RAJIV AWAS YOJANA
(RAY)

DETAILED PROJECT REPORT

(DPR)

Submitted by

Kollam Municipal Corporation

Government of Kerala

May 2013

EXECUTIVE SUMMARY

Rajiv Awas Yojana (RAY) initiated by the Government of India, for the slum dwellers and the urban poor, envisages a 'Slum-free India' through encouraging States/U Ts to tackle the problem of slums in a definitive manner, in selected cities in India, Kollam being one.

It calls for a multi-pronged approach focusing on:

- Bringing existing slums within the formal system and enabling them to avail of the same level of basic amenities as the rest of the town;
- Redressing the failures of the formal system that lie behind the creation of slums; and
- Tackling the shortages of urban land and housing that keep shelter out of reach of the urban poor and force them to resort to extra-legal solutions in a bid to retain their sources of livelihood and employment.

The benefits of these programmes are structured to ensure benefits to members of the minority communities and to slums, predominantly inhabited by minority communities. As in JNNURM, the goals of RAY will be driven and incentivised by the provision of central support for slum redevelopment and construction of affordable housing conditional to a set of reforms necessary for urban development to become inclusive.

This DPR comprises of slum development proposals for the pilot project under RAY for the improvement of the SMP Palace Colony in the Kollam Municipal Corporation. Centre of Science and Technology for Rural Development (COSTFORD) is entrusted to prepare the DPR. This DPR is prepared in accordance with the CDP being prepared by the Corporation. The proposals put forward in this DPR adopt and incorporate the general planning strategies stipulated in the CDP. The number of houses to be reconstructed and renovated has increased in the present scenario and this has been addressed in the DPR prepared.

METHODOLOGY - COSTFORD'S APPROACH

At the outset, COSTFORD conducted detailed surveys covering topographical, socio-economic & engineering aspects of the SMP Palace Colony.

In the socio-economic survey, data were collected on population & its density, communities & their relationships, education & types of occupations, health conditions & medical facilities.

In the cluster meeting the beneficiaries were unanimous on the opinion that they should not be relocated from the existing cluster. Analysis of these facts and interaction with the residents produced a better understanding of the issues faced by the people living in the colony.

The engineering surveys covered aspects of housing, soil conditions, water supply, electricity, access roads, and sanitation and drainage systems. This documentation gave an insight on how to improve the infrastructure of the colony.

On the basis of the analysis of the collected data, proposals were made, with due consideration to the pressing issues faced by the residents and the existing environmental problems. The proposals integrate all these aspects to create a people and environment friendly design. Flexibility for improvement and growth is built into the proposals. They are intended in the long run, to help the residents supplement and maintain by themselves a healthy environment in a sustainable manner.

CONCEPT PROPOSAL

Additionally, the proposals take into account the betterment of the prevailing social conditions. This has been done by providing designed spaces to facilitate the provision of basic social services that may otherwise be inaccessible to the community. These include legal, medical and counselling services. Also these should ideally be overseen and funded by the municipal corporation and manned by voluntary agencies independently or through the concerned government departments. The availability of suitable spaces for these would thus greatly contribute to the general upliftment of the community as a whole. It has also been attempted to generate employment opportunities for socially weaker classes such as widows, handicapped individuals and the aged.

Study centres have been provided, taking into account the social condition of the beneficiaries, as a space for children to come and study at night, as the atmosphere in their homes may not be conducive for learning. These study centres could also function as counselling centres for adolescents, with the help of social workers in the community. For the empowerment of the beneficiary population working spaces for women is proposed as a part of the design.

These facilities call for greater participation of the beneficiaries and other stakeholders. Though in the initial stages, their input was confined to limited, informal discussions, more participation is expected in the coming stages of the project. The DPR is based on independent surveys and studies conducted in the concerned locality.

OUTCOME AND FINANCIALS

The total project cost is estimated at Rs.1785.18 Lakhs. 195 Dwelling Units are proposed in various designs types. The summary of the proposals is as follows:

INSERT EXECUTIVE SUMMARY EXCEL SHEETS HERE

(4 SHEETS)

INNOVATIVE SOLUTIONS

In-situ Rehabilitation:

The existing dilapidated houses which are 195 in numbers will be demolished and new houses will be constructed in the colony. For this transit accommodation will be arranged in the SMP Palace compound as per the decision taken by the Municipal Corporation. The project will be implemented in phases. The 36 families living in the existing dilapidated apartments will be shifted to the proposed transit accommodation facility during the proposed construction of the nine storey apartment building.

The new nine storey building proposed with an innovative approach by including commercial space within the residential apartment. The Seventh and Eighth storey of the apartment is designed for commercial purpose with an area of 764.30 square meters. This space can be rented out for private parties for commercial purpose. As this building is located in the heart of the city and is viable for back office and other commercial ventures, the investment made by the ULB for can be retrieved from it. Part of this income will be used for maintaining the lifts and other services of the apartment.

There are many families who share the house, kitchen etc. with other families. Moreover multiple families are accommodated in existing single dwelling units. Many of the individual plots are very small in extent to provide habitable dwelling units. After discussions with the beneficiaries, it was proposed to pool together such plots adjacent together and provide multi storied dwelling units for the inhabitants of those plots, so that they obtain a habitable dwelling with more open community spaces around. These were presented before the beneficiaries and were approved after detailed discussions. New individual houses are proposed for each of these families thereby pooling in the available land resources by providing G+2 and G+3 dwelling units.

Approach- Participatory Planning

One of the unique components of RAY program is the role community in the development of the cluster. The SLNA, Municipal Corporation, consultants and cluster committee strategised and executed various programme to ensure community participation at different stages (issue identification, need assessment, planning and proposal) of the project to address the need of all

categories of beneficiaries. Various approaches adopted to ensure participation were through One to one interaction, Cluster meetings and presentations at various stages of the planning, Focused Group Discussions etc.

Centers for Social Development

The overall planning and design of the cluster has adopted a gender sensitive approach and had considered the requirement of aged and vulnerable. Therefore apart from providing regular neighbourhood physical infrastructure**, Community Centres for Social Development** is proposed for the cluster**.** The purposes of the centre are to accommodate Study centre for girl child, Counselling centres (Social and Legal) for vulnerable and Care centre for kids. **The operation and maintenance** of this centre would be taken care by Institutional arrangement- State, Kudumbashree, ULB

Cluster planning:

With the involvement of the beneficiary, building plans and layout were prepared. The buildings were Designed and oriented in such a way to create maximum free space in between the cluster to act as a **social space** to boost community interaction**.**

Eco-friendly delineation of physical boundaries:

Conventional demarcation of physical boundaries leverages brick walls and the like. It is planned to use eco-friendly shrubs and bamboo plants as separators of physical boundaries. Wines grown on stone hedges are planned where more robust structures are needed.

Decentralized Waste Management:

Sewage discharged from households is treated in Sewage Treatment plants for processing. Community biogas plants are proposed for the disposal of domestic waste generated in the community. The generated fuel will be converted to electric power for lighting common areas. This is an environmental friendly move, as these effectively reduces the dumping of waste into the open and help maintain clean and healthy environment This approach will benefit the society in multiple ways : reducing the load on the centralized treatment facility, reduces the costs of transportation of garbage, generation of alternate energy for community use.

Transit accommodation in health conducive shelters:

Transit accommodations structures will be built using bamboo and other environment friendly material. Typically GI /AC sheets are used for constructing transit accommodations in LIG housing projects. Here in this project, it is proposed to use bamboo and other environment friendly material for construction of shelters. In Kerala bamboo is a commonly available plant and bamboo is one of the fast growing plants which requires minimum time period to achieve maturity. The structures with bamboo would ensure decent living conditions within the shelters and also prevent the permanent settlement of dwellers in these shelters.

Provision for holistic development:

The provision of anganwadi, community hall and study rooms for boys and girls along with the newly proposed infrastructure will provide for comprehensive continuous development of the society.

