

City Development Plan – Kochi

(Submitted to the MoUD, GoI, under JnNURM)

Appraisal Report

1. City Development Plan, Kochi 2006–2026 submitted by Kochi Municipal Corporation and Local-Self Government Department, Government of Kerala is appraised based on the Guidelines of Jawaharlal Nehru National Urban Renewal Mission (Sub-missions for Urban Infrastructure and Governance and the Basic Services for the Poor), the Tool Kit accompanying the Guidelines - Formulation of a City Development Plan (Vol 2) and the Appraisal Guidelines of the Ministries of Urban Development and Urban Employment and Poverty Alleviation, Government of India.
2. The City Development Plan, Kochi (CDP) provides a detailed picture of the city and its evolution, governance, finances, etc., covering the Kochi Municipal Corporation (KMC), two municipalities, and thirteen panchayats, some of which form part of Kochi Urban Agglomeration. It is organized into 15 chapters and seven Annexures. The CDP covers demography, economy, spatial growth trends and land utilization pattern, governance and reforms, urban infrastructure covering water supply, sewerage system, storm water drains, and solid waste management, traffic and transportation, urban renewal, social amenities, basic services to the poor, heritage and tourism, finances, investment plan and project implementation arrangements.
3. The CDP represents significant efforts of KMC in the collection and analysis of data from all the constituents of the CDP area. It presents the existing situation on various dimensions of governance, infrastructure, poverty, environment, etc., makes gap analysis, identifies the key issues and challenges, articulates the vision and goals, formulates strategies and action plans, provides cost estimates for various proposals incorporated in the Plan. Broadly, the CDP complies with the JnNURM Guidelines. There are, however, a few data gaps in some sectors and some areas need strengthening to make the CDP robust. Aspects of finance were discussed in more than one chapter at different places, which need to be integrated. The suggestions made in this Appraisal Report aim at improving the CDP structure and presentation for a better and comprehensive understanding.

Defining the CDP Area

4. The Kochi, a million plus city with a population of 13.55 lakhs, was identified as one of the 63 cities under JnNURM. This refers to Kochi Urban Agglomeration, which has a population of 13.55 lakhs as per Census 2001. The Kochi Urban Agglomeration comprises of Kochi Municipal Corporation, five municipalities, 15

panchayats and part of 3 panchayats. But the CDP presented by the KMC is prepared for a smaller area and population covering Kochi Corporation, two municipalities and 13 panchayats covering a population of 11,38,413 and an area 131.02 sq. kms. Three municipalities and 12 panchayats, which are part of Kochi Urban Agglomeration, have been excluded from the Kochi CDP area. Another aspect is that six Panchayats, which are not part of Kochi Urban Agglomeration, have been included. The rationale for excluding some areas and including others in the CDP area was explained (pp.7-11). The KMC contends that in 2001 the city has prepared 'A Structure Plan for Central City for Cochin' for a smaller area covering 275.85 sq. kms, than the area covered under the Urban Agglomeration as per Census, 2001. This area was identified as city growth area, based on concept adopted by the Regional Development Plan. The Structure Plan was approved and published by the Government of Kerala. For purposes of the CDP, in addition to the entire area covered by the Structure Plan, 'area lying contiguous to this core area and having potential for the urban development due to the additional infrastructural inputs already planned and the large scale investments already committed which are likely to increase the urban characteristics and considering the administrative /geographical boundary,' were included (pp.7-8). As a result, the CDP area covers 330.02 sq. kms; larger than the Structure Plan area and smaller than the Urban Agglomeration area. The definition of CDP area, different from the Kochi Urban Agglomeration area, raises a few important questions like:

- Can the city include or exclude areas from the Urban Agglomeration for the purposes of preparing a CDP?
- Has the exclusion been discussed with the municipalities and panchayats, which are likely to loose grants for development under JnNURM?
- Have the local bodies agreed to their exclusion?
- Is it acceptable to include and exclude areas from the Urban Agglomeration for purposes of accessing funds under JnNURM? Does the process allow this?

These aspects need to be clarified. The details of approval by the Government of Kerala for the preparation of CDP for the areas now included need to be incorporated. There are marginal variations in the population figures of local bodies given in Tables 1.1 and 1.3. Though they are substantive, such variations should be avoided and discrepancies rectified.

