

# CITY DEVELOPMENT PLAN

## Ratlam

Madhya Pradesh Urban Services for the Poor,  
Urban Administration and Development Department,  
Madhya Pradesh



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## Executive Summary

- **Background of the project**

There are 360 numbers of urban local bodies in the state of Madhya Pradesh; amongst them 14 ULB's are the municipal corporations. These municipal corporations have been enacted under the Madhya Pradesh Municipal Corporation Act, 1956 with meticulous roles and responsibilities in order to provide the services to the citizens under its jurisdiction.

Due to rapid urbanization and the population growth new the past few decades' urban local body's especially municipal corporations are facing the enormous pressure on the technical and financial capacity there by affecting the level of service to its citizen. In order to address these issues and to meet the growing demands of infrastructure and service delivery, GoI as well as GoMP have initiated a number of programmes. GoMP has initiated schemes like DFID funded MPUSP (Madhya Pradesh Urban Services for Poor Programme), which links reform with investment in infrastructure for the poor. City Development Plan is the part of above strategy in order to access funds under GOI schemes as well as from other sources based on priority actions and projects identified under CDP.

- **Approach and methodology**

The whole exercise is divided into four stages, which are further subdivided into tasks and several sub-tasks or activities within them.

**Inception stage:** this includes the field reconnaissance and identification of key stakeholders for the Project. Discussions were held with key stakeholders and a Kick off workshop was organized involving all the stakeholders. The outcome of the meeting and preliminary assessment for the municipal area has been detailed out in the Inception report.

**Database Identification and Anthology:** A detailed checklist was prepared for all the sectors and the data was collected from different departments and parastatal bodies. Apart from data collection, rapid assessment has been done with conducting the entire city survey including the slum areas.

**Sectoral analysis:** This stage has been incorporated with sectoral situation assessment and SWOT analysis after micro level evaluation of the sectors. The sectoral analysis has included social and physical infrastructure, environment, urban governance, municipal finance.

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**Vision and development objectives:** This task includes the development of vision for the city, sectoral goals and strategies, financial actions and project in the form of capital investment plan for next fifteen years and at last, but not the least financial alternatives with the provision of financial operating plan.

For each of the above mentioned stages of CDP process, stakeholder's consultations, in the form of workshops, have been taken into consideration in order to realize inclusive progression in the city development plan preparation.

- **Ratlam City in nutshell**

Ratlam is the third biggest city in terms of commercial and industrial activity under the Indore Agro industrial region formed under the section 4 of Town and Country Act, 1973. Ratlam city is the important centre for the agriculture business providing the intangible advantage to Indore and Baroda region.

### Connectivity

Ratlam city has significant rail and road connectivity via extensive rail and road network respectively. Ratlam junction is Divisional head quarters of Western Railways. It has both Broad Gauge and Meter Gauge Railway Lines providing connectivity at regional and national level.

### Demography

The sudden drop is found in the decade 1991-2001 as the growth rate has plunged from 25.84% to 19.74%. Possible reason for this sudden drop might be because of people migrating to other places due to the limited employment opportunities created by shutting down of many industrial units.

After considering the water supply DPR projections and discussion with officials and also factors governing the future growth and development of Ratlam City like industrial, commercial, educational,

social and administrative factors, it is felt that the most suitable method for population projection will be Incremental increase method.

| Year | Population | Remarks                |
|------|------------|------------------------|
| 1951 | 63403      | Past growth trend      |
| 1961 | 87472      |                        |
| 1971 | 107049     |                        |
| 1981 | 142319     |                        |
| 1991 | 183375     |                        |
| 2001 | 222202     | Projected growth trend |
| 2020 | 289555     |                        |
| 2030 | 330910     |                        |
| 2040 | 376337     |                        |

### Socio-economic profile

**Literacy rate:** Ratlam city literacy rate has been significant as compared to other cities of the states. As per census 2001, the literacy rate for the Ratlam Municipal Corporation is higher as compared to the Ratlam district urban and state level literacy rate. It shows the role of education system has been significant in the city area.

| Literacy levels          | Total | Male | Female |
|--------------------------|-------|------|--------|
| Ratlam                   | 85%   | 91%  | 78%    |
| In Ratlam urban district | 81%   | 89%  | 73%    |
| In MP state urban        | 79%   | 87%  | 70%    |

### Social composition:

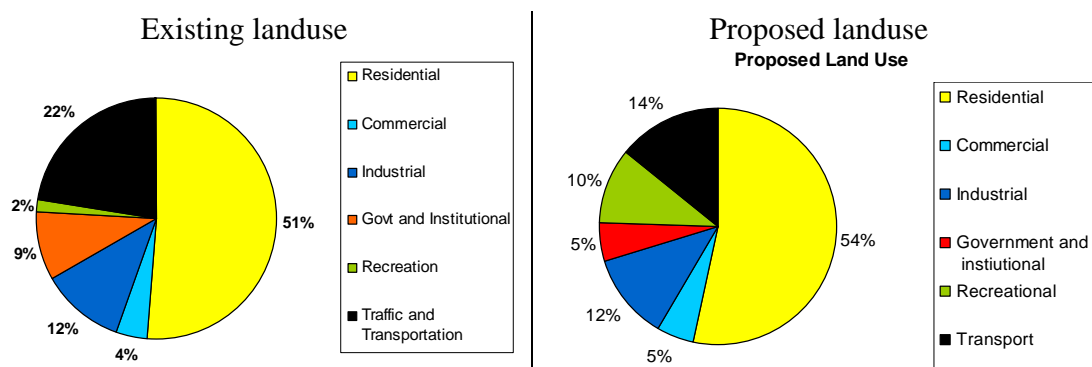
As per census 2001, SC population is about 10 percent of the total population whereas ST population comes around 4 percent of the total population.

| Social Composition | Male   | Female | Total  | % share to total |
|--------------------|--------|--------|--------|------------------|
| SC Population      | 12231  | 11534  | 23765  | 10%              |
| ST Population      | 5113   | 4598   | 9711   | 4%               |
| Others             | 103530 | 97413  | 200943 | 86%              |
| Total Population   | 120874 | 113545 | 234419 | 100%             |

### Physical planning and growth management

IN the current past The new areas of development in the city are towards the North of the city and towards the south west. Especially the commercial rates in area of Manek Chauk and Shaher Sarai have been doubled since last three years even the period of recession in other parts of the country.

This proposed landuse has been designed for the period of 2021 with forecasted population of 3.5 lakh however according to the population projections made for city development plan has been 2.9 lakhs i.e less than the population estimated in development plan. The development plan,2001 which was published in 1990 was designed with projected population of 3.5 lakhs.



### Economic base of the town

The economic activities in the town are mainly trade, commerce and industries. Ratlam is famous for the Gold ornaments and special Sarees designing. Also it has

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main Agriculture Market which distributes the large amount of food grains coming from the surrounding villages and districts.

Being the district administrative centre and Railway junction, Ratlam has significant scale of informal sector in the several part of the city.

There is a major industrial area in the Ratlam city premises which is under the District Trade and Industries Centre (DTIC), Ratlam. But since last decade several industries like Jayant Vitamins, Sajjan Chemicals and steel and alloys industries are shutting down causing damage to the economy of the area. Major reason according to the industrial officials is the lack of infrastructure services.

### • Physical infrastructure

#### Water supply:

##### Existing situation:

Water has been supplied from Dholwad dam through Morvani Water treatment plant with capacity of 22.7 MLD. In order to compensate entire city demand, Ratlam Municipal Corporation has provided tubewell and handpumps at several parts of the city. Water has been stored in the sumps and overhead tanks and supplied for 45 minutes to the several part of the city on the alternated day basis.

There is no metering system for connections except for the industrial connections.

In order to address water scarcity problem in Ratlam, Water supply scheme under UIDSSMT has been

proposed and the project cost is Rs.32.65 crore for the augmentation of drinking water source from Dholawad Dam.

| Performance Indicator   | Units | Value  | Standard |
|---|-------|--------|----------|
| Coverage of domestic supply connections   | %     | 54     | 100      |
| Per capita supply of water  | lpcd  | 65     | 135      |
| Continuity of water supply  | Hours | 45 min | 24       |
| Extent of metering of water connections   | %     | 0      | 100      |
| Storage capacity with respect to proposed supply for the next fifteen year period | %     | 52.27  | 33       |
| Cost of electricity to operational expenditure                                    | %     | 54     | 25       |
| Cost recovery (O&M) in water supply services                                      | %     | 53     | 100      |

##### Strategies and action plan:

Strategies have been adopted with reduction of non-revenue water and improving the collection efficiency of water tax. Also there is need for the 24X7 water supply system with 100% metering of all connections. Projects has been proposed for infrastructure augmentation and refurbishment in order to provide 100% household coverage of drinking water supply.



Apart from the technical features, action plan has been proposed for utility mapping and customer grievance and redressal system for better accountability of the water supply service.

### Waste water services:

#### Existing situation:

Town does not have comprehensive underground sewerage scheme as on today. The current disposal system is in the form of septic tanks of the individual houses or direct disposal into nallah or open plots. Town has insignificant amount level of sanitation facilities with absence of public toilets and disposal systems.

#### Strategies and action plan:

- Provision of comprehensive underground sewerage network in the entire city in order to cover all household for coverage of toilet facilities.
- Provision of sanitation facilities in the slum areas in the form of community toilets to avoid open defecation and spreading of diseases.

### Solid waste management:

**Existing situation:** Ratlam city generates 50 TPD of solid waste out of which 41 TPD Municipal Solid Waste is collected daily. Currently there is no door to door collection system in Ratlam city. There has been absence of the implementation of MSW handling rules, 2000 which is mandatory of Ratlam Municipal Corporation. There is no proper treatment and disposal system for the 41 TPD waste collected from entire city.

| Indicator  | Percentage | Benchmark percentage |
|--|------------|----------------------|
| DTD collection                                     | 0          | 100                  |
| collection efficiency of MSW                       | 47         | 100                  |
| Extent of segregation of waste                     | 0          | 100                  |
| Extent of recovery of waste collected              | 0          | 80                   |
| Extent of scientific disposal of waste in landfill | 0          | 100                  |

#### Strategies and action plan:

- Effective implementation of MSW handling rules, 2000
- PPP in integrated solid waste management

### Storm water drainage:

**Existing situation:** currently the primary drains are in the form of nallah which is flowing across the city. The nallah overflows during the monsoon thereby damaging the low lying areas of the city. Also it carries the entire sewerage disposed into it there by contaminating the nallah water causing health hazards. There are two disposal points of the nallah, one in the Amrut Sagar Lake and other is outside the city into the farm areas. Ratlam Municipal Corporation have prepared the DPR of

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Rs.21 Cr for nallah improvement and channelization with additional provision of storm water drainage network.

### Strategies and action plan:

- Provision of storm water drainage network with recycle and reuse technology
- Nallah channelization and improvement scheme

### Roads and transportation:

**Existing situation:** The city traffic and transport services are one of the major issues of Ratlam city. There is no city or public transport facility for Ratlam. At present, city transport services are facilitated by para-transit mode of transportation in terms of auto rickshaws and six seaters.

Apart from auto rickshaws there are significant numbers of tempo-rickshaws which are the major source of low cost public transport in Ratlam.

There has been Congestion at major road junctions in the city area, e.g. Sailana road junction, Javara road crossing (Gulmohar Chauk) and Do batti, Daat ki pool area.

Town has total road network of approximately 197.6 km as per the information provided by the Municipal Corporation.

| Type of the Road                 | Figure       | Unit         |
|----------------------------------|--------------|--------------|
| CC road                          | 11.67        | Km           |
| Bitumen Road                     | 120.00       | Km           |
| WBM Road                         | 53.46        | Km           |
| Motorable <sup>1</sup>           | 12.47        | Km           |
| <b>Total length of the road</b>  | <b>197.6</b> | <b>Km</b>    |
| Road length density (Area)       | 5.04         | Km / Sq. km  |
| Road length density (Population) | 0.78         | M per capita |

### Strategies and action plan:

- Provision of cc and bituminous road network to improve the connectivity across the city.
- Road widening and junction improvement at congested areas of the city
- Parking provisions at key commercial areas
- Provision of bus terminus on PPP basis of existing bus stands of the city

## • Socio economic infrastructure

**Existing situation:** Ratlam is the district headquarters and hence caters to health infrastructure needs of surrounding villages also. There is one district hospital, children's hospital, mission hospital and Ayurvedic hospital in Ratlam. The school infrastructure is presently good with significant provision of primary and secondary schools in the Ratlam.

For recreation purpose Kalika Mata Garden, Zali Lake has been the major source of attraction in the city. Apart from these, Amrut Sagar Lake can be utilized for recreational use with commercial exploitation.

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<sup>1</sup> Motorable road, as defined by Municipal Official, is the road which is the kind of WBM road lower in quality but better than the kuchha road.

### Strategies and action plan:

- Lake development with public private partnership, Amrut Sagar Lake and Barbad Lake.
- Provision of health services in the form of clinics in slum region
- Provision of recreation spaces with recreation parks and gardens.

### • Slums and Urban Poverty

**Existing situation:** There are 32 slum pockets notified by Ratlam Municipal Corporation with population of 65155. Approximately 30% of slum settlements have piped water and are having public taps. Around 8- 10 households are dependent on one public tap in most of the cases.

There are no sewerage facilities in any of the slums and the sewerage water from kitchen and bathrooms are drained into open drains (Gutter) causing unhygienic and unclean conditions. There is no collection of Solid waste from majority of the slums on daily basis. Approximately 45% of households in slums do not have any access to toilet facilities and follow the practice of Open defecation. The condition of roads, and streetlighting facilities in majority of slums is considerably well. Most of the slums have access to primary education through Anaganwadi and Government schools. There is absence of any kind of health facilities in all the slums.

### Strategies and action plans:

- Rajiv Awas Yojna (RAY) for slum free city planning of Ratlam which will provide
  - Conducting slum survey in the city
  - Entry of data from slum survey into MIS data base
  - Preparation of City and slum base maps using GIS- including cost of CARTOSAT
  - Latest images, spatial total station slum surveys, integration slum MIS with GIS maps
- Community toilets at different slum regions

### • Ratlam City vision

#### City Vision

**To establish Ratlam City as the greatest enabler of socioeconomic development in the State of Madhya Pradesh.**



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- **Capital investment plan**

Capital investment plan with prioritized projects for next 15 years is;

| Sector   | Total Rs in Lakhs | 2010-11 to 2014-15 | 2015-16 to 2019-20 | 2020-21 to 2024-25 |
|--|-------------------|--------------------|--------------------|--------------------|
| water supply                                   | 15775.27          | 13945.70           | 900.21             | 929.36             |
| sewer services                                 | 18650.55          | 16874.50           | 863.45             | 912.60             |
| storm water drainage                           | 13565.00          | 12040.00           | 742.00             | 783.00             |
| solid waste management                         | 3929.26           | 3773.51            | 76.80              | 78.95              |
| roads and transportation                       | 10436.00          | 6836.00            | 1738.00            | 1862.00            |
| street lights                                  | 177.35            | 153.77             | 11.48              | 12.10              |
| Industries and economic development            | 45.00             | 45.00              | 0.00               | 0.00               |
| Socio-Economic Infrastructure                  | 370.00            | 370.00             | 0.00               | 0.00               |
| Environment Protection and Management          | 1821.50           | 1821.50            | 0.00               | 0.00               |
| Urban Heritage                                 | 20.00             | 20.00              | 0.00               | 0.00               |
| services to urban poor                         | 6144.80           | 6144.80            | 0.00               | 0.00               |
| Urban Governance and institutional development | 75.00             | 75.00              | 0.00               | 0.00               |
| <b>Total</b>                                   | <b>71009.72</b>   | <b>62099.78</b>    | <b>4331.94</b>     | <b>4578.01</b>     |

- **Financial Operating plan**

This FOP is based on a whole range of assumptions related to income and expenditure. These are critical to understand the financial projections worked out, sustenance of the projected increase in revenue and expenditure under various scenarios and surplus thus generated. The assumptions would help in understanding the extent of investment sustenance for future projects envisaged. Following three scenarios have been created under financial operating plan.

| Scenarios                         | Details  |
|-----------------------------------|--|
| No reforms scenario or Base case" | Implementation of all the projects with no reforms                         |
| "Partial Reforms" Scenario        | Implementation of all the projects with partial implementation of Reforms  |
| "Full Reforms" Scenario           | Implementation of all the projects with complete implementation of Reforms |

### Sustainability under base case scenario:

The revenue engendered by Municipal Corporation for the period between 2011-12 and 2025-26 is only Rs. 4745.90 lakhs. The municipal corporation will not sustain without reforms

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| Sustainability under "No Reform" Scenario                                     | Value          | Units     |
|---|----------------|-----------|
| Total project cost for phase-I  | 79278.10       | Rs. Lakhs |
| O&M for the new projects for 15 years   | 39964.13       | Rs. Lakhs |
| 15 year net revenue surplus of Ratlam Municipality under "base case scenario" | 4745.90        | Rs. Lakhs |
| <b>Sustainability of project cost under "No Reform" scenario</b>              | <b>-44.42%</b> | <b>%</b>  |

### Sustainability under partial case scenario:

The total revenue surplus of Municipal Corporation under "Partial Reform" scenario for fifteen years upto 2025-26 is Rs. 41925.64 lakhs. This revenue surplus can sustain 2.47% of the total project cost envisaged.

| Sustainability under "Partial Reforms" Scenario   | Value        | Units     |
|---|--------------|-----------|
| Total project cost for phase-I  | 79278.10     | Rs. Lakhs |
| O&M for the new projects for 15 years   | 39964.13     | Rs. Lakhs |
| 15 year net revenue surplus of Ratlam Municipality under "base case-partial reforms scenario" | 41925.64     | Rs. Lakhs |
| <b>Sustainability of project cost under "Partial Reforms" scenario</b>                        | <b>2.47%</b> | <b>%</b>  |

### Sustainability under full reforms scenario:

The revenue surplus can sustain 24.25 % of the total project cost envisaged with full reforms.

| Sustainability under "Full Reforms" Scenario  | Value         | Units     |
|---|---------------|-----------|
| Total project cost for phase-I  | 79278.10      | Rs. Lakhs |
| O&M for the new projects for 15 years   | 39964.13      | Rs. Lakhs |
| 15 year net revenue surplus of Ratlam Municipality under "base case-partial reforms scenario" | 59192.58      | Rs. Lakhs |
| <b>Sustainability of project cost under "Full Reform" Scenario</b>                            | <b>24.25%</b> | <b>%</b>  |

### Funding pattern:

Following funding pattern has been assumed for capital investment required for Ratlam City Development:

| Funding Option     | Contribution as % of project cost |
|--------------------|-----------------------------------|
| Central Government | 80%                               |
| State Government   | 10%                               |
| Ratlam Corporation | 10%                               |

### Optimal financial operating plan:

The Municipal Corporation will be able to fund 10% of the project cost and also meet its O&M obligation under "Full Reforms" scenario. Since public contribution is envisaged in funding water supply and sewer scheme, PPP model can be considered for implementation and O&M.

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| <b>Financial Operating Plan under full reform scenario</b>                                 | <b>2011-2012</b> | <b>2012-2013</b> | <b>2013-2014</b> | <b>2014-2015</b> | <b>2015-2016</b> | <b>2022-2023</b> | <b>2023-2024</b> | <b>2024-2025</b> |
|--|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Project Cost   | 22602.20         | 14761.60         | 12069.79         | 10010.00         | 2656.19          | 1337.75          | 908.94           | 872.75           |
| Projects under PPP   | 0.00             | 4977.63          | 770.00           | 36.19            | 0.00             | 42.76            | 0.00             | 36.19            |
| Ultimate project cost  | 22602.20         | 9783.97          | 11299.79         | 9973.81          | 2656.19          | 1294.99          | 908.94           | 836.56           |
| Contingency  | 678.07           | 293.52           | 338.99           | 299.21           | 79.69            | 38.85            | 27.27            | 25.10            |
| Cost escalation  | 1130.11          | 1002.86          | 1781.13          | 2149.42          | 733.86           | 1030.63          | 805.00           | 819.77           |
| <b>Sub-total</b>   | <b>24410.37</b>  | <b>11080.35</b>  | <b>13419.91</b>  | <b>12422.44</b>  | <b>3469.73</b>   | <b>2364.47</b>   | <b>1741.21</b>   | <b>1681.43</b>   |
| <b>Funding</b>   |                  |                  |                  |                  |                  |                  |                  |                  |
| Central Government contribution @ 80%  | 19528.30         | 8864.28          | 10735.93         | 9937.95          | 2775.79          | 1891.57          | 1392.97          | 1345.14          |
| State Government contribution @10%   | 2441.04          | 1108.03          | 1341.99          | 1242.24          | 346.97           | 236.45           | 174.12           | 168.14           |
| Municipality contribution including public deposits for Water Supply and Sewer scheme @10% | 2441.04          | 1108.03          | 1341.99          | 1242.24          | 346.97           | 236.45           | 174.12           | 168.14           |
| <b>Financial Operating Plan under full reform scenario</b>                                 |                  |                  |                  |                  |                  |                  |                  |                  |
| Surplus of Municipality  | 2244.61          | 1721.71          | 2166.27          | 3063.59          | 2769.97          | 5109.79          | 5438.69          | 6451.99          |
| Loan to fund new project   |                  | 780.00           | 950.00           | 400.00           | 400.00           |                  |                  |                  |
| Interest on loan   |                  | 78.00            | 173.00           | 213.00           | 253.00           | 53.00            | 0.00             | 0.00             |
| Repayment of loan  |                  | 0.00             | 0.00             | 0.00             | 0.00             | 800.00           | 530.00           |                  |
| Closing Balance of Short term Loan   |                  | 780.00           | 1730.00          | 2130.00          | 2530.00          | 530.00           | 0.00             | 0.00             |
| Less contribution of Ratlam Municipality towards projects                                  | 2441.04          | 1108.03          | 1341.99          | 1242.24          | 346.97           | 236.45           | 174.12           | 168.14           |
| Less O&M due to new projects   | 0.00             | 944.87           | 1499.25          | 2014.31          | 2552.22          | 4068.57          | 4315.87          | 4564.48          |
| Opening Balance  | 328.28           | 131.86           | 502.67           | 604.70           | 598.73           | 584.12           | 535.89           | 954.59           |
| Net Surplus/ Deficit   | -196.42          | 370.81           | 102.03           | -5.97            | 17.77            | -48.23           | 418.69           | 1719.36          |
| <b>Closing Balance</b>   | <b>131.86</b>    | <b>502.67</b>    | <b>604.70</b>    | <b>598.73</b>    | <b>616.51</b>    | <b>535.89</b>    | <b>954.59</b>    | <b>2673.95</b>   |

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## City Development Plan, Ratlam

### Abbreviations:

|        |   |
|--------|---|
| ASHRAE | American Society of Heating, Refrigerating and Air-conditioning Engineers |
| BEE    | Bureau of Energy Efficiency   |
| BOLT   | Built Operate Lease Transfer  |
| BOOT   | Build Own Operate Transfer  |
| BOT    | Built Operate Transfer  |
| BPL    | Below Poverty Line  |
| BT     | Bitumen   |
| CAGR   | Compound Annual Growth Rate   |
| CC     | Cement Concrete   |
| CDP    | City Development Plan   |
| CIP    | City Investment Plan  |
| CER    | Certified Emission Reduction  |
| CPHEEO | Central Public Health and Environmental Engineering Organisation          |
| DBFOT  | Design, Build, Finance, Operation and Transfer                            |
| DFID   | Department for International Development                                  |
| DISCOM | Division Support Command  |
| DPR    | Detailed Project Report   |
| DU     | Dwelling Unit   |
| EE     | Energy Efficient  |
| ESCO   | Energy Service Company  |
| ESR    | Elevated Storage Reservoir  |
| EWS    | Economically Weaker Section   |
| FOP    | Financial Operating Plan  |
| GIS    | Geographic Information System   |
| GoMP   | Government of Madhya Pradesh  |
| GSR    | Ground Storage Reservoir  |
| HH     | Households  |
| HVAC   | Heating, Ventilation, and Air Conditioning                                |
| IHSDP  | Integrated Housing and Slum Development Programme                         |
| INR    | Indian Rupees   |
| IREDA  | Indian Renewable Energy Development Agency                                |
| JnNURM | Jawaharlal Nehru National Urban Renewal Mission                           |
| RMC    | Ratlam Municipal Corporation  |
| Kms    | Kilometres  |
| LED    | Light-Emitting Diodes   |
| LIG    | Low Income Group  |
| LL     | Lakh Litres   |
| LMV    | light Motor Vehicle   |

|         |  |
|---------|--|
| Lpcd    | Litres per Capita per day  |
| MLD     | Million litres per day   |
| MP      | Madhya Pradesh   |
| MP/ MLA | Member of Parliament/ Member of Legislative Assembly               |
| Mt      | Metres   |
| NGO     | Non Governmental Organisation                                      |
| NH      | National Highway   |
| O&M     | Operation & Maintenance  |
| OHT     | Overhead Tank  |
| PCU     | Passenger Car Unit   |
| PHED    | Physical Health and Engineering Department                         |
| PPP     | Public Private Partnership   |
| PVVNL   | Paschimanchal Vidyut Vitaran Nigam Limited                         |
| PWD     | Public Works Department  |
| RE      | Renewable Energy   |
| SC      | Scheduled Caste  |
| SPV     | Special Purpose Vehicle  |
| sq.m.   | Square Metre   |
| ST      | Scheduled Tribe  |
| STP     | Sewage treatment plant.  |
| SWM     | Solid waste management   |
| SWOT    | Strength, Weaknesses, Opportunities and Threats.                   |
| UADD    | Urban Administration and Development Department                    |
| UDPFI   | Urban Development Plans, Formulation and Implementation            |
| UGD     | Under Ground Tank  |
| UGSS    | Under Ground Sewerage System                                       |
| UIDSSMT | Urban Infrastructure Development Scheme for Small and Medium Towns |
| USAID   | United States Agency for International Development                 |
| WFPR    | Work Force Participation Rate                                      |
| WHO     | World Health Organisation  |

### Acronyms:

|                        |  |
|------------------------|--|
| <i>Kutchha</i>         | Temporary  |
| <i>Semi Pucca</i>      | <i>Semi Permanent</i>  |
| <i>Pucca</i>           | <i>Permanent</i>   |
| <i>Para Transit</i>    | <i>Modes of intermediate public transport like Auto rickshaws, cycle rickshaws, minidors</i> |
| <i>Rickshaw</i>        | <i>3 wheeler motorized vehicle.</i>  |
| <i>Nallah</i>          | <i>Sewage Disposal Channels/ Storm Water Drainage Channels</i>                               |
| <i>Jhuggi Jhopries</i> | <i>Slum Hutments</i>   |
| <i>Chowk</i>           | <i>Intersection of two lanes</i>   |
| <i>Nagar Palika</i>    | <i>Municipal Corporation</i>   |
| <i>Lok Nirman</i>      | <i>Public Welfare</i>  |

# 1 Project Background

The state of Madhya Pradesh is Urbanising at a fast rate and the rapid urbanization has led to increase in issues related to infrastructure provision, planned development, slums and housing etc. Urban Local Bodies of the State are facing the challenge of meeting the requirements of the growing population with limited technical and financial resources.

In order to address these issues and to meet the growing demands of infrastructure and service delivery, GoI as well as GoMP have initiated a number of programmes. GoI has initiated schemes like Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT) and Integrated Housing and Slum Development Programme (IHSDP). GoMP has initiated schemes like DFID funded MPUSP (Madhya Pradesh Urban Services for Poor Programme), which links reform with investment in infrastructure for the poor. City Development Plan is the part of above strategy in order to access funds under GOI schemes as well as from other sources based on priority actions and projects identified under CDP.

## 1.1 City Development Plan

City Development Plan (CDP) is both a perspective and a vision for the future development of a city.

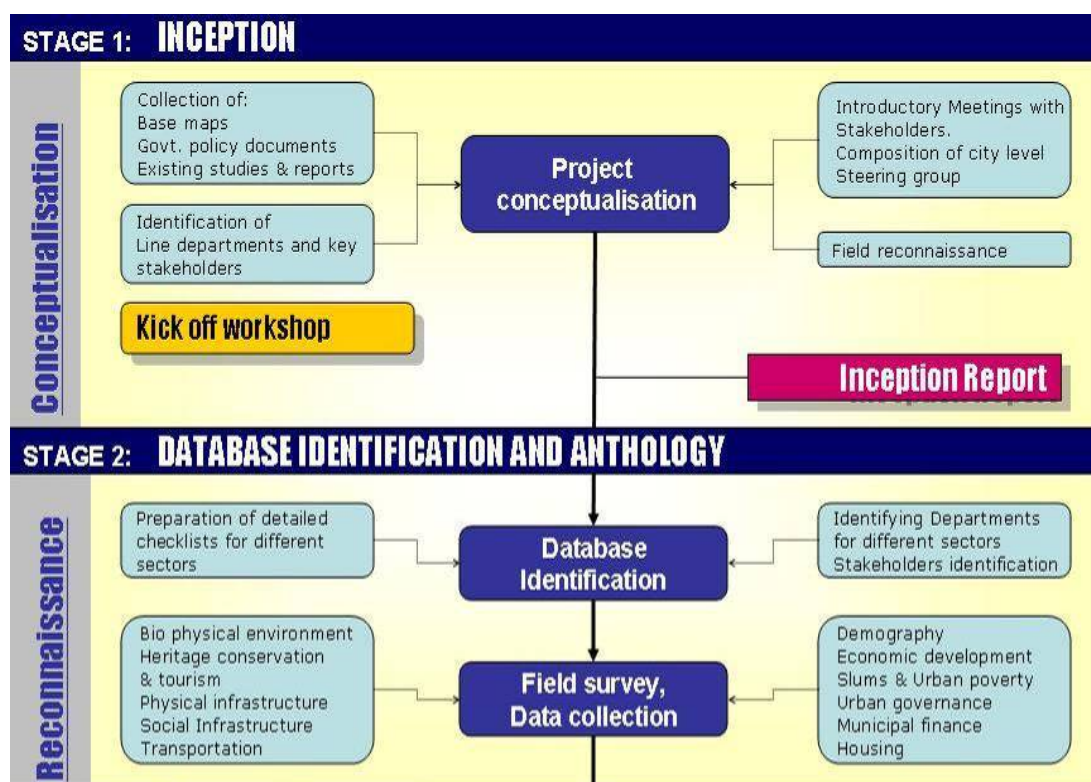
CDP is a vision document outlining vision, strategies and tasks for the city's preferred future with focus on the issues of greatest local concern for livability and the implied requirements in terms of enhancing city productivity, reducing poverty, improving urban governance and management and enhancing financial sustainability. It represents the current stage of the city's development. It sets out the directions of change. It identifies the thrust areas. It also suggests alternative routes, strategies, and interventions for bringing about the change. It provides a framework and vision within which projects need to be identified and implemented. It establishes a logical and consistent framework for evaluation of investment decisions.

