40
5	One Month working expenses				1,52,000.00
Total	`				3,98,964.80
Say	`				3,99,000.00

8 TOTAL CAPITAL INVESTMENTS

1	Pre operative expenses	`	22,000.00
1	Land	` -	
2	Building	` -	
3	Plant & Machinery	`	12,16,000.00
5	Working Capital	`	3,99,000.00
TOTAL		`	16,37,000.00

9 SOURCE OF FINANCE

1	Promoters Contribution	`	4,04,850.00
2	Term loan for building	` -	
3	Term loan for Plant & Machinery	`	9,72,800.00
4	Working Capital Loan	`	2,59,350.00
TOTAL		`	16,37,000.00

10 Cost of Production per month

1	Raw materials	`	1,57,680.00
2	Staff & Labour	`	1,32,000.00
3	Other Expences	`	20,000.00
4	Interest on Term Loan	`	9,728.00
5	Interest on Working Capital Loan	`	2,593.50
6	Interest on OTHER LOANS	` -	
7	Depreciation	`	10,133.33
8	Sales Promotion Expenses	`	7,667.04
TOTAL		`	3,39,801.88

11 Sales Revenue Per month

	Qty	Rate	
1 Puffs egg	18000	4.35	Rs. 78,300
2 Puffs Veg	6000	3.27	Rs. 19,620
3 Sweet Poratta	24000	3.27	Rs. 78,480
4 Icing Cake	6000	7.08	Rs. 42,480
5 Jam Cake	12000	3.27	Rs. 39,240
6 Cutlet meat	10000	4.35	Rs. 43,500
7 cutlet Veg	2000	3.27	Rs. 6,540
8 Cutlet Chicken	1200	8.17	Rs. 9,804
9 Resk	1200	10.89	Rs. 13,068
10 Khubboos	24000	2.18	Rs. 52,320
Total	104400		Rs. 3,83,352
Provision for damages & Wastage	7,667		
Total Sales `	3,75,685		

12	Profit Per month	`	35,883

13	Profit per year `	4,30,597.00
14	Provision for Taxes `	23,059.70
15	Net Profit `	4,07,537.30
16	Return on Investment	24.90%
17	Return on Sales	8.86%
18	Debt Service Coverage Ratio (for a repayment period of 5 years)	2.36
19	Break Even Point	51.97 %
20	Payback Period	4.02 Years

BAMBOO AND CANE FURNITURE MANUFACTURING

1. Introduction

Furniture items like tables, chairs, stools and small fancy items are made from cane and bamboo. Cane and bamboo furniture's are attractive and elegant.

2. Market potential

Both upper and middle class people, restaurant and guesthouses demand such furniture. The making of furniture from cane and bamboo is regarded as local handicrafts and the State Governments are also promoting these handicrafts. The furniture made from cane are very attractive, it has a great demand in the market

3. Technical details & manufacturing process

The unit is aimed to produce different furnitures like sofa set, chairs and other decorative items by using bamboo & cane materials. With regard to manufacturing process, these materials are cut to the required size and length. Design and carvings are made and these parts are then joined together with the help of nails etc. as deemed fit for the end product. These products are subsequently polished by varnish.

(a) Land & building

A built up area of at least 100 sq.mt. is required for this project. This can be rented easily and the rent amount is likely to be around Rs.2000/- month.

(b) Plant & machinery

S. No.	Particulars	Quantity	Amount (in Rs.)
1	Portable drilling machine 1/4" cap	5 nos.	25,000.00
2	Carpentry tools, work benches, clamps, vice etc.	L.S	15,000.00
3	Painting brush & other accessories	L.S	10,000.00
	TOTAL		**50,000.00**

(c) Misc. fixed assets

S. No.	Particulars	Amount (in Rs.)
1	Furniture & fixtures	10,000.00
2	Electrification	10,000.00
	TOTAL	**20,000.00**

(d) Preliminary & preoperative expenses

This includes initial travel, legal documentation and interest during implementation, Rs.10,000/- has been considered under this head.

(e) Manpower requirement

S. No.	Particulars	Nos.	Salary /Month	Total (In Rs.)
1	Skilled labour	2	2,500.00	5,000.00
2	Semi-skilled labour/helpers	3	1,000.00	3,000.00

	TOTAL	**8,000.00**

(f) Utilities

This includes expenses incurred for power, water and fuel etc. and Rs.1000/- per month is considered for the scheme.

(g) Other expenses (per month)

S. No.	**Particulars**	**Amount (in Rs.)**
1	Rent	2,000.00
2	Stores & sparesSales & Marketing, transport exp.	500.00
3	Misc. expenditure	1,000.00
4		1,000.00
	TOTAL	**4,500.00**

4. Cost of project

S. No.	**Items**	**Total cost (in Rs.)**
1	Building	Rented
2	Plant & machinery	50,000.00
3	Misc. Fixed Assets	20,000.00
4	Preliminary & Pre-operative expenses	10,000.00
5	Working capital Margin	33,000.00
	TOTAL	**1,13,000.00**

5. Means of finance

S. No.	**Source**	**Amount (in Rs.)**	**% age**
1	Promoter's contribution	3000.00	2.65
2	MML - SCA	12,000.00	10.62
3	Term loan – NSTFDC	98000.00	86.73
	TOTAL	**1,13,000.00**	**100.00**

Note: The State Channelising Agencies shall arrange to provide subsidy to beneficiary(ies) as per norms of their Corporation. Further, SCAs may also make efforts to avail incentive/subsidy from other centrally sponsored schemes.

6. Raw material requirement

S. No.	**Particulars**	**Quantity**	**Unit cost**	**Total cost (in Rs.)**
1	Cane & bamboo materials	L.S		50,000.00
2	Nails, screws etc.	20 packets	25.00	500.00
3	Varnish	20 ltr.	50.00	1,000.00
4	Painting brush	10 nos.	100.00	1,000.00
	TOTAL			**52,500.00**

7. Working capital requirement

S. No.	**Particulars**	**Amount (in Rs.)**
1	Raw materials	52,500.00
2	Salary & wages	8,000.00
3	Other expenses	4,500.00
4	Utilities	1,000.00
	TOTAL	**66,000.00**
		Amount (in lakhs)

5	Total working capital requirement 2 months x 0.66	1.32
6	Working capital margin @ 25%	0.33

8. Sales (per month)

S. No.	Particulars	Quantity	Unit cost	Total cost (in Rs.)
1	Sofaset (big size)	25	1,500.00	37,500.00
2	Sofaset (medium size)	20	1,000.00	20,000.00
3				

9. Project economics **(Rs.in lakhs)**

S. No.	Particulars	From 1st year onwards
A.	**No. of working days in a year**	300 days
B.	**Sales Realisation (Rs. 73,500/ months x 12 months)**	8.82
C.	**Cost of production**	
(i)	Raw materials	6.30
(ii)	Salary & wages	0.96
(iii)	Other expenses	0.54
(iv)	Utilities	0.12
(v)	Sustenance allowance	0.18
	Total cost of production	**8.10**
D.	**Gross profit (A-C)**	**0.72**
E.	**Interest (Working capital & term loan)**	**0.19**
F.	**Depreciation (20%)**	**0.08**
G.	**Profit before tax**	**0.45**
H.	**Tax liability**	**-**
I.	**Profit after tax**	**0.45**
J.	**Cash profit**	**0.53**

10. Viability indicators

S. No.	Particulars	Amount
1	Repayment per annum (period - 5 years)	0.22
2	Return on investment	39.82%
3	Debt service coverage ratio	1.75

11. Interest, moratorium & repayment period for beneficiaries

(a) Interest : 6% p.a. on NSTFDC term loan
(b) Moratorium period : 6 months from date of release of funds bySCA.
(c) Repayment period : 5 years excluding moratorium period.

12. Assumptions/remarks

Optimum working capital cycle has been considered for calculating the requirements. Raw materials shall be procured from local areas and quotations, wherever applicable may be obtained.

The cost of project will vary in different States & Regions.

It is assumed that the products have good demand, and thepromoters have sound experience in the relevant fields.

C N C ROUTER
(CRAFTED BUILDING MATERIALS)

1.0 Introduction

From time immemorial timber had been in use for the construction of buildings and for the manufacturing of furniture and other building material items. This was primarily due to its immense availability , durability and capacity to withstand to the climatic conditions in Kerala. At present due to the lack hardwood, other substitutes have been tried to replace timber from furniture manufacturing and building construction. Even though most of our building's doors , cupboards , hand rails etc are decorated with traditional wood craft items there are many substitute material is available now in our market like Hylum , Acrylic , Forex , MDF, RWD etc. which has long durability, attractive finish, low maintenance , low cost etc. There is even more demand for the crafted items in these materials for decorating the doors , cupboards , hand rails etc. not only in the field of residential constructions but in commercial buildings also..

ECONOMICS OF THE PROJECT

1 Land		Leased
2 Building		Rs. 500,000.00
3 Plant & Machinery		
1. C N C Router	1	Rs. 13,5 0,000.00
2. Stabiliser	1	Rs. 22,000.00
3. Desk Top PC :		Rs. 22,000.00
4. Printer & Scanner :		Rs. 8,000.00
5. Portable Curcular Saw	1	Rs. 6000.00
6. Hand Drill	1	Rs. 3000.00
7. Angle Grinder	1	Rs. 3000.00
8. Oscilating Sander-Electric	1	Rs. 2500.00
9. Spnner Set - Full Range	1set	Rs. 3000.00
10. Screw Driver Set-Full Range	1set	Rs. 1500.00
11. Drill Bits-High Precission Full Range	1set	Rs. 5000.00
12. C Clamp -Full Range	1set	Rs. 2000.00
13. Vacum Cleaner	1	Rs. 9000.00
14. Compressor With Gun	1	Rs. 22000.00
15. Spirit Level	1	Rs. 500.00
16. Portable Hand Router	1	Rs. 10500.00
17. Blade - High Carbon	1set	Rs. 2000.00
18. Industrial Electrification, Errection , Furniture etc .etc		Rs. 28,000.00
TOTAL :-		Rs. 15,00,000.00

4 Raw Material Required per month

(25 days cycle)

a. M D F 15 Nos Rs. 85,000.00

b. R W D 18 Nos	Rs. 1,05,000.00
c. Acrylic Sheet 18 Nos	Rs. 1,00,000.00
d. Hylum Sheet 16 Nos	Rs. 80,000.00
e. Forex Sheet 12 Nos	Rs. 27,500.00
f. Other Consumables like Polish , Wax etc	Rs. 52,500.00
	Rs. 4,50,000.00