BASIC CHECK LIST

1.	Name of the State	**KERALA**
2.	Category of State – whether general or North Eastern States (including Sikkim)/J&K)	**GENERAL**
3.	Name of the City	**Kollam**
		Status (Yes/No)
4.	**a)** Whether City Development Plan (CDP) has been prepared and forwarded to the Ministry of Urban Development with a copy to Ministry of Urban Employment & Poverty Alleviation? **b)** Whether the CDP has been appraised and approved by the Ministry of Urban Development? **c)** Whether copy of the approved CDP has been endorsed to the Ministry of UEPA or not by Ministry of Urban Development? d) Whether aspects of slums and the urban poor including street vendors have been included as a separate chapter in the CDP along with the 7 Point Charter (viz., security of tenure at affordable prices, improved housing, water supply, sanitation and ensuring delivery of other already existing universal services of the government for education, health and social security)	**No** **No** **No**
5.	**a)** Whether MOA for reforms has been signed with the Ministry of Urban Development? **b)** Whether a copy of the signed MOA has been	**Yes**

	received in the Ministry of Urban Employment & Poverty Alleviation or not? **c)** Whether signed MOA mentions with asterisk that two reforms, viz., i) Repeal of Urban Land Ceiling & Regulation Act; and ii) Amendment of Rent Control Laws balancing the interest of landlords and tenants are optional with regard to schemes under BSUP?	**Yes** **Yes**
6.	Whether the State Level Nodal Agency has been designated?	**Yes**
7.	Whether the DPR has been forwarded by the designated Nodal Agency?	**Yes**
8.	Whether State Level Steering Committee (SLSC) has been constituted?	**Yes**
9.	Whether DPR has been recommended by the SLSC?	**Yes**
10.	Whether elected Local Body is in place?	**Yes**
11.	Total urban population of the city	**11,86,340**
12.	Total slum population of the city	**40,000**
13.	Is the DPR in accordance with the CDP?	**N/A**
14.	Is DPR an integrated housing & infrastructure project? [If not, proper justification]	**Yes**
15.	Has the contribution from the beneficiaries been collected?	**No**
17.	Is the DPR for *in situ* development?	**Yes**
18.	Is the DPR for relocation?	**No**

19.	In case of relocation, whether all basic amenities have been provided for in the new site in the DPR?	**Yes**
20.	Is the new site in proximity to the original site/work-place?	**N/A**
21.	In case of *in situ*, whether provision for basic services has been provided for in the DPR?	**Yes**
22.	**Housing** Whether densities of population norms have been observed in the DPR with reference to city as per the byelaws? Whether plotted area, setbacks and coverage of plot are as per byelaws? Whether maximum FAR utilization has been considered in the DPR to ensure efficient use of land? Whether the cost of the dwelling units and infrastructure has been worked out in terms of State's schedule of rates? Whether security of tenure/patta has been provided to the beneficiaries, as per guidelines, preferably women? Whether the floor area of dwelling unit is equal or more than 25 sq.meters? Whether each dwelling unit comprises two rooms, kitchen and a toilet?	**Yes** **Yes** **Yes** **Yes** **Yes** **Yes** **Yes**
23.	**Infrastructure facilities** Whether provisioning for the following has been made	**Yes**

	in the DPR: Water supply Sewerage Solid waste disposal Development of roads/paths/ footpaths/pavements Storm water drains Street lighting	
24.	**Community facilities** Whether provisioning for the following has been made in the DPR: Community Centre Community Primary Health Care Centre Primary Education Centre Parks and open spaces	**Yes**
25.	Whether there is provisioning for convergence of the Central and State Government schemes in the following sectors in the DPR:- Health Education Social security including accidental and medical insurance, old age pension, old age homes, etc.	**No**
26.	Whether cost of land has been included in the project cost where private land has been acquired?	**No**

	[Applicable only to the State of J&K, Uttaranchal, Himachal Pradesh and North Eastern States including Sikkim]	
27.	Whether a separate provisioning for upkeep and maintenance of public assets to be created through this project has been made by the State Government/ULB/Parastatal? [This provisioning will not be funded under the Scheme]	**Yes**
28.	Whether DPR is a PPP Project?	**No**
29.	Whether the area/beneficiaries covered under DPR had previously benefited in any Central/State Government Scheme? [If so, details thereof]	**Yes**
30.	Is the DPR in accordance with the RAY guidelines? If not, indicate deviations and provide justifications.	**Yes**
31.	Any other information relevant to the DPR	**Nil**

TECHNICAL CHECK LIST

1.	Name of the State	**KERALA**
2.	Name of the City	**KOLLAM**
3.	Nodal Agency Implementing agency	**KUDUMBASREE** **KOLLAM MUNICIPAL CORPORATION**
4.	Project Cost (Rs in LAKHS)	**Rs. 1785.18**
5.	State share (Rs in LAKHS)	**Rs. 530.41**
	Beneficiary contribution Agency's own funds Loan from HFI/Banks State's grant MP/MLALAD funds Any other	**126.19** **381.41** **---** **----** **----**
6.	Central share (Rs in LAKHS)	**Rs. 747.18**
7.	i) Project Duration ii) Date of commencement / completion	**2013-2015**
8.	Name of the bank / account No. where state share is deposited	**Being Deposited**
9.	Date & Amount of deposit (Rs in Lakhs)	**NA**

10.	i) No. of DUs – New - Up gradation	**195** **70**
	ii) Cost of Housing (Rs in LAKHS)	**Rs 1213.73**
	iii) Floor area of a DU	**30 sq.mtrs**
	iv) Whether there is provision of Kitchen in the DU? v) Whether there is provision of Toilet in the DU?	**Yes** **Yes**
11.	i) Density (DU/hectare)	**160.33**
	ii) Whether proposed density adheres to the Master Plan of the area?	**Yes**
12.	i) The land use of the proposed site as per the Master plan	**Yes**
	ii) If not residential, then necessary approvals for change of land use have been taken?	**NA**
13	Coverage area Built-up area of houses Roads/Pavements Open spaces Green area Community facilities	**Percentage %** **55.78(%)** **16.66(%)** **18.22(%)** **6.29(%)** **3.05(%)**

	Any other	**…..**
14.	Whether statutory approvals from various local bodies have been taken, such as TCPO Municipality Fire Deptt Pollution Control Board Min. of Environment etc.	 **NA** **Yes** **NA** **NA** **NA**
15.	Whether Fire safety measures have been adopted?	**Yes**
16.	Whether building plans, layout plans, master plans etc are enclosed or not?	**Yes**
17.	Schedule of Rates adopted (Year)	**2012**
18. 18.A	Provision of Infrastructural facilities Community Toilets Expenditure involved No of WCs/Baths proposed	 **Nil**
18.B	**Water Supply** Expenditure involved Whether municipal water supply available in vicinity? If no, type of water	 **Rs 48.39 Lakhs** **Yes**

	supply system proposed? Whether there is provision for Rain water harvesting?	**Yes**
18.C	**Sewerage** Expenditure involved Whether municipal sewer line available in vicinity? If no, type of sewerage system proposed?	**Rs 104.058 Lakhs** **No**
18.D	**Roads/Pavements** Expenditure involved Whether connectivity with the main peripheral road exists or not? If not, is it proposed in the DPR.	**Rs 23.889 Lakh** **Yes**
18.E	**Storm Water Drainage** Expenditure involved Whether connectivity with the primary/secondary drains exists or not? If not, is it proposed in the DPR.	**Rs 29.181 lakhs** **Yes**
18.F	**Parks and Open spaces**	

	Expenditure involved	**Rs 1.545 Lakhs**
18.G	**Electrification** Expenditure involved Whether street lighting of internal roads/pavements proposed?	 **Rs 18.999 Lakhs** **Yes**
18.H	**Solid Waste Disposal** Expenditure involved Distance from Landfill Whether there is provision for waste recycling and segregation?	 **Rs 29.45 lakhs** **Not Applicable** **Yes**
19. 19.A	*Other services to be converged with other Central/State Programme.* **Health Care facilities** Whether proposed within the site If not, does it exist in the vicinity If not, is it proposed in the vicinity If in the vicinity, distance from the site Expenditure involved Methodology adopted for convergence	 **No** **Yes** **-** **500mtr** **-** **Involvement with State**

19.B	**Educational facilities** Whether proposed within the site If not, does it exist in the vicinity If not, is it proposed in the vicinity If in the vicinity, distance from the site Expenditure involved Methodology adopted for convergence	**No** **Yes** **-** **500 to 1000 mtrs** **-** **Involvement with State**
19.C	**Social Security** Details of social security provisions available like medical insurance, pension schemes etc. Expenditure involved, item wise Methodology adopted for convergence	**Under Kollam Municipal Corporation**
19.D	Provision of other civic amenities (if any)	**No**
20.	Details of Environmental Impact Assessment (EIA) done.	**NA**
21A	Methodology adopted for maintenance of assets thus created.	**By Beneficiary Committee**
21B	Mechanism for sustainable management of services	**O & M by Beneficiary Committee**

22A	Use of Innovative & cost effective materials and technology. Details thereof.	
22B	Use of earthquake resistant technology. Details thereof.	**Yes**

Signatures of the State Level Nodal Office

Name & Designation:

THE UNDER TAKING FURNISHED BY CORPORATION

1. The slum identified for implementation of RAY Programme would be de-notified and no additional fund will be allocated to the same slum for the same purpose.
2. The remaining houses in the identified slums, which are not selected for RAY assistance, are in good habitable condition.
3. All beneficiaries selected for assistance under RAY for individual houses/improvement of existing house have land tenures.
4. The area selected for housing schemes proposed under RAY are free from Zonal regulations.
5. Necessary convergence would be made while implementing the scheme with proper integration of services.
6. The estimates have been prepared based on the state PWD Schedules of Rates 2012.
7. Where ever public taps are proposed individual pipe connections to each house would be provided through ULB or other Programmes.
8. The project components proposed under the present proposal has not been considered under any other scheme.
9. The beneficiaries identified under this proposal have not been considered for any other housing programme implemented by the Municipality/State for last five Years, and also in the BSUP projects sanctioned by GOI.
10. Bio-metric Identification of beneficiaries would be done and list would be uploaded on the State/Municipal/RAY web site.
11. The adequacy, correctness of design and quantity calculation conforms to the proposed design /plan.