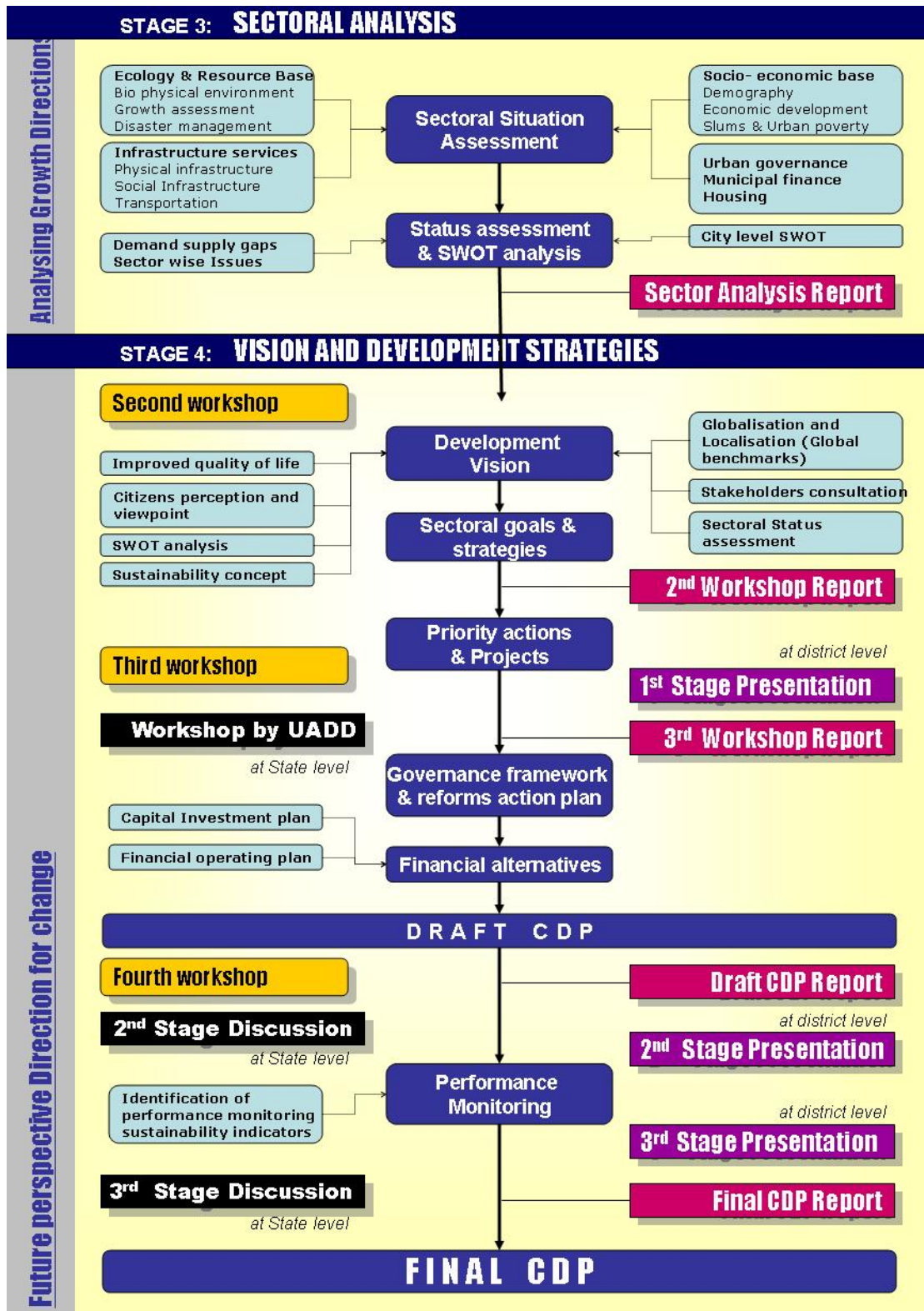
Preparation of the CDP will consist of city development strategies that come out of a structured consultative process. The process will enable elected representatives, key staff of MC departments, parastatal agencies and other institutions, policy makers and the citizens to participate and plan for spatial, social and economic development of the concern cities. A City Development Plan (CDP) will present both a vision of a desired future perspective for the city and the ULB's strategic framework of sectoral plans translated into actions that define on how the ULB, together with other stakeholders, intends to work towards achieving their long-term vision in the next twenty five years.

## 1.2 Approach and Methodology

Evolving and conceptualizing a precise methodological framework is very crucial as it guides the task of preparing the City Development Plan (CDP) in a phased and planned manner. The study methodology outlines the various tasks to be carried out in the preparation of City Development Plan (CDP) for Ratlam Municipal Corporation, Madhya Pradesh. The Consultant has used the JNNURM toolkit for CDP as a guideline document while preparing the CDP for the Municipal Corporation.

The whole exercise is divided into four stages, which are further subdivided into tasks and several sub-tasks or activities within them. Figure below shows the adopted study methodology and is followed by a brief description on each of the stages.



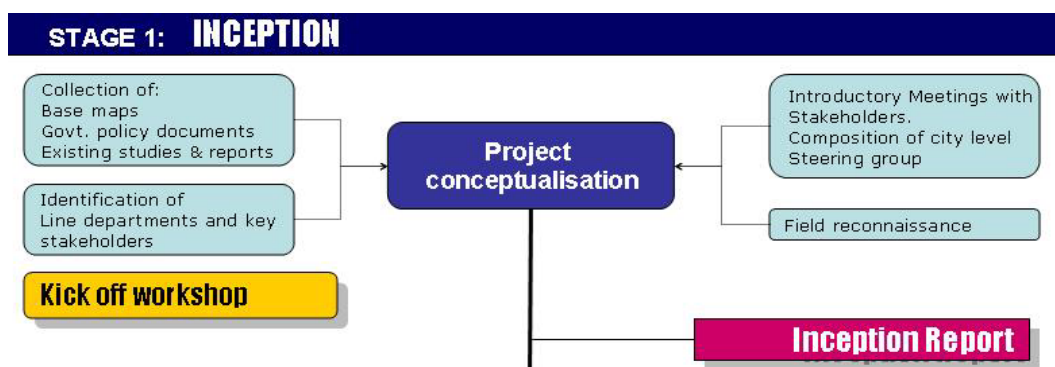


### 1.2.1 Inception stage

This stage included data collection, field reconnaissance and identification of key stakeholders for the Project. Discussions were held with key stakeholders and a Kick off workshop was organized involving all the stakeholders.

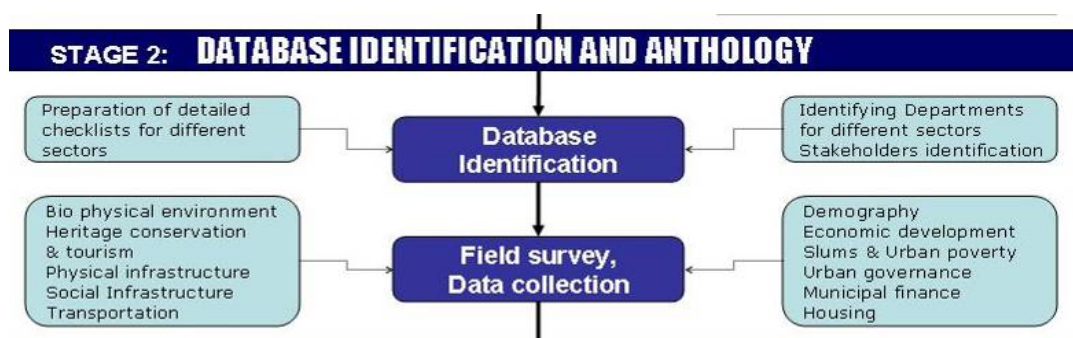


The outcome of the meeting and preliminary assessment for the municipal area has been detailed out in the Inception report. The Inception Report was submitted by the Consultant to MPUSP and the Municipal Corporation.



### 1.2.2 Database Identification and Anthology

After identification of database for the project, a detailed checklist was prepared for all the sectors and the data was collected from different departments and parastatal bodies. Additionally rapid field surveys were also conducted to understand the onsite conditions of the physical and social infrastructure and services to the citizens with major priority to the urban poor of Ratlam.

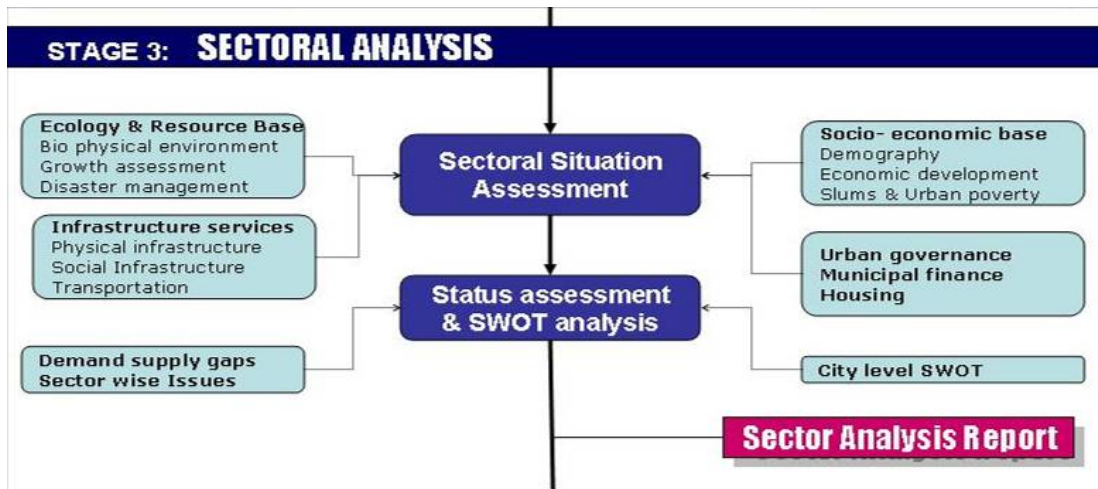


### 1.2.3 Sectoral Analysis

- **Task 01: Sectoral Situation Assessment**

The information collected from secondary sources was analysed to arrive at the present development status at the urban area level. The analysis included all the sectors as mentioned below:

- Infrastructure services
- Ecology and Resource Base
- Housing
- Socio- economic base
- Slums and urban poverty
- Urban governance
- Municipal Finance



- **Task 02: Status Assessment and SWOT Analysis**

In order to develop a better understanding of the different sectors, Status Assessment has been carried out on the basis of different parameters. Status assessment has been carried out considering demography, economic base, finance, physical and environment issues, infrastructure, institutions and universalities of services to all the communities.

This has given the existing status of different sectors and subsequently helps in arriving to SWOT analysis of all the sectors. The SWOT analysis helped us to arrive at the Problems and key Issues for all the Sectors.

From the above findings, Consultant has prepared City profile consisting of the assessment of the existing situation in all the sectors identified during first workshop. The Sector Analysis Report was submitted by the Consultant to MPUSP and Municipal Corporation.

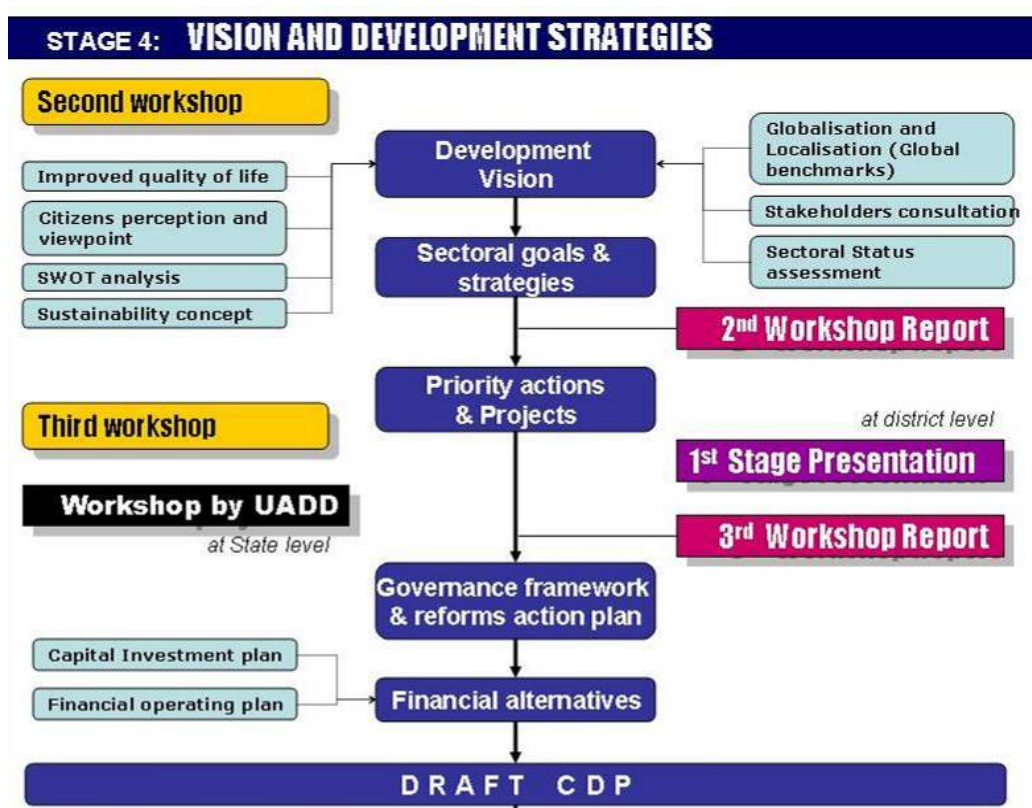
#### 1.2.4 Vision and development objectives

The Consultant conducted the Second Stakeholders Workshop to discuss the sectoral issues identified and to develop the vision for Ratlam city. For this, the City Profile and Sectoral Analysis done by the consultants were presented to the stakeholders and their inputs on vision and development objectives were solicited. The sector analysis, the vision and goals identified for achieving the Vision under Ratlam city development plan were presented to the steering group on October 6, 2010. The Steering group discussed the several points in relation to the demand supply gaps of various projects. Apart from sector analysis the outcome of the second workshop was presented to steering group. In accordance with TOR, this report contains second workshop report on vision and goals with list of participants and summary of workshop proceedings enclosed as annexure.

- **Task 01: Development Vision**

This marks the beginning of Stage Four on Strategies and Projects. The first task in this stage was the generation of future Development Vision for the ULB. The

Development Vision has been decided on the basis of stakeholders and citizens perception about their city, sectoral status assessment and SWOT analysis. The Development Plan will guide all the subsequent stages and will help achieve it harmoniously. This plan has also incorporated the concept of sustainability and aim at improved quality of life for the citizens. During the second workshop, the consultants have presented the procedure for the formation of vision to the stakeholders with examples of other cities model vision like Bhopal, Indore etc. Questionnaires were circulated amongst stakeholders and visions for Ratlam City were collated. Consultants also incorporated the best practices for the service delivery with international and national example. The service level benchmarking of other cities were considered amongst the best practices and studied the possible interventions in implementation in Ratlam. In order to finalize the Vision statement, the opinion and suggestions from the questionnaires were studied and developed to suit the characteristics of the City



### • Task 02: Sectoral Goal and Strategies

On the basis of the sectoral issues identified along with the status assessment, the sectoral goals and strategies were made to overcome those issues. And these strategies were applied to different sectors on the basis of the sectoral vision which may be linked to the development vision. The Consultant has reviewed case studies on city transformations nationally and internationally.

Several strategies adopted, for respective sector of physical and social infrastructure, from the best practices as mentioned in earlier section. The

Consultant has been updating the client at various stages about the progress of the project.

While adopting the strategies for each sector consultant has incorporated special attention to the energy efficiency with strategies for implementation of energy efficiency projects.

### **Energy Efficiency**

While preparing the City Development Plan the Consultant has laid greater stress on Energy efficiency measures for sustainable development. Energy efficiency potential assessment has been attempted to identify the potential energy efficient measures for the city. Assessment of present street lighting infrastructure, possibility of replacing them with energy efficient lamps and the cost analysis also has been done.

**Consultants have submitted the second workshop and vision report to MPUSP incorporating the goals and strategies for Ratlam City Development Plan.**

- **Task 03: Priority Actions and Projects**

The strategies have further been translated into projects for different sectors. The projects will be then phased on the basis of demand and stakeholders priorities.

The Consultant has put stress on the recommendations and reforms to be undertaken by the Municipal Corporation for Energy efficiency concepts.

The Consultant has conducted the third workshop to evaluate strategies from the perspective that will help to achieve vision and sector goals. Stakeholders expressed their view on the priority actions and projects and accordingly incorporated in the report. Consultant has also formed consensus from the various groups to evaluate the strategies, programs and project that will come under city development plan for the city.

- **Task 04: Financial alternatives**

In order to achieve the financial sustainability while implementing the capital projects, financial operating plan has been prepared with different scenarios. The Consultant has made projections under the three scenarios with base case without reforms and with reforms. The reforms implementation has been further alienated into the partial reforms and full reforms scenarios. With the implementation of reforms, the extent to which revenue maximization and expenditure minimization can be possible has been worked out.

The Consultant has also worked out the cost of projects and has determined the financial requirements for meeting the demand for infrastructure and services. The Consultant has determined the phasing to be adopted so that the financials of the ULB is not burdened while at the same time the objectives of provision of basic services are met. Consultant has also carried out life cycle O&M costs and analysed the impacts on finances and of not doing the project.

## City Development Plan, Ratlam

The Consultant has identified the projects which can be implemented under PPP model. Various PPP models like BOT, BOOT, BOLT etc. will be explored. The Consultant has rich experience in working on BOT projects and has come out with unique models where the State Government funding for the project becomes very minimal. The possibility of replicating these models in these ULBs has been explored and other funding options like public borrowing and pool finance have also been considered. The Consultant has prepared the Capital Investment Plan and Financial Operating Plan for the ULB.



The Consultant conducted the fourth and Final Workshop with the stakeholders to finalize the CDP. Consultants also conducted presentation at district level with presence of steering group and presented the CIP and FOP for Ratlam City Development Plan. The need and importance of reforms were presented to the stakeholders. Institutional reforms were identified which can be implemented during the scheme period. The reform measures include various e-governance applications which the ULB should adopt in a phased manner. The reform areas like Migration to Double Accounting System, Computerisation of Records, E-Governance applications - Registration of Births and Deaths, E-procurement etc., Revision of property tax guidelines and migration to self assessment of property taxes, Community Participation in budgeting and ULB functioning and Involvement of private sector in infrastructure projects and service provision shall be recommended to be adopted.

Details regarding all the stakeholder workshops are discussed in the separated chapter of stakeholders consultations with subsequent Annexure.



## 2 City Profile

Ratlam known historically as Ratnapuri is one of the important cities in Malwa region in the state of Madhya Pradesh. The New City of Ratlam was founded by Captain Borthwick in 1829 which had regular, planned and wide streets and well built houses.



In the year 1892 Ratlam was connected to Mumbai and Delhi through broad gauge railway line. In 1901 the city was connected with Mhow and Neemuch using meter gauge line. The zonal office of western railway was setup at Ratlam, thus providing Ratlam an important position in the Railway map of our country. One of the major contributors to the development of the city has been the establishment of Ratlam as a major junction on western railway. Eventually



## City Development Plan, Ratlam

industrial and commercial developments have given impetus to the growth of the city.

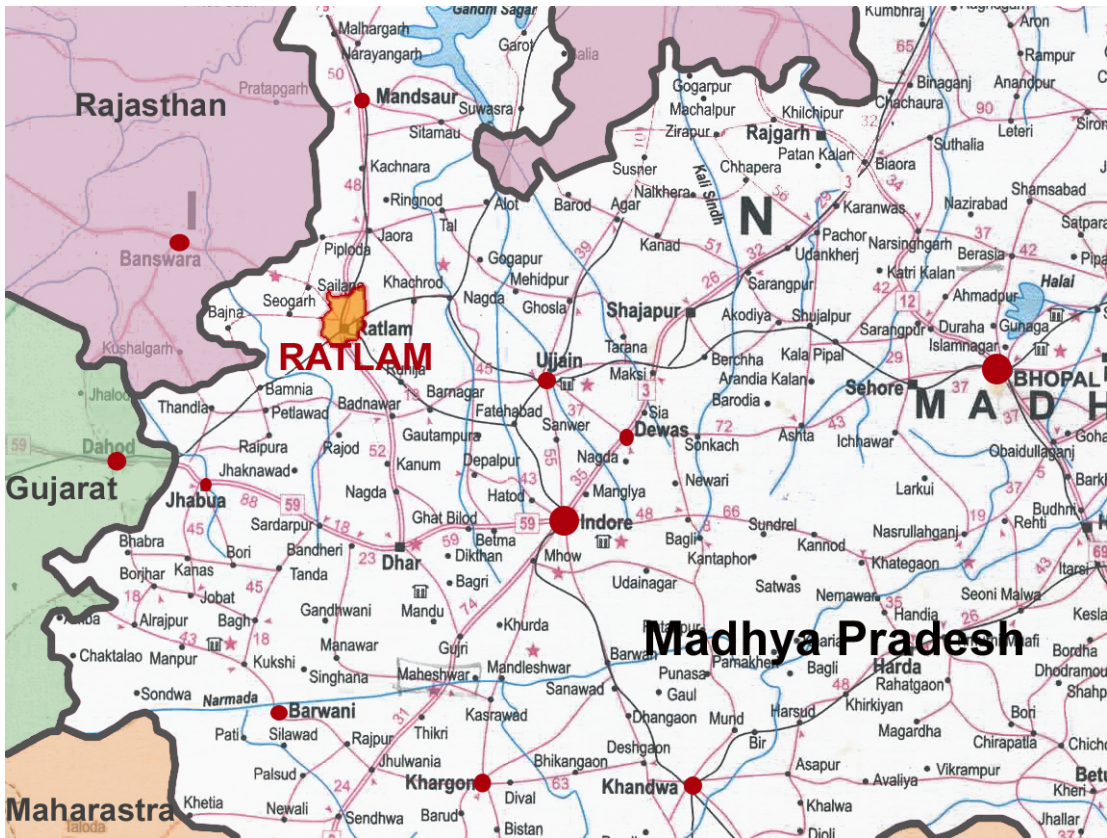
Ratlam is the third biggest city in the state of Madhya Pradesh in terms of commercial and industrial activity under the Indore Agro industrial region formed under the section 4 of City and Country Act, 1973. Ratlam city is the important centre for the agriculture business providing the intangible advantage to Indore and Baroda region.



Ratlam Municipal Corporation consists of 49 wards and a Railway colony. Ratlam is surrounded by Piploda, Jaora, Alot, Sailana and Bajna Tehsils. Ratlam Municipal Corporation shares its boundary with the Ujjain district at East and Dhar district at south.

### 2.1 Connectivity

Ratlam city is the administrative headquarters of Ratlam District. Ratlam is situated in North-West region of Madhya Pradesh from 23 05' North to 23 52' North Longitude and 74 31' East to 75 41' East Latitude. Following section provides the information regarding the connectivity of the Ratlam in terms of Rail, Road and Air transport.



### 2.1.1 Road Connectivity

There are three major roads passing through Ratlam city which provides the connection to the sub-districts, out-states and national region. NH 79 passes through the city and provides connectivity to the state of Rajasthan. State Highway-10 provides the connectivity to other districts and MDR-12 (A) connects the Ratlam to sub-districts.

### 2.1.2 Rail Connectivity

Ratlam city has the very good rail connectivity. Ratlam junction is Divisional head quarters of Western Railways. It has both Broad Gauge and Meter Gauge Railway Lines providing connectivity at regional and national level.

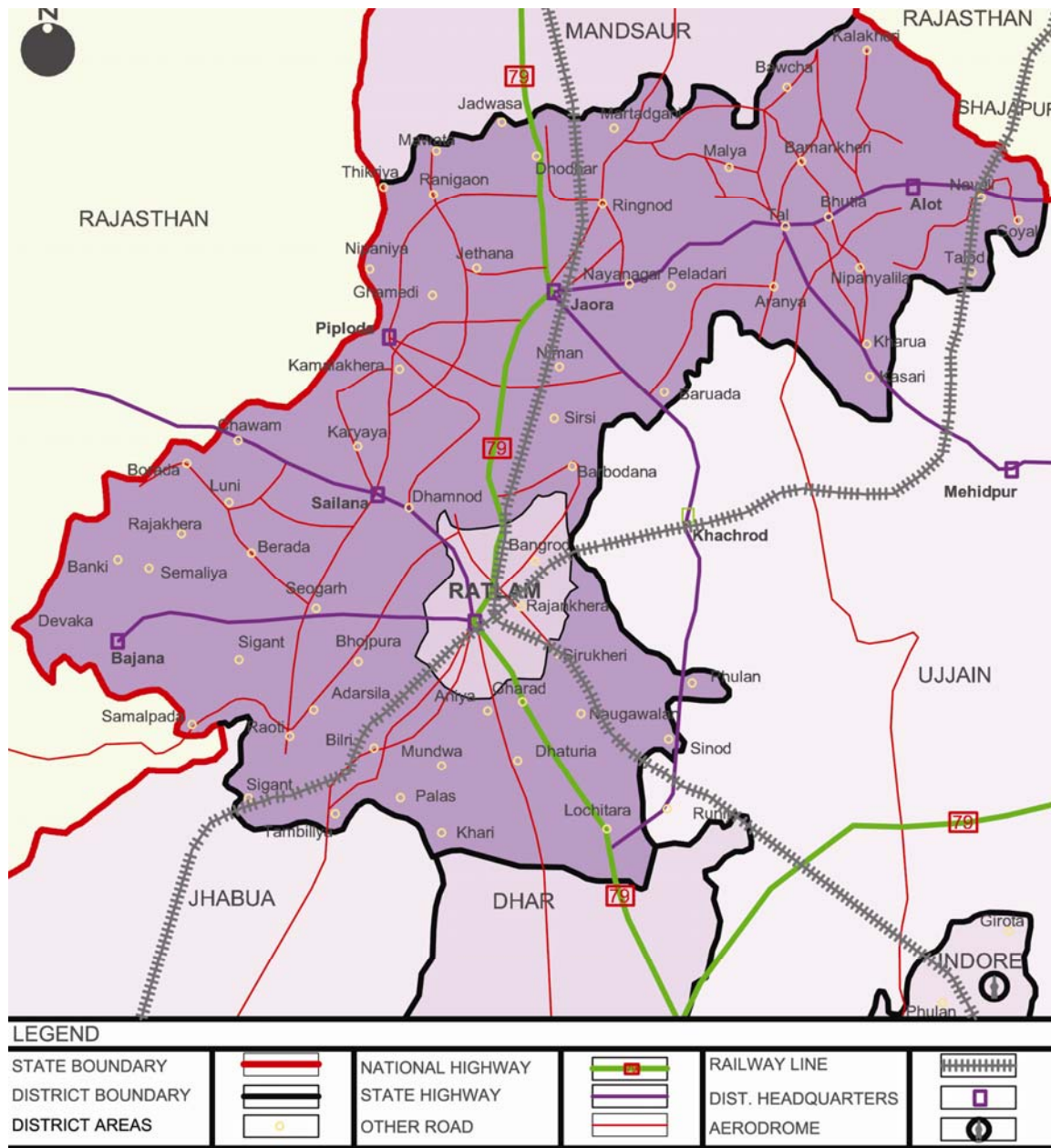
It is situated at a distance of 653 km from Mumbai Central, 731 km from Delhi, 176 km from Indore BG and 119 km from Indore MG route.

### 2.1.3 Air Connectivity

The nearest major airport to Ratlam is Indore, which is located at a distance of approximately 100 km.