5 Staff & Labour per month

1 Clerk	1	Rs. 9,000.00
2 Skilled Workers	2	Rs. 24,000.00
3 Helper/ Trainee	3	Rs. 27,000.00
Total		Rs. 60,000.00

6 Other Expenese per m onth

1 Electricity Charges	Rs. 2,500.00
2 Carriage	Rs. 3,000.00
3 Repairs	Rs. 1,000.00
4 Contigent	Rs. 1,000.00
5 Postage & Stationery	Rs. 500.00
6 Communication	Rs. 500.00
7 Transporting / Travelling	Rs. 1,500.00
8 Petty Office	Rs. 1,000.00
Total	Rs. 11,000.00

7 Working Capital

1 Stock of Raw Materials	20Days	Rs. 360,000.00
2 Raw Materials in Process	1 Days	Rs. 18,000.00
3 Stock of Finished Goods	Days	Rs. -
4 Credit Sale	10 Days	Rs. 180,000.00
5 One Month working expenses		Rs. 71,000.00
Total		Rs. 629,000.00
Say		Rs. 600,000.00

8 TOTAL CAPITAL INVESTMENTS

1 Land Own	
2 Building	Rs. 500,000.00

3 Plant & Machinery	Rs. 1,500,000.00
4 Working Capital	Rs. 600,000.00
TOTAL	Rs. 2,600,000.00

9 SOURCE OF FINANCE

1 Promoters Contribution	Rs. 650,000.00
2 Term Loan for Building	Rs. 375,000.00
3 Term loan for machinery	Rs. 1,125,000.00
4 Working Capital Loan	Rs. 450,000.00
5 Margin Money Loan	
TOTAL	Rs. 2,600,000.00

10 Cost of Production per month

1 Raw materials	Rs. 450,000.00
2 Staff & Labour	Rs. 60,000.00
3 Other Expences	Rs. 11,000.00
4 Interest on Term Loan	Rs. 17,500.00
5 Interest on Working Capital Loan	Rs. 5,250.00
6 Depreciation	Rs. 25,000.00
7 Sales Promotion Expenses	Rs. 13,000.00
TOTAL	Rs. 581,750.00

11 Revenue Per month

Sales of various crafted items in LS	650,000.00
Total	Rs.650,000.00
12 Profit Per month	Rs.68,250.00
13 Profit per year	Rs.819,000.00
14 Provision for Taxes	Rs.191,700.00
15 Net Profit	Rs.627,300.00
16 Return on Investment	24.13%
17 Return on Sales	8.04%
18 Debt Service Coverage Ratio	1.84

for a repayment period of 5 years

19 Break even (on the basis of 2nd yearoperation)

40.14 %

PROJECT PROFILE

ON

CASHEW NUT SHELL LIQUID

MONTH & YEAR

JULY 2011

PREPARED BY

TANSTIA -FNF SERVICE CENTRE

B-22,INDUSTRIAL ESTATE,

GUINDY,CHENNAI-600 032

CASHEW NUT SHELL LIQUID

A. INTRODUCTION

Cashew nut Shell Liquid (CNSL) is a reddish brown viscous liquid, having the honey comb structure of the shell of cashew nut obtained from cashew tree. Cashew Nut Shell Liquid (CNSL) is a versatile by-product of the cashew industry. The nut has a shell of about 1/ 8 inch thickness inside which is a soft honey comb structure containing a dark, reddish brown viscous liquid. It is called cashew nut shell liquid, which is the pericap fluid of the cashew nut. It is often considered as the better and cheaper, material for unsaturated phenols. C.N.S.L. has innumerable applications in polymer based industries such as friction linings, paints and varnishes, laminating resins, rubber compounding ,resins, cashew cements, polyurethane ,based polymers, surfactants, epoxy ,resins, foundry chemicals and ,intermediates for chemical industry. It offers much scope and varied opportunities for the development of other tailor - made polymers.

B. PRODUCT USES AND SPECIFICATIONS

Specifications

Natural CNSL

Anacardic acid	80.9%
Cardiol	10-15%

Small amounts of other materials notably the methyl derivatives of cardiol

CNSL extracted with low boiling petroleum

Anacardic acid	90%
Cardo	l 10%

i) The revised specifications of the Indian Standards Institution, New Delhi, for untreated cashew nut shell liquid (IS 840:1964) is reproduced below

Specific gravity 30 degree C	0.950 to 0.97
Viscosity at 30 degree C, in centipoises	550
Moisture, % by weight	1.0
Matter insoluble in toluene, % by weight	1.0
Loss in weight on heating, % by weight	2.0
Ash, % by weight	1.0
Iodine value	
a) Wij's method	250
b) Catalytic method	375
Polymerization	
a) Time in minutes	4
b) Viscosity at 30 degree C, in centipoises	30
c) Viscosity after acid washing at 30ºC, in centipoises	200

Colour shall be not deeper than dark brown when viewed by transmitted light.

(ii) Specification for treated Cashew Nut Shell Liquid

The cashew nut shell liquid as extracted has a strong vesicant dramatic action. Before this liquid is utilised for preparation of resins, it requires treatment to get rid of metallic impurities as well as traces of sulphur compounds. The liquid thus treated is known as treated Cashew Nut Shell Liquid. The specification of treated cashew liquid is as follows:

Specific gravity at 25 degree C	0.955-0.975
Viscosity at 25 degree C (Max)	800cps.
Iodine Value (Min)	240.00
Ash (Max)	1%
Moisture (Max)	0.5%
Acid V	14

(iii) Specification for Cold pressed Cashew Nut Shell Liquid

Cashew Nut Shell Liquid is also produced by the 'Cold Pressed' method in solvent extraction plant. The specifications of this liquid are as follows:

Specific gravity at 26 degree C	0.9668-1.0131
Refractive index at 41-50 degree C	1.5158
Saponification number	106-119
Iodine number	170-296
Acid number	94-107

Inspection and Quality Control
Quality Specifications:
Revised IS specifications of CNSL No: IS 840:1964.
APPLICATION OF CNSL RESIN

General Details

Cashewnut Shell oil is extracted from the honey-combed shell of the cashew nut and then sold in its raw or distilled form into two different markets: auto brake linings and industrial and marine coatings. In the coatings arena, cashew nut shell oil is used as a key raw material in the production of curing agents for special epoxy hardeners and epoxy resins.

Coating sector	Industrial and marine coatings. Paint (anti corrosive) and enamels, varnishes rubber industry to enhance the vulcanisate properties. Lacquers developed from CNSL could be used for insulation, protective or decorative coatings for furniture, buildings, automobiles, etc. In the coating arena, cashew nut shell oil is used as a key raw material in the production of curing agents for special epoxy hardeners and epoxy resins.
Construction sector	For cementing floors exposed to chemical attack.
Laminating industry	For reducing brittleness and improving the flexibility of the laminates.
Substitute	As a substitute for linseed oil in the manufacture of foundry core oil, which is used as a binder in the foundry.
Automobile	Auto brake lining

New applications:

Using cash nut shell liquid, novel and cheaper liquid crystalline polyester has

been synthesized that can substitute for polymer fibres and films in specialty applications.
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Liquid crystalline (lc) polymers have attracted much attention in recent years because of their potential use as high performance materials.

Paints and Enamels

Because of its dark colour, CNSL is used in the manufacture of dark coloured

paints and enamels.
A number of anticorrosive paint formulations for ship bottoms have been made by the Regional Research Laboratory, Hyderabad, the Central Institute of Fisheries Technology, Cochin, Bombay University and the Research, Design and Standards Organisation, Lucknow.
Paints and varnishes made from CNSL have superior properties than those of conventional oils or synthetic resins. Varnishes resistant to water and gasoline have been made by incorporating sulphur in CNSL.
Lacquers developed from CNSL could be used for insulation, protective or decorative coatings for furniture, buildings, automobiles, etc. The films have toughness and elasticity, excellent gloss and superfine adhesive qualities. The dried films are superior to those of ordinary oil paints in respect of resistance to oils, grease moisture and chemicals. Cashew lacquers are cheaper than ordinary oil varnishes.

Electrical Insulating Varnishes
Electrical Insulating varnishes are obtained by treating CNSL with formaldehyde and compounding the resulting material with pure phenolic resin varnish or alkyd resin in suitable proportions. Films of those materials are water and chemical resistant and can be used as insulating varnished with high electrical resistance and as bobbin enamels and laboratory table tops
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Polymers
Cashew polymers react with formaldehyde to give a rubbery gel, which can be used as a cement hardening agent that would be immune to acids and alkalis reaction. It can be used for cementing floors exposed to chemical attack.
CNSL modified by heating at 160 deg.C. in the presence of certain accelerators give stoving enamels that are resistant to alkali and acid solutions, mineral and fatty oils and various organic solvents. Coating compositions possessing insecticidal properties are obtained by adding DDT, Gammexane etc., to CNSL or chlorinated CNSL after treatment with Formaldehyde gums and resins and drying or semi-drying oils.
Apart from the polymeric products, CNSL forms the basic raw material for a vast number of industrially important chemicals and chemical intermediates. Chlorinated products of cardanol and hydrogenated cardanol are found to have pesticidal action. The various components of cardanol can be suitably modified to obtain emulsifiers and surface active agents, dyestuffs, antioxidants, plasticizers, stabilizers, accelerators, curatives, reclaiming agents and ionexchange resins.

Lamination

CNSL or Cardanol derivatives are extensively used in the laminating industry for reducing brittleness and improving the flexibility of the laminates.

A CNSL based adhesive for blending concrete to wooden surface has been developed by the Central Building Research Institute, Roorkee. Adhesives suitable for plywood are made by oxidising CNSL with potassium permanganate or Manganese dioxide at 100 deg. C reacted with Paraformaldehde and compounded with cuprous chloride. Also CNSL modified with furfural, aniline, xylol etc, gives good plywood adhesives.

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Rubber Products

The use of CNSL in rubber compositions has been found to improve the performance of rubber products. It helps processing and enhances the vulcanizate properties. CNSL enhances the insolubility of natural rubber vulcanizates in petroleum solvents. It helps in the incorporation of ingredients into rubber and increases its resistance to moisture. Oxides of Cu, Ba, Zn, etc. harden CNSL and give hard products.

Phenoplasts

Cardanol and its derivatives can also be converted to phenoplasts with better processability, hydrocarbon solubility and resistance to acids and alkalies than the conventional phenol-based systems. Moulding powders from CNSL, shellac, and fillers such as wood flour, sawdust, asbestos, etc. are found to give articles with excellent finish, good flexural and tensile strengths and satisfactory water resistance.

Stable rigid or flexible covering materials in the form of tiles sheets, etc., are made from compositions containing CNSL, formalin, natural rubber and synthetic rubber and other conventional ingredients.

Light weight, sandwich type plastics, composite panels suitable for partitions, claddings, flush doors etc. Have been developed using resins based on CNSL. Foam plastics based on CNSL and its derivatives have also been made.