Secretary

CERTIFICATE

It is certified that, in relation to the DPR submitted for the projects, "RAY Scheme, Kollam Corporation" by the Corporation of Kollam the following requirement have been met.

1. The State Level Co-Ordination Committee (SLTC) has approved the instant Proposal of Infrastructure in its meeting held on …….

2. The estimate has been prepared as per current SOR along with current cost index and estimates have been signed by the Engineer in Charge of the Corporation.

3. The Multipurpose Community Centre makes appropriate provision for education, especially for non formal education , Primary Health facilities, space for holding meetings of thrift and credit groups for promoting social security and work shed/informal market places for supporting livelihood of urban poor.

4. Socio-Economic Survey of slum pockets reflected in DPR has been carried out.

5 The List of Beneficiaries along with bio-metric identification is enclosed /would be submitted, and has also been displayed in the web site of ULB and state level nodal agency.

6 Beneficiary covered under project will be provided security of tenure through guaranteed tenancy/owner ship rights.

Engineer in charge	**Secretary**	**Nodal Officer**
(Corporation)	(Corporation)	(Kudumbasree)

CONTENTS

CHAPTER ONE

1.ABSTRACT

- **Project Name : RAJIV AWAS YOJANA**
- **Nodal Agency : Kudumbasree**
- **Implementing Agency : Kollam Municipal Corporation**
- **No of colonies : 1**
- **Total project cost : Rs 1785.18**
- **GOI subsidy requirement : Rs 747.18**
- **State share : Rs 530.41**
- **ULB Share : Rs 381.41**
- **Beneficiary Contribution : Rs 126.19**
- **Housing : Rs 1213.73**

CHAPTER TWO

2.BACKGROUND

2.1 INTRODUCTION

Kollam city is situated in southern coastal district Kollam of state of Kerala. Kollam or Quilon, is an old sea port town on the Arabian coast. During the 19th Century, Kollam was one of the most developed industrial and commercial centres of the State having a rich history.

Kollam has maintained a commercial reputation from ancient times. Phoenicians, Persians, Arabs, Greeks, Romans and Chinese traded with this port. The Portuguese were the first Europeans to establish a trading centre at Kollam, followed by the Dutch and the British.

There is a difference of opinion among the historians about the origin of the name Kollam. However the most accepted version is that the name originated from the Sanskrit word 'Kollam' which means the pole in which the traditional ferries were tied and hence it can be presumed that the word Kollam stands for port town. Kollam has got its historical importance because of its trade relationship with foreign countries, variety of agricultural produces and as an administrative capital. Kollam had trade relation with China from the ancient period itself.

Another era in the development of Kollam started with entry of Portuguese in the trade relationship with Kollam in 1503. Pepper was the main agricultural product exported from Kollam to Portugal. The Portuguese constructed a port at Tangassery in Kollam. In 1661, the Dutch defeated the Portuguese and established their base here. They constructed churches and altars in various parts of the District. It was Raja Marthanda Varma who defeated Dutch at Kulachal in 1741 and that was the end of the traditional relationship of Dutch with Kollam. Kollam became a part of Venad under Raja Marthanda Varma. The modern history of Kollam begins from this period. It was during the dynasty of Marthanda Varma, the first land survey was conducted in Kollam.

Kollam is the first municipality in the state of Travancore. It was proclaimed as municipal board in 1888. A second Regulation was passed in 1894, according to which the responsibility of cleaning operations were rested on a committee constituted according to the regulation. In those far off times a committee was formed although the right of taxation did not fall under its

jurisdiction. It was in 1910 the legal right of levying taxation was conferred on the committee. This committee was transformed in to a developmental body in 1910. It was granted the status of municipal Council in 1920, but at that time the power to nominate the chairman and members was vested in the government. Railway station was started functioning in 1904

In 1921, Kollam became a Municipality and in 2000 four nearby Panchayats namely *Sakthikulangara, Kilikolloor, Vadakkevila & Eravipuram* were amalgamated and the status of the town was raised to a municipal Corporation.

Kollam District is gifted with unique representative features - sea, lakes, plains, hills, rivers, streams, backwaters, vast green fields and tropical crop of every variety both food crop and cash crop. It is the southern gateway to the backwaters of Kerala, and a tourist destination. The town is very famous for cashew processing and coir manufacturing.

2.2 LOCATION & EXTENT

Kollam is located at 8°53′N 76°36′E on the west coast, near the southern tip of mainland India. The city is sandwiched between the Western Ghats and the Arabian Sea.

It lies 71 Kilometres north of the state capital Thiruvananthapuram and 155 Km south to Ernakulam, the commercial capital of the State. Kollam is connected to Ernakulam and Thiruvananthapuram by both Road and Rail.

Figure 0-1: Location Map of Kollam

Source: Primary Census Abstract 2011

2.3 PHYSICAL CHARACTERISTICS

Kollam city is bordered by the panchayaths of Neendakara and Thrikkadavoor to the north, Mayyanad to the south, Thrikkovilvattom and Kottamkara to the east and Arabian sea to the west. The Kollam Corporation has an area of **53.74 Sq.KM.**

Physiographically, the district has five divisions including low land, mid land, mid-up land, up land and high lands. Kottarakkara Taluk lies completely in the midland region whereas Kunnathur and Pathanapuram taluks lie in high land and up land regions. Karunagapally and Kollam taluks lie in midland and low land regions. The district level analysis of topography and

relief reveals that over 10% of the district lies in the low lands and 39% of the total district lies in the mid lands and the mid-up land consist of 28%. The up land consists of about 18% of the total geographical area of the District. Over 7% of the district falls under high land.

The Kollam Municipal Corporation (KMC) comprises of low and mid land area of the district.

2.4 CLIMATE

The district has a tropical humid climate with an oppressive summer and plentiful rainfall. The hot season March to May is followed by South West Monsoon from June to September. October - November form the post monsoon or retreating monsoon season. The period from December to February is the North-West monsoon.

2.5 DEMOGRAPHIC DETAILS

As per Census of India 2011, Kollam district covers an area of 6.41percent (2.491 Sq.Km) of the total area of the State and has about **7.88** percent of the total population. The population of Kollam Corporation is **3,49,033** (Male : 1,68,076 ; Female : 1,80,950) .

Table 0-1: Details of Urban Population in Kerala

State /District	Area (sq. km)	Urban population	Total population	Percentage share of Urban population	Density (Population/sq. Km)
Kerala	**38863**	**15932171**	**33387677**	**47.72**	**859**
Kollam	2491	1186340	2629703	45.11	1068

(Source: Census of India, 2011)

2.5.1 Sex Ratio

Sex ratio in Kollam Municipal Corporation is 1077 female for 1000 male population according to 2011 census of India and remains below the state average of 1084 and above district average of 1069.

2.5.2 Literacy Rate

The literacy rate in Kollam Municipal Corporation is 92.1 percent which is lower than the district, state rate of 93.22 and 93.91 percent.

2.5.3 Slum Population

The total slum population in Kollam Corporation is 40,000 which accounts to 11.4% percent of the total population.

Source: census 2011: Govt of India

2.6 OCCUPATIONAL STRUCTURE

Occupational structure is one of the most important analysis in demographic characteristics which indicate the sustaining capacity of different economic sectors like primary, secondary and tertiary sectors.