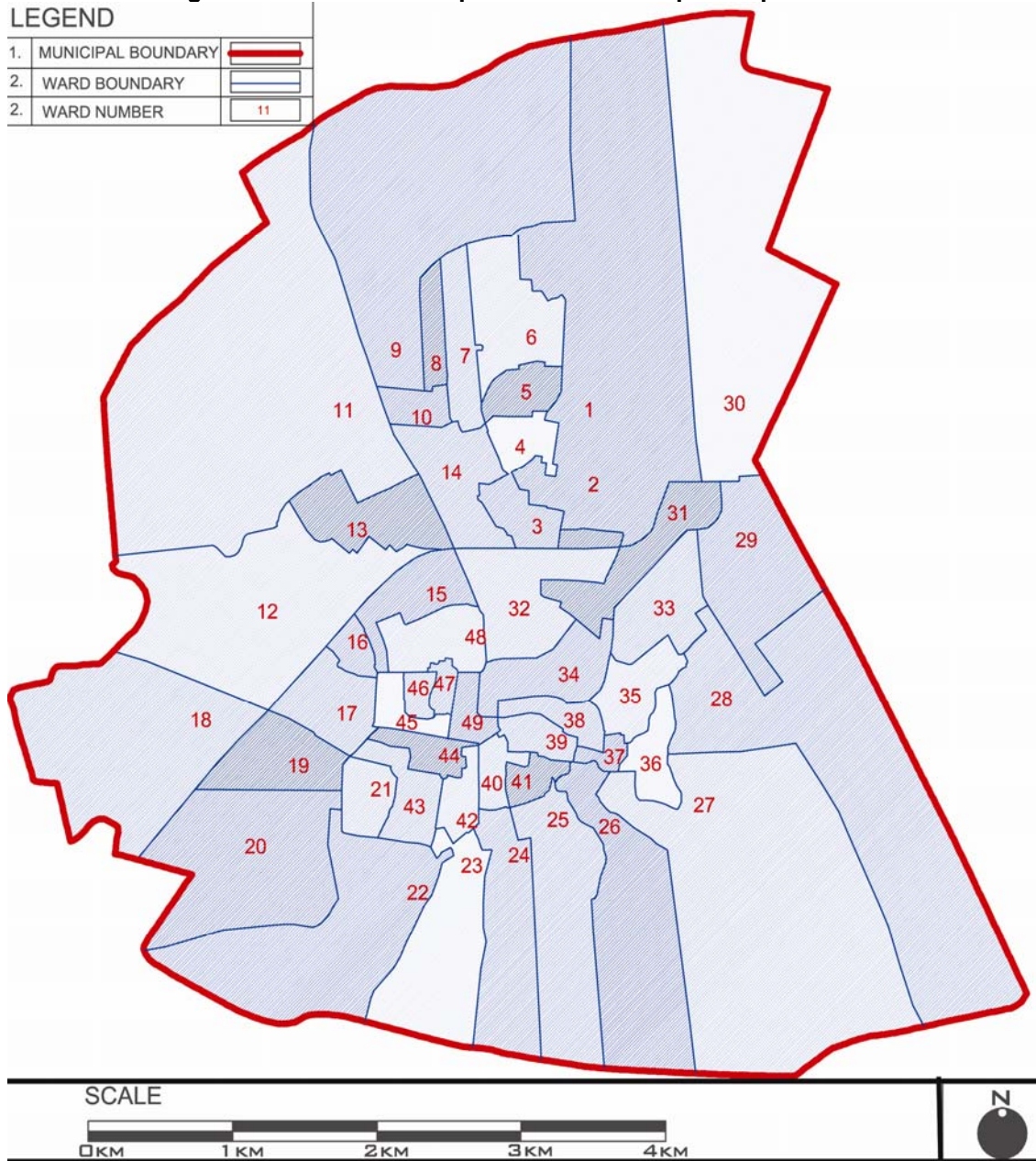


Figure 2-1: Network Linkages – Ratlam



## 2.2 Demography

Figure 2-2: Ward wise Map of Ratlam Municipal Corporation



### 2.2.1 Population for Ratlam Municipal Corporation and Railway colony:

As per Census 2001, population for Ratlam Municipal Corporation was 222202; Total households were 41544 indicating the Household size of 5.3 as compared to state urban HH size of 5.5. The male population is 114370 and female population is 107832. According to master plan prepared in 1990, the projected population for the year 2001 was 3.51 lakh.

**Table 2-1: Population details of Ratlam – 2001.**

| Particulars                         | No. of H.H   | Total population | Male population | Female population |
|-------------------------------------|--------------|------------------|-----------------|-------------------|
| <b>Ratlam Municipal Corporation</b> | <b>41544</b> | <b>222202</b>    | <b>114370</b>   | <b>107832</b>     |
| Ratlam Rly Colony (Ratlam Kasba)    | 2565         | 12217            | 6504            | 5713              |
| <b>Grand Total</b>                  | <b>44109</b> | <b>234419</b>    | <b>120874</b>   | <b>113545</b>     |

Source: Census of India 2001 and data obtained from draft master plan for Ratlam.

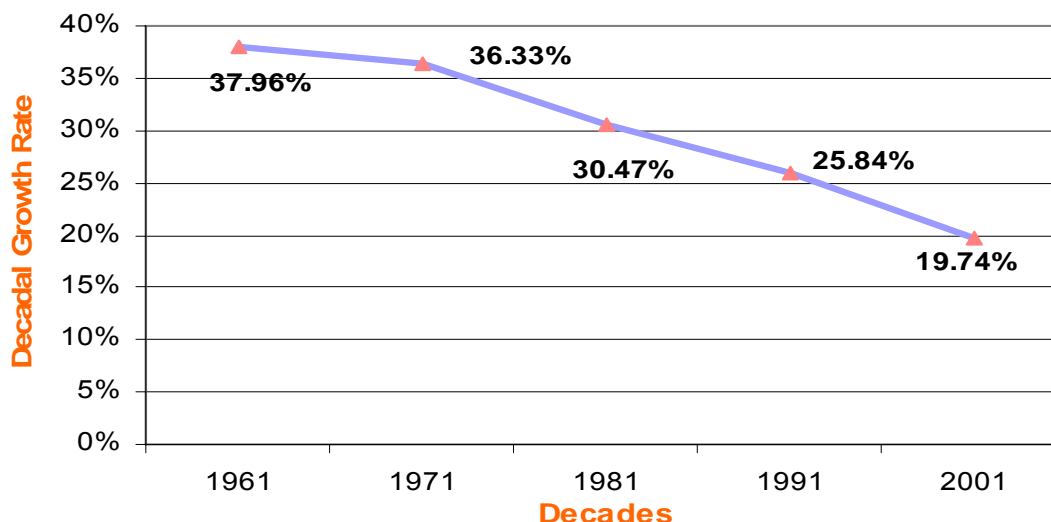
A Residential Colony known as Railway Kasba is existent near Ratlam railway station which stretches from 'Daat ki Pul' to the Railway Hospital. In the Census, Railway Colony is being considered as a separate Census city and is being administered by Indian Railways. The Maintenance of the colony premises, water supply, road etc is done by Indian Railways. For the purpose of City Development Plan, only the Population under the administrative control of Ratlam Municipal Corporation has been considered while that of Railway Colony is not included.

## 2.2.2 Population Projection

- **Population trend in the past decades**

The population of Ratlam in 1961 was 87472 with growth of 37.96 to the previous decade of 1951. The Decadal growth rate as shown in the graph shown below has been declining steadily in the past 5 decades. The population growth rates of Ratlam City for the past decades are as follows:

**Figure 2-3: Decadal population growth rate of Ratlam (in %)**



Source: Analysis from the consultants and Census of India

The sudden drop is found in the decade 1991-2001 as the growth rate has plunged from 29.84% to 19.74%. Possible reason for this sudden drop might be because of people migrating to other places due to the limited employment opportunities created by shutting down of many industrial units.

- **Population projection as per DPR for water supply:**

Following methods are used for population projection for water supply detailed project report under the UIDSSMT scheme.

**Table 2-2: Population Projection as DPR**

| Year | Arithmetic Increase | Geometric Increase | Incremental Increase | Graphical Method |
|------|---------------------|--------------------|----------------------|------------------|
| 2001 | 222202              | 222202             | 222202               | 222202           |
| 2010 | 248791              | 281023             | 252274               | 276427           |
| 2025 | 293107              | 415654             | 309723               | 411352           |
| 2040 | 337423              | 614784             | 376337               | 628572           |

Source: DPR for Ratlam Water supply Project UIDSSMT scheme.

In the water supply DPR, for design purpose it is suggested to follow the mean of the population given by arithmetic and incremental increase method.

**Final population derived for water supply:**

**Table 2-3: Population assumed for water supply scheme**

| Phase       | Year | Population |
|-------------|------|------------|
|             |      | 2010       |
| I st Phase  | 2025 | 300000     |
| II nd Phase | 2040 | 390000     |

Source: DPR for Ratlam Water supply Project UIDSSMT scheme

- **Population projection as per Master Plan:**

In Ratlam Master plan 2001, the Land Use Planning has been prepared according to the projected population of 3.51 lakh for the year 2001. But in terms of industrial development perspective there were shutting down of several many industries reducing the employment opportunities which caused the reduction in the estimated population growth rate. Also the lack of poor co-ordination between several institutes and deprived industrial growth resulted in poor implementation of master plan 2001.

As mentioned earlier Population as per Master Plan report is 351000 for 2001, which estimated very high while compared to Census population, 2001 of 222202. For the Ratlam master plan 2021, projected the population of 3.51 lakh estimated with the help of previous decades growth rate pattern.

However for City development Plan, the incremental increase method seems appropriate as it shows similarity between the final average populations adopted under the water supply DPR.

---

<sup>1</sup> This 3.5 lakh population estimation for year 2021 is including the Railway colony, Ratlam



• **Population Projection for Ratlam City Development Plan:**

The populations for the next 30 years have been projected for Ratlam. The exercise has been done taking into account the population of past decades and trends. Future population projections for the City Development Plan have been projected by the following methods

1. Arithmetic Progression Method
2. Geometric Progression Method
3. Incremental Increase Method
4. Least Square Method

After considering the water supply DPR projections and discussion with officials and also factors governing the future growth and development of Ratlam City like industrial, commercial, educational, social and administrative factors, it is felt that the most suitable method for population projection will be Incremental increase method.

The abstract of final projections by various methods are summarized in Table 2.4:

**Table 2-4: Population Projection Summary**

| Year | Arithmetic Increase | Geometric Increase | Incremental Increase | Least Squares | Graphical Method |
|------|---------------------|--------------------|----------------------|---------------|------------------|
| 1941 | 44939               | 44939              | 44939                | 44939         | 44939            |
| 1951 | 63403               | 63403              | 63403                | 63403         | 63403            |
| 1961 | 87472               | 87472              | 87472                | 87472         | 87472            |
| 1971 | 107049              | 107049             | 107049               | 107049        | 107049           |
| 1981 | 142319              | 142319             | 142319               | 142319        | 142319           |
| 1991 | 183375              | 183375             | 183375               | 183375        | 183375           |
| 2001 | 222202              | 222202             | 222202               | 222202        | 222202           |
| 2010 | 248791              | 281023             | 252274               | 236668        | 255785           |
| 2015 | 263563              | 320188             | 270405               | 251428        | 274187           |
| 2020 | 278335              | 364812             | 289555               | 266189        | 293821           |
| 2025 | 293107              | 415654             | 309723               | 280949        | 314158           |
| 2030 | 307879              | 473582             | 330910               | 295709        | 332910           |
| 2035 | 322651              | 539584             | 353114               | 310470        | 352085           |
| 2040 | 337423              | 614784             | 376337               | 325230        | 370373           |

Source: Analysis from the Consultants



## 2.3 Social Indices

### 2.3.1 Literacy rate

As per census 2001, the literacy rate for the Ratlam Municipal Corporation is higher as compared to the Ratlam district urban and state level literacy rate. It shows the role of education system has been significant in the city area.

**Table 2-5: Literacy levels & comparison**

| Literacy levels          | Total | Male | Female |
|--------------------------|-------|------|--------|
| Ratlam                   | 85%   | 91%  | 78%    |
| In Ratlam urban district | 81%   | 89%  | 73%    |
| In MP state urban        | 79%   | 87%  | 70%    |

Source : Census of India, 2001

### 2.3.2 Social Composition

As per census 2001, SC population is about 10 percent of the total population whereas ST population comes around 4 percent of the total population as shown in table 2-6 of social composition.

**Table 2-6: Social Composition**

| Social Composition | Male   | Female | Total  | % share to total |
|--------------------|--------|--------|--------|------------------|
| SC Population      | 12231  | 11534  | 23765  | 10%              |
| ST Population      | 5113   | 4598   | 9711   | 4%               |
| Others             | 103530 | 97413  | 200943 | 86%              |
| Total Population   | 120874 | 113545 | 234419 | 100%             |

Source : Census of India, 2001

### 2.3.3 Gender Ratio

The gender ratio for the ST population is the lowest among the all population while the gender ratio is highest in SC population as compared to the other population in Ratlam. The gender ratio of entire population in Ratlam as well as the gender ratio of the population under the age of 6 is less as compared to that of Ratlam urban district and higher as compared to the State

**Table 2-7: Gender ratio and its comparison**

| Particulars                           | Population | Population below 06 | SC    | ST   |
|---------------------------------------|------------|---------------------|-------|------|
| Male                                  | 120874     | 15574               | 12231 | 5113 |
| Female                                | 113545     | 14255               | 11534 | 4598 |
| Gender ratio in Ratlam                | 939        | 915                 | 943   | 899  |
| Gender ratio in Ratlam urban district | 943        | 920                 | 948   | 899  |
| Gender ratio in MP state urban        | 898        | 907                 | 907   | 910  |

Source : Census of India, 2001

## 3 Physical Planning & Growth Management

Ratlam Municipal Corporation has an area of 39.19 sq.km. The physical growth of Ratlam Municipal Corporation is managed by master plan. Under the Madhya Pradesh City and country planning act, 1973 The T & C.P department has prepared the Ratlam Master Plan for the year 2021. The Ratlam Municipal Corporation possesses the implementation responsibility of the master plan. The master plan is prepared for investment region of 101.64 sq.km.(10164 Ha). The earlier version of master plan was prepared in 1985 for the year 2001. But, due to lack of implementation it wasn't executed as per the requirement. The current master plan prepared for the horizon year of 2021. Meanwhile, due to incomplete implementation there have been encroachments on the proposed major roads and the ring roads.

Major objectives of the Ratlam master plan for 2021 are as follows:

- Development of the city as a Multidimensional centre
- Development as a major economical, commercial and industrial Centre
- Development as District administrative and educational Hub
- Proximity for the residential region to the working centres
- Development through the set of scales between the related activities of Railways and the nature of the city activities.
- Priority to work based activities and related industries.

### 3.1 Landuse analysis

#### 3.1.1 Existing Land use

Ratlam development plan, 2001 had estimated the planning area of 3180 ha for development purpose after consideration of the estimated population of 3.51 lakh. Total investment for development was estimated around Rs. 300 crore. The effective implementation of landuse was 1583.20 Ha with 50% realization rate. Following table provides the information on the existing landuse of Ratlam.

**Table 3-1: Existing Land Use pattern of Ratlam (areas in Ha)**

| Landuse          | As per 2001 | Developed area | Fluctuation | % implementation | Land use Rate Ha/1000 Persons |
|------------------|-------------|----------------|-------------|------------------|-------------------------------|
| Residential      | 1438.83     | 807.32         | 631.51      | 56.11%           | 3.10                          |
| Commercial       | 211.25      | 65.65          | 145.6       | 31.08%           | 0.25                          |
| Industrial       | 388.90      | 184.00         | 204.9       | 47.31%           | 0.71                          |
| Govt & semi govt | 397.70      | 142.43         | 255.27      | 35.81%           | 0.54                          |

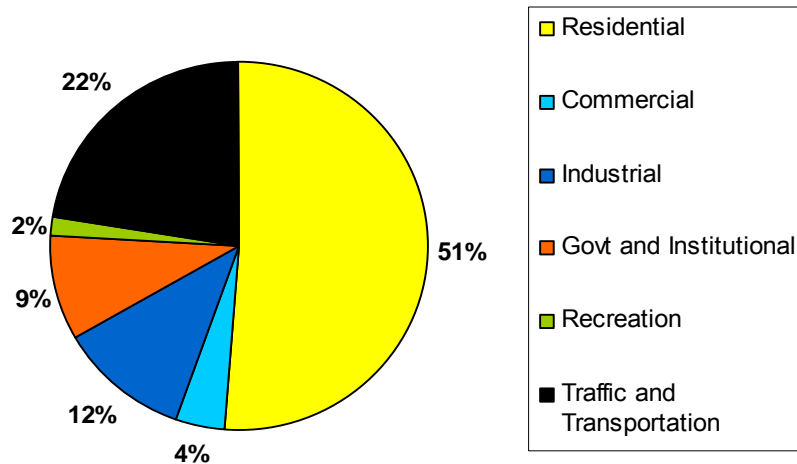
| Landuse                    | As per 2001 | Developed area | Fluctuation | % implementation | Land use Rate Ha/1000 Persons |
|----------------------------|-------------|----------------|-------------|------------------|-------------------------------|
| Recreation                 | 266.88      | 28.80          | 238.08      | 10.79%           | 0.11                          |
| Traffic and Transportation | 476.44      | 355.00         | 121.44      | 74.51%           | 1.37                          |
| Total                      | 3180.00     | 1583.20        | 1596.80     | 49.8%            | 6.08                          |

Source: Development Plan 2021, Ratlam

As per the above table, there has been around 50% implementation of land use development achieved. However, there has been less implementation in recreation and commercial landuse development proposed under development plan.

Amongst entire developed area of 1583.20 Ha, maximum landuse is under residential purpose with 51%. Recreational landuse contribution is very less i.e. only 2%. Only 10% i.e 28.80 Ha of the proposed land use has been implemented versus 266.88 Ha.

Figure 3-1: Existing Landuse pattern



Source: Development Plan 2021, Ratlam

### 3.1.2 Proposed Landuse

The entire area has been divided into six planning units having total area of 10163.7 Ha. In the proposed Ratlam development plan, total development area will be of 4197 Ha after excluding agriculture land of 5966.7 Ha. Following table provides the proposed land use as provided under Ratlam Development plan, 2021.

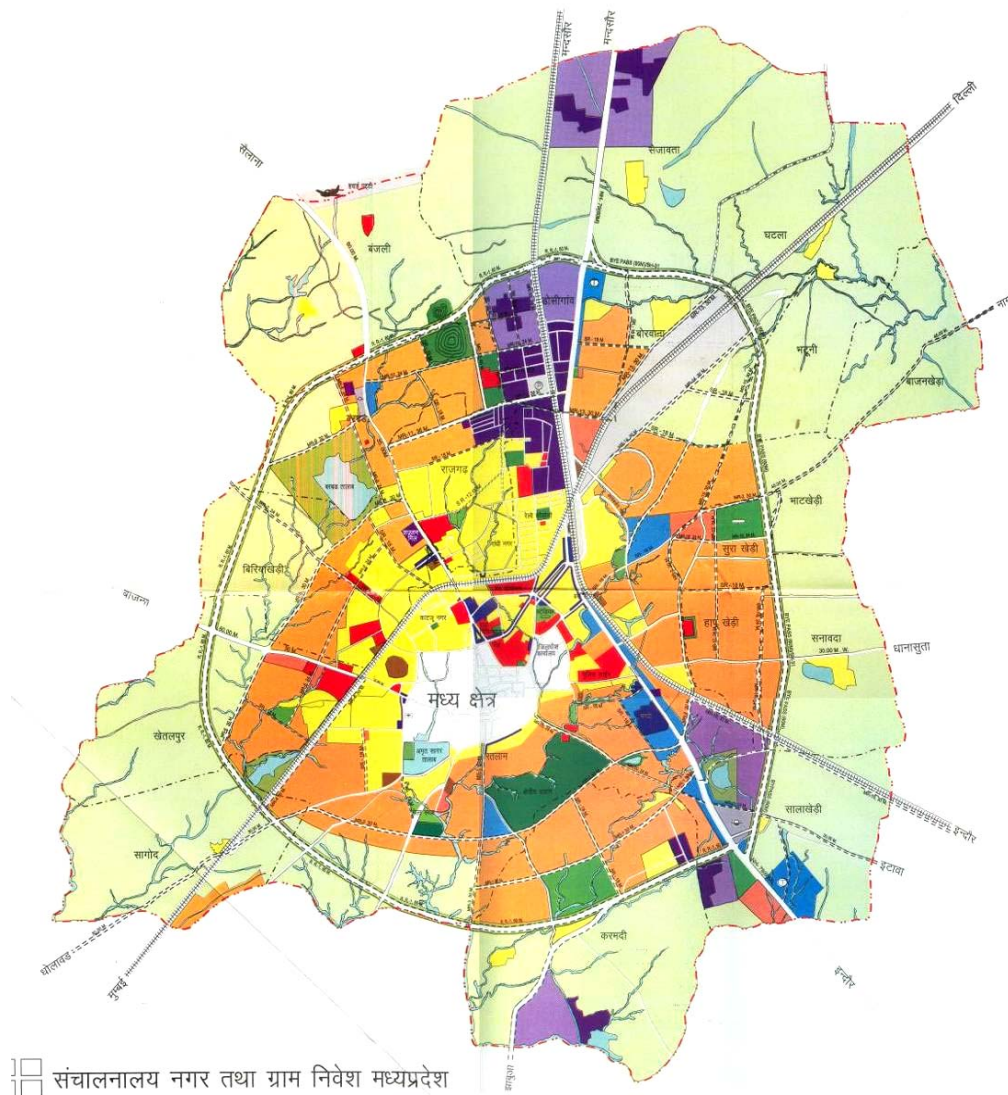
The recreational landuse has been proposed for sports facilities of 22 Ha near Khachrod road which will provide stadium, swimming and other facilities.

Table 3-2: Proposed land use pattern of Ratlam (areas in Ha)

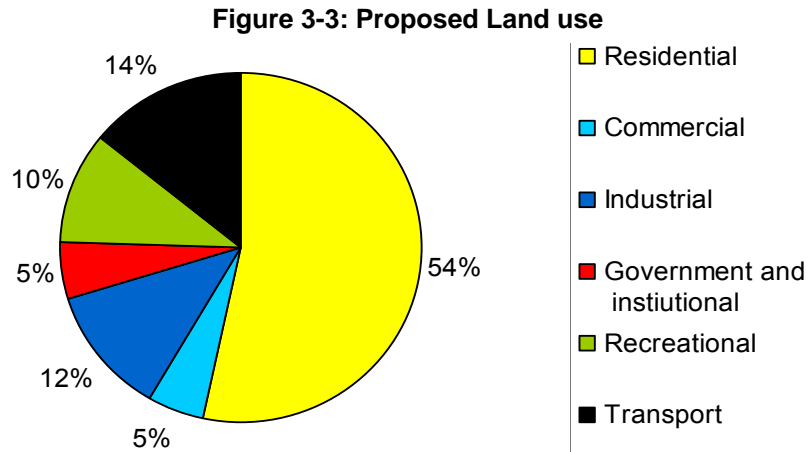
| Investment Unit no. | Land Use(Areas in Ha) |            |            |                |              |            |                     | Total          |
|---------------------|-----------------------|------------|------------|----------------|--------------|------------|---------------------|----------------|
|                     | Residential           | Commercial | Industrial | Govt-semi govt | Recreational | Transport  | Agriculture & other |                |
| 1                   | 149                   | 23.2       | 0.0        | 8.0            | 6.2          | 26.2       | 0.0                 | 212.6          |
| 2                   | 528                   | 3.0        | 6.0        | 56.0           | 80.0         | 136.5      | 1310.0              | 2119.5         |
| 3                   | 510                   | 39.8       | 291.0      | 60.0           | 60.0         | 78.0       | 716.0               | 1754.8         |
| 4                   | 200                   | 38.0       | 75.0       | 45.0           | 54.0         | 101        | 1970.0              | 2483           |
| 5                   | 310                   | 90.0       | 78.0       | 30.0           | 75.0         | 87.6       | 1065.0              | 1735.6         |
| 6                   | 538                   | 16.0       | 50.0       | 23.0           | 154.8        | 170.7      | 905.7               | 1858.2         |
| <b>Total</b>        | <b>2235</b>           | <b>210</b> | <b>500</b> | <b>222</b>     | <b>430</b>   | <b>600</b> | <b>5966.7</b>       | <b>10163.7</b> |

Source: Development Plan 2021, Ratlam

Figure 3-2: Ratlam Land Use Plan



Source: Draft Ratlam Development Plan



The proposed land use has been designed for the period of 2021 with forecasted population of 3.51 lakh however according to the population projections made for city development plan the population in 2021 has been estimated around 2.9 lakhs. i.e less than the population estimated in development plan. The development plan, 2001 which was published in 1990 was designed with projected population of 3.51 lakhs. But after 1998 the industrial growth of the city was reduced to such an extent that there has large scale of immigration of labours from Ratlam, thereby population growth rate was not achieved as estimated for development.

### 3.1.3 Industrial region and its development

Since 1974-75, there has been significant industrial development in terms of agro and steel sectors. Ratlam has gained its own identity in terms of industrial development in and around the region. But the industrial growth has been affected due to lack of power, water services and other reasons. In order to give impetus to industrial growth water supply provisions have to be made. The industrial growth proposed will act as a catalyst for the economic development of Ratlam and also provide employment opportunities in the region.

There has been proposal to relocate the industrial activities which are present in the residential region of the city. Amongst those proposals, Oil mills at Haat Bazar and Deepak Wire which are currently near to the district headquarters of Ratlam are proposed to be relocated.

### 3.1.4 Commercial region:

Commercial regions have been developed at Manak Chauk and Chandani Chauk which render the services to the current population in terms of major business centre.

The commercial activities of the city are the major economic strength of the city which has created its own identity in terms of Gold ornaments and clothes.

### 3.1.5 Recreational facilities:

As per the development plan of 2001, there has been poor implementation of recreation the facility with strike rate of only 10% of the proposed landuse. Currently, there are some important recreational facilities like Jhali Lake and park near Kalika Mata Temple, Triveni Mela, and stadium near to the Jhali Lake.

There has been proposal of regional sports centre of 22 Ha near to the Kharchod road which will complete the sports infrastructure requirement at local and regional level of Ratlam. There has been proposal for the lake development activities for three lakes of the region out of which two lakes are within the jurisdiction of Ratlam Municipal Corporation.

**Table 3-3: Lake development under development plan**

| Name of the Lake | Proposals under Development Plan,2021   |
|------------------|---|
| Barbad Lake      | •Beautification of lake surrounding with fencing  |
| Amrut Sagar Lake | •lake conservation with prevention of wastewater disposal into the lake with separate provision of disposal and treatment of lake water |

### 3.1.6 Overall development and circulation:

Apart from these, development plan has emphasized on decongestion of the central part of the Ratlam city in terms of removal of encroachments, widening of city roads and provision of parking spaces which are very important for the city. Currently lots of encroachments from the city centre are being removed from number of roads.

## 3.2 Development potentials & Constraints

### 3.2.1 Development potentials

Ratlam city has the A class Agriculture Market which is on the Indore road. It is major market location for cotton, soya bin, grains and wheat. This market also exports surplus products to other centers in Madhya Pradesh. Considering the productive soil type for agriculture this place can be developed as major centre for commercial activities and agro based industries.

As mentioned in the earlier sections, Ratlam is the administrative centre for District and also sub-divisional headquarter for western railways. It occupies strategic location on Delhi Mumbai and Indore- Ajmer rail route and is an important junction for both passenger and freight transport.

Growth and development of the Ratlam has been significantly affected by the presence of the railway lines. Because of the railway lines city has developed along the east and north directions. Hence the Ratlam as a major rail junction shall contribute significantly in the development of the city.

Due to the strong road connectivity in terms of major district roads and state highways, Ratlam has significant growth potential. Also due to conversion of state road of Mahu-Nasirabad into the national highway no.79, importance of the road transport has been increased.

### 3.2.2 Development Constraints

Burgeoning Slums, Health hazard due to absence of proper water supply, sewerage, sanitation and storm water drains along with Haphazard growth and unplanned development if not addressed could be the major constraint in the future for the development of this area.



## 4 Economic Development

### 4.1 Economic Base of the city

The economic activities in the city are mainly trade, commerce and industries. As mentioned in the previous chapter Ratlam is famous for the Gold ornaments and special Saree designing. Also it has main Agriculture Market which distributes the large amount of food grains coming from the surrounding villages and districts.

#### 4.1.1 Work Force Participation Rate (WFPR)

There are approximately 65000 workers in Ratlam out of which majority involved in trade and services. The work force participation rate in Ratlam is 29.3 percent which is lower than the WFPR in Ratlam district urban and MP state urban WFPR as shown in given table below. Further, its dependency on primary sector is only 2.1 percent of the total work force which is low compared to district urban and state urban primary sector work force share. The "other" workers contribution is significant (93.9%) while in comparison to urban district and state level.

In addition, non workers percentage to total population is high when compared to Ratlam district urban and state urban non workers share to total population.