The use of CNSL in rubber compositions has been found to improve the performance of rubber products. It helps processing and enhances the vulcanizate properties.

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CNSL enhances the insolubility of natural rubber vulcanisates in petroleum solvents. It helps in the incorporation of moisture. Oxides of Cu, Ba, Zn, etc. Harden CNSL and give hard products.

CNSL also finds use in making floor tile laminate resins, oil-cloth finish compositions and as a rubefacient and vessicant in treating skin diseases and in tropical medicine. CNSL, is a unique monomer source for unsaturated phenols which can be polymerized to get various polymeric products can be suitably modified to chemical intermediates for industrial uses.

Modified CNSL

The various components of cardanol can be suitably modified to obtain emulsifiers and surface active agents, dyestuffs, antioxidants, plasticizers, stabilizers, accelerators, curatives, reclaiming agents and ion-exchange resins. CNSL modified by heating at 160-300 deg.C in the presence of certain accelerators give stoving enamels resistant to alkali and acid solutions, mineral

and fatty oils and various organic solvents.

Coating compositions possessing insecticidal properties are obtained by adding DDT, gammexane, etc. to CNSL or chlorinated CNSL, after treatment with formaldehyde, gums and resins and drying or semi-drying oils.

Derivatives of CNSL

CNSL or Cardanol derivatives are extensively used in the laminating industry for reducing brittleness and improving the flexibility of the laminates.

Adhesive

A CNSL-based adhesive for blending concrete to wooden surface was developed by the Central Building Research Institute, Roorkee. Adhesives suitable for plywood are made by oxidising CNSL with potassium permanganate or

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manganese dioxide at 100degC reacted with paraformaldehyde and compounded with $CuCl_2$. Also CNSL modified with furfural, aniline, xylol, etc. gives good plywood adhesives.

Binder in the foundry

CNSL is also used as a substitute for linseed oil in the manufacture of foundry core oil, which is used as a binder in the foundry.

Basic raw material

Apart from the polymeric products, CNSL forms the basic raw material for a vast number of industrially important chemicals and chemical intermediates.

Pesticidal action

Chlorinated products of cardanol and hydrogenated cardanol are found to have pesticidal action.

New polyester from cashew nut shell liquid

Using cashew nut shell liquid, a group of scientists have synthesised a novel and cheaper liquid crystalline polyester that can substitute for polymer fibres and films in specialty applications.

The team includes a scientist (RRL), Trivandrum, who is on a fellowship at the University of Strathclyde, Glasgow, United Kingdom, and D.C.Sherrington and A. Sneddon from Strathclyde. Their work was reported in the journal Polymer.

Liquid crystalline (LC) polymers have attracted much attention in recent years because of their potential use as high-performance materials. Earlier attempts to prepare the motropic LC polymers have met with varied success as they yielded products that were insoluble and could not be easily processed.

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Since then, scientists have been attempting to lower the melting point of these polyesters by various chemical methods to make them easy to process. The Glasgow team developed a new method using a natural material cardanol obtained from cashewnut shell liquid (from the plant Anacardium polymer poly (1,4-benzoate-1,3-phenyl octanoate).

Cardanol is similar to phenol except that it has an additional 15-carbon unsaturated sidechain. Like phenol, cardanol can be polymerised with formaldehyde. It can undergo a variety of polymerisation reactions and chemical modifications because of the additional side-chain Earlier studies by Pillai have shown that high-performance and speciality polymers could be produced from cardanol.

The significance of the new copolyester obtained by Pillai and his Strathclyde colleagues is that its transition temperature-256degC-is lower than that of two

commercially available LC co-polyesters in the United States. These two polyesters-known in the market as Vectra and Xyder-have melting points near 300degC and are, therefore, difficult to process. The cost that of other similar products.

Medicinal applications

Cashew, the king of dry fruits, is not merely the best topping for a delicious last course, it is also an aphrodisiac that can boast of many curative properties.

The latent and benign medicinal properties of cashew, of which India is the largest producer worldwide, are enormous, according to research data published by the Cashew Export Promotion Council of India, at Kochi.

Laden with 21% protein and an equally high percentage of poly unsaturated fatty acids, cashew helps in reducing the blood cholesterol level considerably preventing possibilities of heart attacks. With an exceedingly low content of saturated fat and soluble sugar, cashew could slim down one's waistline.

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Besides, cashew kernels, rich in calcium, phosphorous and iron, can help prevent anagemia and nervous system ailments, the research found. In fact, the vegetable proteins contained in cashew kernels stand at par with milk, eggs and meat. Besides, it also contains a high concentration of much needed acids in right proportions, generally very rare in nuts.

A cashew kernel contains 47% fat, 82% of this fat is unsaturated fatty acids. This unsaturated fatty acids helps in lowering blood's cholesterol level. The most prominent vitamins in cashew are vitamin A, D and E. These vitamins help in assimilating the fats and increase the immunity level. Being a rich source of minerals like calcium, phosphorus and iron, consumption of cashew kernels can help protect the nervous system as well.

According to the Indian Cashew Journal, an official publication of the Cashew Export Promotion Council, cashew kernel is very low on carbohydrates-as low as one per cent of soluble sugar-which means that one is privileged to a sweet taste without worrying about excess calories. One big property of cashew is that it helps in controlling diabetes, says the journal.

The recently discovered vitamin-PP also develops when a cashew is roasted, the journal says, adding that these vitamins exert a sparing action on the B group vitamins and assist in metabolism of lactose and thiamine. The presence of vitamin E in cashew takes care of all reproductive problems and prevents the development of oxidative rancidity in fats.

According to experts, at the council, high content of linoleic acid in cashew kernel makes it an ideal digestive assimilative stimuli since linoleic acid has a structure best suited to the synthesis of prostaglandins, the wonder substance found in many body organs and having a profound influence on various body functions. The process roasting and toasting kernels assists in increasing these properties.

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Cashew kernel oil is also considered a good mechanical and chemical antidote for irritant poisons, and it is a vehicle for liniments and other external applications, experts point out. The kernel is also used as a substitute for almond mixture, and is a good food for patients suffering from incessant and chronic vomiting.

One of the most popular systems of Indian medicine, Ayurveda also lists quite a few unique curative properties of Indian cashew nut and prescribes it as a good stimulant, rejuvenator, appetiser, excellent hair tonic aphrodisiac and restorative. Experts say raw cashew fruit was used as an anaesthetic in leprosy, and also for curing warts, corns and ulcers.

The juice of the nut is used as a substitute for iodine while the oil obtained from the shell is good for cracks in feet. The cashew apple contains 10.44 per cent of fermentable sugars and 261.5 mg per 100gm of vitamins C, giving both the fruit and the wine made of it very good antiscorbutic properties. The liquor is also valued as a diuretic with healthy effect on kidneys and advanced cases of cholera.

Apart from its commercial importance as an intoxicant liquor, cashew feni, very popular in Goa, is said to have high medicinal value and has for centuries been used by the Goans as a cure for ailments ranging from worm sickness in children to diahrroea and even cholera.

C. MARKET POTENTIAL

Currently, 60,000 tonnes of CNSL is produced in the country as against the potential of 160,000 tonnes (about 15 per cent of the nut weight is liquid). While Karnataka produces one-third of the total output at 20,000 tonnes per annum, Kerala, Tamil Nadu, Goa, Andhra Pradesh and Orissa contribute the rest.

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The shell liquid, which is extracted out of the outer shell of the nut, also has industrial applications in the automotive industry, leather, and tobacco curing. Recently, this has found application in the energy sector too. CNSL-based derivatives have been used as substitute for phenol.

CNSL is also used in the making of resins for paints and foundry core oils, insulating varnishes and the like.

Of late, the shell liquid has been extensively distilled to produce Cardanol, which is used in the preparation of friction dust for brake linings and also in rubber compounding formulations.

Recently, there have been enquiries for CNSL as an energy input. CNSL has qualities replicating furnace oil. The potential as fuel gives it additional value. As a bio-fuel, it can compete with costlier petroleum products. This development augurs well for the cashew value chain and eventually assists the growth of large-scale cultivation in India in non-traditional areas. At the same

time, traditional users will have to adjust to newer prices.
The demand is increasing in usage sectors. There is export potential also. As the user sectors of Cashew nut shell liquid is growing faster the demand for CNSL is also going up .If adequate quantity of raw material is available the unit can be started.

D. TECHNICAL ASPECTS

1. INSTALLED CAPACITY

The installed capacity of the unit is 300 Tonnes of Cashew nut shell liquid per annum on three shift basis,8 hours per day, for 300 days.

2. PLANT AND MACHINERY
The following items of equipment are required.

Items	Qty nos
2 HP Motor for Filter Press	1
Miscellaneous Equipments	
Filter press-22 plates 22'×22' with plunger pump	1
4. Lab. glass equipment balance, etc	
M.S. 2500 lt. cap	3
Oil expeller 4.5MT cap hrs mounted on steel fabricated channel fitted with oil tray. Thrust bearings single helical generator with 20 HP motor, starter and all other accessories	1
Installation and Electrification	

4. RAW MATERIAL

The raw material required for cashew shell liquid is the cashew shell .Any cashew processing areas of Tamilnadu and Kerala are suitable for starting the industry. The raw material requirement is 300 MTs of cashew nut shells and

the cost is estimated at Rs.500 per MT.

Major Cashew producing states

States	Area in hectares	Production in tonnes
Kerala	120000	100000
Maharashtra	103500	60000
Andhra Pradesh	124100	500000
Orissa	108600	45000
Karnataka	87000	35000
Tamil Nadu	80500	30000
Goa	52000	25000

5. LAND & BUILDING

Land required – Half an acre Cost Rs.7.50 lakhs
Building area 2000 sq.ft –Cost Rs.16.00 lakhs

6. UTILITIES

Power:

The total power requirement of the unit will be 30 HP .Fuel required10 litres per day.

Water:

Water is required only for human consumption.

Man power:

Category	Nos.	Monthly Salary	Total monthly Salary
Supervisor	1	9000	9000
Skilled	2	7000	14000
Helpers	4	5000	20000
Clerk	2	6000	12000
			55000
Add : Benefits		20%	11000

Total 66000

Total wages per annum

[Rs.lakhs] Rs.7.92 lakhs

7. IMPLEMENTATION SCHEDULE

If financing arrangement is made available the project can be implemented with in three month's period.