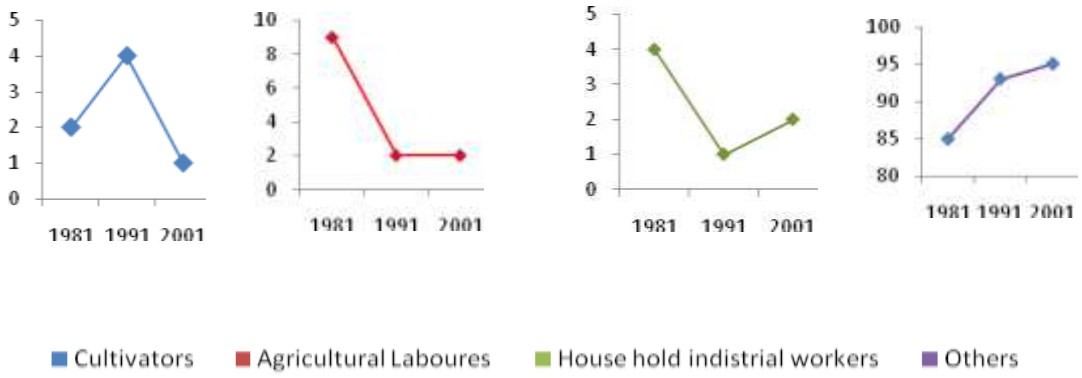
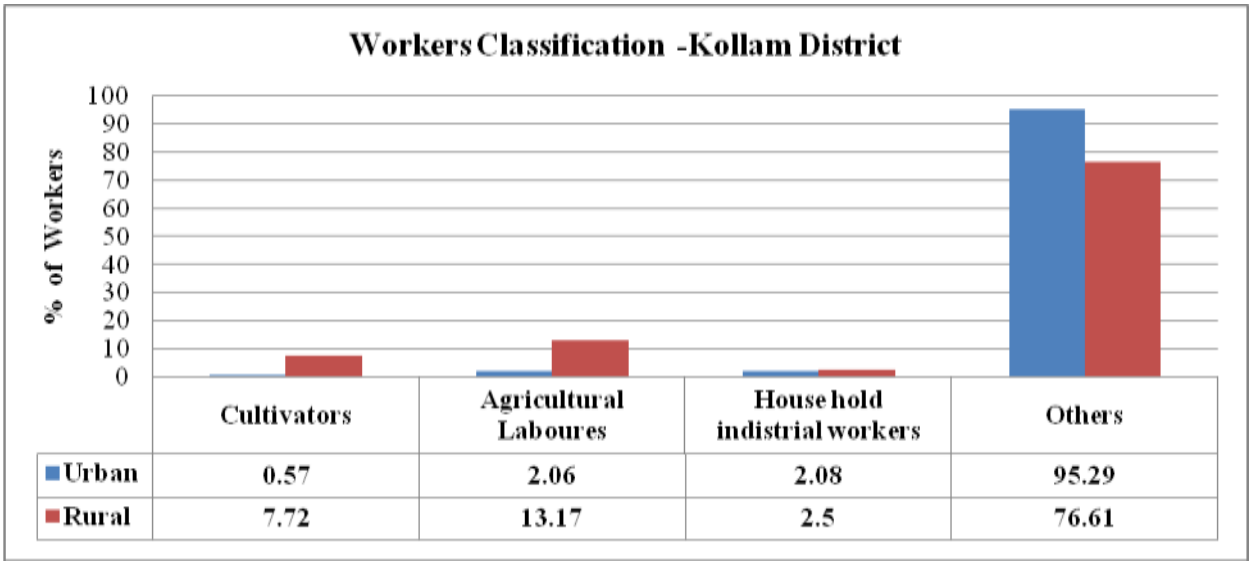


Figure 0-1: Change in occupational structure of urban areas of Kollam 1981 to 2001

Source: IDDP Kollam Report & Census of India 1981, 1991, 2001

The production sector including the agriculture and industrial sector shows a declining trend in the district. The only sector, which shows growth, is the service sector. More than 50% of the urban population depends on the service sector for their livelihood. It is observed that rural area of the district is also slowly withdrawing from the primary sector and has started depending more on the service sector.



	Cultivators	Agricultural Laboures	House hold indistrial workers	Others
Urban	0.57	2.06	2.08	95.29
Rural	7.72	13.17	2.5	76.61

Source: Census of India 2001

2.7 PHYSICAL INFRASTRUCTURE

2.7.1 Water supply

The Kollam Corporation is provided with Water Supply from *Sasthamcotta Lake* under the control and supervision of *Kerala Water Authority (KWA*).The system is very old and inefficient and the supply of water in the town is inadequate. The Kerala State Urban Development Project (KSUDP) scheme is in place to make available sufficient water to Kollam Corporation area by rehabilitating Water Treatment Plant, Transmission mains, Over Head Tanks and augmentation of distribution network and service connections.

2.7.2 Sewerage Network

The sewerage system in Kollam is not in operation. Sewerage scheme was started by Kerala Water Authority in 1980, but not completed. Septic tanks and pits are in use in the Municipal Corporation area.

Under the KSUDP project new scheme is proposed for sewerage system .Under this schemes new sewer lines will be laid. This sewage was proposed to be taken to a STP at Kureepuzha. Five new pumping stations were also proposed at various zones.

2.7.3 Drainage network

The drainage network of the city consists of streams and channels that empties into the adjacent lakes and sea.

2.7.4 Solid waste management

Solid Waste Management (SWM) is one of the most important mandatory functions of the Urban Local Bodies. The corporation is the only agency involved in solid waste management. About 120 MT of Municipal solid wastes is generated in Kollam Corporation every day. The per capita waste generation is estimated to be 350 g/cap/day. Out of this about 40 tons is collected by the Corporation every day. Domestic waste accounts for more than 50% of the municipal solid waste produced in Kollam. Street sweeping accounts for 18% of the waste. Commercial waste and waste from hotels and markets are also significant. Classification of waste based on its components has not been done.

A mechanical compost treatment plant was set up and operated by the Corporation at Kuripuzha. The plant is located about 5 km from the city. There is no engineered land fill site in Kollam. There are no recycling plants within the city. The city corporation also does not operate any recycling plant. Waste suitable for recycling are collected from the households and from commercial establishments by private sector agents and transported to centres outside the State. Even though no studies are available on the per capita waste generation trends, there is no doubt that the quantity of waste generated is bound to increase substantially in future.

2.7.5 Street lighting

Urban roads are generally provided with streetlights. Kollam Municipal Corporation maintains the streetlights through Kerala State Electricity Board (KSEB).

2.8 SOCIAL INFRASTRUCTURE

2.8.1 Education

Kerala has achieved a high literacy rate of 93.91% (Census of India 2011) as against an all India average of 74.04%. Literacy rate of Kollam district is 93.77%. *Adult Literacy Programme* is

being effectively implemented. The male and female literacy of the district are 95.83% and 91.95% respectively.

2.8.2 Health

Kerala has the most extensive medical infrastructure among all states in India. Kerala has the most extensive medical infrastructure among all states in India. In Kollam, there are a number of private health care institutions in addition to government health centres and District hospitals, which cater to the curative needs of a large number of people from the city and outside.

2.9 PROJECTS SELECTED FOR DPR

The slum selected under the RAY pilot scheme is **SMP Palace Cluster**

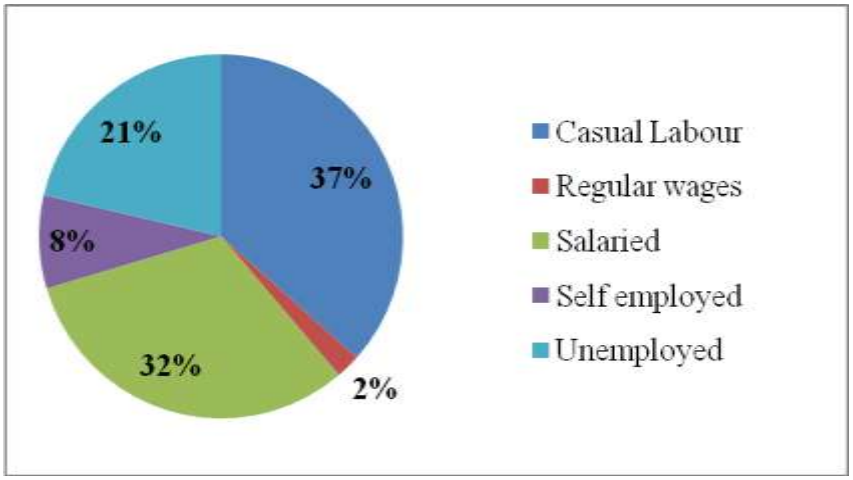
Figure 0-1: Location of selected Slum In Kollam Municipal Corporation

Source: Kollam Municipal Corporation

2.10 LIVELIHOOD PROFILE OF THE SELECTED SLUM

A table prepared based on the socio economic surveys conducted in the slums shows that majority of the slum dwellers are daily labourers. The settlers depend on head load, catering and street vending related jobs for their livelihood. But majority of the settlers does not have proper infrastructure facilities.

Figure 0-1: livelihood profile of the colony



Source: Municipal corporation Kollam

CHAPTER THREE

3. PROJECT DETAILS

3.1 SMP PALACE COLONY

3.1.1 BACKGROUND

Introduction

The SMP Palace colony is one of the identified slums in Kollam Municipal Corporation and is situated in the heart of the city. It is located adjacent to the Kollam Railway station and the Kollam YMCA building.