5. Another question is that the CDP states that the concept adopted was 'to identify the future municipal corporation area and to equip this area which will be designated as Kochi City for concentrated urban development' (p.11). The question that arises is that is there a proposal to alter the spatial dimensions of the present KMC? If such proposal exists, this needs to be clearly indicated in the CDP.

Demography, Economy and Landuse

6. Population trends and projections, sex ratio, literacy, occupational pattern, spatial growth and land use pattern, etc., are discussed in chapters 3 and 4. The population growth, area, density, decadal growth rates over a period of three decades is presented in Table 3.1 in the CDP. The same is presented in Table 3(A) of Annexure 3, which is nothing but a repetition. Similarly, population density were presented for the year 2001 in Table 3.3 in chapter 3 and Table 3 (B) of Annexure 3, where density was given for 1981, 1991 and 2001. There are, however, some variations in the figures given in the tables in the text and the Annexure. For example, the population of Kalamassery municipality was given as 63,116 in Table 3.1 and the same was given as 63,176 and the area of Thrikkakara panchayat was given as 2746 hectares in Table 3.3 and the same was given was 1049 hectares in the Table 3 (B) of the Annexure. There are several such variations in the area of local bodies in Tables 3.3 and 3 (B). Though not substantive and inconsequential, such variations should be avoided and discrepancies rectified.

7. The following aspects of demography and economic base should be revised or included in the CDP:

- Composition of population growth should be given as per Table 2 of the Tool Kit.
- Population projections for natural growth with migration and overall were presented at Tables 3.4, 3.5 and 3.6. This should be given for KMC area, municipalities and panchayats separately to analyze areas of growth to plan investments for infrastructure and other related aspects. In Table 3.4 projected population for 2011 was given as 12,52,025 (quoting Center for Population Studies, CUSAT). But in Table 3 (B) of Annexure 2, the population for the year 2006 was given as 12,50,900. This means that the population projections for the year 2011 have already been reached five years before. This need to be discussed and projections need to be reviewed, since projections will have implications for planning and investments in different sectors.
- Sex ratio for KMC was given and not for other constituents of CDP area. The details must be added.
- The literacy level is given in Table 2 (A) of the Annexure 2. But it is not clear whether they refer to KMC area or entire CDP area or some or any of the constituents. This needs to be clarified. Similarly, literacy levels should be given for all constituent parts of the CDP area.

- The economic base of the city including areas that are part of CDP area, their growth potential, employment opportunities and, constraints and contribution of city's economy should be presented and analyzed.
- The details of economic base like manufacturing, services and other sectors, their employment potential over a time frame should be presented as per Tables 5 & 6 of the Tool Kit.

8. Land use pattern for KMC and other constituents of CDP area were presented in Tables 4.1, 4.2 and 4.3. The land supply and the land use pattern may be given as per the Tables 15 and 16 of the Tool Kit over a time frame of 5 years. Table 4.4 presents the land use pattern of the central city for the year 1981 and the proposed land use pattern as per the sanctioned plan for 2001. The data on the present land use pattern should be given and the extent of its conformity to the plan should be analyzed. Survey is being undertaken as part of Master Plan for Kochi Corporation area on GIS format. Data once developed, should be incorporated into the CDP.

9. References have been made in the CDP to the Metro Area and Regional Plan, they should be explained and analyzed in the context of CDP.

Consultative Process

10. The CDP, as per Guidelines of JnNURM, should be formulated through a consultative process involving the key stakeholders and members of civil society. But the consultative process in the preparation of Kochi CDP has not been clearly presented. The process of formulating the CDP presented is very succinct and too general and there was no description of how CDP was prepared. From the description it appears that there were no consultations. The CDP only says that 'steps have been taken from 1997 onwards to obtain and consolidate the suggestions and aspirations of the different sections of the society with a view to arrive at a vision for the City. Sector wise workshops were held on environment, water supply, heritage, and poverty alleviation etc. Aspirations of the people's representatives namely MP, MLAs, elected representatives of Corporation, Municipalities and Panchayats, Members of residence associations, neighborhood units, ward committees and gram sabhas were consolidated and a vision workshop were held in 2002 and arrived at a vision document' (p.1). The CDP also refers to several other institutions like KILA, CUSAT, CESS, Newspapers, etc., which seem to have held seminars on city's growth potential. In addition, the CDP seem to have drawn suggestions from workshops and studies conducted by organisations like RITES, NATPAC, Kochi Port Trust, Kerala Road Fund Board, Greater Kochi Development Authority, Goshree Island Development Authority, etc., (p.1). From this it is evident that consultations were held between 1997 and 2002 and