8. ASSUMPTIONS

Installed capacity per annum	Cashew nut shellLiquid-300 MT
Capacity utilization-Year -1	60%
Year-2	70%
Year-3	80%
Selling price per unit	Cashew nut shell liquid-Rs.38000 /MT
Raw material	Cashew nut shells Rs.45.00 lakhs per Annum
Consumables /Packing materials	Rs.2200 per MT
Power and Fuel-100% (Rs.lakhs)	Rs.7.17lakhs
Wages & salaries -100% (Rs.lakhs)	Rs.7.92 lakhs
Repairs & Maintenance- p.m.	Rs.20000/-
Depreciation	Written down value Method
General & administration Expenses per Month	Rs.50000/-

Selling expenses	3% on Sales
Interest on term loan and Working capital Finance	capital finance 14% p.a.
Income tax provision	34% on profit

LIST OF MACHINERY SUPPLIERS

1. ABC Agro foods Machines (India) Pvt ltd
284, Dr. Ambedkar Road,
Velandipalayam,
Coimbatore, - 641 025
19
2. Kumar Industrial Works
43-45, Sidco Industrial Estate,
Five Roads, Salem,- 636 004,
3 .Dhanalakshmi Industries
201-204, Suramangalam Road,
Salem - 636009,
4. Mavinchandra and Co.,
180,Linghi Chetty Street,
Chennai-110001

LIST OF RAW MATERIAL SUPPLIERS

Local cashew nut factories in Panruti and Marthandam in Tamilnadu and other Cashew processing areas in Kerala Karnataka and Goa.

FINANCIAL ASPECTS

1. COST OF PROJECT

	[Rs.lakhs]
Land	7.50
Building	16.00
Plant & Machinery	30.00
Technical know how fees	1.00
Other Misc. assets	5.00
Pre-Operative expenses	15.00
Margin for WC	3.03
	77.53

2. MEANS OF FINANCE

Capital	37.53
Term Loan	40.00
	77.53

3. COST OF PRODUCTION & PROFITABILITY STATEMENT

[Rs.lakhs]

Years	1	2	3
Installed Capacity (MT)	300	300	300
Utilisation	60%	70%	80%
Production/Sales (MT)	180	210	240
Selling Price per MT	Rs.38,000		
Sales Value (Rs.lakhs)	68.40	79.80	91.20
Raw Materials	27.00	31.50	36.00
Packing materials	3.96	4.62	5.28
Power & fuel	4.30	5.02	5.74
Wages & Salaries	7.92	8.32	8.74
Repairs & Maintenance	2.40	2.64	2.90
Depreciation	5.15	4.40	3.77
21			
Cost of			
Production	50.73	56.50	62.43
Admin. & General expenses	6.00	6.30	6.62
Selling expenses	2.05	2.39	2.74
Interest on Term Loan	5.60	4.90	3.50
Interest on Working Capital	1.54	1.54	1.54
Total	65.92	71.63	76.83

Profit Before Tax	2.48	8.17	14.37
Provision for tax	0.84	2.78	4.89
Profit After Tax	1.64	5.39	9.49
Add: Depreciation	5.15	4.40	3.77
Cash Accruals	6.79	9.79	13.26

4. WORKING CAPITAL:

	Months Consumptions	Values	%	Margin Amount	Bank Finance
Raw Materials	3.00	6.75	25%	1.69	5.06
Finished goods	0.25	1.06	25%	0.27	0.79
Debtors	1.00	5.70	10%	0.57	5.13
Expenses	1.00	0.50	100%	0.50	0.00
		14.01		3.03	10.98

5. PROFITABILITY RATIOS BASED ON 80% UTILISATION

Profit after Tax = 9.49 / Sales 91.20 = 10%

Profit before Interest and Tax = 19.41 / Total Investment 88.51 = 22%

Profit after Tax = 9.49 / Promoters Capital 37.53 = 25%

6. BREAK EVEN LEVEL

Fixed Cost (FC):

	[Rs.lakhs]
Wages & Salaries	8.74
Repairs & Maintenance	2.90
Depreciation	3.77

Admin. & General expenses	6.62
Interest on TL	3.50
	25.53
Profit Before Tax (P)	14.37

BEL =

FC x

100 = 25.53 x 80 x 100

FC +P 39.90 100

51% of installed capacity

PROJECT REPORT OF CNC MACHINED PRODUCTS

INTRODUCTION

This is the project report is for starting an enterprises for the production of CNC machined products on marble granites glass stainless steel copper aluminum and bronze

Metal fabrication is the value added process that involves the construction of machines, parts and structures from various raw materials like stain less steel ,copper, bronze aluminum etc .A fabrication shop will bid on a job usually based parts on the engineering drawings and if awarded the contract will build the product

The demand of the machine shop in constructional as well as industrial field is very high. Due to the changing scenario of the fast moving world the customers are demanding more products within lesser time frame and with minimum tolerance .More over the lab our force available is very limited also. In developed countries most of the machine shops were converted to computer operated and numerical controlled machines

The standard raw materials for this kind of machine shop are marble granite glass SS bronze ,aluminium etc

The machine selected is advanced multi function router with rotary ,and that can be used in several mediums of jobs such as marbles granites ,glass, stainless steel, copper aluminum and bronze.There are several places we use traditional methods for the

making of granite and marble slabs are cut into required shape as well as engrave the names and messages.The engraving and machining glass is getting popular and the CNC machine selected can do the job with less lab our and more accuracy .The selected CNC is capable of operations on surface as well as rotational works

SCOPE

The demand of the product lies in all over Kerala.There are very small general engineering workshop in central Travancore but they are using conventional types of technology such as shearing machine., hand drill bending machine etc the capabilities of these type of machines lie up to a small capacity with limited thickness and less quality and precision of the product. The mechanization as per the need of the customer is very high as concerned to customer satisfaction

ECONOMICS OF THE PROJECT

1. Land		Rented
2. Building	400 sq.ft	Rs.2000 per month
3. Plant and machinery		

1. Multi function CNC router with

Rotary 4 axis	1no	Rs 1400000
2. Value added tax above		Rs 70000
3..gen set30 KVA	1 no	Rs 450000
4. Spl cutting tool and heads		Rs 100000
5. Polishing and buffing machines	1 no	Rs 25000
6. Dust collector	1 no	Rs 50000
7. Transportation and collection		Rs 52375
8. Electrification and errection charges		Rs 102625
9. Computers software, furniture		Rs 100000
TOTAL		RS 2350000

4..RAW MATERIAL REQUIRED PER MONTH

1. Marble plates	200 sq.ft @Rs400x 70%	Rs 70000
2. Granite plates	200 sq.ft@ Rs.400x70%	Rs 70000
3 glass	2000 sq.ft@Rs.400x70%	Rs 56000
4 Aluminium Rods	500 kg @Rs.125x70%	Rs43,750
5 SS rods	500 kg @Rs.125x70%	Rs 62850
6 Copper rods	200 kg@Rs.175x70%	Rs 24500

7 Bronze rods	100 kg@Rs.400x70%	Rs 28000
8 Other consumables		Rs 19900
TOTAL		RS 375000

5 STAFF AND LABOUR PER MONTH

1. CNC operators	2 no	Rs 25000
2. CNC designers	2 no	Rs15000
3. Office staff	1 no	Rs 5000
4. helper	1 no	Rs 4000
TOTAL	6 no	Rs 49000
Add 20% benefits		Rs 9800
TOTAL	6 nos	Rs 58800

OTHER EXPENSES PER MONTH

1. Rent	Rs 2000
2. Electricity	Rs 7500
3. Transportation charges	Rs 2000
4. Travelling expenses	Rs 1000
5. Postage and stationary	Rs 500
6 .Communication	Rs 1000
7. Repair and maintaince	Rs 2350
8. Other unfore seen expenses	Rs 1150
TOTAL	RS 17500

7 WORKING CAPITAL CYCLE

1. Stock of raw materials	21 days	Rs 315000.00
2. Raw materials in process	6 days	Rs 90000.00
3. Stock of finished goods	6 days	Rs 90000.00
4. credit sale	6days	Rs 90000.00
5. One Month working expenses		Rs 66500.00
Total		Rs 651500.00
Say		Rs 600,000.00

8.working capital requirements for coming years

Year	Bank		Promoter		Total
Ist Year	75%	450000	25%	150,000	Rs 600,000.00
IInd Year	66%	450000	34%	232,500	Rs 682,500.00
IIIrd Year	58%	450000	42%	321,750	Rs 771,750.00
IV th Year	56%	450000	44%	360,338	Rs 810,337.50
Vth Year	53%	450000	47%	400,854	Rs 850,854.38

9. TOTAL CPITAL INVESTMENTS

1. Land Rented

2. Building Rented

3. Plant & Machinery Rs 2350,000.00

4. Working capital Rs 600,000.00

5. Preoperative Expenses Rs 50,000.00

TOTAL Rs 3,000,000.00

SOURCE OF FINANCE

1. Promoters Contribution Rs 800,000.00

2. T erm loan for building Rs -

3. Term loan for machinery Rs 1,750,000.00

4. Working capital loan(CC) Rs 4,50,000.00

TOTAL	Rs 3000,000.00
Expected Govt Assistance under ESS	RS 940,000.00

12 Cost of Production per month

1. Raw materials	Rs 3,75,000.00
2. Staff & Labor	Rs 58,800.00
3. .Other Expenses	Rs 17,500.00
4. Interest on Term Loan	Rs 21,875.00
5. Interest on working capital Loan	Rs 5,625.00
6. CGTSME charges	Rs 3,208.33
7. Depreciation	Rs 29,375.00
8. Sales Promotion Expenses	Rs 15,006.47
TOTAL	**Rs 526,389.80**

13 Sales revenue per month

By sale of

1. CNC Machined Marble Plates Rs 140,000.00

200sq.ft x 70% @Rs750

2. CNC Machined Granite Plates Rs 140,000.00

200sq.ft x70%@Rs750

3. CNC Machined Glass Rs 112,000.00

2000sq.ft x 70%@Rs750

4. CNC Machined Aluminum Rods Rs 78750.00

450kg x @RS250x70%	
5. CNC Machined SS Rods	Rs 78750.00
450kg x @RS250x70%	
6. CNC Machined copper Rods	Rs 31,500.00
190kg x @RS250x70%	
7. CNC Machined Bronze rods	Rs 34,650.00
90kgx@Rs550x70%	
Total Sales	Rs 615,650.00
Provision for damages & waist ages	Rs 15,391.25
Net Totak Sales Revenue	RS 600,258.75

14. Profit per month	Rs 73,868.95
15. Profit per year	Rs 886,427.38
16. Provision for Taxes	Rs 107,285.48
17.Net Profit	Rs 779,141.90
18.Return on investment	25.97%
19. Debit service Coverage Ratio	2.65
20.Return on Sales	12.31%
21.Debit Equity Ratio	2.75

READY MADE GARMENTS

INTRODUCTION

Garments manufacturing is a profitable activity. The cloth items are purchased in bulk from textile centres of South India and the products have good market overseas as well as locally.

MARKET POTENTIAL

Garments especially the good quality fabric with embroidered patterns has very good market locally as well as in Gulf and other Asian countries.