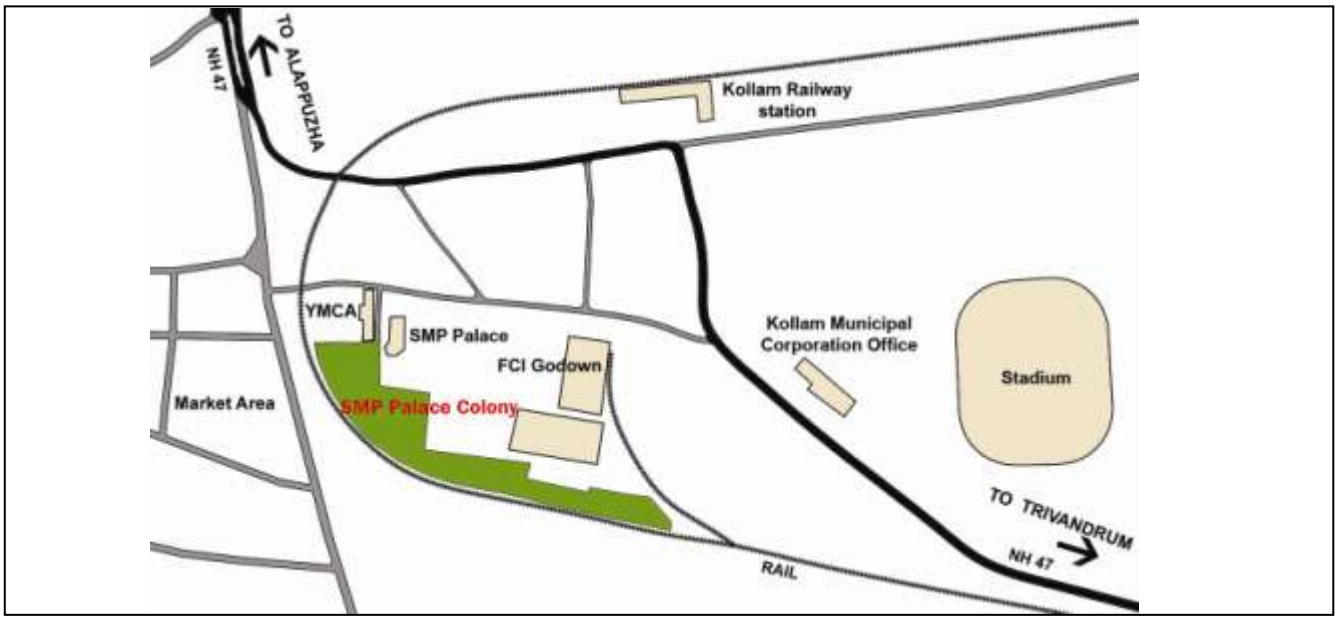
The major portion of the colony was railway land (Puramboke) and it is located near the premises of the old palace namely SMP palace, hence the colony got the name. Over time, migrant labourers from Tamil Nadu and surrounding villages encroached the land, initially by constructing the shacks. Dilapidated houses and the degraded physical environment of the colony lead to a slum like situation.

The colony is 4.43 acres in extend. In 1980, permanent residential accommodations were provided for a part of the residents of the colony which is in a dilapidated condition, and they are unfit for habitation. The colony was a safe haven for antisocial elements owing to its location. A judicious work of social workers, politicians, the local religious organisations etc; have brought about a social change among the inmates over the past few years.

Location

The colony is located 500 m away from the Kollam Railway station and 1 km from Kollam Bus stand.

Figure 0-1: Location map



Source : Primary survey by COSTFORD, Sept 2011

3.1.2 EXISTING CONDITIONS OF SLUM

3.1.2.1 Topography

The land in the colony has a flat terrain with slight slope towards the south west. The main road is situated in a higher level of 0.9 M from the level of the colony.

Figure 0-1: Site section showing the slope

The site is surrounded by FCI godown and SMP Palace on southern side and Railway track on and on western side.

3.1.2.2 POPULATION

The total population of the colony is 1298 in which 638 male and 660 female. There are 290 households in the colony.

Figure 0-2: One of the Temples in the Colony

3.1.2.3 SOCIO ECONOMIC CONDITION

The general category is more in the colony. Two temples, one mosque and church exist in the colony. The People from three different religions stay together harmoniously in the colony with limited facilities.

Figure 0-1: Woman engaged in garland making

Only 33% of the families of the colony belong to SC category along with 50% of general category. Twenty one percentages of the households belong to minority status in the colony.

Figure 0-2: Dilapidated apartment in the colony

5% of male population and 10% of female population are illiterate. 86% of the families are in below poverty line. This shows the economic inabilities of the community for making better living conditions. Major parts of the population are casual labours in the city. Major part of population of the colony depends on garland making.

3.1.2.4 HOUSING AND SETTLEMENT PATTERN

The houses in the colony are 215 in number. There are three apartment blocks and others are individual houses. The settlement has a history of eighty

five years. Only three families was there in that period. Later years the municipality brought workers from Tamil Nadu. In 1972 only 94 families existed in the colony. From the last 10 years the density of the colony went up.

The other families of the colony are residing in kucha, semi pucca and pucca houses. Most of the families reside in semi permanent houses and it comes nearly 62% of the existing houses. The asbestos is the main roofing material used by these residents.

In the eighties the government constructed three storeyed flats for 32 families of in northern part of the colony. This building is in a dilapidated condition. The lack of maintenance was the major reason for the degradation of the structure. The most residents in the colony have the title deeds and occupancy rights. Few habitable houses in the colony need modifications and renovations.

Figure 0-1: Shacks in the colony

Source: Primary survey by COSTFORD, Sept 2011

3.1.3 SERVICES

a. Roads and Pathways

The access road of the colony from the main road is concreted. The internal pathways of the colony are narrow and congested. Most of them are concreted. The width of the internal pathways varies from 0.9 m to 2 m. The covered drains are constructed in these pathways and most of them act as the access to the individual houses. The mud

Figure 0-1: Mud road near railway

Source: Primary survey by COSTFORD, Sept 2011

road along the railway track is the only access to most of the houses abounding the track.

Figure 0-2: One of the open wells in the colony

b. Water supply

The inhabitants of the colony depend on Municipal water supply for drinking purpose. There are few wells in the colony as individual property. The water from these wells is mainly used for non drinking purposes. The water qualities of these wells are not satisfactory. In rainy season the situation is worse in this colony.

Source: Primary survey by COSTFORD, Sept 2011

Figure 0-3: Existing covered drains in the colony

c. Electricity

All houses in the colony having electricity connections. The Kerala state electricity board gives the electric supply. The street lights system in the colony is not working properly. There is electric post without lighting facility in the colony.

Figure 0-4: Water logged area inside the colony

d. Storm water drain

There are existing closed drain channels in between the shacks inside the colony. The depths of the drains are insufficient and it overflows regularly in the Monsoon season.

The south east part of the colony has a level difference of 3-4 feet from the northern part of the colony. The storm water from the FCI land is connected to the drain in the south east part of the colony. This Drain is connected to TS canal through a drain which running across the rail way track. The size of the connecting drain is small which cause flooding in rainy season in this part

Figure 0-5: Section across the colony

of the colony. In northern portion of the colony the drains are connected to the main drain line running along the main road. The level of the main drain is higher than the level of the colony. This stops proper run off of storm water in monsoon season.

e. Sewage system

The lack of space inside small plots is the reason why the people are not using septic tanks. The financial aspect is also one reason for avoiding it. The toilets are connected to the pit inside the compound. The ground water in the colony is contaminating due to the usage of pits. Other than two families, all families in the colony have toilet facility.

f. Solid waste management system

The waste management system in the colony is not satisfactory. The waste are dumping in one corner of the colony and surrounding lands. The solid waste was collected by the Kudumbasree units earlier in the colony. Due to lack of corporation among the residents the project was dropped.

3.2 SLUM LEVEL DETAILS

SMP PALACE COLONY							
SI. No	Description						
	Details about the scheme to be Selected	Details					
1	Name of the selected scheme	1.Provision of shelter including up gradation					
		2.Provision of physical amenities					
2	Population to be served in the selected scheme	**1298**					
3	Number of Households	**287**					
4	Area of slum clusters (selected)	**4.35 Acres**					
5	Target Population	SC/ST	%	OBC	%	General	%
		-	-	-	-	-	-
6	SOCIAL SECURITY						
	List out all the facilities envisaged for widows, single women and disabled, old age	**Nil**					
	List out the activities done by the NGOs and the CBOs in the slum Cluster	**Kudumbasree Units.**					
7	LINKAGES						
	Accessibility in respect to	(In km)					
	Major roads	**0.20**					
	Water Supply	**Inside the colony (irregular supply only)**					
	Electric posts	**Inside the colony**					
	Main sewer line	**Nil**					
	Main drainage lines	**Inside the colony**					

	Tele Communication network	**Few area is covered**			
	Local bus stops (for city transportation)	**Less than 50m**			
	Primary Health centres/ maternity center	**1.50km**			
	Anganwadi	**1 No Inside the colony (building rented)**			
	Non-formal education	**Nil**			
	Primary Schools	**1 Km**			
	Community hall	**0.50 km**			
	Facilities for adult education	**1Km away**			
	Work centers	**Nil**			
	Town center	**1.00 km away**			
	Railway station	**0.30km**			
	Bus Stand	**0.20km**			
	Access	**Tarred access road &Concreted pathways**			
8	SOCIO –ECONOMIC DETAILS				
		Male	%	Female	%
	BPL population	-	-	-	-
	Others	-	-	-	-
9	EDUCATION				
		Male	%	Female	%
	Literate	-	-	-	-
	Illiterate	-	-	-	-
	Matriculation and above	-	-	-	-

10	OCCUPATION		
		Number	Percentage
	Unemployed	-	-
11	ACCESSIBILITY TO SAFE WATER		
		Total	Percentage
	Individual connection	**15**	-
	Individual well	**14**	-
	Common Well	**3**	-
	Public tap	**14**	-
12	SEWERAGE CONNECTION		
		Total	Percentage
	Existing sewerage connection (sanitation)	**Nil**	
13	SEPTIC TANK		
		Total	Percentage
	Number of household covered	**1(For apartment)**	-
14	COMMUNITY TOILETS/BATHS		
		Total	Percentage
	Number of household covered	**Nil**	-
15	OPEN DEFECATION		
		Total	Percentage
	Number of household covered	**Nil**	-
16	ELECTRIC CONNECTION		
		Total	Percentage

	Number of household covered	**287**	**100**
17	STREET LIGHTS		
	Number of household covered	100	
18	EXISTING STREETS		
	Internal road (km)	Concrete road	
	Access road (km)	Bitumen tarred road(0.1 km)	

3.3 PROPOSALS

Our proposal is to redevelop this entire colony, by providing housing for the people and to create liveable and lovable spaces and a peaceful environment, where people can reside with a sense of security.