they are unrelated to the formulation of CDP. Secondly, it is not very clear whether consultations were held with the local bodies that are constituents of the area delineated for purposes of CDP and those, which are part of urban agglomeration. Thirdly, the CDP also states that recently ‘several meetings with experts and stakeholders were held to finalize the City Development Plan formulation’ (p.1). It is not clear as to how recently the consultations were held and with whom? It is necessary to give details of the process, stakeholder groups and individuals who were part of consultations from all the constituent parts of the CDP area, the civil society group’s consulted and the dates of consultations, etc. These aspects need to be clearly presented.

Vision

11. The city vision needs to be articulated through a consultative process with the stakeholders. The vision provides the development direction in the short, medium and long time perspective and facilitates the articulation of development projects. But the Kochi CDP did not articulate any vision, but only discusses the objectives and scope. It ‘aims at achieving equitable development by addressing the issues of economic growth infrastructure, poverty, good governance and service delivery to all through a consultative process of strategizing and visioning’ (p.2). Though the CDP makes references to the vision but the vision has not been clearly stated. It is necessary to present the Vision for KMC area and other constituents of the CDP area. Similarly, sectoral visions should also be articulated and presented through consultations in the respective chapters or relevant places. Table 20 of Tool Kit should form the basis for presenting the Vision.

Governance and Reforms

12. Governance reforms including implementation of 74th constitutional amendment Act is one of the objectives of JnNURM. Governance and reforms are discussed in Chapter 12. This chapter covers decentralization initiatives, financial devolution, governance institutions, functional domains of local bodies etc., and identifies spatial and functional fragmentation, functional overlap, lack of accountability, gap in service delivery, increasing poverty as critical issues in governance. This chapter highlights reforms under implementation and proposed. The following aspects have not been covered and, therefore, need to be covered:

- Status on the devolution of functions listed in schedules 11 & 12 of the 73rd and 74th Constitution Amendment Act;
- Organisation and working of MPC, DPC and ward committees;

- A long list of departments and organisations involved in governing Kochi city are listed in pages 148-149, but issues of coordination and convergence and institutional arrangements to iron out difficulties have not been discussed and they need to be presented. Particularly the relations between KWA and corporation, municipalities and panchayats need to be discussed.
- The institutional responsibility for planning and implementation of infrastructure projects need to be presented as per Table 18 of Tool Kit.
- An amount of Rs. 5 crores have been shown for O&M and institutional strengthening (p. 208) but the same is not discussed nor even referred in the chapter. The details institutional strengthening and expected outcomes needs to be presented.

Infrastructure

13. Urban infrastructure aspects are discussed in Chapter 5, and covers aspect like water supply, sewerage, solid waste management, etc. The chapter on urban infrastructure is not structured properly. For example, the section presents the status, issues and challenges, vision, etc., haphazardly and not sequentially. It should first present the current status, ongoing and proposed schemes, challenges, strategies and proposals. Both sewerage and storm water drainage sections are not presented well. Solid waste management section is better organized compared to the other sections but needs to be improved.

Water Supply

14. The chapter does not give details of coverage and access, NRW, cost recovery, etc. It starts with identification of challenges and formulates Vision and proposes projects. The projects are not rightly identified. The income and expenditure on water supply is also not presented. Both Vision and mission statements need to be refined. As such the chapter is incomplete and, therefore, the following aspects need to be covered:

- Extent of coverage of area in the city and constituent local bodies;
- Number of households in the CDP area local body wise and the number of households with access to domestic water connection along with reasons for the gap;
- The reasons for including 16 panchayats for water supply coverage? Do these 16 panchayats include all the 13 panchayats included in the CDP area or are they different? If so, names of the panchayats and rationale for addition and deletion should be given.