**Table 4-1: Occupational Pattern and its comparison – 2001**

| Area                         | Indicator             | Primary | Household Industry | Others | Total workers | Non Workers |
|------------------------------|-----------------------|---------|--------------------|--------|---------------|-------------|
| Ratlam Municipal corporation | % to total workers    | 2.10    | 4.00               | 93.90  |               |             |
| Ratlam urban district        |                       | 12.20   | 4.40               | 83.30  |               |             |
| In MP urban                  |                       | 11.6    | 6.60               | 81.80  |               |             |
| Ratlam Municipal corporation | % to total population | 0.63    | 1.16               | 27.50  | 29.30         | 70.70       |
| Ratlam urban district        |                       | 3.70    | 1.35               | 25.57  | 30.70         | 69.30       |
| In MP urban                  |                       | 3.55    | 2.02               | 25.07  | 30.6          | 69.4        |

Source : Census of India, 2001

#### 4.1.2 Occupational pattern

Of the total workforce, around 89.44% of workers are main workers and 10.56% are marginal workers. The majority of main workers are involved in tertiary sector. Percentage of non-workers to the total population is very high i.e.70.52%. The classification of workers as per census 2001 is as below:

**Table 4-2: Classification of Workers – 2001**

|                      |                    | (2001 census) | % to total workers | % to total Population |
|----------------------|--------------------|---------------|--------------------|-----------------------|
| Main workers         | Primary sector     | 1199          | 1.8                | 0.54                  |
|                      | Secondary sector   | 2354          | 3.6                | 1.06                  |
|                      | Tertiary sector    | 55031         | 84.0               | 24.77                 |
|                      | Total main workers | 58584         | 89.44              | 26.36                 |
| Marginal workers     |                    | 6914          | 10.56              | 3.11                  |
| <b>Total workers</b> |                    | <b>65498</b>  |                    | <b>29.48</b>          |
| <b>Non workers</b>   |                    | <b>156704</b> |                    | <b>70.52</b>          |

Source: Census of India, 2001

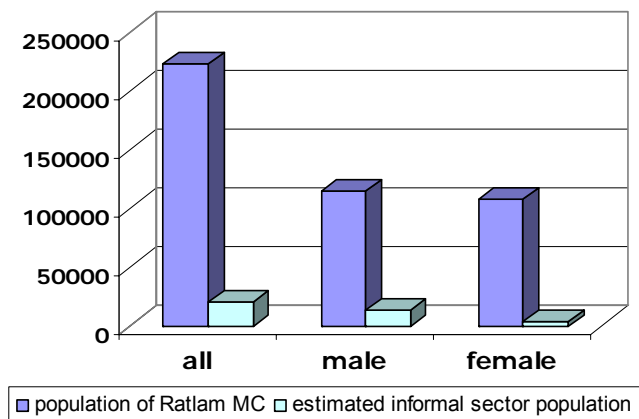
### 4.1.3 Informal Sector of Ratlam

Being the district administrative centre and Railway junction, Ratlam has significant scale of informal sector in the several part of the city. Most of the informal sectors are located at Station road, Chandani Chauk, Ghas bazaar, District Hospital and Kalika Mata temple region. The Ratlam Development plan has made provision for informal sector of Ratlam as it provides intangible benefits to the city's economic activities.

- Provision of formal commercial sector in terms of shopping complex, hawkers zone etc.
- Priority to service related business activity and loading unloading facilities.

The estimated population involved in informal sector is 9% of the total population. The Following table provides the estimated population engaged in informal sector in Ratlam. The estimation has been derived from the state working population percentage with working age (15-59 year). Considering the state working population the population of age group (15-59) of the Ratlam estimated.

**Figure 4-1: Estimated population under informal sector**



Source: Consultants analysis

**Table 4-3: Estimation of population for informal sector**

| particulars                             | Population (%) |      |            | Urban (%) |      |            | Rural |      |            |
|---|----------------|------|------------|-----------|------|------------|-------|------|------------|
|   | All            | Male | fema<br>le | All       | male | fema<br>le | all   | male | fema<br>le |
| working population (15-59) of the state | 70             | 85.1 | 53.7       | 48.1      | 75.2 | 16.7       | 77.2  | 88.5 | 65.3       |

| Particulars   | all    | male   | Female   |
|---|--------|--------|----------|
| population of Ratlam MC                                 | 222202 | 114370 | 107832   |
| estimated population of age group (15-59) of the Ratlam | 106879 | 86006  | 18008    |
| considering 80% of age group                            | 85503  | 68805  | 14406.36 |
| total workers as per census 2001                        | 65498  | 55283  | 10215    |
| estimated informal sector population                    | 20005  | 13522  | 4191     |

Source: Census of India, analysis from consultants

There has been significant scale of employable population which is either into the informal sector or is unemployed with large number of male population.

**Figure 4-2: Informal sector in Ratlam**



Informal sectors near Haat Bazar

Informal sectors near Laxmi temple

## 4.2 Industries

There is a major industrial area of 133.86 Ha in the Ratlam which is under the District Trade and Industries Centre (DTIC), Ratlam. However Ratlam has many major industries like G.P.Wires, Ratlam Wires, IPCA laboratories which are proving support to the city in terms of employment and economy. But since last decade several industries like Jayant Vitamins, Sajjan Chemicals and steel and alloys industries are shutting down causing damage to the economy of the area. Major reason according to the industrial officials is the lack of infrastructure services. It has been declared that the Ratlam industrial area is under the one of the most Critical Polluted Areas identified by the Ministry of Environment and Forest.

According to current information from the District Trade and Industries Centre, following is the situation in Ratlam city area.

**Table 4-4: Industrial information of Ratlam**

|  |           |
|--|-----------|
| Total industrial area in Ratlam              | 133.86 Ha |
| Total number of working industries           | 203       |
| Number of closed industrial units            | 30        |
| Number of new industrial units under process | 14        |

Source: District Trade and Industries Centre, Ratlam

### 4.3 Tourism potential

#### 4.3.1 Tourism at regional level

There are some places of tourism interest in Ratlam & surrounding regions. Following section discusses the regional tourism potential around Ratlam.

- Places of interest:-**

**a. Bilpakeshwara temple at Bilpank**

The Bilpakeshwara temple is located at a distance of 18 kms, South-West direction from Ratlam. It is approached through a deviation fare-weather Road about 3 kms from Mhow-Neemach Highway. This temple is dedicated to Lord Siva and is built in Pachayatana variety. It was constructed around 10-11th Century A.D., over low Jagati consisting of plain moldings. This temple is built in Gurjara- Chalukyan style of architecture, a contemporary style of the Paramara temple architecture.

**b. Siva temple, Jhar**

Jhar is located at a distance of 12 kms, East of Bhatpachalana in Ratlam district of Madhya Pradesh. It is connected with Kachhalana Road with Laptiya - Sandala. Jhar means a 'water spring'. The name Jhar probably has been assigned to this place due to a Jharana on the site. Jhar possesses the ruins of a Siva temple of Bhumija style which are assignable to the Paramara period i.e., 11th century A.D. The sculptures of this temple are lying scattered around it.

**Table 4-5: Tourist spots around Ratlam**

| S. No. | Place                | Distance from Corporation | Specialty  |
|--------|----------------------|---------------------------|--|
| 1.     | Bilpakeshwara Temple | 18 km                     | Lord Shiva temple, rectangular in plan, Gurjara-Chalukyan style of architecture of 10-11 A.D                                   |
| 2.     | Siva temple, Jhar    | 12 km                     | Jhar possesses the ruins of a Siva temple of Bhumija style which are assignable to the Paramara period i.e., 11th century A.D. |

Source: www.ratlam.nic.in

- Places of devotion and picnic spots:-**

Ratlam city has several picnic spots in and around the Ratlam. There are many old temples which are famous for places of devotion. Dholawad dam is the one of

the famous picnic spots which is 15 km from the city of Ratlam. Following table provides the information on the places for devotion and picnic spots.

**Table 4-6: places of devotion and picnic spots**

| Sr | Place                   | Distance | Location   |
|----|-------------------------|----------|------------|
| 1  | Gadkhange Mata temple   | 30 km    | Bajna road |
| 2  | Kedareshwar Temple      | 20 Km    | Sailana    |
| 3  | Dholawad dam            | 15 km    | Dholawad   |
| 4  | Sagod Jain temple       | 10 km    | Ratlam     |
| 5  | Cactus Garden           | 20 Km    | Sailana    |
| 6  | Hussain Tekri           | 30 km    | Jaora      |
| 7  | Barbad Hanuman Temple   | 5 km     | Ratlam     |
| 8  | Kharmore bird sanctuary | 20 km    | Sailana    |

Source: [www.ratlam.nic.in](http://www.ratlam.nic.in)

### 4.3.2 Tourism in Ratlam

Ratlam city also has a few recreational places and few tourist attractions. "Kalika Mata Mandir" area is the famous tourist spot. Corporation organizes the yearly festival at this temple. Following are the other famous tourist spots within the corporation area.

- Triveni Temple - God Shankar temple with 100 year old time "Kund" facility.
- Mahalaxmi Temple
- Gad Kailash Temple near Amritsagar Lake.
- JVL temple.

Apart from temples city has one Ranjeet Vilas Palace which is historic palace under administrative usage.

According to municipal officials, during the Kalika Mata festival there are around 2 lakhs devotees per day come from surrounding regions of Ratlam. The Ratlam Municipal Corporation entirely looks after the festival arrangement with provision of tents at stadium near to the temple.

**Figure 4-3: Tourism Places in Ratlam**



Kalika Mata Temple



Laxmi Temple





Rajneet Vilas Palace



Kedareshwar Temple

As described earlier, there is significant tourism potential in and around Ratlam which can provide the economic benefit to the city. However, there is need to provide the effective physical and tourism infrastructure within the city. The city also has strong connectivity in terms of rail and road to the surround states and districts respectively. Ratlam can attract domestic tourism potential due to its pilgrimage importance. Hence there is requirement of considerable efforts from Ratlam Municipal Corporation for development of tourism activities within Ratlam. There only three number of major Hotels in Ratlam which may not sufficient to support the existing tourism potential.

## 5 Physical Infrastructure

### 5.1 Water Supply

#### 5.1.1 Water Supply System

Clean and safe drinking water supply is the major responsibility of the urban local body as it is directly related to the health of the citizens. Ratlam Municipal Corporation owns the drinking water supply responsibility within its limits. This section will focus on the current performance assessment and demand assessment for water supply system of Ratlam Municipal Corporation. This section will focus on the current performance assessment and demand assessment for water supply system of Ratlam Municipal Corporation. The details of water supply sources, storage and water availability is discussed as below.

#### 5.1.2 Water Supply Sources

Ratlam Municipal Corporation gets the water from the Dholawad water supply scheme. Under which at present it has the drinking water supply capacity of 22.0 MLD. After treatment total water supplied from the water treatment plant is 19.8 MLD. Apart from surface water of Dholawad Dam, the water demand is compensated through the ground water source with tubewells and handpumps.

#### 5.1.3 Water Supply treatment

The water treatment plant is having the capacity of 22.0 MLD. The treatment plant is provided with clariflocculator (2 nos.) with rapid sand gravity filter. After passing through clariflocculator and rapid gravity sand filters, Water is supplied after chlorination process of disinfection. Following table represents the details of water treatment plant. The ground water is supplied with proper chlorination plants provided near tubewell stations.

**Table 5-1: WTP details for Ratlam water supply**

| WTP details                | Nos | Unit | Capacity |
|----------------------------|-----|------|----------|
| Treatment Capacity         | 1   | MLD  | 22.00    |
| Clariflocculator           | 2   | MLD  | 13.60    |
|                            |     | MLD  | 9.00     |
| Rapid Sand gravity filters | 5   | MLD  | 4.50     |
| Chlorinator                | 1   | MT   | 0.90     |
| Backwash water tank        | 1   | ML   | 0.02     |

Source: UIDSSMT report and master plan, 2021.



### 5.1.4 Water Supply Storage and Distribution

In order to achieve the significant pressure at consumer level, water supply system in Ratlam has been distributed into two zones. The water is supplied on alternate day basis to each zone for the duration of 45 minutes of the day.

There are 14 numbers of Overhead tanks and 2 numbers of sump with total storage capacity of 13.4 Million Litres and 7.3 Million Litres respectively. Following table represents the total storage of water in the Ratlam water supply system.

**Table 5-2: Storage capacity for Ratlam water supply system**

| Sr. no. | Location                   | Type of storage | Capacity     |               |                |
|---------|----------------------------|-----------------|--------------|---------------|----------------|
|         |                            |                 | Lac Gallon   | Lac Litres    | Million litres |
| 1       | Gangasagar tank            | Sump            | 15.00        | 68.20         | 6.80           |
| 2       | Pologround tank            | OHT             | 7.50         | 34.10         | 3.40           |
| 3       | Gaushala tank              | OHT             | 7.50         | 34.10         | 3.40           |
| 4       | Mahavir nagar tank         | OHT             | 2.00         | 9.10          | 0.90           |
| 5       | Thavria Bazar tank         | OHT             | 2.00         | 9.10          | 0.90           |
| 6       | Katju Nagar tank           | OHT             | 2.00         | 9.10          | 0.90           |
| 7       | Gandhi nagar tank          | OHT             | 3.00         | 13.60         | 1.40           |
| 8       | Dindayal nagar tank        | OHT             | 0.75         | 3.40          | 0.30           |
| 9       | Dongre nagar tank          | OHT             | 1.00         | 4.50          | 0.50           |
| 10      | Alkapuri Tank              | OHT             | 0.50         | 2.30          | 0.20           |
| 11      | Devra Devnaayan nagar tank | OHT             | 1.00         | 4.50          | 0.50           |
| 12      | civic centre tank          | OHT             | 0.75         | 3.40          | 0.30           |
| 13      | Vinoba nagar tank          | OHT             | 0.50         | 2.30          | 0.20           |
| 14      | shanti nagar tank          | OHT             | 0.50         | 2.30          | 0.20           |
| 15      | Ruturaj Boosting station   | Sump            | 1.00         | 4.50          | 0.50           |
| 16      | Mukharjee nagar tank       | OHT             | 0.50         | 2.30          | 0.20           |
|         | <b>Capacity</b>            | <b>OHT</b>      | <b>29.50</b> | <b>134.10</b> | <b>13.40</b>   |
|         | <b>Capacity</b>            | <b>Sump</b>     | <b>16.00</b> | <b>72.70</b>  | <b>7.30</b>    |
|         | <b>Total Capacity</b>      | <b>Sump+OHT</b> | <b>45.50</b> | <b>206.80</b> | <b>20.70</b>   |

Source: Water works Department, Ratlam Municipal Corporation

Some areas of city do not have the access to direct water supply pipeline. In these areas water has been supplied through tankers. Also there are some areas especially in slum areas of Ishwar nagar, Jawra Road, in which drinking water facility has been compensated through tube-well connections and hand-pumps. However, some areas are not connected at all by any means of water supply. E.g. Bajna Basti, Shiv Nagar, Bhavani Nagar, Raam Nagar slum areas. Details regarding the tanker supply and tube-well and hand-pumps are provided in the table given below

**Table 5-3: Tanker supply for Ratlam**

| Number of tankers | Number of trips | Capacity in litres | Supply in litres per day | MLD   |
|-------------------|-----------------|--------------------|--------------------------|-------|
| 6 (Govt.)         | 35              | 3000               | 105000                   | 0.105 |
| 10 ( Private)     | 86              | 12000              | 1032000                  | 1.032 |

**Table 5-4: Ground water sources for Ratlam**

| Type of drinking water supply | Operating condition | Defunct condition | Total |
|-------------------------------|---------------------|-------------------|-------|
| Handpumps                     | 470                 | 158               | 628   |
| Tubewells                     | 231                 | 98                | 329   |

Source: Water works Department, Ratlam Municipal Corporation

Drinking water supply to the citizens of Ratlam from the hand-pumps and tube-wells is approximately 2.3 MLD.

### 5.1.5 Water Availability and supply

Dholawad dam is the main source of drinking water supply for Ratlam Municipal Corporation. Corporation has been allotted water rights for the 14158 ML, and current treated drinking water supply is 19.8 MLD. On an average 65 litres per capita per day (lpcd) is being supplied against the 135 lpcd.

**Table 5-5: Water Supply system in Ratlam**

| Description                       | Details                 |
|-----------------------------------|-------------------------|
| Source of Water Supply            | Dholawad Dam            |
| Distribution Network in kms       | 45 kms approx.*         |
| Description regarding Storage     | Capacity in Lakh Litres |
| <i>OHT</i>                        | 134 Lakh litres         |
| Sump (2 Nos)                      | 73 Lakh litres          |
| <b>Total Storage Capacity</b>     | <b>207 Lakh litres</b>  |
| Description regarding Connections |                         |
| <i>Domestic</i>                   | 27230 Nos               |
| <i>Commercial</i>                 | 168 Nos                 |
| <i>Industrial</i>                 | 2 Nos                   |
| <b>Total connections</b>          | <b>27400 Nos</b>        |
| No of tubewell                    | 329 Nos                 |
| No of Hand Pumps                  | 628 Nos                 |

Source: Water works department, Ratlam \*Municipal Corporation

\* There have been no records of the distribution line. The figures mentioned have been provided as per the municipal officials at par knowledge.

### 5.1.6 Water Connection details

Water works department has manual registration system for water connections for domestic, commercial and industrial units. There has been inconsistency in keep up the water connection details. Department has been able to give the connection details only for the year 2008-09. It is necessary to track down the number of additional connections provided in each year in order to assess the household level coverage and cost recovery of the water supply service. There is no metering system for connections except for the industrial connections.

Following table provides the water tax details applicable as per the type of connection:

**Table 5-6: Water tax as per type of connection**

| Type of connection | Water Tax Rs per month |
|--------------------|------------------------|
| Residential        | 90                     |
| Commercial         | 180                    |
| Industrial         | 29/ 1000 litres        |

*Source: Accounts Department, Ratlam Municipal Corporation*

### 5.1.7 Proposed Water Supply Scheme

In order to address water scarcity problem in Ratlam, Water supply scheme under UIDSSMT has been proposed and the project cost is Rs. 32.65 crore for the augmentation of drinking water source from Dholawad Dam.

The current water supply system, which was initiated in the year 1984, is capable to cater the drinking water demand till the year 2010. According to the UIDSSMT report currently ULB is getting water of 22.50 MLD from Dholawad Dam. Considering 25% loss in the treatment and transmission, water is being supplied at the rate of 65 lpcd. This augmentation scheme will supply the water at the rate of 135 lpcd and this scheme is designed for the future population of 390000 for the year 2040.

The augmentation scheme has been divided into two phases. First phase will be of 25.50 MLD for the next 15 years requirements and second stage will be of 39.5 MLD for the year 2040. The phase wise implementation will before for pumping and treatment plant provisions.

The major components of water supply scheme proposed are as follows:

- Intake well at Dholawad dam with capacity of 39.50 MLD with 15m diameter and 20.0m depth.
- Intermediate boosting station and raw water pumping main.
- Treatment plant with 1<sup>st</sup> stage of capacity of 24.50 MLD with 7 numbers of rapid sand filters and 1 no. of clarriflocculator.
- Clear water sump including the pumping house.
- Distribution network of 33 kms with diameter ranging from 600mm to 150mm

After 15 year i.e. during the 2nd stage there will additional capacity building to the raw water pumping, intermediate booster and water treatment plant.

### 5.1.8 Service adequacy

In order to assess the performance of the service, we need to have certain measurement tool for it. In order to measure the performance of a particular service, performance indicators are used. These indicators provide us the tangible information regarding the service provision and hence we can assess the loopholes or bottlenecks in the system. We can identify the areas of improvement and hence prioritize. Hence in order to assess the performance of the Ratlam municipal corporation following are the indicators for the water supply has been calculated in order to explain the present status of the service.

**Table 5-7: Performance Indicators for water supply**

| Sr.no | Performance Indicator   | Category                     | Units | Value               | Standard |
|-------|---|------------------------------|-------|---------------------|----------|
| 1     | Coverage of domestic supply connections   | access and coverage          | %     | 54.00               | 100      |
| 2     | Coverage of domestic supply connections   |                              | %     | 30 <sup>2</sup> .00 | 100      |
| 2     | Per capita supply of water  | service quality              | lpcd  | 65.00               | 135      |
| 4     | Continuity of water supply  |                              | Hours | 45 min              | 24       |
| 5     | Quality of water supplied   |                              | %     | NA                  | 100      |
| 6     | Efficiency in Redressal of customer complaints                                    | Efficiency and cost recovery | %     | NA                  | 100      |
| 7     | Extent of non-revenue water   |                              | %     | NA                  | 20       |
| 8     | Extent of metering of water connections   |                              | %     | 0                   | 100      |
| 9     | Storage capacity with respect to current supply                                   |                              | %     | 104.47              | 33       |
| 10    | Storage capacity with respect to proposed supply for the next fifteen year period |                              | %     | 52.27               | 33       |
| 11    | Available Treatment capacity with respect to supply                               |                              | %     | 100                 | 100      |
| 12    | Cost of electricity to operational expenditure                                    |                              | %     | 54.00               | 25       |
| 13    | Cost recovery (O&M) in water supply services                                      |                              | %     | 53.00               | 100      |
| 14    | Efficiency in collection of water supply related charges                          | %                            | 80.29 | 100                 |          |

Source: Analysis based on the data collected from Ratlam Municipal Corporation

<sup>2</sup> The coverage in slums are an estimated figure based on the primary sample survey conducted in slums by the consultants and verified from the corporation officers.

5.1.9 Demand assessment

Demand Assessment for Ratlam for current (2010-11), intermediate (2025-26) and ultimate year (2040-41) period under water supply sector has been worked out and is tabulated below.

**Table 5-8: Demand assessment for Water Supply sector**

| Particulars   | 2010-11        | 2015-16        | 2025-26        | 2035-36        | 2040-41        |
|---|----------------|----------------|----------------|----------------|----------------|
| Ratlam projected population   | 252274         | 270405         | 309723         | 353114         | 376337         |
| <b>Water Supply MLD</b>   | <b>2010-11</b> | <b>2015-16</b> | <b>2025-26</b> | <b>2035-36</b> | <b>2040-41</b> |
| Ratlam water demand @ 135 lpcd (15% loss considered)  | 39.17          | 41.98          | 48.08          | 54.82          | 58.43          |
| Existing and proposed Supply in MLD   | 22.50          | 45.50          | 45.50          | 59.00          | 59.00          |
| Gap   | 16.67          | -3.52          | 2.58           | -4.18          | -0.57          |
| 135 lpcd is proposed in Water Supply DPR prepared under UIDSSMT for ultimate 2040 pop.  |                |                |                |                |                |
| <b>Water Treatment Plant capacity in MLD</b>  | <b>2010-11</b> | <b>2015-16</b> | <b>2025-26</b> | <b>2035-36</b> | <b>2040-41</b> |
| Demand for treatment plant capacity   | 39.17          | 41.98          | 48.08          | 54.82          | 58.43          |
| Treated water supply  | 22.00          | 46.50          | 46.50          | 46.50          | 46.50          |
| Gap   | 17.17          | -4.52          | 1.58           | 8.32           | 11.93          |
| 24.5 MLD WTP at 1st phase and 13.50 MLD at 2nd stage after 15 years is proposed for water supply DPR prepared under UIDSSMT. Execution of the 1 <sup>st</sup> stage has been initiated in 2010. |                |                |                |                |                |
| <b>Water Distribution Network in Kms</b>  | <b>2010-11</b> | <b>2015-16</b> | <b>2025-26</b> | <b>2035-36</b> | <b>2040-41</b> |
| Existing and proposed distribution length in Kms  | 9.34           | 42.34          | 42.34          | 42.34          | 42.34          |
| Road length in Kms (existing and proposed)  | 197.60         | 405.60         | 464.60         | 529.70         | 564.50         |
| Gap   | 188.00         | 363.00         | 422.00         | 487.00         | 522.00         |
| Per Capita road length of 1.5 meter is considered for road length calculation<br>33 Km distribution length is proposed in Water Supply DPR prepared under UIDSSMT                               |                |                |                |                |                |
| <b>Water Service connections</b>  | <b>2010-11</b> | <b>2015-16</b> | <b>2025-26</b> | <b>2035-36</b> | <b>2040-41</b> |
| No of Assessments   | 50455          | 54081          | 61945          | 70623          | 75267          |
| No of service connections required  | 27230          | 37857          | 52653          | 70623          | 75267          |
| % service connections existing & proposed   | 54.0           | 70.00          | 85.00          | 100.00         | 100.00         |
| Gap   | 46.0           | 30.0           | 15.0           | 0.0            | 0.0            |
| Assessments are estimated on the basis of H.H size  |                |                |                |                |                |
| Service connections are proposed to be 100% by 2035-36.   |                |                |                |                |                |

| Particulars  | 2010-11        | 2015-16        | 2025-26        | 2035-36        | 2040-41        |
|--|----------------|----------------|----------------|----------------|----------------|
| <b>Storage capacity</b>  | <b>2010-11</b> | <b>2015-16</b> | <b>2025-26</b> | <b>2035-36</b> | <b>2040-41</b> |
| Existing & Proposed Storage Capacity in MLD  | 20.70          | 20.70          | 20.70          | 20.70          | 20.70          |
| Storage capacity demand in MLD   | 7.43           | 15.02          | 15.02          | 19.47          | 19.47          |
| <b>Gap in MLD</b>  | <b>0</b>       | <b>0</b>       | <b>0</b>       | <b>0</b>       | <b>0</b>       |
| No Storage tanks are proposed in Water Supply Scheme prepared under UIDSSMT as existing storage system is sufficient till year 2040. |                |                |                |                |                |

*Source: Analysis based on the data collected from Ratlam Municipal Corporation*

### 5.1.10 Sectoral Issues

The current water supply system is not adequate in terms of storage and distribution services. Due to insufficient amount and huge physical losses in the system, the pressure at the consumer end is very low.

Following are the sector issues for water supply system of Ratlam:

- Present water supply system is old and not adequate and requires improvement in terms of capacity and level of service.
- Per capita supply is low (65 lpcd) against the standard norm of 135 lpcd.
- Household Service coverage indicator represents coverage of about 92%. But is the reliability of this indicator is the major issue.
- Some areas have no water supply distribution network; water has been supplied by tankers in these areas.
- The Pressure in the Water supply distribution network is deficient; and also there are large numbers of illegal connections\*.
- Many connections are without water taps causing huge water losses during the supply hours.
- At many places withdrawal of water is directly by connecting the motor to the pipe there by reducing the effective pressure in the system.
- Need to maintain the computerized register for connections with new connections record according to the type of connections

## 5.2 Sewerage and Sanitation

### 5.2.1 Sewerage system in Ratlam

City does not have comprehensive underground sewerage scheme as on today. City has the only underground sewer network at the housing board colony region of about 2 Kms which is very old and overflowing at current situation.

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\* Information provided as per the municipal officials, there hasn't been survey for the identification of illegal connection.



### 5.2.2 Demand Assessment

Demand Assessment for Ratlam for current (2010-11), intermediate (2025-26) and ultimate year (2040-41) period under Sewerage sector has been worked out and is tabulated below.

**Table 5-9: Demand assessment for Sewerage sector**

| Particulars                      | 2010-11        | 2015-16        | 2025-26        | 2035-36        | 2040-41        |
|----------------------------------|----------------|----------------|----------------|----------------|----------------|
| Ratlam projected population      | 252274         | 270405         | 309723         | 353114         | 376337         |
| <b>Sewage generation</b>         | <b>2010-11</b> | <b>2015-16</b> | <b>2025-26</b> | <b>2035-36</b> | <b>2040-41</b> |
| Ratlam sewage generation         | 31.3           | 33.6           | 38.5           | 43.9           | 46.7           |
| Capacity of treatment plant      | 0.0            | 0.0            | 0.0            | 0.0            | 0.0            |
| Gap                              | 31.3           | 33.6           | 38.5           | 43.9           | 46.7           |
| <b>Sewer connections</b>         | <b>2010-11</b> | <b>2015-16</b> | <b>2025-26</b> | <b>2035-36</b> | <b>2040-41</b> |
| Proposed connections under UGSS  | 0              | 0              | 0              | 0              | 0              |
| Demand for sewer connections     | 35318          | 37857          | 43361          | 49436          | 52687          |
| Gap                              | 35318          | 37857          | 43361          | 49436          | 52687          |
| <b>Sewer Network in Kms</b>      | <b>2010-11</b> | <b>2015-16</b> | <b>2025-26</b> | <b>2035-36</b> | <b>2040-41</b> |
| Sewer Network in Kms (Proposed ) | 0.0            | 0.0            | 0.0            | 0.0            | 0.0            |
| Sewer Network Demand             | 168.0          | 344.8          | 394.9          | 450.2          | 479.8          |
| Gap                              | 168.0          | 344.8          | 394.9          | 450.2          | 479.8          |

Source: Source: Analysis by Consultants team

### 5.2.3 Sectoral Issues

- Existing sewer lines drain sewage into the nallah which is flowing within the city without any primary treatment.
- Open drainage system in the form of nallah causing the health hazards and unhygienic environment in terms of odour and mosquito nuisance.
- Some parts of the city have the underground drainage system (housing colony) but it has become out of service.
- The Amrut Sagar Lake has been the disposal point of the open drainage system of the city, damaging the beauty and biodiversity of the lake.
- City lacks public conveniences / sanitation facilities especially in the slum areas.

## 5.3 Storm Water Drainage

Currently the primary drains in the city are in the form of nallah which is flowing across the city. Major primary drains are having length 10km which have two disposal points. One nallah disposed off into the Amrtu sagar lake covering the most dense areas like Chandani Chauk, Manekk Chouk, and key market regions

of the city. Other part of nallah disposed outside the city crossing the Chhatrii Bridge passing through collector office, Kalika Mata temple and PHE office at Sharani pura. The sewer generated throughout the city ultimately disposed into the nallah thereby causing further contamination of nallah water.

Corporation has prepared the detailed project report of Rs. 20 Cr for development of drainage network with nallah channelization of 6 km and the additional storm water drainage network.

### 5.3.1 Demand assessment

Demand Assessment for Ratlam for current (2010-11), intermediate (2025-26) and ultimate year (2040-41) period under Storm water drainage sector has been worked out and is tabulated below.