Process of Manufacture

The required Cloth items are cut into definite sizes and stitched together for the various product items. Embroidery work will be done on the garments to enhance the beauty and value. Finished works are ironed, packed and despatched.

Production Capacity [per annum] Quantity: 34200 Nos. Value: Rs. 16477759

Motive Power 10 HP (Approx.)

Pollution Control

The manufacturing of garments does not pose any problem for pollution.

ECONOMICS OF THE PROJECT

1	Land	7	cents	Own	
2	Building ` 150 sq.m				Rs. 5,00,000
3	Plant & Machinery				
		Qty	Rate		
1	Usha Janome MC11K Automatic Multipurpose Stitching Machine	1	` 3,65,000		Rs. 3,65,000
2	High Speed Sewing Machine	15	` 11,000		Rs. 1,65,000
3	Overlock Machine	2	` 10,250		Rs. 20,500
4	**RANEW EMBROIDERY FULL SET 130**	2	` 11,500		Rs. 23,000
5	Button Hole Machine	1	` 1,85,000		Rs. 1,85,000
6	Ironing machines	1	` 54,000		Rs. 54,000
7	Cutting Tables	2	` 15,000		Rs. 30,000
8	Cutting & Measuring Tools				Rs. 2,500

9Electrification			Rs. 35,000
10Furnishing & Furniture			Rs. 1,25,000
11Errection Transportation etc			Rs. 75,000
Total `			Rs. 10,80,000

4 Raw Material Required per month

	Qty	Rate	
1CLOTH FOR SHIRT	2188	` 75	Rs. 1,64,063
2CLOTH FOR CHURIDAR	600	` 525	Rs. 3,15,000
3CLOTH FOR NIGHTY	2250	` 42	Rs. 94,500
4CLOTH FOR KIDS WEAR	500	` 65	Rs. 32,500
5Plain Saree	125	` 400	Rs. 50,000
6LINING MATERIAL	1800	` 22	Rs. 39,600
7THREADS	40	` 150	Rs. 6,000
8PACKING & MISC ITEMS			Rs. 5,000
TOTAL			Rs. 7,06,663

5Staff & Labour per month

1Manager	1	No.	Rs. 15,000

2Workers	26	Nos.	Rs. 3,12,000	
3Helpers	2	Nos.	Rs. 17,000	
4Office Staff	2	Nos.	Rs. 24,000	
5Marketing Staff	2	Nos.	Rs. 24,000	
TOTAL	35	Nos.	Rs. 3,92,000	
Add 20% Benefits			Rs. 78,400	
Total			Rs. 4,70,400	
6Other Expenese per month				
1lectricity Charges			Rs. 15,000	
2Travelling Expenses			Rs. 250	
3Postage & Stationery			Rs. 1,000	
4Communication			Rs. 2,250	
5Repair & Maintanance			Rs. 15,000	
7Transportation Expenses			Rs. 1,000	
6Other Unfore seen expenses			Rs. 500	
Total			Rs. 35,000	
7Working Capital				
1Stock of Raw Materials	25	Days	Rs. 7,06,663	
2Raw Materials in Process	3	Days	Rs. 84,800	
3Stock of Finished Goods	5	Days	Rs. 1,41,333	
4Credit Sale	10	Days	Rs. 2,82,665	
5One Month working expenses			Rs. 5,05,400	
Total			Rs. 17,20,860	
Say			Rs. 17,20,000	

8 TOTAL CAPITAL INVESTMENTS

1Pre operative expenses	Rs. 75,000

1Land	Rs. 0
2Building	Rs. 5,00,000
3Plant & Machinery	Rs. 10,80,000
5Working Capital	Rs. 17,20,000
TOTAL	Rs. 33,75,000

9SOURCE OF FINANCE

1Promoters Contribution	Rs. 11,47,000
2Term loan for building	Rs. 3,00,000
3Term loan for Plant & Machinery	Rs. 8,10,000
4Working Capital Loan	Rs. 11,18,000
TOTAL	Rs. 33,75,000

10Cost of Production per month

1Raw materials	Rs. 7,06,663
2Staff & Labour	Rs. 4,70,400
3Other Expences	Rs. 35,000
4Interest on Term Loan	Rs. 12,950
5Interest on Working Capital Loan	Rs. 13,043
6Interest on OTHER LOANS	Rs. 0
7Depreciation	Rs. 15,583
8Sales Promotion Expenses	Rs. 28,023
TOTAL	Rs. 12,81,663

11Sales Revenue Per month

	Qty	Rate

1SHIRTS	875	`350	Rs. 3,06,250
2CHURIDAR	420	`850	Rs. 3,57,000
3EMBROIDERED CHURIDAR	180	`1,400	Rs. 2,52,000
4EMBROIDERED PURDAH	187	`900	Rs. 1,68,300
5NIGHTY	563	`240	Rs. 1,35,120
6KIDS WEAR	500	` 140	Rs. 70,000
7EMBROIDERED SAREE	125	` 900	Rs. 1,12,500
Total `			Rs. 14,01,170
Provision for damages & Waistatges		`	Rs. 28,023
Total Sales `			Rs. 13,73,147
12 Profit Per month `			Rs. 91,484
13 Profit per year `			Rs. 10,97,808
14 Provision for Taxes `			Rs. 89,781
15 Net Profit `			Rs. 10,08,028
16 Return on Investment			29.87%
17 Return on Sales			6.00%
18 Debt Service Coverage Ratio			4.45
(for a repayment period of 5 years)			
19 Break Even Point			53.29%
20 Payback Period			3.35 Years

PROJECT PROFILE

ON

POWDER COATING

1. NAME OF THE PROJECT : POWDER COATING

2. PRODUCT CODE : N.A.

3. QUALITY AND STANDARDS : AS PER CUSTOMERS' SPECIFICATIONS

4. PRODUCTION CAPACITY : QTY. PER ANNUM : 70,000 SQ. MTRS.

VALUE : Rs. 38,50,000/-

5. MONTH & YEAR OF PREPARATION : MARCH, 2011

6. PREPARED BY : MSME-DEVELOPMENT INSTITUTE
4TH FLOOR, HARSIDDH CHAMBERS
ASHRAM ROAD
AHMEDABAD – 380 014 (GUJARAT)
Tel. No. (079) : 27543147, 27544248
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E-mail : dcdi-ahmbad@dcmsme.gov.in
Website: www.msmediahmedabad.gov.in

1. INTRODUCTION:

The Powder coating is a coating which is applied on the job in the powder form, it does not require any liquid carrier while the paint can be applied on the job in the liquid form only and requires the liquid carrier which causes the dropping sag, run and storage problem etc. It is a dry paint, which gives almost 100% finish maximum material use with no wastage in over spray, spillage etc.

2. MARKET POTENTIAL:

The powder consist of homogenous synthetic resin, pigments and other

additives and in some powders the hardener or cross linking agents are used. The powder can be thermoplastic or thermosetting type. The thermoplastic materials like polyethylene, PVC, PTFE etc. are more widely used. Now-a-days the powder coating is find very wide applications in the sheet material components for the purpose of protection as well as better looking. These components are steel cabinet of Computers, VCR, VCP, Panel Boards of sophisticated equipment, metal components in Telecom Industries, steel furniture, domestic appliances, auto parts, hardware, machine parts and architectural section etc.

The common problems observed are the difficulty in changing the colour and peeling of the coating etc. For excellent results the seven tanks cleaning operation can be applied on the job. Though this coating is costlier than the simple paint, its long life and excellent looking proves to be cheaper.

3. BASIS & PRESUMPTIONS:

(i) The efficiency of machinery is taken at 70%. The unit will work on single shift basis of 8 hrs. per day and 25 days in a month and 300 days in a year. of the total production capacity.

(ii)

(iii) The time period to achieve the full envisaged capacity utilisation is oneyear.

(iii) The labour wages are as per the prevailing rates in the market.

(iv) The interest rate for fixed and working capital is taken as 18%.

(v) The margin money requirement will be 30% of the total cost of thisproject.

(vi) The pay back period is 5 years.

(vii) The land requirement is 150 Sq. mtrs. and the built up area is 100 sq.mtr.

4. IMPLEMENTATION SCHEDULE:

Time required for preparation of Project report : One month

Selection of Site : One month

Registration as SSI Unit : One Week

Time required for acquiring the loan : Three months

Construction of building : Three months

Machinery procurement, commissioning & erection : One months

Recruitment of labourer etc. : One month

Trial runs : One month

5. TECHNICAL ASPECTS:

(i) Process Outline:

First the surface which is to be coated is cleaned perfectly by giving a pretreatment i.e. degreasing, chromating so that the oil, grease, dust and rust should not remain there. Now give a phosphate coat on the surface by phosphating process, wash and dry the object. Dry powder is filled in a hopper where it is fluidised by low pressure gas. When it comes to the gun through a flexible hose where it is electro-statically charged by a high voltage generator. An electrostat field is produced between the gun nozzle and the earthed object, which is already kept in spry booth. The powder particles get uniformly deposited on the object. Now remove the objects from the spray booth and keep it in the oven at the temp. approx. 150oC for 10 to 15 minutes the powder metals get polymerised and form a solid hard film. The over sprayed powder is recovered by a separate recovery system attached with the spray booth. Now remove the object from the oven and it is the finished goods.

(ii) Quality Specification:

The BIS has not prepared any standards for this product, hence this product can be made as per the customers' requirement.

(iii) Production capacity: (Per annum)

(a) Quantity : 70,000 Sq. mtrs.

(b) Value : Rs.38,50,000/-

(iv) Approximate Motive Power:

The approximate Motive Power is required 30 KWH.

(v) Pollution Control:

This unit does not make so much effluents because the water is used only for cleaning and phosphating purposes.

(vi) Energy Conservation:

By adjusting the process and utilisation of machinery the proper utilisation and conservation of the energy can be done.

6. FINANCIAL ASPECT:

1. FIXED CAPITAL:

Land & Building	Area	Rate	Value (Rs.)
Land	200 Sq. mtrs.	2000/Sq. mtr.	4,00,000/-
Built up area	100 Sq. mtrs.	5000/Sq. mtrs.	5,00,000/-

			Total : 9,00,000/-
			----------

2. Machinery & Equipment:

Sr. No. Description	Qty.(Nos.)	Value (Rs.)
a) Production Unit		
Tanks (for surface cleaning	8	1,00,000/-
System, Pickling, phosphating etc.)		
Powder spray equipment	1	1,20,000/-
output capacity 3kg.hr.		
attached with other accessories.		
Powder spray booth with cyclone	1	1,20,000/-
type recovery system, overall		
dimension 1.5x1.5x2.5 meters with		
blower motor 2 HP 5000 M3/hr.		
air exhaust.		