- What is the annual expenditure on water supply system and % of cost recovery? What percentage of O&M expenditure is recovered? If only a part is covered, what are the reasons?
- What percentage of households with water supply has meters and the reasons for not having meters in all the households? What is the working status of meters?
- As tariff is based on water consumption, how tariff is collected for houses without meters and those houses with non-working meters?
- What is the percentage of illegal water connections in different constituents of CDP area? What is the revenue loss from the illegal connections? What measures are proposed to identify the illegal connections and regularize them?
- Absence of regulatory mechanism was identified as one of the sector challenges. But proposals to establish such a mechanism have not been discussed in the CDP. Are there any proposals to establish such a mechanism?
- At present water is being supplied for ½ hour to 8 hours per day. It is proposed to provide 150 lpcd by 2011 and continuous water supply (24X7) by 2021. But with 150 lpcd, continuous water supply should be achieved with reforms like metering, reduction of NRW, plugging leakages, energy audit, etc. These aspects need to be examined in detail.
- Eloor and Kalamassery proposed special water supply projects for tapping Periyar river (p.43). Who will execute the project? Is it the local bodies or the KWA? This needs to be explained.
- The significance of rainwater harvesting was highlighted along with methods of rainwater and roof water harvesting (pp.41-42). But mechanisms to adopt such methods have not been indicated. In the context of the need to make rainwater harvesting mandatory and adoption of water conservation methods under JnNURM, it is necessary to explain the existing laws and their implementation status as also the proposals for revision and strengthening or enactment of new laws should be discussed.

Sewerage

15. Sewerage in Kochi city covers only 2.5 sq. kms in the heart of the city covering only 5% of the Kochi Corporation area. About 20,000 populations are covered with the sewerage system (p.44). The sewerage system is also maintained by KWA along with the water supply. The CDP proposes to 'provide an efficient sewerage system and wastewater disposal services in an environmentally, friendly and safe manner'. The CDP proposes to cover the entire CDP area in two phases and projects are proposed at a cost of Rs. 2629 crores.

16. One of the surprising aspects of management of sewerage system is the subsidy extended to a few households who enjoy the benefit of the system. The KWA does not collect any tariff or cess from the users and, therefore, there is no income from the system, while expenditure is being incurred on operation and maintenance of the system with state government grants. A proposal for the levy 60% of monthly water charges as sewerage cess appears to be under the consideration of the Government (p.49). An analysis of income and expenditure on sewerage is very revealing. This is evident from the following table.

Year	Income Rs. in lakhs	Expenditure Rs. in lakhs	Total subsidy Rs. in lakhs	Per Household Subsidy in Rs	Per Capita Subsidy in Rs
2000 – 01	0.13	66.68	66.55	1664	333
2001 – 02	0.15	71.58	71.43	1786	356
2002 – 03	0.14	72.63	72.59	1815	363
2003 – 04	0.24	73.99	73.75	1844	369
2004 – 05	0.36	78.80	78.44	1961	392
2005 – 06	0.37	86.93	86.56	2164	432

From the Table it is evident that the KWA has subsidized to the tune of over Rs. 2000 per household and Rs. 432 per capita in 2005 – 2006. (Subsidy per household is arrived by dividing the population covered by sewerage by 5). With increased expenditure on O & M of sewerage system in the years to come, as is evident from the table, per household and per capita subsidy will also increase substantially. This is the area of concern and needs to be critically examined.

17. The following aspects of sewerage need to be covered in the CDP document:

- What is the access or connection cost for sewerage per house?
- What is the policy of the government in terms of fixing user charges or sewerage cess?
- Is the water and sewerage areas proposed in the CDP are the same or are different?
- Any willingness to pay for sewerage connection and monthly user charges was undertaken and what are the results? As the CDP proposes several projects to cover the entire CDP area with sewerage, the viability of the projects need to be examined in terms of returns on investments.

18. The CDP refers to the non-introduction of sewerage cess in other states as also in Kerala (p. 49). In several cities/states user charges for sewerage are being collected.

In fact 100% collection of O&M expenditure over a period of next six years is one of the important mandatory reforms under JnNURM.

Strom Water Drainage

19. Kochi has a canal based drainage system leading to several problems. Severe water logging and flooding during monsoon disrupts traffic movement and normal life from a few hours to few days. Several reasons were identified for this. The drainage system suffers from poor operation and maintenance as several agencies like local bodies, Irrigation Department, National Highways, Southern Railway, PWD, etc., are responsible. While poor maintenance and lack of coordination between these different agencies responsible for O&M was identified as a key issue, no proposals were made to establish such a mechanism. This needs critical examination and should be included in the CDP.

20. Several proposals at a cost of over Rs. 900 crores were proposed to extend and strengthen the drainage system. The proposals relate to KMC, two municipalities and 11 panchayats. Two panchayats in the proposed CDP_area viz., Chellanam and Kumbalangy panchayats were excluded (Annexure 4, pp.7-12). Reasons for such exclusion have not been given or explained.