**Table 5-10: Demand assessment for Storm Water Drainage sector**

| Storm water drainage in Kms | 2010-11 | 2015-16 | 2025-26 | 2040-41 |
|-----------------------------|---------|---------|---------|---------|
| Ratlam existing pucca SWD   | 0       | 0       | 0       | 0       |
| Storm water drain demand    | 480     | 527     | 604     | 689     |
| Gap                         | 480     | 527     | 604     | 689     |

*Source: Analysis by Consultants team*

### 5.3.2 Sectoral Issues

- City has inadequate storm water drains, as open nallah is the only primary drain in the city area.
- There is absence of secondary and tertiary drains in the city area for storm water drainage collection.
- Existing nallah carries both the storm and sewer water; hence there is no scope for recycling the storm water.
- Existing major nallahs does not have proper channelization.

## 5.4 Solid Waste Management

### 5.4.1 Generation and collection

According to ULB officials, Ratlam city generates 88 TPD of solid waste out of which 41 Tonnes Municipal Solid Waste is collected daily. For the ease in operation Ratlam Municipal Corporation has divided the area into three zones. These three zones are administered by the sanitary inspector under whom there are supervisors for each zone who manage the daily activities of the solid waste management of Ratlam city. Sweepers are managed under the supervisor to carry daily road sweeping. There are separate laborers provided for the collection activity of the municipal solid waste. There are total 265 permanent and 211 daily wage sweepers operated under the health department. For transportation of waste there are 18 drivers for tractor trailers and dumper placer.

**Table 5-11: Solid waste collection points**

| Number of zone | Number of wards | Number of dustbins |
|----------------|-----------------|--------------------|
| 1              | 16              | 35                 |
| 2              | 14              | 48                 |
| 3              | 19              | 56                 |
| <b>Total</b>   | <b>49</b>       | <b>139</b>         |

Source: Health Department

According to the municipal officials Ratlam city generates around 88 Metric ton of Garbage per day at the rate of 350 grams per capita per day (as per 2010 population of 245911). Waste is being collected in all the 49 wards but none of these wards have Door-Door collection and Waste segregation practices. There are 150 numbers of pushcarts for primary collection of waste. There are total 65 nos. of containers placed at roadside with capacity of 4.5 m<sup>3</sup>. The above table represents the number of dust-bins, i.e, waste collection points created at different points of the entire city which are in open state at almost all the places.

As a part of collection system, 12 tractor trailers (8-primary, 4-corporation) with daily 2-3 trips and one dumper placer are engaged in primary waste collection. In addition, there are 85 numbers of sweepers deployed for cleaning the waste water open drains (gutter).

#### 5.4.2 Disposal and treatment facilities

Ten tractor trailers are in operation for secondary waste collection system and disposal, each of the 12 tractor trailers makes 3 trips a day. The disposal site is located at "Khad adda, Karmadi road" at distance of 3 Kms from Ratlam Municipal Corporation office. Currently, the disposal site has no treatment facilities and the waste is being dumped without treatment. A lot of places in the city dumping of waste is being done on open and vacant plots.

**Table 5-12: Vehicles deployed for Secondary waste collection & disposal**

| Vehicle type                             | Number | Trips/ tractor | Adjustment factor of 0.4 for capacity of 2 Ton | Volumetric capacity in Ton |
|--|--------|----------------|--|----------------------------|
| Tractor trailer                          | 12     | 3              | 1.2  | 42                         |
| <b>Total waste disposed on open land</b> |        |                |  | <b>42.00</b>               |

Source: Health Department

#### 5.4.3 Proposed Scheme for Solid Waste Management

Ratlam Municipal Corporation has got the approval of Rs. 6 Cr from central government for the Trenching ground. The proposed area of the trenching ground is of 10 Ha which will also have sanitary landfill facilities. The health department has proposed the following equipments for municipal solid waste management.

- Wheel barrow-150 nos,
- Container (capacity-4 to 6 m<sup>3</sup>) - 100 nos.

The Ratlam municipal corporation has purchased the two dumpers (Tata-LP 1613) with capacity of 16 tonnes and 9 tonnes respectively.

#### 5.4.4 Adequacy of services

**Table 5-13: Performance Indicators for municipal solid waste**

| Sr. no | Indicator  | Percentage | Benchmark in percentage |
|--------|--|------------|-------------------------|
| 1      | Household level coverage of SWM services, through door-to-door collection of waste | 0          | 100                     |
| 2      | collection efficiency of MSW   | 47         | 100                     |
| 3      | Extent of segregation of waste   | 0          | 100                     |
| 4      | Extent of recovery of waste collected  | 0          | 80                      |
| 5      | Extent of scientific disposal of waste in landfill                                 | 0          | 100                     |
| 6      | Extent of Cost Recovery for the ULB in SWM services                                | 0          | 100                     |
| 7      | Efficiency in collection of SWM charges  | 0          | 90                      |

Source: computed based on the data collected from Ratlam Corporation

#### 5.4.5 Demand Assessment

Demand Assessment for Ratlam for current (2010-11), intermediate (2025-26) and ultimate year (2040-41) period under Solid Waste Management sector has been worked out and is tabulated below.

**Table 5-14: Demand assessment for Solid Waste Management sector**

| Particulars                       | 2010-11        | 2015-16        | 2025-26        | 2035-36        | 2040-41        |
|-----------------------------------|----------------|----------------|----------------|----------------|----------------|
| Ratlam projected population       | 252274         | 270405         | 309723         | 353114         | 376337         |
| <b>Solid waste generation</b>     | <b>2010-11</b> | <b>2015-16</b> | <b>2025-26</b> | <b>2035-36</b> | <b>2040-41</b> |
| Per capita waste in grams per day | 350.0          | 386.0          | 490.0          | 575.0          | 634.0          |
| Ratlam waste generation in MT     | 88.0           | 104.5          | 152.0          | 203.0          | 239.0          |
| Growth rate assumed               | 2.00%          |                |                |                |                |

Source: Analysis by Consultants team

Following table provides the demand assessment for the vehicles required for the street sweeping waste collection. The road length has been estimated with the assumption of 1.5m per capita as mentioned earlier.

**Table 5-15: Demand assessment for Vehicles (street sweeping and waste collection)**

| S. No | Description of Parameters              | Norms | 2010-11 | 2015-16 | 2025-26 | 2035-36 | 2040-41 |
|-------|--|-------|---------|---------|---------|---------|---------|
| 1     | Total Length of existing Roads(Km)     |       | 197     | 197     | 197     | 197     | 197     |
|       | Road length required (Km)              |       | 378     | 405     | 464     | 530     | 564     |
| 2     | Road length to be swept manually(Km)   |       | 378     | 405     | 464     | 530     | 564     |
|       | ▪Daily sweeping of length of road (Km) | 60%   | 227     | 243     | 279     | 318     | 339     |
|       | ▪ Alternate day sweeping (Km)          | 20%   | 76      | 81      | 93      | 106     | 113     |

| S. No  | Description of Parameters  | Norms                | 2010-11    | 2015-16    | 2025-26    | 2035-36    | 2040-41    |
|--|--|----------------------|------------|------------|------------|------------|------------|
|  | ▪ Once a week sweeping (Km)  | 20%                  | 76         | 81         | 93         | 106        | 113        |
| 3  | Sweepers Requirement at average of 1 per 750 running meter length / day on both sides sweeping |                      |            |            |            |            |            |
|  | ▪ Daily(Nos):  | 257km                | 303        | 324        | 372        | 424        | 452        |
|  | ▪ Alternate day(Nos):  | 85Km or 42.5Km/day   | 51         | 54         | 62         | 71         | 76         |
|  | ▪ Weekly(Nos):   | 85 Km or 12.15Km/day | 15         | 16         | 18         | 21         | 22         |
| 4  | Sweepers Requirement for Street sweeping ( Nos)  |                      | 369        | 394        | 452        | 516        | 550        |
| 5  | Push carts at 1 for gang of 2 workers(Nos)   |                      | 185        | 197        | 226        | 258        | 275        |
| 6  | Spare at (Nos)   | 10%                  | 19         | 20         | 23         | 26         | 28         |
| <b>Total no of pushcarts requirement for street sweeping (Nos)</b> |  |                      | <b>204</b> | <b>217</b> | <b>249</b> | <b>284</b> | <b>303</b> |

Source: Analysis by the Consultant team

Door-to-door collection facility has been assumed and waste shall be collected in Refuse Compactor Wheelie bins made of High Density Polyethylene (HDPE) with capacity of 1100 and 660 litres. The segregation of the waste shall be at the source i.e. at household level. Following table provides information related to demand assessment for the Refuse Compactor wheelie bins. Considering Indian scenario, the amount for organic waste is approx.50%. The density of the municipal solid waste is considered as 0.4T/m<sup>3</sup>.

**Table 5-16: Demand assessment for Refuse compactor wheely bins (HDPE) capacity 1100 liters and 660 liters**

| S. No | Description of Parameters  | Norms                                 | 2010-11 | 2015-16 | 2025-26 | 2035-36 | 2040-41 |
|-------|--|---------------------------------------|---------|---------|---------|---------|---------|
| 1     | MSW generation Projection in all Residential Households (TPD)    |                                       | 88.0    | 104.5   | 152.0   | 203.0   | 239.0   |
| 2     | Biodegradable content composition (TPD)                          | 50% by weight of total MSW generation | 44      | 52      | 76      | 101     | 119     |
| 3     | Non-Biodegradable (Recyclable, Recoverable, for RDF etc)(TPD)    | 35% by weight of total MSW gen/day    | 31      | 37      | 53      | 71      | 84      |
| 4     | Bulk density of MSW (T/m <sup>3</sup> )                          | 0.4 T/ m <sup>3</sup>                 | 0.4     | 0.4     | 0.4     | 0.4     | 0.4     |
| 5     | Storage volume for Biodegradable waste (m <sup>3</sup> )         | TPD/ Density                          | 110     | 131     | 190     | 253     | 298     |
| 6     | 50% additional storage volume to avoid spillage(m <sup>3</sup> ) | 50%                                   | 55      | 65      | 95      | 127     | 149     |

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| S. No  | Description of Parameters  | Norms                        | 2010-11    | 2015-16    | 2025-26    | 2035-36    | 2040-41    |
|--|--|------------------------------|------------|------------|------------|------------|------------|
|  | Total Biodegradable storage volume(m3)                                       |                              | 166        | 196        | 285        | 380        | 447        |
| 7  | Requirement of 1100 liters HDPE R.C wheely bin containers                    |                              |            |            |            |            |            |
|  | For Storage Volume (Nos)   | Storage Volume/ Bin Capacity | 151        | 178        | 259        | 346        | 407        |
|  | Spare at (Nos)   | 10%                          | 15         | 18         | 26         | 35         | 41         |
|  | <b>Total Bins (1100 ltr)</b>   |                              | <b>166</b> | <b>196</b> | <b>285</b> | <b>381</b> | <b>448</b> |
| 8  | With Bulk density of 0.4 T/m3 Storage volume for Non-Biodegradable waste(m3) | TPD/ Density                 | 77         | 91         | 133        | 177        | 209        |
| 9  | 50% additional storage volume to avoid spillage(m3)                          | 50%                          | 39         | 46         | 66         | 89         | 104        |
|  | Total Non Biodegradable MSW volume (m3)                                      |                              | 116        | 137        | 199        | 266        | 313        |
| 10   | Requirement of 660 liters HDPE R.C wheely bin containers                     |                              |            |            |            |            |            |
|  | For Storage Volume (Nos)   | Storage Volume/ Bin Capacity | 176        | 208        | 302        | 403        | 474        |
|  | Spare at (Nos)   | 10%                          | 18         | 21         | 30         | 40         | 47         |
|  | <b>Total Bins (660 ltr) (Nos)</b>  |                              | <b>193</b> | <b>229</b> | <b>332</b> | <b>444</b> | <b>522</b> |
| <b>Requirement of wheely bin R.C containers for storing waste collected from HTH from residential House hold</b> |  |                              |            |            |            |            |            |
|  | 1100 liters capacity (Nos):  | Say                          | <b>170</b> | <b>200</b> | <b>290</b> | <b>390</b> | <b>450</b> |
|  | 660 liters capacity (Nos):   | Say                          | <b>200</b> | <b>230</b> | <b>340</b> | <b>450</b> | <b>530</b> |

Source: Analysis by the Consultant team

Large containers of size 4.5 m<sup>3</sup> are required for Bulk Waste Collection at different places like commercial areas, markets, restaurants etc. It has been assumed that the MSW generation is 15% of the Total waste generated. The demand assessment for the Bulk Waste collection containers has been illustrated below:



**Table 5-17: Demand assessment for Bulk Waste Storage Containers**

| S. No  | Description of Parameters   | Norms             | 2010-11  | 2015-16  | 2025-26   | 2035-36   | 2040-41   |
|--|---|-------------------|----------|----------|-----------|-----------|-----------|
| 1  | Quantity of MSW generation from Bulk waste generating sources Projection  |                   |          |          |           |           |           |
|  | ▪ 15% of MSW generation (TPD)   | 15%               | 13.00    | 16.00    | 23.00     | 30.00     | 36.00     |
| 2  | Bulk density of MSW   | 0.4 T/m3          | 0.40     | 0.40     | 0.40      | 0.40      | 0.40      |
| 3  | Storage volume required with 50% additional storage to avoid spillage(m3) | TPD/ Density x1.5 | 48.75    | 60.00    | 86.25     | 112.50    | 135.00    |
| 4  | No. of 4.5 m3 Dumper placer containers requirement                        |                   |          |          |           |           |           |
|  | For Storage Volume (Nos)  |                   | 11       | 13       | 19        | 25        | 30        |
|  | Spare at (Nos)  | 10%               | 1        | 1        | 2         | 3         | 3         |
| <b>Total Requirement of 4.5 m3 Dumper placer containers for Bulk Waste</b> |   |                   | <b>8</b> | <b>8</b> | <b>12</b> | <b>14</b> | <b>21</b> |

Source: Analysis by Consultants team

The demand assessment of containers required for construction and demolition waste collections has been calculated in the following table. Construction and demolition waste generated has been assumed to be 10% of the total waste generated. The waste generated by street sweeping has been assumed at 5% of the Total waste generated. Containers of size 7.5 m3 are required to collect the waste generated from construction and demolition. Dumper-Placers are required for carrying the same to the dumping site. The density assumed for construction and demolition waste is 1 T/m3.

**Table 5-18: Demand assessment for Construction & Demolition Waste Storage Containers**

| S. No | Description of Parameters  | Norms                       | 2010-11 | 2015-16 | 2025-26 | 2035-36 | 2040-41 |
|-------|--|-----------------------------|---------|---------|---------|---------|---------|
| 1     | Projected Quantity of Construction and Demolition waste generation ie HH MSW and street sweeping waste | 15% of total MSW generation |         |         |         |         |         |
|       | Waste generation for HH (TPD)  |                             | 104     | 152     | 203     | 239     | 104     |
|       | Street sweeping (TPD)  | 5%                          | 5       | 8       | 10      | 12      | 5       |
|       | Construction & Demolition Waste (TPD)  | 10%                         | 10      | 15      | 20      | 24      | 10      |
|       | Total Waste (TPD)  |                             | 15      | 23      | 30      | 36      | 15      |
| 2     | Bulk density(m3)   | 1 T/m3                      | 1       | 1       | 1       | 1       | 1       |

| S. No  | Description of Parameters                            | Norms | 2010-11 | 2015-16 | 2025-26 | 2035-36 | 2040-41 |
|--|--|-------|---------|---------|---------|---------|---------|
| 3  | Storage volume required (m3)                         | 13    | 15      | 23      | 30      | 36      | 15      |
| 4  | Requirement of 7.5 m3 Dumper placer containers (Nos) |       |         |         |         |         |         |
|  | For Storage Volume (Nos)                             | 2     | 2       | 3       | 4       | 5       | 2       |
|  | Spare at (Nos)                                       | 10%   | 1       | 1       | 1       | 1       | 1       |
| Total Requirement of 7.5 m3 Dumper placer containers for Inert Waste (Nos) |  |       | 3       | 4       | 5       | 6       | 3       |

Source: Analysis by the Consultant team

#### 5.4.6 Sectoral Issues

- The Corporation is unable to meet the MSW 2000 Rules.
- City has not adopted Door-Door Collection and Waste Segregation system
- Lack of container and dustbin provision. There are road side collection points without any proper dustbin provisions.
- City has no designated and proper disposal facility. The waste is being dumped in open plots where it is left without being collected.
- City has inadequate vehicle capacity for transporting the waste to the disposal site.
- City has staff inadequacy and most of the conservancy workers are temporary workers

### 5.5 Road, Traffic and Transportation

#### 5.5.1 Regional Network

Ratlam Junction Railway Station is the divisional headquarters of the Western Railways located on the Delhi-Mumbai rail route. Ratlam is the major railway junction with broad gauge and meter gauge connecting it with various major and minor cities of the country. Ratlam is connected to major district centres of the state and Bhopal, Delhi, Mumbai, Surat, Baroda, Ajmer with railway network.

In terms of road transport, NH-79 passes through the Ratlam city connecting it with the Mahu and Nimach cities. Several main roads and sectional roads are connecting the Ratlam city to the surrounding growth centers.

#### 5.5.2 Current transportation situation of the city:

The city traffic and transport services are one of the major issues of Ratlam city. There is no city or public transport facility for Ratlam. At present, city transport services are facilitated by para-transit mode of transportation in terms of auto rickshaws and six seaters. Traffic officials claim that the number of private vehicles in the city has been increased three times in last 10-15 years. These

increased numbers of vehicles are causing the congestion problems in the major commercial areas of the city. The major city roads are not pedestrian friendly causing inconvenience for the pedestrians due to absence of footpaths and heavy traffic.

### 5.5.3 Public Transport system

- **Intercity public transport system**

For regional transport services there is one bus stand of MPSTRC which is under redevelopment stage. Additionally, there are private bus services operating on two major junctions of the city at Sailana and Javra Road.

There is absence of any public transport facility for movement within city. At present, city transport services are facilitated by para-transit mode of transportation in terms of auto rickshaws and six seaters.

- **Para-transit transportation**

The intercity public transport system in Ratlam is majorly through para transit mode of auto rickshaws and tempo rickshaws. The autorickshaws runs through entire city with major presence at Railway station and junction of commercial places like Do Batti and Shafer Saray. The auto rickshaws are charged on minimum fix rate of Rs.20 as there is no metered fare system in Ratlam.

Apart from auto rickshaws there are significant numbers of tempo-rickshaws which are the major source of low cost public transport in Ratlam. The seating capacity of tempo rickshaw is for 8 persons including the driver.

The tempo rickshaws originate from Railway station and Jawra Bus stand and runs through entire city with following locations:

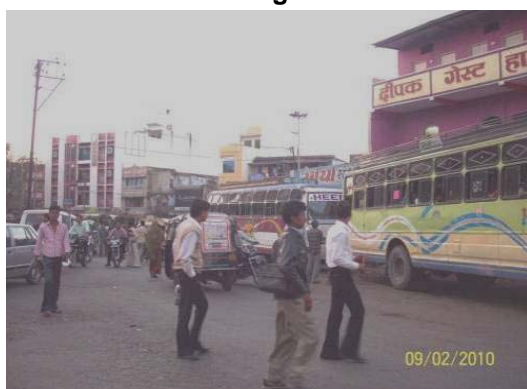
- Shafer Saray
- Do Batti
- Nagar Nigam
- Chandani Chauk
- Dalu moti BAZar
- Dhan Mandi
- Chaumukhi Pool
- Ghas Bazar
- Toph Khana- Ganesh Jevri
- Sailana Bus stand
- Ram Mandi
- Alkapuri
- Banjna Bus Stand

The minimum fare is of Rs. 3 while the maximum fare is Rs.5 which will be applicable for the distance of 5 to 6 km.

### 5.5.4 Bus Stand infrastructure

The MPSRTC bus stand at Mhau-Nimach road is under redevelopment stage on PPP basis. Due to space constraints, the private bus services are operated at major junctions of Sailana and Jawara Road. Due to lack of infrastructure for these bus stands are creating the congestion problem as they are at major junctions of the city. There is proposal for the new bus stand at Javra road which will be used both by MPSRTC and private bus operators.

**Figure 5-1: Public Transport facilities in Ratlam**



Javara Bus Stand



Tempo auto rickshaw at Sailana Bus stand

### 5.5.5 Demand Assessment: Roads

Ratlam is well connected to Indore, Ujjain, Baroda, Neemuch etc. through various National and State Highways. Most of the internal roads existent in Ratlam are Bitumen roads. The roads are in good condition whereas some are in poor condition with potholes.

Currently the public works department is responsible for the construction and maintenance of roads within Ratlam. Most of the major city roads are cement concrete roads. The road widths in major commercial regions having very high density are in the range of 18-22 m (ROW).

Major commercial roads are as follows:

**Table 5-19: Length and width of major commercial roads of Ratlam**

| Sr.No. | Name of the road                                | Current width in "m" |
|--------|---|----------------------|
| 1      | Dayanand marg (Haat road to Tripoliya gate)     | 18-22                |
| 2      | Subhash marg ( upto raniji temple)              | 18-22                |
| 3      | Nolaipura                                       | 15-18                |
| 4      | Naharpura (Dalumodi chauk to Manak chauk)       | 15-18                |
| 5      | Manak Chauk (upto Ghas Bazar)                   | 9-12                 |
| 6      | Daulatganj Marg (upto Ghas Bazar)               | 9-12                 |
| 7      | Ghaas bazaar                                    | 18-22                |
| 8      | kasera bazar marg                               | 15-18                |
| 9      | Dhanmadi (Naharpura chauk to Hardevlala Peepli) | 18-22                |
| 10     | Neemchauk                                       | 15-18                |
| 11     | Bajajkhana marg                                 | 12-15                |

| Sr.No. | Name of the road  | Current width in "m" |
|--------|---|----------------------|
| 12     | Daalumodi chauk to Bajajkhana marg                            | 9-12                 |
| 13     | Tilak Marg  | 9-12                 |
| 14     | Chaumukhi pul marg (ghas bazar to chandani chauk)             | 18-20                |
| 15     | Lakkadpitha marg (chandani chauk to Bajna bus stand)          | 15-18                |
| 16     | Biharilal marg (Naahrpura chauk to Purneshwar Mahadev temple) | 15-18                |
| 17     | Mochipura marg (surajmaur to nallah)                          | 9-12                 |
| 18     | Bharaava kuyi marg (Kasera bazar to ghaas bazar)              | 15-18                |
| 19     | Rangrez marg  | 10-12                |

Source : Ratlam Master Plan 2021

Figure 5-2: congestion at Roads in Ratlam



City has total road network of approximately 197.6 km as per the information provided by the Municipal Corporation. The existing road details of Ratlam are as follows:

Table 5-20: Performance Indicators for roads in Ratlam

| Type of the Road                 | Figure       | Unit         |
|----------------------------------|--------------|--------------|
| CC road                          | 11.67        | Km           |
| Bitumen Road                     | 120.00       | Km           |
| WBM Road                         | 53.46        | Km           |
| Motorable <sup>3</sup>           | 12.47        | Km           |
| <b>Total length of the road</b>  | <b>197.6</b> | <b>Km</b>    |
| Road length density (Area)       | 5.04         | Km / Sq. km  |
| Road length density (Population) | 0.78         | M per capita |

Source : Public works Department, Ratlam Municipal Corporation

The current per capita road length in m is 0.78 m against the standard of 1.5 m per capita length. The total road length with respect to municipal corporation area is 5 km per sq.km.

<sup>3</sup> Motorable road, as defined by Municipal Official, is the road which is the kind of WBM road lower in quality but better than the kuchha road.

Demand Assessment for Ratlam for current (2010-11), intermediate (2025-26) and ultimate year (2040-41) period under Road sector has been illustrated below. The demand has been estimated on the basis 1.5m length per capita.

**Table 5-21: Demand assessment for Road sector**

| Particulars                  | 2010-11        | 2015-16        | 2025-26        | 2035-36        | 2040-41        |
|------------------------------|----------------|----------------|----------------|----------------|----------------|
| Ratlam projected population  | 252274         | 270405         | 309723         | 353114         | 376337         |
| <b>Road network in Kms</b>   | <b>2010-11</b> | <b>2015-16</b> | <b>2025-26</b> | <b>2035-36</b> | <b>2040-41</b> |
| Existing road network in Kms | 197.6          | 197.6          | 197.6          | 197.6          | 197.6          |
| Road length demand in Kms*   | 378.0          | 405.0          | 464.0          | 529.0          | 564.0          |
| Gap in Kms                   | 180.0          | 208.0          | 266.0          | 332.0          | 366.0          |

Source: Analysis by Consultants team

### 5.5.6 Sectoral Issues

- Congestion at major road junctions in the city area, e.g. Sailana road junction, Javara road crossing (Gulmohar Chauk) and Do batti, Daat ki pool area.
- Encroachments at the commercial areas causing the congestion at major market places like Chandani chauk, Ghas Bazar.
- Congestion at the major roads connecting to the city area, like Indore road, Mahu road, Mandsaur Road and Nagda Road.
- Most of the Slum areas do not have proper roads and connectivity. Some of the roads are kuchha having potholes and also prone to water logging.
- Signals at the major junctions are not in operational stage.

## 5.6 Street lighting

Ratlam has 7575 street lights positioned all over the municipal areas out of which 299 street lights are in not in working position. Total connected load from all the heavy and light bulb street lights is 1442 KW.

The present status of street lighting can be summarized as in the following table.

**Table 5-22: Connected load details.**

|                                 |         |     |
|---------------------------------|---------|-----|
| <b>40 W Tube Lights</b>         |         |     |
| Number of lamps                 | 1712    | nos |
| Wattage of each lamp            | 40      | W   |
| Total Connected Load            | 68480   | W   |
| <b>250 W Sodium Vapor Lamps</b> |         |     |
| Number of Lamps                 | 3955    | nos |
| Wattage of each Lamp            | 250     | W   |
| Wattage of Ballast              | 30      | W   |
| Total Wattage of 1 lamp         | 280     | W   |
| Total Load                      | 1107400 | W   |

\* Per Capita road length of 1.5 meter is considered for calculation.



|                                      |                 |            |
|--------------------------------------|-----------------|------------|
| <b>150 W Sodium Vapor Lamps</b>      |                 |            |
| Number of Lamps                      | 174             | nos        |
| Wattage of each Lamp                 | 150             | W          |
| Wattage of Ballast                   | 30              | W          |
| Total Wattage of 1 lamp              | 180             | W          |
| Total Load                           | 31320           | W          |
| <b>70 W Sodium Vapor Lamps</b>       |                 |            |
| Number of Lamps                      | 549             | nos        |
| Wattage of each Lamp                 | 70              | W          |
| Wattage of Ballast                   | 30              | W          |
| Total wattage of 1 lamp              | 100             | W          |
| Total Load                           | 54900           |            |
| <b>250 W Metal light fitting</b>     |                 |            |
| Number of Lamps                      | 424             | nos        |
| Wattage of each Lamp                 | 250             | W          |
| Wattage of Ballast                   | 30              | W          |
| Total wattage of 1 lamp              | 280             | W          |
| Total Load                           | 118720          |            |
| <b>125 W vapour light fitting</b>    |                 |            |
| Number of lamps                      | 43              | nos        |
| Wattage of each Lamp                 | 125             | W          |
| Wattage of Ballast                   | 30              | W          |
| Total wattage of 1 lamp              | 155             | W          |
| Total Load                           | 6665            | W          |
| <b>85 W CFL fitting</b>              |                 |            |
| Number of lamps                      | 27              | nos        |
| Wattage of each Lamp                 | 85              | W          |
| Total Load                           | 2295            | W          |
| <b>72 W CFL fitting</b>              |                 |            |
| Number of lamps                      | 681             | nos        |
| Wattage of each Lamp                 | 72              | W          |
| Total Load                           | 49032           | W          |
| <b>250 W High mast fitting</b>       |                 |            |
| Number of lamps                      | 5               | nos        |
| Wattage of each Lamp                 | 250             | W          |
| Total Load                           | 1250            | W          |
| <b>400 W Metal light fitting</b>     |                 |            |
| Number of lamps                      | 5               | nos        |
| wattage of each lamp                 | 400             | W          |
| Total Load                           | 2000            | W          |
| <b>total number of street lights</b> | <b>7575</b>     | <b>nos</b> |
| <b>Failed street lights</b>          | <b>299</b>      | <b>nos</b> |
| <b>total working street lights</b>   | <b>7276</b>     | <b>nos</b> |
| <b>Total Connected Load</b>          | <b>1442062</b>  | <b>W</b>   |
|                                      | <b>1442.062</b> | <b>KW</b>  |

Source: Department of street lights, Ratlam Municipal Corporation

As a part of energy saving initiative Ratlam Municipal Corporation has taken some efforts by providing the CFL tubes for street lighting purpose of different wattages. There are 706 numbers of CFL tube lights out of which 681 numbers are 72 watt CFL and 25 numbers are of 85 watt CFL.

**Table 5-23: Energy saving units for street lighting**

| Type of energy saver | 72 W | 85 W |
|----------------------|------|------|
| CFL lights           | 681  | 25   |

Source: Analysis by Consultants team

### 5.6.1 Adequacy of services

**Table 5-24: Performance Indicators regarding Street Lighting**

| Indicators  | Unit    | Current status | Norms /Standards |
|---|---------|----------------|------------------|
| Spacing between lamps (including kutcha roads)      | Meters  | 27             | 30               |
| Proportion of tube lights W.R.T to total            | Percent | 24             | 60               |
| Proportion of high power fixtures W.R.T to total    | Percent | 76             | 40               |
| Proportion of energy saving light fittings to total | Percent | 10             | 100              |

Source : computed based on the data collected from Ratlam Municipal Corporation

### 5.6.2 Demand Assessment

Demand Assessment for Ratlam for current (2010-11), intermediate (2025-26) and ultimate year (2040-41) period under Street lighting sector has been worked out and is tabulated below.