Sr. No. Description	Qty.(Nos.)	Value (Rs.)
Powder curing oven with dimension	1	1,60,000/-
2x2.5x2M, heat load 15KW, max.		
temp. 200oC blower motor 1 HP		
1.5 KW, 60/40 IR Con heater		
Compressor 5000 M3/hr. cap.	1	50,000/-
Over Head Crane – 2 Ton cap.	1	50,000/-
Testing equipment		
Pollution Control Equipment & facilities L.S.		1,00,000/-
Electrification & Installation charges		76,000/-
@ 10% of the cost of machinery & equipment		

Total cost of machinery & equipment		7,76,000/-

Cost of office equipment & Working Capital etc.	1,00,000/-

Total :	Rs. 8,76,000/-
	---
3. Pre-operative Expenses	Rs. 30,000/-
Total Fixed Capital =(1+2+3)	
Fixed Capital :	Rs. 9,00,000/-
Machinery & Equipment:	Rs. 8,76,000/-
Pre-operative Expenses :	Rs. 30,000/-

	Rs. 18,06000/-

4. Working Capital (Per Month):

(i) Personnel:

Designation	Nos.	Salary	Total (Rs.)
Manager-cum-Supervisor	1	10,000/-	10,000/-
Skilled Worker	2	5,000/-	10,000/-
Workers	3	4,000/-	12,000/-
Office clerk cum Accountant	1	6,000/-	6,000/-
Total salaries + Perquisites @ 16% salary		6,080/-	38,000/-

Total :			44,080/-

(ii) Raw material including packaging requirement (Per Month)

Particulars	Qty.	Rate	Value (Rs.)
Powder of Expoxy, Acrylic, Polyester, Hybrid & Polyurethene	230	450/-	1,03,500/-
Miscellaneous chemicals for Cleaning & phosphating etc.	L.S.		5,000/-
Total :			1,08,500/-

(iii) Utilities (Per Month)

Power 30 KWH @ Rs. 5/- per unit		16,875/-
Water	L.S.	1,000/-
	Total :	17,875/-

(iv) Other Contingent Expenses (Per month)	(Rs.)
Postage and stationery	1,000/-
Telephone	2,000/-
Consumable stores	1,000/-
Repairs and Maintenance	2,000/-
Transportation charges	1,000/-
Advertisement and publicity	1,000/-
Insurance	2,000/-
Miscellaneous Expenses	1,000/-
Total:	11,000/-

(v) Total Recurring Expenditure (Per Month) : (i)+(ii)+(iii)+(iv)

(i) Personnel	:	Rs. 44,080/-
(ii) Raw material including packaging requirement		Rs.1,08,500/-
(iii) Utilities (Per Month)		Rs. 17,875/-
(iv) Other Contingent Expenses		Rs. 11,000/-
	=	Rs. 1,81,455/-
(vi) Total Working Capital (on three month basis)		Rs. 5,44,365/-

5. Total Capital Investment:

(i) Fixed Capital -	Rs. 18,06,000/-
(ii) Working Capital -	Rs. 5,44,365/-
Total -	Rs. 23,50,365/-

7. **MACHINERY UTILIZATION:**

The suggested plant & machinery are sufficient to achieve the target.

8. FIANCIAL ANALYSIS :

(i) Cost of Production (per year)	Rs.
Total recurring cost per year	21,77,460/-
Depreciation on building @ 5%	25,000/-
Depreciation on machinery& equipment @ 10%	87,600/-
Depreciation on office equipment @ 20%	20,000/-
Interest on total Investment 14%	3,29,051/-
Total cost of production	26,39,111/-

(ii) Turn over (per year)

	Item Qty. Sq. meter	Rate (Rs.)/ Sq. meter	Amount (Rs.)
Powder coating	70,000	55/-	38,50,000/-

(iii) Net Profit (Per year)

Turnover	Cost of production	Profit
Rs. 38,50,000/-	Rs. 26,39,111/-	Rs. 12,10,889/-

(iv) Net Profit Ratio = $\frac{\text{Net Profit per year x 100}}{\text{Turn Over Per Year}}$

= $\frac{\text{Rs. 12,10,889/- x 100}}{\text{Rs. 38,50,000/-}}$ = 31.45%

(v) Rate of Return = $\frac{\text{Net Profit per year x 100}}{\text{Total Investment}}$

= $\frac{\text{Rs. 12,10,889/- x 100}}{\text{Rs. . 23,50,365/-}}$ = 51.52%

(vi) Break-even Point (% of total production envisaged)

(i) Fixed Cost	Rs.
a) Depreciation on machinery & equipment	87,600/-

b) Depreciation on office equipment	20,000/-	
c) Depreciation on building	25,000/-	
d) Interest on total investment		3,29,051/-
e) Insurance		36,000/-
f) 40% of Salary and Wages	2,11,584/-	
g) 40% of other contingent expenses	52,800/-	

Total Fixed Cost		7,62,035/-

(ii) Net Profit per year = Rs. 12,10,889/-

$$\text{B.E.P. \%} = \frac{\text{Fixed Cost} \times 100}{\text{Fixed Cost + Profit per year}}$$

$$= \frac{\text{Rs. 7,62,035/-} \times 100}{\text{Rs. 7,62,035/- + Rs. 12,10,889/-}}$$

$$= 38.62\%$$

9. NAMES & ADDRESSES OF PLANT & MACHINERY SUPPLIERS

1. M/s. Statefield Equipment Pvt. Ltd.
   A-54/55, H Block, MIDC
   Pimpri, Pune-6.
2. M/s. Dayline Spray System (P) Ltd.
   36, Civil Line
   Devas-455 001.
3. M/s. Graver & Weel (India) Ltd.,
   Painting & Fire Protection System Division
   Akurli Road, Kandiwali (W)
   Mumbai-400 001.
4. M/s. Komal Agencies
   Opp. Guru Nanak Petrol Pump
4, Shivaji Colony, Andheri (East)
   Mumbai-400 099.

10. NAMES & ADDRESSES OF RAW MATERIAL SUPPLIERS

1. M/s. Hard Castle & Waud Manufacturing Co. Ltd.
   Brabourne Stadium
   87, Veer Nariman Road
   Mumbai-400 020.
2. M/s. Jenson & Nicalson (India) Ltd.,
   Meklzie Bldg., Ballard Estate
   Mumbai.

PROCESSING OF JACK FRUIT

1. Introduction

Around 300 million numbers of jack fruit is produced in Tamil Nadu and Kerala every year. At an average weight of 5 kilograms a piece, the total quantity is estimated at 1.5 million tons. Much of the product is wasted. The project aims to utilise the resources mainly raw and ripe fruit and convert them into a more acceptable product. The products that are being considered for processing and as a result of value addition are:

· Jack fruit jam from ripe fruit

· Jack chips from tender raw fruit

· Enrobed jack from the dried ripe fruit

2. Market

The major market outlets are the " A" and "B" class stores. The product also finds placement in self service counters and departmental stores. Bakeries can also sell the product..

3. Packaging

· Jams are packed in 200 gram polyethylene cups.

· Jack chips are packed in 50 grams, 100 grams and multiples thereof in polypropylene or laminated polyester-poly pouches.

· Enrobed jack is packed in laminated polyester-poly pouches.

4. Production capacity

· The plant will be in operation for one shift a day. The product mix would be as follows:

· 200 kilograms of jam from one tonne of the ripe fruit.

· 200 kilograms of chips from 800 kilograms of the raw fruit.

· 100 kilograms of enrobed jack titbits from 250 kilograms of the ripe fruit.

· The time period required for achieving full capacity utilization is one year

5. Sales revenue

· With an ex-factory selling price at Rs. 60.00 per kilogram of jams, and Rs. 70.00 per kilogram each for titbits and chips, the total sales revenue would be Rs. 99.00 lakhs per annum.

6. Production process outline.

Jack fruit is a highly fibrous fruit. It has a thick wasted skin enclosing seeded fruit pods to which also adhere lots of fibrous tissue. Peeling and cleaning of the fruit to make it fit for processing is a difficult laborious process. Careful investigation reveals that the recovery of juice from the fruit that could be used for processing into jams is a maximum extent of 10% of the weight of the fruit. Thus a fruit weighing 5 kilograms yields about 500 grams of the juice that can be converted into jams.

The second aspect is the strong flavour of the fruit that makes it unpalatable. The flavour has to be removed to a large extent by exhaustion during the process. After extraction of the juice and pulp in the pulper, the extracted mass is taken to the kettle where it is cooked under the influence of jacketed steam. Sugar is then added in desired quantities and the mass further cooked with constant stirring till a thick fluid mass is formed with a reading of 65 to 70 degrees brix on the brix meter. After cooking, the required quantities of citric acid, pectin, flavours (cardamom) and colours are added and the mass stirred thoroughly. The mass after homogenous mixing is emptied into steel containers from where they are poured into cups of 200 grams capacity. On cooling, the jam sets. The cup is sealed after placing a foil paper at its top. The cup is covered with a lid, and placed in cartons, strapped prior to dispatch.

For production of chips, tender raw fruit is taken. After removing the fibrous matter, the slices are dried in the tray drier. After drying, they are fried in the thermostat frier, shaken to remove excess oil and dusted with salt and spices before being packed in the packing machine.

For production of enrobed jack titbits, the ripe fruit is cut into small squares of uniform size. They are then dipped into a vessel containing sugar orjaggery solution with the former highly concentrated at 70 to 75 degrees brix.The titbits are dried in the tray drier and packed in the packing machine.

7. Quality specifications

Jams

· A certificate of approval for production has to be obtained under the Fruit Products Order (FPO)

· The minimum soluble solids shall be 68%.

· The minimum fruit pulp content shall be 45%.

· When raspberries and strawberries are used, the minimum quantities shall be 25%.

· Only sugar, dextrose, invert sugar, liquid glucose, either singly or in combination can be used as sweetening agents.

· Jams shall not contain tartaric acid, agar or gelatin.

· The product should be free from mold and fungal growth.

· It should be free from any fermented odour, coliforms, salmonella and streptococci bacteria.

· If dried fruits are used, they shall be declared on the label.
· It can contain permitted flavours , colours and preservatives.

Chips

· Acidity of oil used as oleic acid - maximum 0.12%
· Peroxide value of oil used - nil.

8. Pollution control measures

Not necessary as there are no pollutants or effluents. However, the peel and seeds of fruits processed have to be disposed off carefully failing which it could pollute the surrounding areas on fermentation, yielding a foul odour.

9. Energy conservation measures

Common measures will do.