Solid Waste Management

21. Different aspects of solid waste management (SWM), which is an obligatory function of local bodies, is discussed in Chapter 5.4. SWM in Kochi appear to be ‘in a pathetic state resulting in problems of water logging, mosquito menace, sanitation and environmental and health related problems’ (p.59). Several reasons for such a state and areas of concern were identified. Door to door collection covers only 28%, use of bins and collection from open places covers 40-45% and the rest are thrown on the streets, drains and canals. Only 10% of the roads are swept daily, 30% occasionally and rest never. Open trucks loaded manually transport the wastes and there is no sanitary landfill. More or less similar situation is present in other constituents of CDP area also. The KMC’s Vision is to achieve the distinction of being ‘one of the cleanest places in the world by 2010 (p.67). In this chapter the following aspects need to be covered:

- Discussion of SWM in areas other than KMC in terms of frequency of collection, O&M costs and recovery, transportation mechanisms, door-to-door collection and status on landfills, etc.;
- Total expenditure on O&M and % of costs recovered through user charges;

- Collection, treatment and disposal of hospital wastes has not been discussed nor budgeted. This needs to be added.
- The implementation of recommendations and impact and issues of Solid Waste Management Task Force should be highlighted to form the basis for future action;
- The CDP proposes to achieve 92-95% efficiency in SWM, but strategies including action plan, development of partnerships, financing details have not been given. They need to be included;
- Proposals relating to awareness building and model demonstration are estimated to cost Rs. 49.55 crores and capacity building Rs. 12 crores (pp.181-182). This constitutes about 40% of total cost of proposals on SWM. They appear to be on very high side, and need to be reviewed; and
- Door-to-door collection is estimated to cost Rs. 21 Crores and this also appears to be on the high side. The reasons for high costs should be explained. Aspects of community contributions through user charges, development of partnerships privatization, etc., are important for the sustainability of SWM program. This is also important to reduce the costs. These aspects need to be discussed.

Traffic and Transportation

22. The traffic and transportation section is well organized. A very positive feature of Kochi city is high share of public transport at 73 percent, which needs to be sustained. The strategies are quite focused but the Vision is generic and needs to be refined. The section on institutional arrangements is very brief and needs to be strengthened.

Environment

23. Environmental aspects like air and water quality, water bodies, slum environment, etc., are covered in Chapter 9. The data should be presented as per Table 14 of the Tool Kit. Kochi is one of the disaster prone areas with geological, climatic, biological and other risks and vulnerability. The area also suffers from costal erosion, flooding and biological threats due to location of chemical and petro-chemical industries. These aspects need to be highlighted. Institutional, legal and other measures initiated or proposed to mitigate risks needs to be examined.

Urban Renewal and Social Amenities

24. To core areas – one in Ernakulam and other in Mattancherry - were identified for renewal. Special projects were implemented in the past in Mattancherry in sectors

like poverty. Implementation, impact and issues of such special projects need to be highlighted.

Heritage and Tourism

25. Heritage and tourism are very important part of economy of Kerala as also of historical cities like Kochi. Tourists - both Indian and foreign - visiting Kochi is increasing over years (p.119). Maintenance of heritage structures like Fort and buildings, and promotion of tourism requires enormous resources and convergence of public and private initiatives and efforts. It is necessary to highlight the strategy and action plan, institutional arrangements for convergence of programmes and resources, development of partnerships with private sector and other interested parties.

Basic Services to the Poor

26. Aspects of poverty including slums and slum population, community structures, poverty programmes, land tenure, housing, water, sanitation, health and education, livelihoods, etc., are discussed and challenges identified in Chapter 7. One of the important aspects of urban poverty alleviation in Kerala is that 2% of ULB's income is spent on urban poverty alleviation as per Section 284 of Kerala Municipality Act, 1994. Probably, this is the only state in India with such allocation through the Act. The following aspects, however, need to be included or corrected.