Taking into account the various possibilities and needs of beneficiaries, different design solutions were arrived at. After detailed discussions with the concerned authorities and engineers, the following designs and layout were opted for 195 No. of houses in single level and ground + eight dwelling blocks. The existing apartment blocks which houses 36 families had to be demolished and new apartment block of eight storeys is provided. A variety of 7 apartment block design with 2, 3, 4, 7, 8, 16 and 48 dwelling units are proposed. Due to the limited area and varying shape of individual plots the different designs are prepared for individual houses and apartments. Fire protection should be arranged by ULB

3.3.1 METHODOLOGY - COSTFORD'S APPROACH

At the outset, COSTFORD conducted detailed surveys covering topographical, socio-economic & engineering aspects of the SMP Palace Colony. In the socio-economic survey, data were collected on population & its density, communities & their relationships, education & types of occupations, health conditions & medical facilities available to the target population. Analysis of these facts and interaction with the residents produced a better understanding of the issues faced by the people living in the colony.

On the basis of the data collected, proposals were derived, with due consideration to the pressing issues faced by the residents and the existing environmental problems of the colony. The proposals integrate all these aspects to create a people and environment friendly design. Flexibility for improvement and growth is built into the proposals. They are intended in the long run, to help the residents supplement and maintain by themselves a healthy environment in a sustainable manner.

Figure 0-1: Data Collection Survey

Source: Primary survey by COSTFORD, Sept 2011

Additionally, the proposals take into account the betterment of the prevailing social conditions. This has been done by providing designed spaces to facilitate the provision of basic social services that may otherwise be inaccessible to the community. The availability of suitable spaces for these would thus greatly contribute to the general upliftment of the community as a whole. It has also been attempted to generate employment opportunities for socially weaker classes such as widows, handicapped individuals and the aged.

Cluster level meetings were organized and the proposals explained to the beneficiaries. Officials from Kudumbasree (SLNA), Kollam Municipal Corporation and COSTFORD, explained the proposals in detail and answered the queries raised. All the meetings were noticed by the active participation of women. These meetings call for greater participation of the beneficiaries and other stakeholders. Though in the initial stages, their input was confined to limited, more participation was seen in later stages of the meetings. In the cluster meeting the beneficiaries were unanimous on the opinion that they should not be relocated from the existing cluster. Taking into account of their strong and unanimous opinion in situ redevelopment proposals were derived. Sub-soil investigations conducted in the site revealed that the bearing capacity of soil is very poor. Hence deep pile foundations have to be provided for the nine storied building, which increased the foundation cost considerably. However COSTFORD tried various options and analysed the potentials of relocating the slum dwellers to the only land available in the city which was about 10 Km from the existing location. Since the people of the cluster are very particular about the in-situ development, ULB ruled out the possibilities of finding any alternate site for the rehabilitation of the people living in the existing apartments. Hence it is decided to go for the multi-storeyed building with nine floors to accommodate 48 families. Being a high-rise building lifts are a mandatory provision, but from the experience it is understood that O&M costs of the lifts are very high. It is not easy to operate and maintain the lifts by the beneficiaries themselves. Therefore it is proposed by the ULB to adopt a mixed space use option by including commercial spaces also in the multi-storeyed building. The top two floors are proposed for commercial spaces. The revenue from the commercial spaces would be utilised for the O&M of the lifts and other infrastructure.

3.3.2 LAYOUT

The layout is developed by considering the existing built form and the social conditions. New residential buildings where incorporated in place of the dilapidated residences. The building

designed for the community facilities is placed in an area where the inhabitants, the representatives and the municipal corporation ware accepted by considering accessibility of all the in habitants of the colony. The road system is redesigned to provide maximum accessibility and movability of vehicles.

3.3.3 RESIDENTIAL DESIGNS

The individual dwelling unit's designs in individual plots are of nine types. The requirements of these designs are the same but the area of these requirements varies according to the availability of space in the specific plot. The residential apartments with two dwelling units are of five types. The apartments which have 3, 4 and 5 dwelling units are of 2, 4 and 3 types respectively. The apartment with 16 and 48 dwelling units are the major attraction of the project. The nine storey apartment has facilities to accommodate 48 families and floor area of 764.13 square meters, which will be used for commercial purpose. Two lifts are proposed for this apartment for vertical movement.

Renovation for the existing semi pucca houses are provided with three categories. The first category (Renovation 1) will provide financial help for changing the roof of the existing house. The second category (Renovation 2) will consider the work for plastering and flooring. The third category will provide constructing toilet facility for the existing house.

3.3.4 SOCIAL AMENITIES

3.3.4.1 Anganwadi cum Community hall cum Study Centre

For the empowerment of the beneficiary population one community building is proposed as part of the design. It is proposed as a three storied structure with Anganwadi and community hall in ground floor, the work spaces and study centres for girls in the first floor and work spaces and study centres for boys in the second floor. Taking into account the social condition of the beneficiaries, it is necessary to provide a space for children to come and study at night, as the atmosphere in their homes may not be conducive for learning. Separate study centres are provided for girls & boys. These study centres could also function as counselling centres for adolescents, with the help of social workers in the community. For this the study centre for the girls acts also a counselling room for the girls.

One Anganwadi is proposed on the ground floor of the community building. This would enable both the parents to go for work and lead to a better social development of the children.

The common open space is designed in front of the community building so as to function as community gathering spaces for the beneficiaries. Also, act as play areas for the children.

3.3.4.2 Kiosks for groceries and vegetables.

These are located so that community spaces are active throughout and do not end up as dead and anti spaces. As observed in the socio-economic survey, majority of the population has no source of income. As a part of the design, 5 shops for vending of groceries, vegetables, etc; are proposed. 3 of these shops are existing shops to be redeveloped for the beneficiaries themselves. Two other shops are to be allocated by the ULB to the deserved of the destitute and widows among the beneficiaries. These shops would also serve as an employment generator as well as an additional income generator. Moreover they will provide the necessary provisions, groceries and vegetables for the residents within walk able distances from their dwellings

3.3.5 SERVICES

3.3.5.1 Road Systems

Black topped road of 3 meters wide is proposed from the main road to end of the colony. The internal pathways are proposed to construct by concrete cobbles. As the access road ends as cul-de-sac, the road in front of the community building is developed as a T-Junction so that the vehicle coming inside the colony can change the direction and go back to main road.

3.3.5.2 Water Supply

Individual metered connection for all the residential blocks inside the colony is proposed. The Kerala Water Authority will provide the water for these connections from the existing main supply lines. Over head tanks are proposed on the top of the multi-storeyed apartment blocks Two sumps of 19000 and 25000litre capacity each are proposed, one near the nine storied apartment block and another one near the 4th storied apartment block. 135 lpcd of water is considered for the calculation of the capacity of the sump. Water collected in these sumps shall be pumped to the overhead tanks and distributed to the individual dwelling units. Two societies

shall be formed for the operations and maintenance of the water supply system to the individual dwelling units. One society shall be for the 48 dwelling units in the apartment block and few dwelling units around the apartment block. The second society shall be formed for the rest of the dwelling units. These societies will be registered under the existing laws and shall also include the elected ULB members as its members in addition to the beneficiaries. These societies will be responsible for the operation and maintenance of the water supply inside the cluster. They will collect the water charges from the individual dwelling units as per the individual meters and shall remit it to the KWA as per the meters provided for the sumps

3.3.5.3 Drainage

According to the design, storm water drains are to be provided along the roads and discharged to the city drainage system. Six rainwater recharge pits of depth 3 meter each are provided near the existing wells. The excess rainwater after saturating the recharge pits will over flow into the existing drain inside the colony. The existing drain inside the colony has to be renovated and height adjusted to accommodate for the filling and levelling inside the colony. At present, the existing drain passes below the railway tracks and connected to the TS canal, and is all silted up. It is proposed to de-silt the drain to facilitate proper discharge of storm water to the main canal.

3.3.5.4 Sanitation

A sewage treatment plant (STP) is proposed in colony. The sewage from all the dwelling units is connected to proposed sewer line along the road and finally reaches the STP located at the end of the colony. 108 lit of waste per person per day is considered for calculations and the treated effluent water is diverted to the de-silted drain connected to the TS canal .The STP has to handle 160 m^3 of sewer per day.