10. Land and construction cost for the proposed unit

The proposed unit is to be set up in a leased area. The total area required is 2000 square feet as described below:

Sl	Description	Sq. feet
1	Processing area	700
2	Raw material store	200
3	Packing material store	200
4	Finished goods store	200
5	Laboratory space	100
6	Baby boiler area	200
7	Machinery spares room	100
8	Administration room	100
9	Toilet and miscellaneous space	200
10	**Total**	2000

Lease rent – Rs. 6.00 per square foot; Total rent for the month – Rs. 12000
Lease advance – Rs. 40000

11. Costing of machinery and equipment

Sl	Description	Rs. lakhs
1	**Jams**	
A	Stainless steel working tools	0.100
B	Juice extractor or pulper	0.353
C	Steam jacketed kettle	0.650
D	Stirrer with motor and gear box	0.350
E	Bottle washing machine	0.306
F	Stainless steel working tables	0.667
G	Baby boiler and accessories	1.250
2	**Jack fruit chips**	
A	Thermostat fryers	0.360
B	Coating pan	1.250
3	**Enrobed Jack Tidbits**	
A	Coating pan	Listed above
B	Tray drier with two trolleys and 72 trays	1.600
C	Packing machine	1.650
4	**Total cost of machinery**	**8.533**
5	Laboratory equipment	0.500
6	**Total cost of machinery and equipment**	**9.033**

12. Project cost

Sl	Description	Rs. lakhs
1.	Land	On lease
2.	Civil works	On lease
3.	Plant machinery	8.533
4.	Laboratory equipment	0.500
5.	Transport vehicle (Tata Ace)	3.760
6.	Pollution control equipment	0.000
7.	Energy conservation equipment	0.000
8.	Cost of power connection	0.250
9.	Cost of electrification	
10.	Erection and commissioning	0.850
11.	Cost of machinery spares	0.250
12.	Cost of office equipment	1.000
13.	Deposits if any	0.400
14.	Company formation expenses	0.100
15.	Gestation period expenses	0.500
16.	Sales tax registration expenses	0.100
17.	Initial advertisement and publicity	5.000
18.	Contingencies	0.250
19.	Working capital margin money	1.500
20.	**Total**	**23.493**

13. Working capital requirements per month

a. Salaries and wages

Sl	Description	No of Persons	Total salary / month (Rs. lakhs)
1.	Production Manager (female)	1	0.100
2.	Production supervisor cum chemist (female)	1	0.060
3.	Skilled workers	1	0.050
4.	Unskilled workers	3	0.090
5.	Packing workers	2	0.040
6.	Administrative staff	1	0.060
7.	Driver	1	0.050
8.	**Total**	**10**	**0.450**

b. Raw material requirement per month

Sl	Description	Qty (kgs)	Rate / kg (Rs)	Value (Rs. lakhs)
1	**Jack Fruit Jam**			
A	Jack fruit	3500	10.00	0.350
B	Sugar	2000	17.00	0.340
C	Pectin, flavours, preservatives	105	120.00	0.126
2	**Jack Fruit Chips**			
A	Raw Jack Fruit	4000	10.00	0.400

B	Oil	1200	80.00	0.960
C	Salt and spices	100	40.00	0.040
3	**Enrobed tidbits**			
1	Ripe Jack Fruit	2000	10.00	0.200
2	Jaggery, Sugar	1300	18.00	0.234
3	Cardamom green	2	300.00	0.006
4	**Total raw material**			**2.656**

c. Packaging material requirement per month

Sl	**Description**	**Qty**	**Rate / unit Rs)**	**Value (Rs. lakhs)**
1	**Jack fruit jam**			
A	Primary packing material – 200 ml cups with foil and lid	25250 nos	3.00	0.757
B	Cartons and straps	1010 nos	20.00	0.202
2	**Jack fruit chips**			
A	Primary packing film	200 kgs	132	0.264
B	Cartons and straps	1010 nos	20.00	0.202
3	**Enrobed Tidbits**			
A	Primary packing film	100	132.00	0.132

		kgs		
B	Cartons and straps	505 nos	10.00	0.101
4	**Total packing material**			**1.658**

Grand total raw + packaging material - Rs 4.314 lakhs

d. Utilities per month

Sl	Description	Rs. lakhs
1.	Power 1000 kwh @ Rs. 5.50 per unit	0.055
2.	Water	0.050
3.	Boiler fuel	0.250
4.	**Total utilities**	**0.355**

e. Contingent expenses per month

Sl	Description	Description
1.	Rent for processing shed	0.120
2.	Postage and stationery	0.010
3.	Telephones, fax etc.	0.050
4.	Consumable stores	0.020
5.	Repairs and maintenance	0.070
6.	Local transports, loading and unloading	0.100
7.	Advertisement and publicity @ 5% of sales	0.400
8.	Insurance	0.008
9.	Sales expenses @ 1% of sales	0.080
10.	Miscellaneous expenses @ 1% of sales	0.080

11.	Trade incentives @ 2% of sales	0.160
12.	Taxes @ 4%	0.320
13.	**Total contingent expenses**	**1.418**

f. Total working capital requirement per month

Sl	Description	Rs. lakhs
1.	Salaries and wages	0.450
2.	Raw material and packaging material	4.314
3.	Utilities	0.355
4.	Contingent expenses	1.418
5.	**Total**	**6.537**

14. Means of finance

Sl	Description	Rs. lakhs
1.	Total Project Cost	23.493
2.	Equity	7.831
3.	Debt	15.662
4.	Working capital margin money	1.500

15. Financial analysis

Sl	Description	Rs. lakhs
1.	Total recurring cost per year	78.444
2.	Depreciation on land and building	0.000
3.	Depreciation on machinery and vehicle	1.196

4.	Depreciation on furnaces	0.000
5.	Depreciation on moulds and fixtures	0.020
6.	Depreciation on office equipment	0.100
7.	Interest on long term loan @ 12%	1.879
8.	Interest on short term borrowings@ 12%	0.630
9.	**Total cost of production**	**82.269**

16. Turnover per year

Sl	**Item**	**Qty**	**Rate/unit (Rs)**	**Total Rs. lakhs**
1.	**Jack Fruit Jam**	**60000 kgs**	**60.00**	**36.00**
2.	**Jack fruit Chips**	**60000 kgs**	**70.00**	**42.00**
3.	**Enrobed Tidbits**	**30000 kgs**	**70.00**	**21.00**
4.	**Total**	**15000 kgs**		**99.00**

17. Viability analysis

Sl	**Description**	**Value**
1.	Net profit before income tax (Rs. lakhs)	16.731

2.	Net profit ratio	16.9%
3.	Internal rate of return	23.9%
4.	Break even percentage	38%
5.	Debt service coverage ratio	2.264

List of machinery suppliers for processing of Jack Fruit

1. Geeta Food Engineering, Plot No. C - 7 / 1, TTC Industrial Area, Pawana MIDC, Thane - Belapur Road, Behind Savita Chemicals, Navi Mumbai 400705. Maharashtra.; Tel: 022 - 27906450; Fax: 022 - 27906451

Project Profile on Web Designing

Introduction :

The web is the most popular on ramp to Internets Information highway. The web is a set of inter-
connected pages that represent specific web sites around the world. The web page use special limits that
take form of highlight text or graphic, using which we are taken from one location to the other, i.e. other
web page. A web site has certain requirements for itself to be approachable to the user, which are
website links, graphic design, page layout, user friendliness among others make up for a good website.
The advent of internet in India has opened in a big way the doors for website designing in the country.
The dot com revolution has also taken place in India. Now everyone is looking forward for putting up their
own website on the net. This opportunity led a plenty of scope for web designer. The requirement of a
web site is depending on for which field it is being developed eg.- Newsite, sports site or email etc.

Market Potential : As we know that after 2003, when WTO (World Trade Organisation) references will be
start working at that time whole world economy would be on computer. Every buyers & sellers would be looking forward to know the detail of each product or service. This will be the right time for web designer
to developed specific web site for their customers. The manufacturer & service provider would required their web site, because for specific application of software is to obtain end result, which is satisfying to
both the customer as well as being user friendly

1 Name of the Product : Web Designing

2 Project Cost :

a Capital Expenditure

Land			: **Own**
Workshed in sq.ft rental	1000		Rs. 2 0 0 ,0 0 0 .0 0
E qui pm ent		:	Rs. 5 0 0 ,0 0 0 .0 0

Computers 4 ,. Modem (US Robotics) 2, Scanner (HP) 3, Laser Printer (HP) 3, Web Camera 2Digital Camera 3, Other (Cable & Connectors etc) LS ,Softwares latest,b) Networking c)Graphics(Illustrator,Adobe Photoshop, GIF Animator, Macromedia, Extremes 3D) d) Programming Software (i) Frontpage ii) Dreamewer ,Internet connection,Domen Registration,Web Connection

Total Capital Expenditure	Rs. 7 0 0 ,0 0 0 .0 0
b Working Capital	Rs. 2 5 0 ,0 0 0 .0 0
TOTAL PROJECT COST :	**Rs. 9 5 0 ,0 0 0 .0 0**

3 Estimated Annual Production Capacity: (Rs. in 000)

Sr.No.	Particulars	
1	DataBaseEntry,PhotoEntry,Designing, Earning through Registration	TOTAL 0 .0 0
	Capacity in No./Q.	
		Rate 0 .0 0
		Total Value 2 1 2 9 .0 0
		2 1 2 9 .0 0
4	Raw Material :	Rs. 5 0 0 ,0 0 0 .0 0
5	Packing Material :	Rs. 2 5 ,0 0 0 .0 0
6	Wages (7-Skilled & 7-Unskilled) :	Rs. 1 ,0 0 8 ,0 0 0 .0 0
7	Salaries 1- Manager	Rs. : 1 2 0 ,0 0 0 .0 0

PAGE (2)

8 Administrative Expenses :	Rs. 1 2 0 ,0 0 0 .0 0
9 Overheads :	Rs. 1 5 0 ,0 0 0 .0 0
10 Miscellaneous Expenses :	Rs. 7 5 ,0 0 0 .0 0
11 Depreciation :	Rs. 6 0 ,0 0 0 .0 0
12 Insurance :	Rs. 7 ,0 0 0 .0 0
13 Interest (As per the PLR)	
a. C.E.Loan :	Rs. 9 1 ,0 0 0 .0 0
b. W.C.Loan :	Rs. 3 2 ,5 0 0 .0 0
Total Interest	Rs. 1 2 3 ,5 0 0 .0 0
14 Working Capital Requirement :	
Fixed Cost	Rs. 4 1 3 ,0 0 0 .0 0
Variable Cost	Rs. 1 ,7 1 5 ,5 0 0 .0 0
Requirement of WC per Cycle	Rs. 2 6 6 ,0 6 3 .0 0

15 Cost Analysis

Sr.No.	**Particulars**	**Capacity Utilization(Rs in '000)**			
		100%	60%	70%	80%
1	**Fixed Cost**	4 1 3 .0 0	2 4 7 .8 0	2 8 9 .1 0	3 3 0 .4 0
2	**Variable Cost**	1 7 1 6 .0 0	1 0 2 9 .6 0 1	2 0 1 .2 0 1 3	7 2 .8 0 **3**
	Cost of Production	2 1 2 9 .0 0	1 2 7 7 .4 0 1	4 9 0 .3 0 1 5	3 1 .6 0 **4**
	Projected Sales		1 8 0 0	1 0 0 .0 0	0 0 .0 0

			.0 0 2	2 4	
5	**Gross Surplus**	8 7 1 .0 0	5 2 2 .6 0	6 0 9 .7 0	6 9 6 .8 0
6	**Expected Net Surplus**	8 1 1 .0 0	4 6 3 .0 0	5 5 0 .0 0	6 3 7 .0 0

Note : 1. All figures mentioned above are only indicative.
2. If the investment on Building is replaced by Rental then
a. Total Cost of Project will be reduced. b. Profitability will be increased. c. Interest on C.E.will be reduced.