**Table 5-25: Demand assessment for Street lighting sector**

| Street Lighting                          | 2010-11 | 2015-16 | 2025-26 | 2040-41 |
|--|---------|---------|---------|---------|
| Ratlam existing lights                   | 7276    | 7276    | 7276    | 7276    |
| Road length in Kms                       | 197.6   | 392.0   | 441.0   | 519.0   |
| Street light demand @ one light per 30 m | 6587    | 13090   | 14730   | 17316   |
| Gap                                      | 0       | 5814    | 7454    | 10040   |

Source : computed based on the data collected from Ratlam Municipal Corporation

### 5.6.3 Sectoral issues

- Proportion of tube lights is very less, i.e. 24% of the existing lights.

Most of the street lights are old need to be replaced in order to achieve better energy savings.

## 6 Socio-Economic Infrastructure

### 6.1 Health

Ratlam is the district headquarters and hence caters to health infrastructure needs of surrounding villages also. There is one district hospital, children's hospital, mission hospital and Ayurvedic hospital in Ratlam. Besides this there are eight maternity cum nursing home.

**Table 6-1: Existing health Facilities**

| Type of Health Centre      | Nos.          |
|----------------------------|---------------|
| Government Hospital        | 01 (500 beds) |
| Primary Health Centers     | 03            |
| Children's Hospital        | 01            |
| Mission Hospital           | 01            |
| Ayurvedic Hospital         | 01            |
| Maternity cum Nursing Home | 08            |
| Private Hospitals          | 13            |
| Private Nursing Homes      | 09            |

Source: District Hospital, Ratlam and Master Plan report

#### 6.1.1 Demand assessment

Ratlam has sufficient health infrastructure facilities to cater present population whereas it needs to be strengthened to cater the future population demand.

Demand Assessment for Ratlam for current (2010-11), intermediate (2025-26) and ultimate year (2040-41) period under Health Infrastructure sector has been worked out and is tabulated below.

**Table 6-2: Demand assessment for Health Infrastructure sector**

| Particulars                         | 2010-11          | 2015-16   | 2025-26    | 2035-36    |
|-------------------------------------|------------------|-----------|------------|------------|
| Ratlam projected population         | 252274           | 270405    | 309723     | 353114     |
| General Hospital demand             | 1                | 1         | 1          | 1          |
| General Hospital existing           | 1                | 1         | 1          | 1          |
| <b>General Hospital Gap</b>         | <b>0</b>         | <b>0</b>  | <b>0</b>   | <b>0</b>   |
| No of dispensaries required         | 17               | 18        | 21         | 24         |
| No of dispensaries existing         | 27               | 27        | 27         | 27         |
| <b>Dispensaries Gap</b>             | <b>0</b>         | <b>0</b>  | <b>0</b>   | <b>0</b>   |
| No of beds existing                 | 500 <sup>4</sup> | 500       | 500        | 500        |
| Bed requirements @ 1 per 500 person | 505              | 541       | 619        | 706        |
| <b>Bed requirements Gap</b>         | <b>5</b>         | <b>41</b> | <b>119</b> | <b>206</b> |

Source: analysis from consultants

<sup>4</sup> District hospital has 500 nos. of bed. Additionally there are beds in the other private hospitals existing in the city.

## 6.1.2 Sectoral Issues

- Ratlam city have the sufficient number of health facilities but there is no separate hospital for pandemic diseases in terms of isolation facilities. For such provisions citizens depends upon the cities like Baroda, Indore.
- City has the large number of orthopedic and eye treatment hospitals but lack the particular hospitals for cancer and heart treatment facilities.

## 6.2 Education

### 6.2.1 Existing school infrastructure

Ratlam has altogether 436 schools spread over 49 wards. The ward wise distribution of schools is listed below.

**Table 6-3: Existing school Facilities**

| Ward no.                       | No. of schools | Ward no. | No. of schools | Ward no.   | No. of schools |
|--------------------------------|----------------|----------|----------------|------------|----------------|
| 1                              | 22             | 18       | 9              | 35         | 0              |
| 2                              | 8              | 19       | 24             | 36         | 9              |
| 3                              | 9              | 20       | 17             | 37         | 17             |
| 4                              | 13             | 21       | 5              | 38         | 11             |
| 5                              | 5              | 22       | 6              | 39         | 15             |
| 6                              | 5              | 23       | 17             | 40         | 14             |
| 7                              | 2              | 24       | 12             | 41         | 0              |
| 8                              | 13             | 25       | 6              | 42         | 3              |
| 9                              | 4              | 26       | 5              | 43         | 0              |
| 10                             | 21             | 27       | 10             | 44         | 2              |
| 11                             | 3              | 28       | 23             | 45         | 0              |
| 12                             | 9              | 29       | 1              | 46         | 13             |
| 13                             | 16             | 30       | 14             | 47         | 1              |
| 14                             | 9              | 31       | 24             | 48         | 3              |
| 15                             | 9              | 32       | 5              | 49         | 2              |
| 16                             | 1              | 33       | 5              |            |                |
| <b>Total number of schools</b> |                |          |                | <b>436</b> |                |

Source: District institute of education and training, Ratlam

There are no provisions of toilet in boys school, while only six number of girls high school have been provided the toilet facilities. Following table provides the information related to the toilet facilities in government school in Ratlam.

Ratlam city has five number of colleges which are providing higher education in Arts, science and commerce sector. The only Industrial Training Institute (I.T.I) is located on the Sailana Road.

In the planning sector no.5, in master plan of Ratlam there has been provision of 10 Ha land for engineering college.

**Table 6-4: Toilets facilities in Govt Schools in Ratlam**

| Particulars                 | Girls School | Co-Education school | Boys school | Total |
|-----------------------------|--------------|---------------------|-------------|-------|
| no. of Govt schools         | 10           | 60                  | 2           | 72    |
| No. of enrolments           | 2162         | 9081                | 137         | 11380 |
| School with toilet facility | 6            | 40                  | nil         | 46    |

Source: DPR of IHSDP, Ratlam Municipal Corporation

## 6.2.2 Demand assessment

Demand Assessment for Ratlam for current (2010-11), intermediate (2025-26) and ultimate year (2040-41) period under Education Infrastructure sector has been worked out and is tabulated below.

**Table 6-5: Demand assessment for Education Infrastructure sector**

| Particulars                         | 2010-11  | 2015-16  | 2025-26  | 2035-36  | 2040-41  |
|-------------------------------------|----------|----------|----------|----------|----------|
| Ratlam projected population         | 252274   | 270405   | 309723   | 353114   | 376337   |
| No of primary schools existing      | 194      | 194      | 194      | 194      | 194      |
| Demand for primary schools          | 50       | 54       | 62       | 71       | 75       |
| <b>Primary School Gap</b>           | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> |
| Higher Secondary School             | 57       | 57       | 57       | 57       | 57       |
| Demand for Higher Secondary schools | 34       | 36       | 41       | 47       | 50       |
| <b>Higher Secondary School Gap</b>  | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> |
| Existing colleges                   | 3        | 3        | 3        | 3        | 3        |
| Demand for colleges                 | 2        | 2        | 2        | 3        | 3        |
| <b>Colleges Gap</b>                 | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> |

Source: Analysis using standards from UDPI

## 6.2.3 Sectoral Issues

- Existing higher schools are predominantly middle schools which need to be upgraded.
- Lack of technical education sector in terms of engineering or polytechnic sectors, as students predominantly dependent on the Indore city.

## 6.3 Recreation

### 6.3.1 Existing recreational facilities in Ratlam

For recreation purposes, Ratlam city has a park along with a water body at Zaali Lake near Kalika mata temple. There are other two lakes Amrut Sagar and Barbad within the city. There is existing stadium near Zaali Lake which is utilized for several fair purposes. Apart from these there are 11 children's garden and two corporation gardens in the Ratlam city.

There are several proposals for recreational sector under Ratlam master plan. There has been allotment of 22 Ha land for regional sport activity at Kharchod road under which there are proposal for stadium, swimming pool and other sports facilities. Apart from above proposals one swimming pool is proposed near the Amrut Sagar Lake in the Ratlam City.

Figure 6-1: Recreational Spaces



Garden near Kalika Mata temple



Zaali Lake

### 6.3.2 Demand assessment

Demand Assessment for Ratlam for current (2010-11), intermediate (2025-26) and ultimate year (2040-41) period under Recreational facilities has been worked out and is tabulated below.

Table 6-6: Demand assessment for Recreational facilities

| Particulars  | 2010-11       | 2015-16       | 2025-26       | 2035-36       |
|--|---------------|---------------|---------------|---------------|
| Ratlam projected population                            | 252274        | 270405        | 309723        | 353114        |
| <b>Area demand for recreational Spaces in Hectares</b> | <b>353.18</b> | <b>378.57</b> | <b>433.61</b> | <b>494.36</b> |
| <b>Community Hall in Nos</b>                           |               |               |               |               |
| Community Hall existing                                | 20            | 20            | 20            | 20            |
| Community hall demand                                  | 17            | 18            | 21            | 24            |
| <b>Gap</b>   | <b>0</b>      | <b>0</b>      | <b>1</b>      | <b>4</b>      |

Source: Analysis using standards from UDPI

### 6.3.3 Sectoral Issues

- City has inadequate recreational spaces like parks and multiplexes
- Picnic spots like existing lakes are untapped for attracting tourists.



## 7 Slums and urban poverty

As per Census of India, the slum areas are broadly defined as: -

(i) All specified areas in a city or city notified as 'Slum' by State/Local Government and UT Administration under any Act including a 'Slum Act'.

(ii) All areas recognized as 'Slum' by State/Local Government and UT Administration, Housing and Slum Boards, which may have not been formally notified as slum under any act;

(iii) A compact area of at least 300 persons or about 60-70 households of poorly built congested tenements, in unhygienic environment usually with inadequate infrastructure and lacking in proper sanitary and drinking water facilities.

### 7.1 Slums in Ratlam

As per the information provided by Municipal Corporation there are 32 slum pockets notified by Ratlam Municipal Corporation with population of 65155. The last survey for slum pockets and population was done in 2001. However, as of now the population would have increase significantly. According to the estimates current slum population will be around 96000. Following table provides the details of Slums in Ratlam:

**Table 7-1: slums and slum population in Ratlam**

| Sr.No. | Name of the Slum  | Ward No | Population |
|--------|---|---------|------------|
| 1      | Gandhi Nagar  | 1       | 4166       |
| 2      | Laxman Pura   | 2       | 3300       |
| 3      | Rajgarh   | 4       | 2220       |
| 4      | Jawahar Nagar   | 6       | 602        |
| 5      | Viriya Khadi  | 7       | 2650       |
| 6      | Sakhwal Nagar Harijan Basti                               | 8       | 824        |
| 7      | Amliya Bharu  | 9       | 370        |
| 8      | Subhash Nagar   | 10      | 5153       |
| 9      | Rajendra Nagar, Hat ki choki, Patel colony, Bhami Mohalla | 11      | 3723       |
| 10     | Ishwar Nagar  | 12      | 7192       |
| 11     | Gawali Mohalla Silaweto to vas                            | 14      | 3993       |
| 12     | Moti Nagar  | 15      | 2713       |
| 13     | Chemaria naka   | 16      | 741        |
| 14     | Ojha Khali  | 17      | 562        |
| 15     | Juni Kalel sari   | 18      | 685        |
| 16     | Dhabai Jee Ka Vas Dani Pura                               | 19      | 369        |
| 17     | Mewati Pura, Bajrang Nagar, Dilip Nagar                   | 20      | 3970       |
| 18     | Homeguard colony  | 21      | 1189       |
| 19     | Jawro Road  | 22-23   | 6441       |
| 20     | Dat ki Pul Rafik ka makan kay aas-pass                    | 24      | 370        |

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| Sr.No.       | Name of the Slum                      | Ward No | Population   |
|--------------|---------------------------------------|---------|--------------|
| 21           | Raj bai ki Jeen                       | 25      | 220          |
| 22           | Behind New road, Alongside of Nallah  | 26      | 280          |
| 23           | Chingi Pura                           | 29      | 539          |
| 24           | Sherani Pura                          | 30      | 1721         |
| 25           | Hati Khana                            | 32      | 227          |
| 26           | Do Muh ki Bawdi, Naher Pura Gali No-1 | 33      | 350          |
| 27           | Pinjar wadi                           | 36      | 227          |
| 28           | Goshala, eidgah, kalali road          | 41      | 424          |
| 29           | Sutaro ka vas, kumhari kuva           | 42      | 621          |
| 30           | Maratho ka vas                        | 43      | 1830         |
| 31           | Momin Pura                            | 44-45   | 6543         |
| 32           | Hat Road Khatik Mohalla               | 46      | 940          |
| <b>Total</b> |                                       |         | <b>65155</b> |

Source: DPR Slum Environmental Sanitation Initiative in Municipal Area Under IHSDP

Ratlam Municipal Corporation has prepared the Detailed Project Report for Slum Environmental Sanitation under IHSDP with estimated cost of Rs.355.42 Lacs. But, this project was not implemented due to pending approval from the central government. The City Support Unit has been preparing the detailed project report for two slums named Mominpura and Subhashnagar under which assessment of basic service provisions and biometric survey of each household has been carried out.

### 7.1.1 BPL population in Ratlam

According to BPL survey conducted by Municipal Corporation in 2009 there are 18008 number of household are under below poverty line. Maximum number of BPL households is under ward no.20 having 1253 nos. of households. Following table provides the information regarding BPL survey:

**Table 7-2: BPL population details**

| WARD NO. | TOTAL HH under BPL | WARD NO. | TOTAL HH under BPL |
|----------|--------------------|----------|--------------------|
| 1        | 431                | 26       | 31                 |
| 2        | 333                | 27       | 114                |
| 3        | 376                | 28       | 180                |
| 4        | 726                | 29       | 407                |
| 5        | 211                | 30       | 460                |
| 6        | 205                | 31       | 216                |
| 7        | 1182               | 32       | 171                |
| 8        | 830                | 33       | 189                |
| 9        | 79                 | 34       | 118                |
| 10       | 948                | 35       | 172                |
| 11       | 412                | 36       | 207                |
| 12       | 739                | 37       | 141                |
| 13       | 716                | 38       | 237                |
| 14       | 540                | 39       | 96                 |
| 15       | 379                | 40       | 42                 |
| 16       | 480                | 41       | 418                |
| 17       | 505                | 42       | 246                |
| 18       | 309                | 43       | 284                |

| WARD NO. | TOTAL HH under BPL | WARD NO.     | TOTAL HH under BPL |
|----------|--------------------|--------------|--------------------|
| 19       | 434                | 44           | 467                |
| 20       | 1253               | 45           | 211                |
| 21       | 490                | 46           | 429                |
| 22       | 338                | 47           | 212                |
| 23       | 566                | 48           | 85                 |
| 24       | 199                | 49           | 58                 |
| 25       | 136                | <b>Total</b> | <b>18008</b>       |
| 26       | 31                 |              |                    |

Source: Ratlam Municipal Corporation

### 7.1.2 Access to services in slums

The municipal corporation does not have record of infrastructure facilities in each of the slum. In absence of data, the consultants have conducted a sample primary survey in order to ascertain the level of service provision in slums in Ratlam. The consultants visited 12 slums in city namely Laxmanpura, Rajgadh, Subhashnagar, Haatki Chauki, Ishwar nagar, Moti Nagar, Jawra Road (Shivshankar Colony), Sherani Pura, Maratho ka vaas, Jawahar nagar, Viriyakhedi and Momin pura. The major findings of the primary survey are as following.

- Most of the slums are dependent of tubewells and handpumps for drinking water facilities. However the quality of water is tubewells is brackish and higher in salt content and hence not fit for drinking water purposes.
- Approximately 30% of slum settlements have piped water and are mostly having public taps. Around 8- 10 households are dependent on one public tap in most of the cases.
- There are no sewerage facilities in any of the slums and the sewerage water from kitchen and bathrooms are drained into open drains (Gutter) causing unhygienic and unclean conditions.
- There is no collection of Solid waste from majority of the slums on daily basis. Nor is there any provision of collection bins where the solid waste generated can be dumped. Most of the slums dispose of the solid waste in the drains or on open plots nearby.
- Approximately 45% of households in slums do not have any access to toilet facilities and follow the practice of Open defecation.
- The condition of roads and streetlighting facilities in majority of slums is considerably well.
- Most of the slums have access to primary education through Anaganwadi and Government schools.
- There is absence of any kind of health facilities in all the slums. There are no facilities even in form of Primary health centres, clinics or maternity services.

**Table 7-3: Infrastructure status and service provision in Slums**

| Infrastructure status in slums    |       |
|-----------------------------------|-------|
| Total Number of wards             | 49    |
| Total number of zones             | 3     |
| Total number of slums             | 32    |
| Total Number of HH                | 13400 |
| Total number of community toilets | 36    |

| Status of community toilets within the municipal area                                     |    |
|---|----|
| Total number of community toilets   | 36 |
| Number of Community toilets having permanent water supply facility in the slums           | 3  |
| Number of Community toilets having bath facility in the slums                             | 3  |
| Number of Community toilets connected to septic tank or sewerage system in the slums      | 36 |
| Number of Community toilets operated and maintained by municipal corporation in the slums | 33 |
| Number of Community toilets O & M by Sulabh in the slums                                  | 3  |
| Number of Community toilets users are paying for services in the slums                    | 3  |

Source: Ratlam Municipal Corporation

There are 36 numbers of community toilets in Ratlam city out of which 33 numbers of community toilets are operated by Municipal Corporation and 3 numbers are operated by Sulabh. Only 3 numbers of community toilets are having water supply and bathing facility.

Figure 7-1: Services to urban poor



Figure 7-1: Services to urban poor



### 7.1.3 Sectoral issues:

- Documentation of slums has been done and IHSDP project report has been prepared but it has not been approved yet.
- Direct Household water connection coverage is less leading to the illegal connections hence accounting apparent losses to the Non-revenue Water.
- At number of places, the public taps for drinking water supply are without the provision of the taps, causing huge amount of water losses in terms of physical losses.
- Sanitation facility in slum area is very deprived affecting the health of the urban poor of the Ratlam.
- Access to the basic health infrastructure facilities is dismal and poor.



## 8 Housing

### 8.1 Household size and occupancy rate

As per Census 1991, in Ratlam there were 35570 families was living in 34781 numbers of residential units. According to Census 2001, there is an increase in number of families to 44109 residing in 43130 numbers of residential units. Accordingly, the household size comes to 5.32 persons per HH. Considering individual housing requirement the deficit for residential units as per the Census 2001 is 989.

### 8.2 Future requirements

As per the year 2001, there are 32 numbers of slums identified in Ratlam city with population of 65155 living in several parts of the city. In those 32 numbers of slums there are 12786 numbers of residential units, amongst those 30% of the units requires the reestablishment. There are 745 numbers of slum houses which require 100% reestablishments amongst the 32 numbers of identifies slum settlements. The slum population information is of 10 years old, hence it requires some projection for have significant projection for the year 2010. As per our discussion with municipal officials, slum population has been projected at the rate of 4% per year with 2000 as base year for the calculation. Estimated slum population with projection is 96445 for the year 2010. the number of HH under BPL as per 2009-10 survey is 18009 with approx population of 90000.

**Table 8-1: projections for slum population**

| Year | Slum Population |
|------|-----------------|
| 2000 | 65155           |
| 2001 | 67761           |
| 2002 | 70472           |
| 2003 | 73291           |
| 2004 | 76222           |
| 2005 | 79271           |
| 2006 | 82442           |
| 2007 | 85740           |
| 2008 | 89169           |
| 2009 | 92736           |
| 2010 | 96445           |
| 2011 | 100303          |

Following table provides the housing requirement in detail.

**Table 8-2: Housing Deficit**

| Details                        | Total | Establishment % | Housing Deficit |
|--------------------------------|-------|-----------------|-----------------|
| Housing Deficit till year 2001 | ---   | ---             | 989             |
| Kutcha houses in slum area     | 12786 | 30              | 3836            |
| Others in Slum                 | 745   | 100             | 745             |
| <b>Total</b>                   |       |                 | <b>5570</b>     |

Source: Ratlam Municipal Corporation

As per the above table there are deficit of 5570 numbers of household units. The housing demand for the year 2021 has been estimated in the following table.



**Table 8-3: Housing Requirements**

| Details   | Housing requirement |             |              |
|---|---------------------|-------------|--------------|
|   | 2001                | 2011        | 2021         |
| Population in Lakhs   | 2.34                | 2.52        | 2.90         |
| Extra population in lakhs   | ---                 | 0.18        | 0.37         |
| Average Household size  | 5.32                | 5.2         | 5            |
| Extra houses  |                     | 3514        | 7456         |
| 90% housing requirement in year 2011 & 2021                       |                     | 3163        | 6711         |
| <b>Housing requirement after addition of deficit of year 2001</b> | <b>5570</b>         | <b>8733</b> | <b>15443</b> |

Source: Ratlam Municipal Corporation

The household size for Ratlam is 5.32; it has been assumed that at the year 2011 and 2022 the HH size will 5.20 and 5.00 respectively. After considering the current housing deficit, the housing requirement for the year 2021 is 26883.

After the estimation of household demand, it is necessary to distribute this demand as per the income group like LIG, MIG and HIG sections. Following table provide the household distribution according to income group.

**Table 8-4: Housing Type as per income group**

| Income Group            | Housing Requirement |              |
|-------------------------|---------------------|--------------|
|                         | %                   | Numbers      |
| Economical Weaker Class | 40                  | 10753        |
| Lower Income Group      | 30                  | 8065         |
| Middle Income Group     | 25                  | 6721         |
| High Income Group       | 5                   | 1344         |
| <b>Total</b>            | <b>100</b>          | <b>26883</b> |

Source: Analysis from consultants

As mentioned in the earlier sections, Ratlam Municipal Corporation has prepared detailed project report with estimated cost of 355.42 lacs under Integrated Housing and Slum Development Programme. DPR has been rejected by appraising agency HUDCO, Bhopal, which was submitted on September 25, 2006.

### 8.3 Direction of growth

The centre part of the city was setup under the known administrator of Ratlam Mir Shamatali with establishment of Manak Chauk. this was followed by formation of commercial places like Chandani Chauk, Neem Chauk, Raniji Ka Mandir and Chaumukhi Pool which are the heart of the city centre of Ratlam. There was formation of residential establishments in the form of Mominpura, Mochipura and Sheranipura which are the oldest residential settlements of the city along with these commercial establishments. The approximate area of this region was 213 ha.

After the year 1967, there was full fledge establishment of diesel shed under western railways at Ratlam which generated economic benefits for the surrounding region as well. Several colonies were developed around the

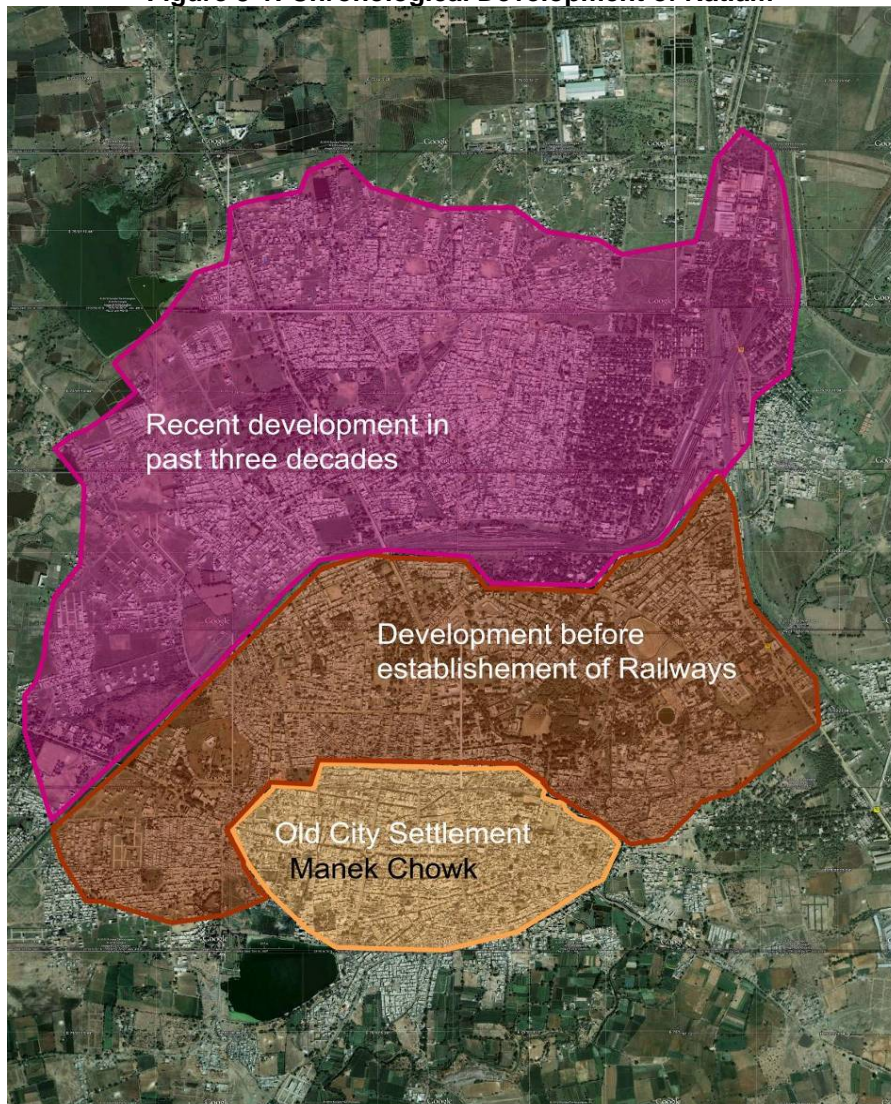
established railway colony with daily wage labours and employees of Indian railways. The famous Do Batti Chauraha developed which provides the connectivity to the Railway colony, Sailana road and to the Manak chauk.

In the past couple of decades new areas of development in the city are towards the North of the city and towards the south west. New colonies have come up along Sailana Road namely Kasturba Nagar, Jawahar Nagar, Alkapur, Gandhinagar and Laxmanpura. Also new colonies have been developed in south region near to the Amrut Sagar Lake namely Kalyan Nagar and Din Dayal Nagar. Even the property rates in the city have seen a considerable increase in past few years. Especially the commercial rates in area of Manek Chauk and Shaher Sarai have been doubled since last three years even the period of recession in other parts of the country.

In the past decade i.e from 2001 to 2010 the population of Ratlam has increased from 234419 to 252274. The pace of growth of population in Ratlam is slow to moderate. In the past decade the city grew towards the north east and diagonally to it on the south west.

Following figure shows the growth trend and chronological development of the city over the past decades

**Figure 8-1: Chronological Development of Ratlam**



## 9 Environment Status

All living and non living things along with the surrounding atmosphere in an urban area constitutes urban environment. Ironically, all these three ingredients in the environment have the ability to cause effect over each other, even by slight change and process of cycle. Thus the intersection and overlap of the natural environment, the built and socioeconomic environment constitutes the urban environment.

### 9.1 Natural environment

#### 9.1.1 Topography

The topography of the Ratlam city is almost flat and uniform through out the city area. Current industrial area is located at higher level with considerable slope at the south direction. Also there is slope at south-east direction at the downstream side where industrial area is situated. The rain water generally flows towards the south direction and collected at two nallah flowing through the city. There are two lakes located at northern side of the city.

#### 9.1.2 Geology and soil type

The district lies on a part of Malwa plateau with typical Trappean geomorphology comprising extensive plain, low lying hills and hills clusters with gentle northerly slope.

Ratlam region is under Zone II of Low Damage Risk Earthquake Zone without any neotectonic fault or thrust.

The soil in Ratlam is of mixed type and there is no distinct boundary in between any two type of soils. Black cotton Soil dark grey to black in color, composed of clay and is plastic & sticky in nature. The alluvium is of mixed origin & comprises of silt & clay and admixtures of these in varying properties. Lateritic soil consists of sandy loam to clayey loam and brick red to red in colour.

#### 9.1.3 Climate and rainfall

Ratlam has a transitional climate between tropical wet and dry, and a humid sub-tropical climate like other areas of Malwa region. The maximum temperature of the city ranges in between 39°C to 42°C. Maximum heat period is between the May to June month. While minimum temperature ranges from 9.8 to 11.8 and this period is from December to January.

During the April to September the winds coming from the western direction are prevailing one. While rest of the six months the prevailing wind direction is from

south-east direction. These factors shall be incorporated while planning the industrial region of the city with consideration of prevailing wind direction. The average rainfall of the District is 9000 mm. Most of the rain occurs in the month of July and August.

### 9.1.4 Ground and surface water sources

Ground water sources are over exploited in Ratlam due to absence of comprehensive water supply scheme, by means of 628 manual public hand pumps and private bore wells.

Amrut sagar and Barbad Lake act as a source for ground water recharge located nearer to Ratlam Municipal area. These lakes should be protected for improving the ground water recharge and in turn reducing the ground water extraction.

Apart from the above source there are following two lakes which can be utilized for the recreational purposes.

1. Barbad Lake- currently it is in dry state and no fencing around the lake
2. Amrutsagar Lake- currently wastewater through open drains is disposed off into the lake and there is no fencing surrounding the lake.