3.3.5.5 Biogas Plant

To effectively utilize the garbage and other bio degradable materials into useful electrical energy, 4 biogas plants are proposed for this settlement. The power is generated in a generator room and utilized for yard lighting. This is an environmental friendly move, as this effectively reduces the dumping of waste into the open and helps maintain clean and healthy environment. Specially trained workers are to be appointed. Socially weaker sections of the colony like

widows, destitute etc could be trained for this purpose, thus providing a job opportunity as well. 1kg waste is calculated per family for designing Biogas plant

3.3.5.6 Electricity

Electric posts at approximately 25m apart are provided in the places. Street lights are to be provided along with these posts. To maintain a well light and safe environment at night, proper street lighting has been provided all along the pathways. 100-150 units of electricity is considered for each family for one month, and a new 100KVA transformer is proposed by KSEB for this project with 500m HT (11KV) line. KSEB will install the transformer and provide the necessary connections to all the dwelling units.

3.3.5.7 Tree planting inside the colony

The common open spaces with tree planting are designed so as to function as community gathering spaces for the beneficiaries. Also, this will act as play areas for the children. Existing tress are to be retained wherever possible. This open area is to be landscaped to encourage healthy use of these spaces.

3.3.6 EXECUTION

A major task in the project is the rehabilitation of the slum dwellers during the execution of the project. The existing apartments have to be completely demolished and dwellers rehabilitated before starting any kind of construction activities. It is proposed to construct the apartment blocks after the existing dwellers are evacuated and temporarily accommodated in the open ground owned by open land adjacent to the colony, in the compound of SMP Palace, during the construction of the apartments. About 36 families have to be rehabilitated in the temporary shelters proposed in the SMP palace compound. Temporary shelters with adequate sanitation facilities have to be provided for the rehabilitating beneficiaries.

CHAPTER FOUR

4. DESIGN AND ESTIMATES

This section deals with specific designs that have been proposed in the previous section. The mode of presentation of each item is in the following manner:

- Technical drawings
- Abstract estimate
- Detailed estimate

The Designs and estimates are provided in the Annexure II and Annexure III of the DPR.

4.1 DESIGNS

All designs have been evolved considering maximum flexibility, including the possibility of expansion and addition by the users themselves. Lighting, ventilation and optimum usage of space were the factors which were considered in designing, starting from the overall layout, to the placement of the buildings, services and the open spaces.

4.2 ESTIMATES

The estimates have been prepared as per the PWD Schedule of Rates 2012.

INSERT TOTAL COST EXCEL SHEET

CHAPTER FIVE

5. SELF SUSTAINABLE MECHANISM

The success of a project depends not only on the implementation but also on the operation and maintenance of the common facilities in the long run. For this the project need the positive and active involvement of the beneficiaries. It will be apt to have a common body i.e. a residents' association/committee which represents the inhabitants of the colony. They could appoint people preferably ladies from disadvantaged backgrounds, within the colony, and provide basic training that would enable them to effectively carry out the upkeep of the common facilities. They would be responsible for the maintenance and sustenance of the system which includes all common facilities like community halls, parks, open spaces, biogas plants, etc.

Additional measures are being proposed for tackling issues of water scarcity in the colony .This being said, an active civic sense is the best way to ensure a lasting healthy and enjoyable living environment. Programmes to create awareness among the residents, in this regard, could also be implemented.

5.1 MODE OF INCOME

As a part of the design, provisions have been given for public facilities which include Community halls, shops, etc. A reasonable rent may be collected from the users of these spaces and a nominal amount from the residents. These amounts may be used for the upkeep of the common facilities.

5.2 BIOGAS PLANTS

Any active settlement will generate an appreciable quantity of bio-degradable and non bio-degradable wastes. In the present scenario, a waste management scheme exists under the Municipal Corporation through which the non bio-degradable wastes could be collected. The bio-degradable wastes (excluding sewage) are to be channelized to a biogas plant in the vicinity. The garbage and bio-degradable wastes could be converted into useful electrical energy in the form of street lights which would elevate the infrastructural standards of the colony.

5.3 TREE PLANTING

An extensive program of tree planting is proposed, which would involve the planting of softwood trees such as Poomaruthu (Queen's flower) and Sheelanthi in designated areas of the colony. This would contribute greatly to the gradual enrichment of the existing ecosystem along with the added benefits of air purification and increased water absorption.

5.4 OPERATION & MAINTANCE

Being a high-rise building lifts are a mandatory provision, but from the experience it is understood that O&M costs of the lifts are very high. It is not easy to operate and maintain the lifts by the beneficiaries themselves. Therefore it is proposed by the ULB to adopt a mixed space use option by including commercial spaces also in the multi-storeyed building. The top two floors are proposed for commercial spaces. Part of the revenue from the commercial spaces would be utilised for the O&M of the lifts and other infrastructure. As this building is located in the heart of the city and is viable for back office and other commercial ventures, the investment made by the ULB for can be retrieved from it. Two societies shall be formed for the operations and maintenance of the lifts, water supply system to the individual dwelling units and other infrastructure. One society shall be for the 48 dwelling units in the apartment block and few dwelling units around the apartment block. This society will take care of the maintenance of the apartment units of the multi storied building. The second society shall be formed for the rest of the dwelling units. These societies will be registered under the existing laws and shall also include the elected ULB members as its members in addition to the beneficiaries. These societies will be responsible for the operation and maintenance of the water supply inside the cluster.

CHAPTER SIX

6. IMPLIMENTATION ,QUALITY CONTROL &ASSURANCE, MONITORING & PHASING

6.1 IMPLEMENTATION

The project would be implemented in a phased manner with regular monitoring being undertaken by the Engineering Division of the Kollam Municipal Corporation. Implementation of project proposals at community level would be carried out by specially designated Community Based Organizations (CBOs) approved by and answerable to the Municipal Corporation.

Manpower resources available within the Corporation at present have been enlisted along with the Financial Status Annexure.

Project implementation period is 18 months and will be commencing from April 2013.

6.2 QUALITY CONTROL &ASSURANCE.

The State PWD and The Engineering Wing of KMC has laid down a list of mandatory tests (their periodicity/ frequency) to be conducted at the municipality level so that good quality of works implemented by them is ensured.

The specification for public works given in the schedules, clearly suggests to carryout the works according to the standard specifications. Mandatory tests are also to be conducted for ensuring the quality of works.

Most of the works undertaken in RAY works are building works. The materials used for building works such as bricks, coarse aggregate, fine aggregate, cement, steel, water are to be tested for ensuring quality. The quality of concrete is decided according to the quality of materials used, water-cement ratio, mixing, conveyance, placing, compactions and curing. The details of mandatory tests are available are as per relevant

IS codes of practices. However the following are the main mandatory tests to be conducted for building materials and concrete.

1. Brick

1) Size: Nominal size of country burnt bricks is 23x11.5x7.50 cm. The tolerance limits shall be

    1) +/- 3mm on long side.

    2) +/- 1.5mm on height and breadth.

2) Water absorption.

    Shall not be more than 15% by weight.

3) Crushing strength.

    Shall not be less than 35 Kg/cm^2, arrived at on an average of 6 bricks tested.

4) Drop down test

    Bricks dropped from 1.0 m height shall be intact.

5) Frequency of testing

    As and when source of supply changes.

2. Water

1) pH of water: shall not be less than 6.

2) Organic impurities: less than 2000 mg/litre

3) Inorganic impurities: less than 3000 mg/litre

4) Sulphites (SO3): less than 400mg/litre.

5) Chlorides (Cl): less than 500mg/litre for RCC works

6) Chlorides (Cl): less than 2000mg/litre for other works

7) Suspended matter: less than 2000mg/litre.

Frequency testing: Once in 3 months or when the source changes.

3. Steel

1) Mean diameter: Checked on 3 samples of each size.

2) Weight per meter: Checked on 3 samples of each size on a 1.0m long piece.

3) Ductility (On bars below 20 mm dia): 3 times bending should not cause **break.**

4) Tensile strength of Steel bars: To be ascertained at laboratory level on each size of bars

Frequency of testing: On every fresh batch upon arrival.

4. Cement

Manufacture's test certificate of every batch is mandatory.

5. Fine Aggregate

Shall confirm to zone I as designated in IS 383. Sieve Analysis to be carried out at site, Particle size distribution.

10mm	-	100 % passing
4.75mm	-	90 to 100 %
2.36mm	-	60 to 95 %
1.18mm	-	30 to 70 %
600microns	-	15 to 34 %
300microns	-	05 to 20 %
150microns	-	0 to 10 %

6. Coarse Aggregate

Particle size distribution.

40mm	-	100 % passing
20mm	-	95 to 100 %

4.75mm - 30 to 50 %

600microns - 10 to 30 %

150microns - 0 to 06 %

Frequency of testing: When the source changes

7. Concrete Work

1) Mandatory test

a) Slump test: 50/100mm for roofs, beams, slabs etc tolerance is 25mm

b) Cube test: As per IS 516-2000, Results of individual cubes shall not vary more than 15%

Frequency: Six cubes for every 50m^3 of concrete or part thereof.