PROJECT PROFILE
PVC MOULDED ITEMS
INTRODUCTION

Polyvinyl Chloride (PVC) is the most widely used polymer for making plumbing and electrical accessories A number of articles have said to be tuned out P V Cs for use in house, hospitals, agriculture, industry, defence and transport.

During the past decode, the word P V C have played very prominent part of our lives. Not only has the terms of crept into our household plumbing works but also into other parts of the house for surfacing walls, floors, and ceiling wall coverings curtains etc.

A detailed market survey in this regard reveals that there are very scopes for a new units for manufacturing the small P V C moulded items like PVC Taps, Extension Boxes ,
Junction Boxes etc

ECONOMICS OF THE PROJECT

1 Land Lease

2 Building			Rs. 1,000,000.00
3 Plant & Machinery			
1 Vertical Plastic Injection Moulding Machine		1 No.	Rs. 400,000.00
2 Different Types of Dyes for Taps		LS	Rs. 182,000.00
3 Different Types of Dyes for Junction Box		LS	Rs. 80,000.00
4 Computer and Peripherals			Rs. 77,700.00
5 Industrial Electrification			Rs. 10,300.00
Total			Rs. 750,000.00
4 Raw Material Required per month			
(25 days cycle)			
1 PVC Granules	100 Kgs x 25 Days@ Rs.105		Rs. 262,500.00
2 Master batches	8 Kgs x 25 Days@ Rs.120		Rs. 24,000.00
3 Other Consumables and Packing Materials			Rs. 13,500.00
Total			Rs. 300,000.00
5 Staff & Labour per month			
1 Clerk	1		Rs. 9,000.00
1 Machine Operator	1 No		Rs. 10,500.00
2 Semi Skilled Labourers	3 Nos		Rs. 27,000.00
TOTAL			Rs. 46,500.00
Total			Rs.46,500.00
6 Other Expenese per month			
1 Electricity Charges			Rs. 2,250.00
2 Carriage			Rs. 2,500.00
3 Repairs			Rs. 500.00
4 Contigent			Rs. 500.00
5 Postage & Stationery			Rs. 250.00
6 Communication			Rs. 1,500.00
7 Travelling			Rs. 1,500.00
8 Petty Office			Rs. 1,000.00
Total			Rs. 10,000.00

7 Working Capital		
1 Stock of Raw Materials	30 Days	Rs. 360,000.00
2 Raw Materials in Process	2 Days	Rs. 24,000.00
3 Stock of Finished Goods	10 Days	Rs. 120,000.00
4 Credit Sale	30 Days	Rs. 360,000.00
5 One Month working expenses		Rs. 56,500.00
Total		Rs. 920,500.00
Say		Rs. 900,000.00
8 TOTAL CAPITAL INVES TMENTS		
1 Land Lease/Rent		
2 Building		Rs. 1,000,000.00
3 Plant & Machinery		Rs. 750,000.00
4 Working Capital		Rs. 900,000.00
5 Pre-oprative Expenses		
TOTAL		Rs. 2,650,000.00
9 SOURCE OF FINANCE		

1 Promoters Contribution	Rs. 752,500.00
2 Term Loan for Building	Rs. 750,000.00
3 Term loan for machinery	Rs. 562,500.00
4 Working Capital Loan	Rs. 585,000.00
5 Margin Money Loan	
TOTAL	Rs. 2,650,000.00
10 Cost of Production per m onth	
1 Raw materials	Rs. 300,000.00
2 Staff & Labour	Rs. 46,500.00
3 Other Expences	Rs. 10,000.00
4 Interest on Term Loan	Rs. 16,405.00
5 Interest on Working Capital Loan	Rs. 7,310.00
6 Interest on MML	Rs. -
7 Depreciation	Rs. 21,875.00
8 Sales Promotion Expenses	Rs. 9,000.00
TOTAL	Rs. 411,090.00
11 Revenue Per month	
1 1500 Piceces of Taps / Junction Boxes x 25 days @ average Rs.12/ picaeses	450,000.00
Total	450,000.00
Total	Rs.450,000.00
12 Profit Per month	Rs.38,910.00
13 Profit per year	Rs.466,920.00
14 Provision for Taxes	Rs.86,076.00
15 Net Profit	Rs.380,844.00
16 Return on Investment	14.37%
17 Return on Sales	7.05%
18 Debt Service Coverage Ratio for a repayment period of 5 years	2.52
19 Break-even based on 2nd year operation	42.05 %

RUBBERISED COIR MATTRESSES

1. INTRODUCTION

This product has steady demand throughout the country. Kerala has an added advantage in the manufacture of the product in the sense that the raw materials required are abundantly available in the state. Hence, such units are ideal for the state.

2. RAW MATERIALS

Coir fibres, centrifuged latex, sulphur, accelerator, anti-oxidants, zinc oxide, dispersing agent, caustic potash etc.

3. MANUFACTURING PROCESS

Sulphur, accelerator, antioxidants, zinc oxide, dispersing agent, water etc. are put in the Ball Mill and mixed and ground for 48 hours. Latex is poured into the mixing machine and caustic potash solution, stabiliser, antioxidant emulsion etc. are mixed. The filtered solution from the ball mill is poured slowly to this solution and stirred well. To this compound a watering agent is also added.

Coconut fibres are cut long and curled into springs. This is then subjected to steam boiling and dried as curls. The curls are rearranged as fibre yarns and put in a spraying unit. The latex compound is sprayed from the top and bottom surface of the fibres and then heated to 60° centigrade for 30-60 minutes till the vulcanisation is over. The product is ready for packing after sufficient cooling.

4. MANPOWER REQUIREMENT : 17

5. PROJECT COST

A. Fixed Capital	Rs.
Land & Building	500000
Plant & Machinery	600000
	1100000
B. Working Capital (per month) Raw Material & Packing	445500
Salary & wages	42500
Other expenses	12000
	500000
Total (A+B)	1600000

5. COST OF PRODUCTION	(Rs.)
Production cost (per annum)	6000000
Depreciation on machinery	60000
Interest on investment	540000
	6600000

6. PROFITABILITY

Sales turnover	Rs.7000000
Production cost	Rs.6600000
	Rs.400000
Annual profit	
	Break even point=60%

Percentage cf profit on Investment 25%

MACHINERY SUPPLIERS

1.M/s.Indian Expeller Works Private Ltd, A-4, Naroda Industrial Estate Ahmedabad - 383 330.

2.M/s. Matharu Engineering Works, Plot No.1, Unit No.4, Opp. Tatwagyan Vidyapeeth Ghodbunder Road, Chitalsar, Thane - 400607

3.M/s. Modern Rubber Machinery Manufacturers Pvt. Ltd, 310, Jogani Industrial Estate 541, Senapati Bapat Marg, Dadar, Mumbai - 400 028

4.M/s. Emson Industries, 6-A, Shri Ram Industrial Estate, Kaley Marg, Bail Bazar, Kurla Mumbai-400 011

5.M/s. Modern Hydraulics, 5, Italian Building(Ground Floor), 381, Sane Gruji Marg Agripada, Near I.T.I, Mumbai - 400 011

6.M/s. Perumacheril Castings Industries, Market Landing, Kottayam - 686 001, Kerala

7.M/s. Hind Hydraulics & Engineers, E-43/1, Okhla industrial Area, Phase-II New Delhi - 110 002

8.M/s. Micromertics Engineers (P) Ltd. 298, 4th Floor, Khaleel Shiraji Estate Fountain Plaza, Pantheon Road, Egmore, Chennai - 600 028

9.M/s.Anant Engineering Works, Bassi Road, Sirihindi (N.RIy), Punjab - 140 406

10.M/s. Santhosh Industries, A-1, Sone Udyog, Parsi Panchayat Marg Andheri (East), Mumbai - 400 069

M.S. WIRE DRAWING

NSIC

ISO 9001 :

2008

Production capacity/annum 700 M.T.

Production process

Steel wire rods in the coil form, suitable for drawing are subjected to de-scaling for removing of rust, scales etc by means of a descaling machine. The coils are immersed in a bath of dilute sulphuric acid to clean up the surface. One tank for acid bath of size 3 x 1.5 x 1.5 metre will have pickling capacity of about 10 Tones in one shift. The temperature of the solution is

brought upto 60 to 70°C by means of steam passing into the bath. About 20 to 30 minutes continuous pickling of the rods eliminates all rust and scales. The rods taken out from the acid bath, are then dipped into the water tank to rinse off the acid. The size of water tanks can be 2 metres length, 1.5 metres wide and 1.5 metres deep.

Process flow chart

Machinery & equipment required

- Four Block Wire Drawing Unit
- Wire Pointing Machine
- Pickling Tank / Neutralising Tank / Washing Tank
- De-scaling machine

NSIC

ISO 9001 :2008

- Hosting Equipments
- Butt Welding Machine
- Die Polishing machine
- Flexible shaft Grinder
- Platform type weighing machine
- Wire Drawing Dies, Hand Tools, Measuring instruments

Raw material/consumables required

- M.S. Rods 6/8 mm dia metre
- Sulphuric Acid
- Drawing dies
- Lubricants
- Other tools and fixtures

Utilities required

Power required (load)	60 KW
Water required (per shift basis)	1000 Litres

Manpower required

Supervisor :	INo.
Skilled :	2 Nos.
Unskilled :	4 Nos.

Area required

Total Area	: 300Sq.Mir.
Covered Area	: 150Sq.Mir.

Investment repuired

Machinery & Epuipment
Working Capital for 3Months } 27.7 Lakhs
(Raw materials &salar

Is- t

For further details on training programme in entrepreneurship being conducted at NSIC Training cum Incubation Centre, you may contact NSIC-TSC, Okhla Industrial Estate, New Delhi 110020, Ph.: 011-26826801

Total Area Covered Area

Investment required

Machinery & Equipment

Working Capital for 3 Months (Raw material, utilities & salary)

300 Sq. Mtr. 150 Sq. Mtr.

X21.1 Lakhs