## 9.2 Urban Environment

### 9.2.1 Air pollution

There has been no records found as of in Ratlam Municipal Corporation for air pollution monitoring within the city. However, majority of air pollution was witnessed along the main roads of the city, near the bus stand areas and major junctions. With increasing number of personal vehicles there is need to monitor the vehicular emission pattern with air pollution checking machines and PUC certificates for vehicles.

### 9.2.2 Water pollution

Major water pollution in Ratlam is due to the disposal of wastewater and solid waste into the nallah flowing through the city and disposal of this water in to the lakes and water bodies. The nallah which flows through different parts of the city carries entire city waste water. Also one part of the nallah meets the Amrut Sagar Lake there by contaminated water of nallah is polluting the lake and causing damage to the biodiversity of Amrut Sagar. Apart from this, the some parts of city are entirely depending on the tubewell water supply of the municipal corporation causing the ground water depletion in the region.

**Table 9-1: No. of samples conducted for the test in the month of November, 2009**

| Sr No | Particulars                           | Physical | Chemical | Biological | Residual Chlorine |
|-------|---------------------------------------|----------|----------|------------|-------------------|
| 1     | Raw water sample                      | 30       | 30       | 5          |                   |
| 2     | Clear water sample                    | 30       | 30       | 5          | 30                |
| 3     | Reservoir tank                        |          |          | 20         | 125               |
| 4     | Distribution                          |          |          | 24         | 100               |
|       | <b>No. of samples passed the test</b> |          |          |            |                   |



| Sr No | Particulars        | Physical | Chemical | Biological | Residual Chlorine |
|-------|--------------------|----------|----------|------------|-------------------|
| 5     | Raw water sample   | 30       | 30       | 5          |                   |
| 6     | Clear water sample | 30       | 30       | 5          | 30                |
| 7     | Reservoir tank     |          |          | 20         | 125               |
| 8     | Distribution       |          |          | 24         | 100               |

Source: Public Health Engineering Department,, Ratlam.

### 9.2.3 Soil pollution

There have been no major agriculture activities found within Ratlam Municipal Corporation limit. Soil pollution can be in the form of excessive use of fertilizers and pesticides in the region. Other feature of the soil in the region has been briefed in the earlier sections.

However there is some amount of pollution due to wide usage of Septic tanks. This combined with the use of tubewells and borewells poses a risk of ground water pollution and soil pollution.

### 9.2.4 Land use

As per the Ratlam master plan 2001 only 49.78% of the proposed landuse has been implemented. Under which there has been poor implementation for the recreational landuse. Following table provides the information regarding the landuse implementation in accordance with Ratlam master plan 2001.

**Table 9-2: Land use implemented till 2008 under master plan 2001**

| Sr. No. | Land use                   | As per 2001 in Ha | Developed Area Ha | Fluctuation (Ha) | % Implementation |
|---------|----------------------------|-------------------|-------------------|------------------|------------------|
| 1       | Residential                | 1438.83           | 807.32            | 631.51           | 56.11%           |
| 2       | Commercial                 | 211.25            | 65.65             | 145.6            | 31.08%           |
| 3       | Industrial                 | 388.90            | 184.00            | 204.9            | 47.31%           |
| 4       | Govt.& Institutional       | 397.70            | 142.43            | 255.27           | 35.81%           |
| 5       | Recreation                 | 266.88            | 28.80             | 238.08           | 10.79%           |
| 6       | Traffic and Transportation | 476.44            | 355.00            | 121.44           | 74.51%           |
|         | <b>Total</b>               | <b>3180.00</b>    | <b>1583.20</b>    | <b>1596.80</b>   | <b>49.8%</b>     |

Source: Ratlam Master Plan 2001

In the revised master plan for 2021, the planning area has been divided into six planning units and accordingly the land use pattern has been allotted. The land use pattern has been distributed for a population of 3.5 lakh assumed for the year 2021 with a population density of 83 persons per hectare.

In the revised master plan for 2021, the 230.5 Ha agricultural land has been converted to other landuse purpose of residential, industrial and institutional use.

**Table 9-3: Proposed land use patter for Master Plan 2021**

| Investment Unit no. | Land Use in hectares |            |            |                       |              |            |                       | Total          |
|---------------------|----------------------|------------|------------|-----------------------|--------------|------------|-----------------------|----------------|
|                     | Residential          | Commercial | Industrial | Govt. & Institutional | Recreational | Transport  | Agriculture and other |                |
| 1                   | 149                  | 23.2       | 0.0        | 8.0                   | 6.2          | 26.2       | 0.0                   | 212.6          |
| 2                   | 528                  | 3.0        | 6.0        | 56.0                  | 80.0         | 136.5      | 1310.0                | 2119.5         |
| 3                   | 510                  | 39.8       | 291.0      | 60.0                  | 60.0         | 78.0       | 716.0                 | 1754.8         |
| 4                   | 200                  | 38.0       | 75.0       | 45.0                  | 54.0         | 101.0      | 1970.0                | 2483           |
| 5                   | 310                  | 90.0       | 78.0       | 30.0                  | 75.0         | 87.6       | 1065.0                | 1735.6         |
| 6                   | 538                  | 16.0       | 50.0       | 23.0                  | 154.8        | 170.7      | 905.7                 | 1858.2         |
| <b>Total</b>        | <b>2235</b>          | <b>210</b> | <b>500</b> | <b>222</b>            | <b>430</b>   | <b>600</b> | <b>5966.7</b>         | <b>10163.7</b> |

Source: Ratlam Master Plan 2021

### 9.2.5 Anthropogenic hazards

In order to avoid anthropogenic hazards like fire, Municipal Corporation has the one fire fighting vehicle and well equipped workshop for operation and maintenance. However there is need for the disaster management cell in order to deal with the various events like Kalika Mata festival and also the natural catastrophe in the form of heavy rains and floods.

### 9.2.6 Urban Environment Quality

- Access to water**

Ratlam city has inadequate supply of water in terms of quality and quantities. Direct water supply is not covered through entire corporation area. Still in slum areas like Ishwar Nagar, Jawara Road Slum regions there are supply through common bore or hand pumps. There are provisions of public standpost but these connections are without tap hence huge amount of water losses are occurring during the supply time. Some areas are having water supply through borewell for common water supply there by causing wastage of water and ground water depletion with improper monitoring of bore water supply.

- Availability of open spaces**

Open spaces are getting reduced due to encroachments and illegal construction due to the absence of proper regulation in order to maintain the planned lay out. Overall, City has inadequate recreational spaces.

- Access to sewerage and sanitation**

Ratlam has no sewer network. Waste gets disposed either in open plots or in individual septic tanks. Community Sanitation facilities are inadequate. Ultimately, the disposal of the sewage into the natural drainage channels without treatment causing health hazards.



• **Waste Management systems**

City has not adopted Door to Door waste collection system and waste segregation system due to absence of waste treatment plant in the disposal site. Collection efficiency is just 60% resulting in garbage pileup at the collection points and road side bins causing environmental pollution.

Ratlam-Nagda industrial region was studied under comprehensive environmental assessment of industrial clusters conducted by CPCB. According to the study, CEPI5 (Comprehensive Environmental Pollution Index) of the region was estimated separately for air, water and soil. According to study Air CEPI 44%, water CEPI 54.5% and land CEPI 56% were estimated.

**Table 9-4: Urban Environment Quality Check**

| Urban Environment Quality check   | Parameters  | Unit    | Coverage | Norm |
|-----------------------------------|---|---------|----------|------|
| Access to drinking Water          | Per Capita Supply                                     | percent | 82       | 135  |
| Access to sewerage and Sanitation | Assessments having sewer connections                  | Percent | Nil      | 100  |
| Waste Management system           | Door-Door collection efficiency                       | Percent | Nil      | 100  |
| Waste Management system           | Waste Segregation efficiency                          | Percent | Nil      | 100  |
| Waste Management system           | Treatment plant capacity to waste generated (organic) | Percent | Nil      | 100  |

Source: Analysis based on the data collected from Ratlam Municipal Corporation

**9.2.7 Sectoral Issues**

- Waste management is not as per SWM rules causing pollution.
- Recreational spaces are inadequate
- Public health is under threat due to absence of infrastructure facilities related to the pandemic disease.
- Ground water depletion due to excessive usage from tubewell and borewells
- Dumping of municipal solid waste into the lakes damaging Lake Environment and biodiversity.

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<sup>5</sup> A Comprehensive Environmental Pollution Index (CEPI), which is a rational number to characterize the environmental quality at a given location following the algorithm of source, pathway and receptor have been developed. The index captures the various health dimensions of environment including air, water and land. Larger the percentage of CEPI means area is more prone for environmental pollution due to industrial activities.

## 10 Heritage and Conservation

### 10.1 Heritage Structures

Ratlam city has historical importance as princely state and ruled under the "Raja Ratan Singh during 17th century. Ratlam princely state was the part of Malwa agency of central India. City does not have any heritage site listed under Archeology Survey of India. From the discussion with municipal officials, ward councilors, citizens and the field survey, there have been identification of 10 number of tangible heritage structures in the city of Ratlam.

Heritage structures in the state are regulated under the Madhya Pradesh State Archeological Department (Directorate of Archeology, Archives and Museums. The District Archaeological Museum, Ratlam established by District Archaeological Associations.

Following locations have been identified under heritage structures as per the discussion with the stakeholders and municipal officials of Ratlam.

1. Kalika Mata Mandir (Temple)
2. Jhali Talab (Lake)
3. Mahalwada (Palace)
4. Gulab Udyan
5. Collectorate Office
6. Triveni Dham
7. Tripolia Gate
8. Ganesh Gopal Mandir (Temple)
9. Raniji ka Mandir (Temple)
10. Bawdi (step wells- more than 50 in numbers)

These heritage structure listed above are having lack of heritage infrastructure with absence approach roads, parking provision and unawareness of the historical importance of these tangible heritage assets which are contributing the development of Ratlam city. The issues in relation with heritage structure and infrastructure have been discussed in the subsequent section in this chapter. Also strategies and action plans for conservation of heritage structures have been discussed along with issues.

Figure 10-1: Heritage Building in Ratlam



Kalika Mata Temple



Jhali Lake near Kalika Mata temple



Raniji Ka Madir Near Ghas Bazar



Palace in the heart of the city

## 10.2 Existing Heritage Regulations

At state level the Directorate of Archeology, Archives and Museums (Department of Archeology) is responsible for the heritage sites in the state of Madhya Pradesh.

The directorate is governed under following acts and rules

1. The Indian Treasure Trove Act, 1878
2. The Ancient Monuments and Archaeological Sites and Remains Act, 1958
3. The Ancient Monuments and Archaeological Sites and Remains Rules, 1959
4. The Madhya Pradesh Ancient Monuments and Archaeological Sites and Remains Act, 1964.
5. The Madhya Pradesh Ancient Monuments and Archaeological Sites and Remains Rules, 1975.
6. The Antiquities and Art Treasures Act, 1972.
7. The Antiquities and Art Treasures Rules, 1973.

This department is responsible for monitoring and maintaining the heritage sites and museums which has been listed and established respectively by the directorate in the state of Madhya Pradesh. Directorate prepares the annual action plan for excavation, training seminars and exhibitions under the MP archeology.

### 10.3 Heritage Issues

Ratlam city has numerous heritage structures in terms of pilgrimage activities and buildings. But unfortunately many of them have been ignored and hence deteriorating its unidentified heritage prosperity. There has been lack of heritage infrastructure surrounding the heritage structure thereby depleting the historical importance of the structures and future prospective.

- There temples and lakes which are more than 300 years old and are the major attraction for the surrounding states the districts of Madhya Pradesh. The Kalika Mata temple only attracts more than 5 lakh devotees during the Navratri Mahotsava per year. Although Ratlam Municipal Corporation manages entire festival every year but there is lack of heritage infrastructure in terms of accessibility and drinking water availability within the region. Apart from Kalika Mata temple and Jhali Lake other heritage structures have been entirely neglected in terms of its importance and maintenance.
- The palace which is in the middle of the city has been the most neglected heritage structure which has been deteriorating and under the usage for the central and state government offices within the palace. The entire palace are does not any boundary or compound walls hence encroached by shops and venders within the palace premises.
- Along with the temples and palace, Ratlam city has more than 50 numbers of stepwells in the different parts of the city. The number of stepwells has been reduced as many of the stepwells have been encroached or diminished due to space constraints and unawareness.

### 10.4 City Specific Strategies and Action Plan

In order to conserve the heritage of the city, it is important to consider it under the development of the city. Looking under the current scenario of the heritage structures of Ratlam, it requires urgent need of action plans in order to conserve the prestigious heritage of the city.

The maintenance and conservation of the heritage have been accountable not only to state archeology department but also Ratlam Municipal Corporation. City must give the priority to the heritage structures and their importance for the growth of the city. Following strategies and action plans can be utilized for heritage conservation of Ratlam city

- **Formation of Ratlam Heritage Conservation Committee:**

Institutional provision shall be made with an establishment of Heritage Committee involving the Ratlam Municipal Corporation, District Collector and

state level para-statal agencies like Ratlam Development Authority, town and country planning department and state archeology department. Hon. District collector shall be the chairman of the committee and the member can be Hon. Mayor and Commissioner Ratlam Municipal Corporation, and key representatives of the state para-statal agencies as mentioned earlier.

Role of the committee shall be enlisting, maintaining and monitoring the heritage structure of the city. There can be monthly review from the committee discussing the existing situation and various strategies and actions to improve the heritage infrastructure.

It is important to activate the role of district level archeological museums interpreting the historical importance of the city.

- **Budget provision for Heritage conservation**

Ratlam Municipal Corporation may make provision in the budget for heritage conservation. There can be separate provision for the heritage fund under which provision and maintenance of heritage structures and infrastructure required as under.

## 11 Financial Status

For a city to have sustainable growth and development, its financials should be sound and self-sustaining with minimum dependence on grants / external sources. This chapter illustrates the finances of Ratlam Municipal Corporation finance in the previous four years (2005-06 to 2008-09). The analysis provides the financial status of the urban local body with the study of the existing tax framework and the expenditure made under various heads. The problem areas requiring immediate attention have also been highlighted.

### 11.1 Financials of Ratlam for last four years

The Financials of Ratlam Municipal Corporation for four years i.e. 2005-06 to 2008-09 has been presented in the Table below. Amongst the tax income, the property tax contributes maximum compared to water tax and others. However, the grants and contributions is the maximum involvement in the income of Ratlam Municipal Corporation.

**Table 11-1: Income details of Ratlam Municipal Corporation (in ` Lakh)**

| Sr. No | Particulars                       | 2008-09        | 2007-08        | 2006-07        | 2005-06        |
|--------|-----------------------------------|----------------|----------------|----------------|----------------|
| 1      | Property Tax and Others           | 300.55         | 276.62         | 251.81         | 213.88         |
| 2      | Water Tax and Others              | 270.06         | 269.71         | 284.15         | 262.86         |
| 3      | License Fees                      | 10.36          | 9.59           | 9.62           | 7.10           |
| 4      | Other License Fees and other fees | 61.78          | 46.01          | 36.68          | 43.35          |
| 5      | Other Taxes                       | 1.00           | 2.06           | 2.03           | 1.28           |
| 6      | Other Income                      | 140.05         | 138.61         | 120.59         | 176.79         |
| 7      | Income from Different Schemes     | 22.26          | 40.93          | 37.32          | 39.50          |
| 8      | Builders Promoters                | 0.00           | 0.00           | 0.00           | 0.00           |
|        | <b>Total</b>                      | <b>806.06</b>  | <b>783.53</b>  | <b>742.20</b>  | <b>744.76</b>  |
| 9      | Grants and Contribution           | 2205.21        | 2330.24        | 1555.74        | 1435.31        |
| 10     | Extraordinary (Suspense) income   | 388.42         | 321.71         | 350.57         | 360.70         |
|        | <b>Total</b>                      | <b>3399.69</b> | <b>3435.48</b> | <b>2648.51</b> | <b>2540.77</b> |

*Source: compiled from Ratlam Municipal Corporation Budget*

Under expenditure of RMC, there has been a separate provision for capital expenditure under mission and vision works. Mission works are the important capital project under infrastructure augmentation in terms of roads, water supply etc. The vision works have been directly related to the public welfare works. This capital expenditure is contributing maximum contribution in the expenditure heads of Ratlam Municipal Corporation.



Table 11-2: Expenditure details of Ratlam Municipal Corporation (in `Lakh)

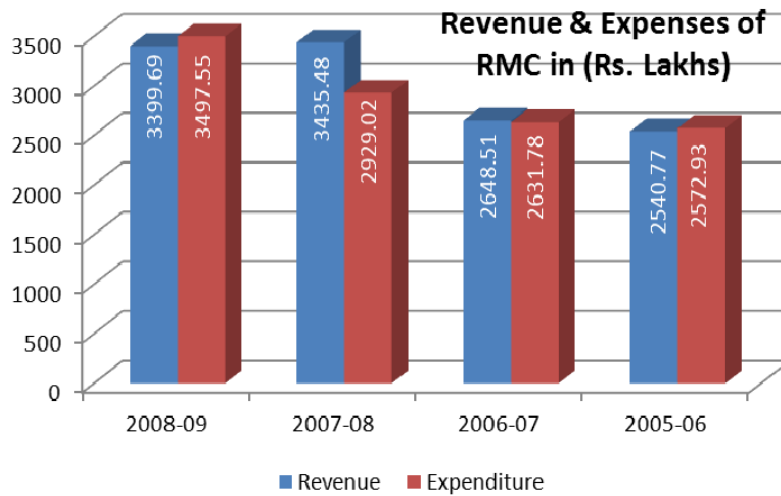
| Sr. No | Particulars                                  | 2008-09        | 2007-08        | 2006-07        | 2005-06        |
|--------|--|----------------|----------------|----------------|----------------|
| 1      | Mission 2009/08/07/06 – Important dev. Works | 128.60         | 29.44          | 61.28          | 107.31         |
| 2      | Vision 2009/08/07/06 – Public Welfare works  | 129.01         | 118.77         | 122.12         | 76.67          |
| 3      | Establishment expenses ( Permanent)          | 1130.12        | 1020.12        | 867.59         | 821.86         |
| 4      | Establishment expenses ( Temporary)          | 171.96         | 157.79         | 130.44         | 123.46         |
| 5      | Fuel expenses ( Diesel/ Petrol)              | 45.24          | 50.38          | 49.83          | 33.69          |
| 6      | Telephone expenses                           | 4.47           | 3.98           | 5.42           | 5.05           |
| 7      | Electricity expenses                         | 461.22         | 355.62         | 288.09         | 336.32         |
| 8      | Different small expenses                     | 4.24           | 4.98           | 7.40           | 3.92           |
| 9      | Corporation office                           | 8.38           | 4.37           | 8.75           | 6.14           |
| 10     | Commissioner office                          | 1.92           | 2.04           | 0.73           | 0.70           |
| 11     | Accounts department                          | 48.96          | 65.80          | 38.27          | 43.83          |
| 12     | Development department                       | 0.41           | 2.75           | 1.16           | 24.10          |
| 13     | Stores                                       | 9.88           | 22.73          | 17.13          | 15.97          |
| 14     | Street lights                                | 19.95          | 17.13          | 23.68          | 41.20          |
| 15     | Public works                                 | 602.09         | 505.91         | 489.42         | 294.23         |
| 16     | Waterworks                                   | 116.07         | 160.28         | 113.30         | 60.98          |
| 17     | Workshop                                     | 5.63           | 8.98           | 20.08          | 6.84           |
| 18     | Public Relation                              | 14.04          | 14.16          | 9.68           | 11.25          |
| 19     | Finance Department                           | 0.33           | 2.01           | 0.95           | 0.98           |
| 20     | Tax collection Department                    | 0.23           | 37.00          | 0.27           | 0.26           |
| 21     | Extraordinary Suspense Expenses              | 331.23         | 244.61         | 292.91         | 388.59         |
| 22     | loans and interest                           | 263.57         | 136.80         | 83.28          | 169.58         |
|        | <b>Total</b>                                 | <b>3497.55</b> | <b>2929.02</b> | <b>2631.78</b> | <b>2572.93</b> |
|        | <b>Surplus / Deficit</b>                     | <b>-97.86</b>  | <b>506.46</b>  | <b>16.73</b>   | <b>-32.16</b>  |

Source: compiled from Ratlam Municipal Corporation Budget

Apart from the capital expenditures, the establishment expenditure in the form of salaries for permanent and temporary employees is maximum contributors for Ratlam municipal corporation expenditure. Apart from these expenditure, departmental expenditure has been mentioned in the expenditure table provide above. The electricity expenses are for street lighting and water works department inclusively.

Over the past four years (2008-09 to 2005-06) Ratlam Municipal Corporation has been producing a bumpy ride in terms of income and expenses. RMC had booked a surplus of ` 16.73 Lakhs and ` 506.46 Lakhs in the years 2006-07 and 2007-08 respectively. However extensive development works undertaken in recent times and lower dependence on grants and contributions have led to a dip in financials in the year 2008-09. It was observed that RMC had shown a deficit of ` 97.86 Lakhs during that period. A similar, although lower deficit of ` 32.16 Lakhs was booked during 2005-06 also. The following diagram represents the revenue and expense details of Ratlam Municipal Corporation.

**Figure 11-1: Revenue and expenditure of Ratlam Municipal corporation**

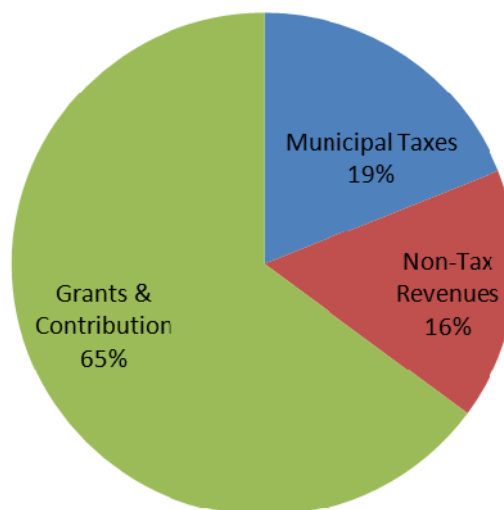


Source: Consultants analysis from budget book

## 11.2 Analysis of revenue

Municipal taxes, Non-tax revenues and Grants & Contribution are the broad categories of income for Ratlam Municipal Corporation. As seen from the pie diagram illustrated below, it is seen that Municipal Taxes account to 19% of the total income received by Ratlam Municipal Corporation in the year 2008-09 and Grants & Contribution contribute the majority (65%) portion.

**Figure 11-2: Revenue of Ratlam Municipal corporation**



Source: Consultants analysis from budget book

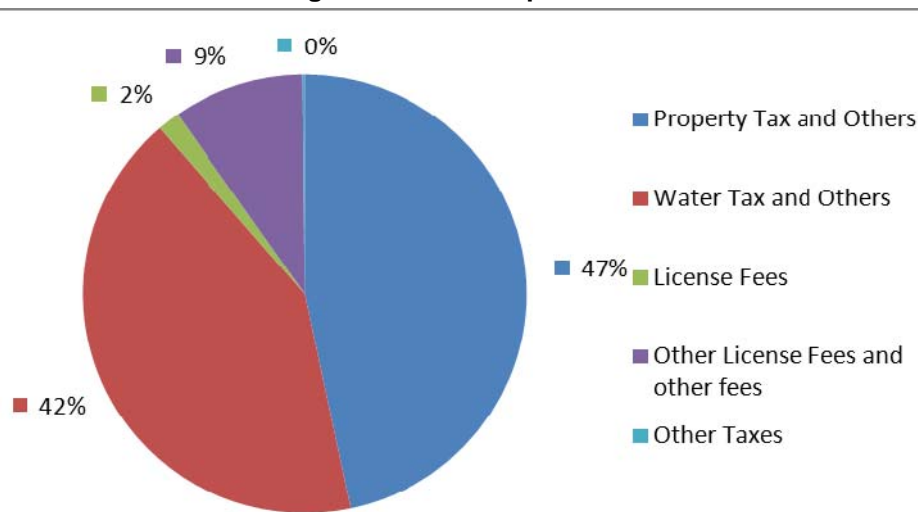
The analysis of revenue under various heads has been presented in the following sections which would enable a clear understanding of the intricacies involved in the financial analysis.

### 11.2.1 Municipal taxes

Municipal Taxes account for only 19.0% of the total income of Ratlam Municipal Corporation for the year 2008-09. This can be attributed to the non-assessment of all the properties in the Municipal Corporation area, non imposition of taxes for the services and poor service delivery. The Municipal taxes levied include:

- Property Tax and others
- Water Tax and others
- License fees
- Other License Fees and other fees
- Other taxes

**Figure 11-3: Municipal Taxes**



Source: Consultants analysis from budget book

Property tax accounts for 47% of the municipal taxes, while water tax accounts for 42% of the municipal taxes for the year 2008-09. Other taxes, license fees, other license fees and other fees add up to the rest.

- **Property tax**

In Ratlam Municipal Corporation, property tax is being assessed based on the combination of area based method and annual rental based method. The entire administrative area under Ratlam Municipal Corporation has been divided into five zones, each having varying rental values. Tax is levied on the properties based on the location within these zones. The tax levied would be in the range of 8-10% of the annual rental value of the location.

Commercial properties are levied tax at the rate of 10% of the rental value while residential properties are levied at the rate of 8%. Property tax is not applicable for those which have an annual rental value of less than ₹ 6000. Government Properties, Religious Institutions etc., are exempted from tax.

The efficiency exhibited by the Municipal Officials in terms of Collection of Property Tax has been showing a dismal figure for the past 5 years. The Collection efficiency in the years from 2004 to 2009 has been represented below.

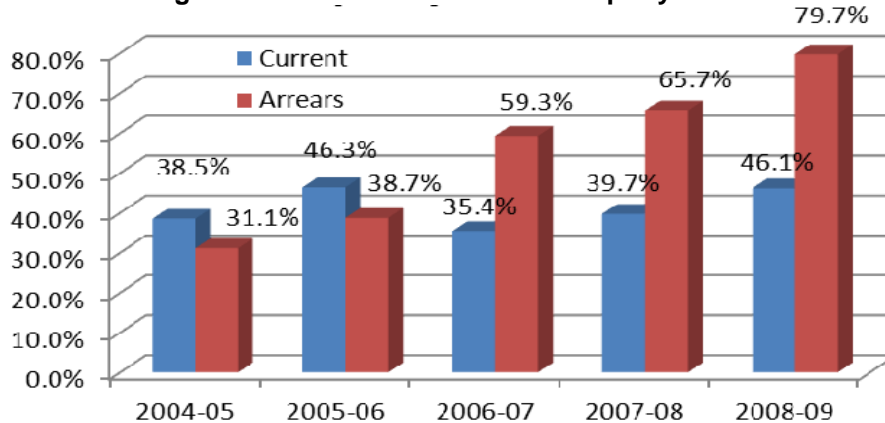
**Table 11-3: Collection Efficiency for property tax**

| Sr. No. | Year    | Total Demand |         | Total Collection |         | Efficiency |         |
|---------|---------|--------------|---------|------------------|---------|------------|---------|
|         |         | Current      | Arrears | Current          | Arrears | Current    | Arrears |
| 1       | 2004-05 | 80           | 121.78  | 30.8             | 37.87   | 38.5%      | 31.1%   |
| 2       | 2005-06 | 85           | 133.12  | 39.39            | 51.53   | 46.3%      | 38.7%   |
| 3       | 2006-07 | 97           | 127.2   | 34.34            | 75.42   | 35.4%      | 59.3%   |
| 4       | 2007-08 | 97           | 114.42  | 38.53            | 75.16   | 39.7%      | 65.7%   |
| 5       | 2008-09 | 97           | 97.73   | 44.73            | 77.9    | 46.1%      | 79.7%   |

Source: Demand collection Balance Sheet, Property Tax Department, Ratlam Municipal Corporation

As seen from the Figure below it is clear that the Current Property Tax Collection Efficiency (CPTCE) during the five year period has been showing an inconsistent growth with the highest being in the year 2005-06.

**Figure 11-4 : Arrear and Current Property Tax Collection**



Source: Demand collection Balance Statement, Property tax department, Ratlam Municipal Corporation

In 2008-09, the CPTCE was 46.1%, which is a dismal figure considering the prominence of property tax in the overall financial health of the corporation. However, the Arrear Property Tax Collection Efficiency (APTCE) has been showing a remarkable growth rate touching almost 80% in the financial year 2008-09.

- City development charges**

City development charges are included in the property tax bill and collected one time during the year. City Development charges are applicable for the properties having annual rental value more than ₹.1000. It is charged at 5% of the annual rental value for the commercial properties and 2.5% of the annual rental value for the residential properties.