2) Stripping of formwork (OPC)
   1) Walls and Columns after 16 to 24 hours
   2) Slabs with props left –7 days.
   3) Beams with span less than 6m with props left- 14 days.
   4) Beams with span more than 6m with props left- 21 days.

Mandatory tests for Road Works.

1) Earth work :
   a) Dry sieving
   b) Wet sieving
   c) Liquid limit
   d) Plastic limit
   e) Proctor density

Plasticity index shall be less than 45 %

Compaction at OMC

CBR Value less than 1.76 gm/CC

Frequency of testing: 1 per 4000m^3 of soil.

2) Sub Base- WBM works (Gradation Test)

90mm - 100 % passing

63mm - 90 to 100 %

53mm - 25 to 75 %

45mm - 0 to 50 %

4.75mm - 0 to 5 %

Residue shall not greater than 23 %.

Frequency: One test for 500 m^3.

3) Base Course (36mm) WBM

63mm - 100 %

53mm - 95to 100 %

45mm - 65 to 90 %

22.4mm - 0 to 10 %

11.2mm - 0 to 5 %

Residue shall not greater than 23 %.

Frequency : One test for 500 m^3.

4) Post job test : Field density by sand replacement method.

Frequency : One test for 2000 m^2.

5) Binder content : at designated lab frequency 1 per job.

6) Temperature test : 165 centigrade frequency regularity.

7) Viscosity test : One per 10tonnes

8) Asphalt Gradation

22.5mm - 100 % passing

11.2mm - 0 to 5 %

6.3 MONITORING

Kollam Municipal Corporation will monitor the project implementation.

6.3.1 Organization Structure of Kollam Municipal Corporation

Deliberative / Executive Wing

The Mayor (elected from among the councillors) chairs the Council meetings, and is responsible for the overall supervision and control of the administrative functions of the Municipal Corporation. The Council is composed of all elected councillors and is subject to the provisions of the KM Act. The administration of the KMC vests in the Council. The term of office of the Council is five years. The KMC through the Council has all the powers, authority and responsibilities of the Government, to enable it to function as an institution of self government in respect of the matters entrusted to it. The Council, subject to the provisions of the KM Act, constitutes Standing Committees for exercising its powers, discharging such duties or performing such functions, as is provided for in the KM Act. The Deputy Mayor is the Chairman of the Finance Standing Committee and also presides over the Council meetings during the absence of the Mayor. The Mayor devolves his/her functions to the Deputy Mayor when he/she is indisposed or out of the State. The Secretary of the KMC is an officer appointed by the Government.

a) Standing Committees

As provided for in the KM Act, 1994 seven Standing Committees are constituted on the following subject areas:

- **Finance**

To prepare the Annual Budget and to supervise the utilization of budget grants and oversee the timely assessment and collection of taxes, fees, rents, etc.

- **Development**

To deal with dairy development cooperation, small-scale industries, institutional finance, etc. and to prepare development plans

- **Welfare**

To deal with matters of welfare of women and children, development of SC/ST, social welfare, etc.

- **Health & Education**

To deal with matters of public health, education, etc

- **Works**

To deal with matters of public works, housing, etc.

- **Town Planning & Heritage**

To deal with preparation of Master Plans and matters regarding town planning, heritage etc.

- **Appeals Relating to Tax**

To dispose of appeals on taxation, etc.

b) Steering Committee

As laid down in the KM Act, KMC has a Steering Committee consisting of the Mayor, Deputy Mayor and Chairmen of the Standing Committees. The Mayor shall chair the Steering Committee. The Steering Committee coordinates and monitors the functioning of all the Standing Committees and has the powers as delegated by the Council.

c) Ward Committees

The Ward Committee consists of ward councillor as Chairperson and the members are drawn from the Residents Associations, registered Neighbourhood Groups, educational institutions in the ward, registered trade unions, etc. The Ward Committee disseminates information at the ward level regarding development and welfare activities. The KM Act lays down that even the Council shall not alter the priority of the development work prepared by the Ward Committee.

Administrative Wing

The Secretary is the administrative head of the KMC and implements the Council decisions based on the resolutions adopted by the Council. He reports compliance to the Council and exercises powers and discharges duties conferred under the KM Act. The Secretary implements all the decisions/directions of the Mayor, ensures safe custody of the Municipal Fund and attends to all litigations for or against the KMC.

The following seven departments manage the functions of the Municipal Corporation.

a) General Administration Department

The General Administration Department (GAD) manages staff postings and transfers, defines staff duties and responsibilities, prepares administration reports and ensures proper communication between the departments and the Corporation Council. The PA to the Secretary heads the GAD.

b) Accounts Department

The Accounts Department (AD), a key department of the KMC, manages KMC finances and monitors the use of allocated funds for different schemes. It plays a major role in the formulation of the budget. The Accounts Officer is responsible for supervising all the financial transactions related to the KMC, advising the Secretary on all internal financial matters, maintaining records of financial receipts and expenditure in accordance with the purpose and utilization of funds, reporting deviations in utilization of funds in any of the approved schemes, assisting the MC in budget preparation, maintaining accounts regarding stamp duty surcharge and State grants, maintaining petty cash book and general cash book and attending to audit requirements and other such accounts-related duties. The Accounts Department is also responsible for internal audit of all bills for payment, audit clearances, preparation of annual financial statements and the Demand, Collection and Balance statement (DCB).

c) Engineering Department

A Superintending Engineer (SE) heads the Engineering Department and is assisted by two Executive Engineers (EE), one Assistant Executive Engineer (AEE), and four Assistant Engineers (AE). The major duties and responsibilities of the Engineering Department include construction and maintenance of roads, drains and other public works. An AE in the Drawing Section supports the Engineering Department in preparing requisite detailed engineering drawings for undertaking works.

A Superintending Engineer (SE) in-charge of projects handles the major projects of the Municipal Corporation. The SE is supported by two EEs, one AEE and four AEs in overseeing construction of major projects like shopping complexes, bus terminals, etc.

d) Revenue Department

The Revenue Department (RD) is another key department of the Municipal Corporation, consisting of a Revenue Officer (RO), nine Revenue Inspectors and Bill Collectors. Some of the major responsibilities of the Revenue Officer include responsibility for collecting taxes such as, property tax, advertisement tax, and entertainment tax; issuing notices for recovery of tax; and monitoring revenue collections of the Municipal Corporation.

e) Health Department

A Corporation Health Officer (CHO) heads the Municipal Corporations Health Department (HD). The HD is responsible for conservancy services, sanitation facilities, solid waste management and other public health duties. The CHO is assisted by Assistant Health Officer, Health Inspectors and Junior Health Inspectors (JHI). The JHIs are in-charge of works at the field level, which include monitoring and supervising the work of sanitary labourers in the wards under their charge and attending to specific local complaints.

f) Town Planning Department

A Town Planning Officer (TPO) heads the KMC's Town Planning Department (TPD). The TPD is primarily responsible for enforcing Master Plan regulations, awarding building permissions and facilitating land acquisitions for major schemes. The TPD also conducts routine inspection of KMC properties. Assistant TPOs and Building Inspectors assist the TPO to carry out the department's functions.

g) Council Department

A Council Secretary/ PA to Secretary heads the Council Department (CD), which manages records relating to Council meetings and records all resolutions undertake the Council.

6.4 PHASING

INSERT EXCEL SHEET

ANNEXURES

ANNEXURE I: LAYOUTS

A.1 .1 Existing site Layout

A.1.2 Proposed Site Layout

A.1 .3 Proposed Service Layout

A.1 .4 Proposed Landscape Layout

ANNEXURE II: INDIVIDUAL DESIGNS

A. II.1 Housing

A.II.1.1 Single Units

A.II.1.2Apartments

A. II.2 Community facilities

A.II.2.1 Anganwadi cum Community hall cum Study centre

A.II.2.2 Kiosk

A. II.3 Supporting Infrastructure

A.II.3.1 Biogas plants

A.II.3.2 Sewage Treatment Plant

A.II.3.3 Drains

A.II.3.5 Transit Accommodation

ANNEXURE III. INDIVIDUAL ESTIMATES

A. III.1 Housing

A.III.2 Community Infrastructure

A.III.3 Physical Infrastructure

ANNEXURE IV. SOIL INVESTIGATION REPORT

ANNEXURE V. STRUCTURAL DRAWINGS

ANNEXURE VI. MEETING CALENDAR FOR CITY LEVEL CLUSTER MEETINGS

ANNEXURE VII. MINUTES OF CLUSTER MEETINGS

ANNEXURE VIII. CERTIFICATES AND UNDERTAKINGS

ANNEXURE IX. SOCIO-ECONOMIC SURVEY DETAILS

ANNEXURE X. BENEFICIARY LIST

ANNEXURE XI. BENEFICIARY CONTRIBUTION LIST