- Tables 7.1 and 7.2 deal with urban poor population in Kochi CDP area and urban agglomeration respectively. It is not clear as to why the urban slums and BPL population in urban agglomeration is discussed as areas covered by CDP are different from CDP area. In Table 7.9, BPL population is given as 4,89,346 (p. 97), which refers to the BPL population of urban agglomeration (Table 7.2; p.88) and not that of CDP area, which stands at 4,24,854 only (Table 7.1; pp. 87-88). The figures need to be reviewed and corrected and such inconsistencies need to be rectified;
- The Vision states that by 2016 Kochi should become a slum free city, but Kudumbasree - important institutional mechanism to implement urban poverty programme in Kerala - aims to remove poverty in 10 years. This needs to be clarified;
- From Table 7.6 it is clear that about 34,500 households need to be provided either land or home or both. Whether the proposal for provision of land tenure and housing at a cost of Rs. 307.6 crores covers all these households or only a portion of it needs to be discussed along with plans to cover the rest;
- Table 7.9 refers to sanitation situation in Kochi and other areas of urban agglomeration and not areas covered under CDP. This needs to be corrected;
- Details of the percentage of households with domestic water connections to the total BPL households, incentives or subsidy extended to BPL households to

access domestic connection, % coverage of water supply network in slums and poor localities, per capita water quantity and quality, wastage of water through PSPs, water borne diseases and interventions need to be discussed;

- Literacy levels in the slums and poor areas need to be given and compared with city and state level literacy levels and gaps identified;
- A list of education institutionals is presented in Table 7.14. It is not clear whether the list refers to the total number of institutions or those covering slums and poor areas;
- Details of hospitals, health centers, etc., is given in Table 7.10, 7.11 and 7.12. But it is not clear whether they are accessed by a majority of urban poor or the general public. Similar is the case with Anganwadies (p.101).

Finances and City Investment Plan

27. The chapter on mobilization of finances needs to be improved presented as per the Tables 7, 8 and 9 of the Tool Kit. The analysis on municipal finances covering trends of various components of income like taxes, non-taxes, grants, devolutions etc., and expenditure like capital, revenue, establishment, repairs and maintenance etc., needs to be discussed. Only the overall income and expenditure of ULBs and panchayats are presented and no detailed analysis was undertaken. Projections for the future were also not worked out. The unit values of figures are also not presented. The overall project cost is also appears to be high and need to be reviewed.

28. There are several inconsistencies in the figures and spellings used at several places and tables. For example, there are variations in the figures provided in Table A Line Estimates, and Table B Investment Plan (pp.181-182). The city Kochi is spelled as Cochin at some places and similarly there are variations in case of other places also. The terms *surrounding ULBs and urban outskirts* should be carefully used and clear reference should be made to CDP area and urban agglomeration as this may cause certain confusion. Such variations and inconsistencies should be avoided and wherever they occur should be corrected.

Sl No	Name of the City / Village	Urban Agglomeration		CDP	
		Population	Area	Population	Area
1	Kochi (M. Corp.)	5,96,473	94.88	5,96,473	94.88
2	Aluva (M)	24,108			
3	Paravur (M)	30,056			
4	Kalamassery (M)	63,176	27.00	63,176	27.00
5	Thripunithura (M)	59,881	18.69	59,884	18.69
6	Angamali (M)	33,424			
7	Kakkaanad (OG)	22,486			
8	Choornikkara (CT)	36,998			
9	Edathala (CT)	67,137			
10	Chennamangalam	21,729			
11	Kottuvally (CT)	37,884			
12	Alangad (OG)	40,585			
13	Varapuzha (CT)	24,516	7.74	24,524	7.74
14	Kadungaloor (CT)	35,451			
15	Eloor (CT)	30,092	14.21	35,573	14.21
16	Cheriyakadavu (OG)	8,326			
17	Cheranallur (CT)	26,330	10.59	26,316	10.59
18	Mulavukad (CT)	22,845	19.27	22,842	19.27
19	Vazhakkala (CT)	42,272			
20	Thiruvankulam (CT)	21,713	10.49	21,717	10.49
21	Maradu (CT)	40,993	12.35	41,012	12.35
22	Chengamanad (CT)	29,775			
23	Chowwara (CT)	13,603			
24	Kadamakkudy (CT)	15,823	12.92	15,824	12.92

25	Kureekkad (CT)	9,730			
26	Thikkarkara (CT)			65,984	27.46
27	Elamkunnapuzha (CT)			50,563	11.66
28	Njarakkal (CT)			24,166	8.60
29	Kumbalam (CT)			27,549	20.79
30	Kumbalangi (CT)			26,661	15.77
31	Chellanam (CT)			36,209	17.60
	Total	13,55,406		11,38,413	330.02