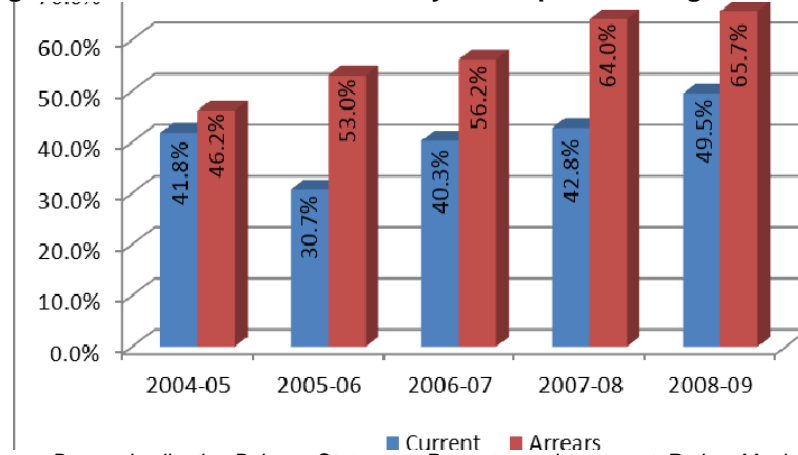
**Table 11-4: Collection Efficiency for City Development charges**

| Sr. No. | Year    | Total Demand |         | Total Collection |         | Efficiency |         |
|---------|---------|--------------|---------|------------------|---------|------------|---------|
|         |         | Current      | Arrears | Current          | Arrears | Current    | Arrears |
| 1       | 2004-05 | 45.00        | 30.88   | 18.81            | 14.26   | 41.8%      | 46.2%   |
| 2       | 2005-06 | 50.00        | 42.82   | 15.35            | 22.71   | 30.7%      | 53.0%   |

| Sr. No. | Year    | Total Demand |         | Total Collection |         | Efficiency |         |
|---------|---------|--------------|---------|------------------|---------|------------|---------|
|         |         | Current      | Arrears | Current          | Arrears | Current    | Arrears |
| 3       | 2006-07 | 50.00        | 54.76   | 20.14            | 30.76   | 40.3%      | 56.2%   |
| 4       | 2007-08 | 55.00        | 53.85   | 23.52            | 34.49   | 42.8%      | 64.0%   |
| 5       | 2008-09 | 55.00        | 50.84   | 27.24            | 33.38   | 49.5%      | 65.7%   |

Source: Demand collection Balance Sheet, Property Tax Department, Ratlam Municipal Corporation

Figure 11-5 : Arrear and Current City development Charges Collection



Source: Demand collection Balance Statement, Property tax department, Ratlam Municipal Corporation

The Current Development Charge Collection Efficiency has been hovering around 40-50% and Arrear Development Charge Collection Efficiency has improved consistently from 46.2% in 2004-05 to 65.7% in 2008-09.

• **Consolidated tax**

The consolidated tax is collected along with the property tax is as a charge for providing collective sanitation facilities, firefighting services and street lighting. Presently an amount of ₹ 180 is being levied as Consolidated Tax from all those properties having a rental value of less than ₹ 18000. If the rental value of any property exceeds ₹ 18000, then the tax is levied as a percentage (1%) of the rental value.

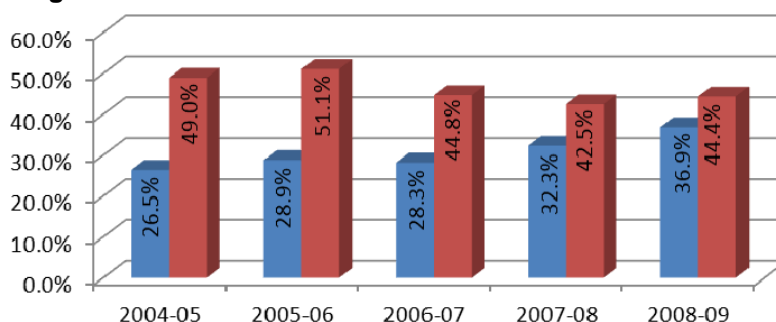
Table 11-5: Collection Efficiency for Consolidated taxes

| Sr. No. | Year    | Total Demand |         | Total Collection |         | Efficiency |         |
|---------|---------|--------------|---------|------------------|---------|------------|---------|
|         |         | Current      | Arrears | Current          | Arrears | Current    | Arrears |
| 1       | 2004-05 | 50           | 50.51   | 13.24            | 24.75   | 26.5%      | 49.0%   |
| 2       | 2005-06 | 55           | 62.53   | 15.87            | 31.96   | 28.9%      | 51.1%   |
| 3       | 2006-07 | 60           | 69.70   | 16.95            | 31.20   | 28.3%      | 44.8%   |
| 4       | 2007-08 | 60           | 81.55   | 19.39            | 34.66   | 32.3%      | 42.5%   |
| 5       | 2008-09 | 60           | 87.50   | 22.16            | 38.87   | 36.9%      | 44.4%   |

Source: Demand collection Balance Sheet, Property Tax Department, Ratlam Municipal Corporation

From the demand collection balance statement the collection efficiency for the arrears is found to be more than the current during the period 2004-05 to 2008-09. The current collection efficiency has been very poor i.e less than 40% during the last five year timeline.

**Figure 11-6 : Arrear and Current Consolidated Tax Collection**



Source: Demand collection Balance Statement, Property tax department, Ratlam Municipal Corporation

• **Education Cess**

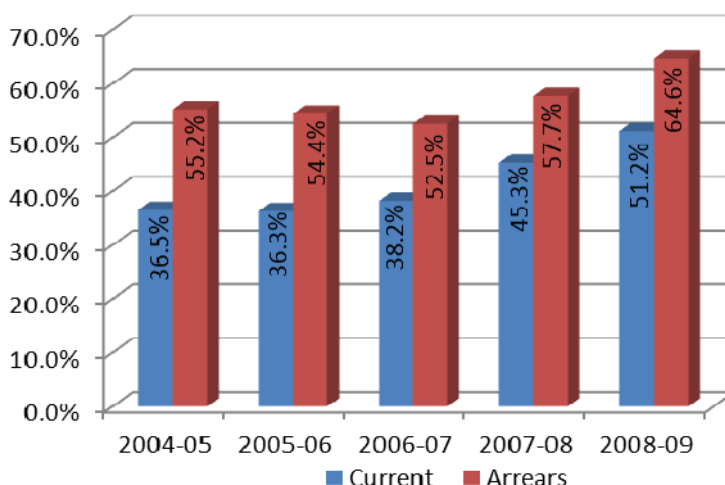
As per the state government order 2000-01, the Education Cess is levied at 2% of the property tax. Following table illustrates the Education Cess collection details in the last 5 years.

**Table 11-6: Collection Efficiency for Education Cess Rs. in lakhs**

| Sr. No. | Year    | Total Demand |         | Total Collection |         | Efficiency |         |
|---------|---------|--------------|---------|------------------|---------|------------|---------|
|         |         | Current      | Arrears | Current          | Arrears | Current    | Arrears |
| 1       | 2004-05 | 35.00        | 27.53   | 12.78            | 15.21   | 36.5%      | 55.2%   |
| 2       | 2005-06 | 40.00        | 34.54   | 14.53            | 18.8    | 36.3%      | 54.4%   |
| 3       | 2006-07 | 50.00        | 54.76   | 20.14            | 30.76   | 40.3%      | 56.2%   |
| 4       | 2007-08 | 45.00        | 47.36   | 20.38            | 27.32   | 45.3%      | 57.7%   |
| 5       | 2008-09 | 45.00        | 44.66   | 23.02            | 28.85   | 51.2%      | 64.6%   |

Source: Demand collection Balance Sheet, Property Tax Department, Ratlam Municipal Corporation  
A graphical representation of the same has been provided below.

**Figure 11-7 : Arrear and Current for Education cess**



Source: Demand collection Balance Statement, Property tax department, Ratlam Municipal Corporation

Current collection efficiency for education Cess is much less as compared to the arrears collection efficiency. However, the collection efficiency has been increasing over the five year period from 2004-05 to 2008-09.



- Water tax**

Water tax is levied at ` 90 for residential properties and ` 180 per month for commercial properties. For industrial purpose it is ` 29/1000 liters.

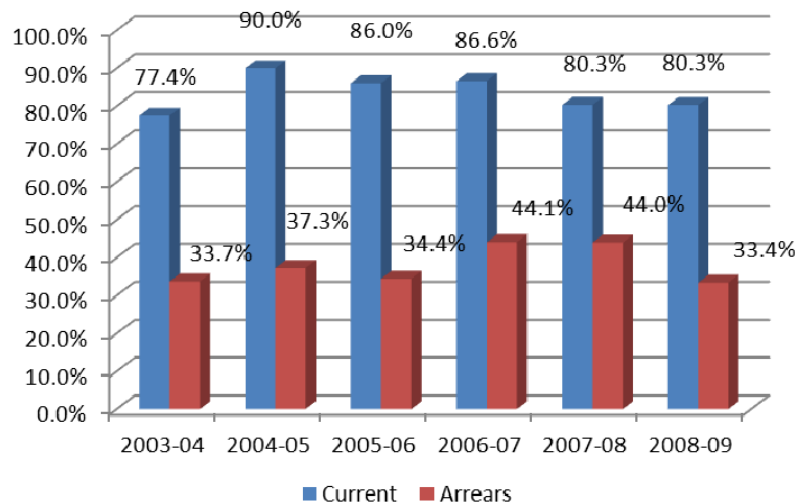
**Table 11-7: Collection Efficiency for Water Tax**

| Sr. No. | Year    | Total Demand |         | Total Collection |         | Efficiency |         |
|---------|---------|--------------|---------|------------------|---------|------------|---------|
|         |         | Current      | Arrears | Current          | Arrears | Current    | Arrears |
| 1       | 2004-05 | 35.00        | 27.53   | 12.78            | 15.21   | 36.5%      | 55.2%   |
| 2       | 2005-06 | 40.00        | 34.54   | 14.53            | 18.8    | 36.3%      | 54.4%   |
| 3       | 2006-07 | 50.00        | 54.76   | 20.14            | 30.76   | 40.3%      | 56.2%   |
| 4       | 2007-08 | 45.00        | 47.36   | 20.38            | 27.32   | 45.3%      | 57.7%   |
| 5       | 2008-09 | 45.00        | 44.66   | 23.02            | 28.85   | 51.2%      | 64.6%   |

Source: Demand collection Balance Sheet, Property Tax Department, Ratlam Municipal Corporation

From the analysis of the six year data of the demand collection balance statement it is clear that the collection efficiency for the arrears is very poor. However, the current collection efficiency is very significant and average it is above 85% over the six year water tax collection.

**Figure 11-8 : Arrear and Current Water Tax Collection**



### 11.2.2 Non-tax income

The non-tax income of Ratlam Municipal Corporation includes the following:

- Income from different schemes**

These include the following;

1. Income in installements from buildings development under different schemes
2. Lease rent ( different schemes)

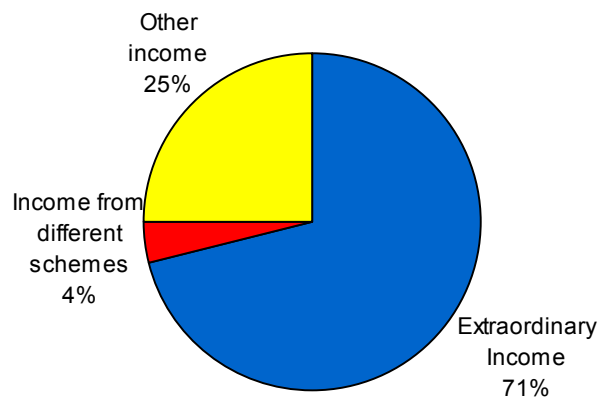
- **Other income**

Other income contributes 4% of the total non-tax income which is significant for the revenue contribution to the Ratlam Municipal Corporation. These includes the income from shops rent, market land rent, income from interest from telephone network towers etc.

- **Extraordinary income**

These income heads includes the festival advance, deposits, housing development loan etc.

**Figure 11-9 : Arrear&current non tax income**



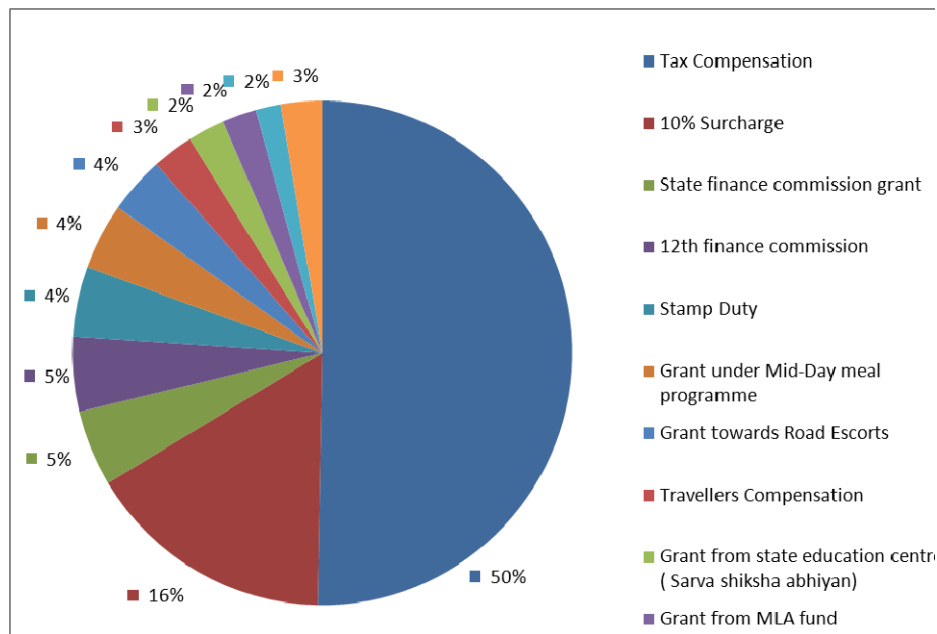
### 11.2.3 Grants including transfers

Grants have been one of the total income of the Municipal Corporation. There are 33 categories of grants which Ratlam Municipal Corporation has availed in the last 5 years, out of which the major ones have been the following:

1. Tax Compensation
2. 10% Surcharge
3. State finance commission grant
4. 12th finance commission
5. Stamp Duty
6. Grant under Mid-Day meal programme
7. Grant towards Road Escorts
8. Travellers Compensation
9. Grant from state education centre (Sarva shiksha abhiyan)
10. Grant from MLA fund
11. MPUSP (Uthhan)

A pictorial representation of the various contributors within the category has been presented below.

Figure 11-10 : Grants including transfers for Ratlam Municipal corporation



- **Tax compensation**

Tax compensation accounts for about 50% of the total grants to the Municipal Corporation for the year 2008-09.

- **10% Surcharge**

The second major contributor in the form of Grants has been 10% surcharge grant which accounted to almost 16% in the year 2008-09.

- **Road Maintenance grant**

The Road maintenance grant is being provided to the ULBs primarily for new road construction and maintenance of the roads. Road maintenance grant accounts for 4% of the total grant of the Municipal Corporation for the year 2008-09.

- **State Finance Commission grant**

State Finance Commission grant account for 5% of the total grant of the Municipal Corporation for the year 2008-09. The State Finance Commission grant is provided to ULBs to meet their capital and O&M expenditure.

- **12th Finance Commission grant**

The 12th Finance Commission grant is provided by the Central Government to the ULBs through the State Government. The grant accounts for 5% of the total grant of the Municipal Corporation.

### • MPUSP and UIDSSMT grant

Ratlam Municipal Corporation is receiving the several grants from the state initiated programmes like Project Utthan, MPUSP as well as the GOI programmes like UIDSSMT schemes for infrastructure development. MPUSP contributed 1.6%, i.e. Rs.36 Lakhs in the Grants and contribution for the Ratlam Municipal Corporation.

### • Other grants

Other grants include 10% surcharge and Mid-day meal programme, MP/ MLA grant, water grant, and they account for 16%, 4% and 0.3% of the total grant respectively for the year 2008-09.

## 11.3 Analysis of expenditure

The analysis of expenditure under various heads in the last four years is presented below.

### 11.3.1 Revenue Expenditure

Revenue expenditure of Ratlam Municipal Corporation can be broadly brought under the following heads:

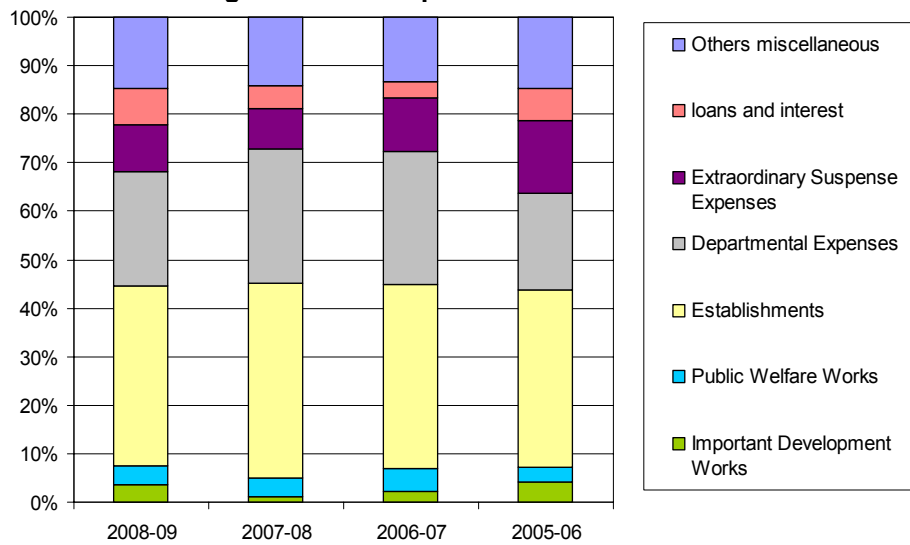
- Important Development Works
- Public Welfare Works
- Establishments (Permanent and Temporary)
- Departmental Expenses
- Extra-Ordinary (Suspense) Expenses
- Loans and interest

**Table 11-8: Revenue Expenditure of Ratlam (in Rs. Lakhs)**

| Sr. No | Particulars                     | 2008-09 | 2007-08 | 2006-07 | 2005-06 |
|--------|---------------------------------|---------|---------|---------|---------|
| 1      | Important Development Works     | 128.6   | 29.44   | 61.28   | 107.31  |
| 2      | Public Welfare Works            | 129.01  | 118.77  | 122.12  | 76.67   |
| 3      | Establishments                  | 1302.08 | 1177.91 | 998.03  | 945.32  |
| 4      | Departmental Expenses           | 827.89  | 806.53  | 723.42  | 506.48  |
| 5      | Extraordinary Suspense Expenses | 331.23  | 244.61  | 292.91  | 388.59  |
| 6      | loans and interest              | 263.57  | 136.8   | 83.28   | 169.58  |
| 7      | Others miscellaneous            | 515.17  | 414.96  | 350.74  | 378.98  |

Source: compiled from Municipal Accounts, Ratlam Municipal Corporation

**Figure 11-11 : Expenditure details of Ratlam**



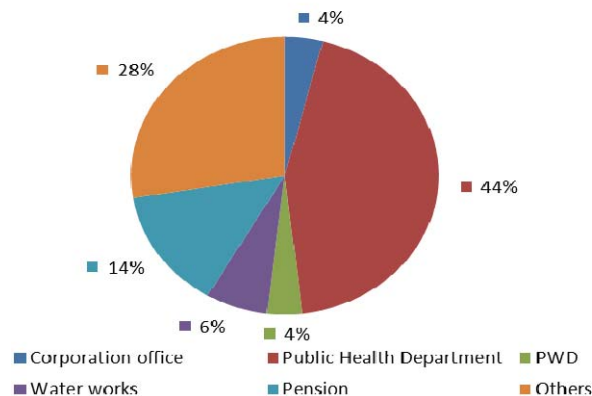
Source: compiled from Municipal Accounts, Ratlam Municipal Corporation

From the above graph it is clear that the establishment expenses utilize the major part among the different particulars of the expenditure. Ratlam Municipal Corporation yearly carries out mission and vision capital works under the heads of important Development works and Public Welfare works. These are capital expenditures in the major sectors like water supply, roads, public health and recreation. The analysis of expenditure under the various heads in the last four years is presented below.

- Establishment (wages and salaries)**

Establishment expenses account for 40% of the revenue expenditure on an average for the period between 2005-06 and 2008-09. The major contributor within the establishment expenses are the public health department and the pension segment which are 44% and 14% respectively. Large numbers of employees under the Public Health Department and in the Temporary Staff Segment are the major concerns leading to these huge percentages. However other water works and public works department contribute 10% in the establishment costs.

Figure 11-12 : Average break-up of Salary Expenditure for the year(2008-09)

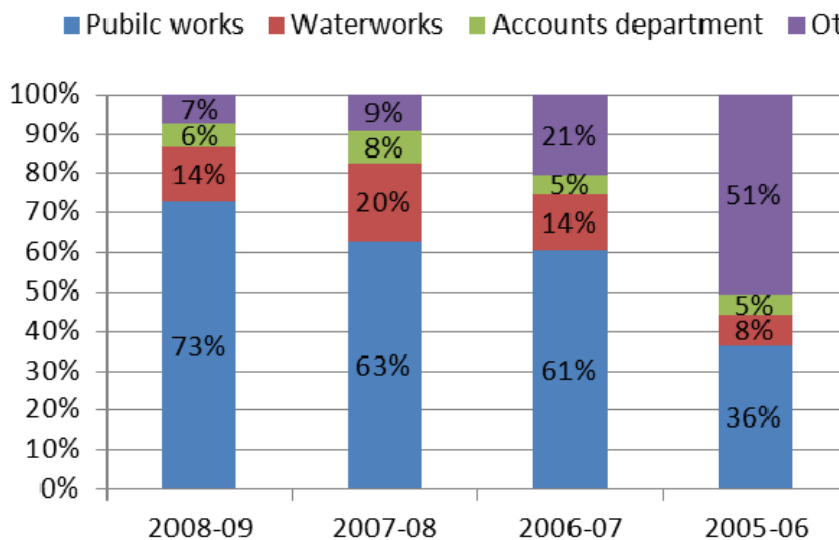


Source: compiled from Municipal Accounts, Ratlam Municipal Corporation for 2008-09

• **Departmental Expenses**

There are 12 different departments established within the municipal corporation. Amongst them the PWD and water works departments comprise a large share of expenditure for the corporation. Following graph shows the departmental expenditure analysis for the four year data. It shows that the departmental expenditure for other departments has significantly reduced from 51% to 7% in the four years while the PWD and water works has increased considerably. Public works expenditure has doubled from 2004-05 to 2008-09 i.e from 36% to 73%.

Figure 11-13 : Departmental Expenditure for Ratlam Municipal Corporation



Source: compiled from Municipal Accounts, Ratlam Municipal Corporation for 2008-09

• **Extra ordinary suspense Expenses**

These are the expenses which come under the Grain loans, festival loans, deposits and advances. They have been contributing around 9% at an average over the four year period.



- **Loans and Interest**

The loans and interest contribute 5% to the expenditure. Amongst them the major items are the Rajiv Gandhi Civic Centre and Dongre Nagar development scheme which is 240 lakhs during the year 2008-09. Others are the loans and interest under the central bank loans, state government loans, loans under the consolidated fund, fire lorry etc.

- **Other Miscellaneous**

These are the expenses incurred under telephone, electricity and fuel expenses. The major contributor is electricity which is 90% of these expenses. They have been increasing considerably from 65% to 90% in the four years.

### **11.3.2 Level of aggregate investment in urban infrastructure**

The capital expenditures incurred for Ratlam Municipal Corporation are being shown as the Important Development works (Mission works) and public welfare works (Vision works) in the Budget.

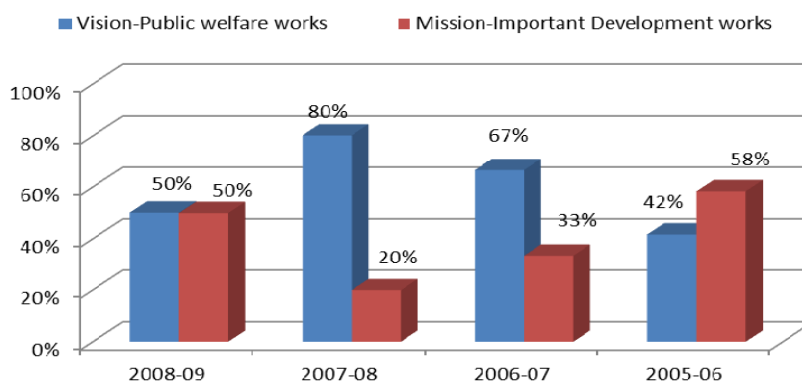
Following capital project are considered under the important development works (Mission Works):

- Water works- major water supply related projects like construction of sump wells, purchasing and laying of pipelines, construction of OHT's etc.
- Public facilities- construction of public facilities like public toilets, provision of toilets facilities, recreational spaces etc.
- Residential colonies- land acquisition and development
- City beautification- road and bridge widening, beautification of religious spaces.
- Transport nagar- transport nagar land acquisition and development
- Commercial complex- land purchasing and construction of shops
- Development of Vegetable market- development of hawker's zone and market places.

Following capital project are considered under the public welfare works (Vision Works):

- Public works- government school maintenance and public works
- City sanitation- MPUSP (Utthan) projects, well and lake maintenance and cleaning, construction of landfill site and treatment plant.
- Education and health-health campaign etc.
- Child welfare-mid day meal, library and playing facility.
- Builder promoters- new constructions under Municipal Corporation like new community hall, bus stand, staff quarters etc.
- Cultural events- expenditure on various religious fairs.
- Sports and recreational facilities-national and state level sports programmes.

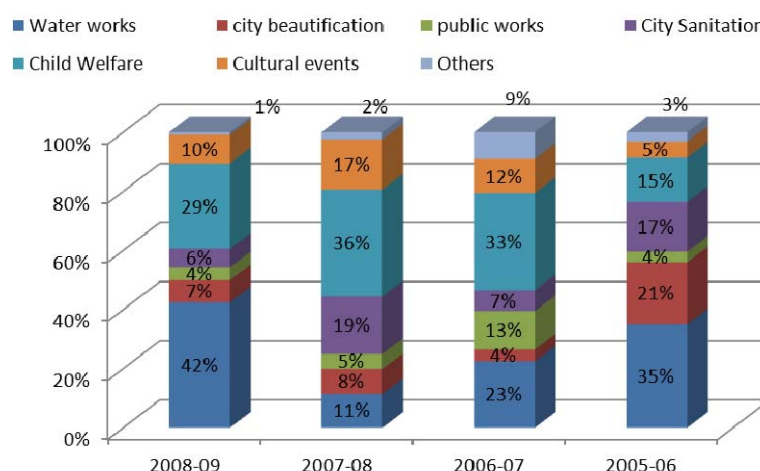
**Figure 11-14 :Capital Expenditure for Ratlam Municipal Corporation**



Source: compiled from Municipal Accounts, Ratlam Municipal Corporation for 2008-09

Expenditure on capital works account for about 8% to 9% of the total municipal expenditure of Ratlam Municipal Corporation for the year 2005-06 to 2008-09. The capital expenditure incurred is towards road construction, water supply, storm water drain, building works and slum rehabilitation. The break-up of capital expenditure for the last five years is as follows:

**Figure 11-15 :Capital Expenditure for Ratlam Municipal Corporation**



Source: compiled from Municipal Accounts, Ratlam Municipal Corporation

The major sector wise expenditure incurred under the capital projects are towards water supply, child welfare and city sanitation sector. However from the four years capital expenditure scenario there has been variation in the sector wise expenditure for the different projects. During the year 2008-09, the water supply sector has contributed 42% in the overall capital expenditure.

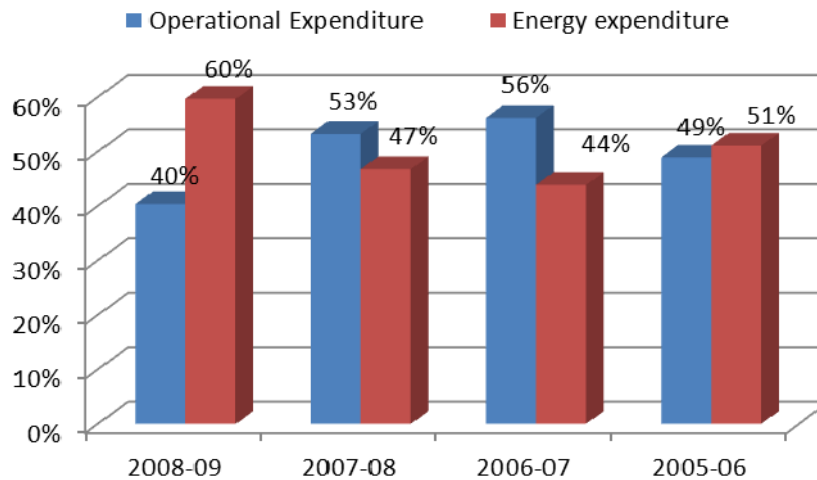
## 11.4 Cost Recovery for services

For a municipal Corporation to undertake additional capital works, improve service delivery and to be financially sustainable it should be able to achieve 100% recovery of the costs incurred towards provision of water supply, sewer, sanitation, street light and other services. Cost recovery situation in RMC is detailed below.

### 11.4.1 Cost recovery for water supply

Ratlam Municipal Corporation recovers the operational cost for water supply through the water tax on the water supply service. The cost recovery for the water supply is as follows.

**Figure 11-16 :Operational Expenditure for Ratlam Municipal Corporation**



Source: compiled from Municipal Accounts, Ratlam Municipal Corporation

The operational cost recovery for the last four years has provided in the table given below.

**Table 11-9: Cost Recovery for water supply services (in Rs. Lakhs)**

| Particulars                   | 2008-09 | 2007-08 | 2006-07 | 2005-06 |
|-------------------------------|---------|---------|---------|---------|
| Total operational expenditure | 422.39  | 377.63  | 245.62  | 169.91  |
| Operational Revenue           | 290.00  | 285.00  | 280.00  | 265.00  |
| Cost Recovery                 | 69%     | 75%     | 114%    | 156%    |

Source: compiled from Municipal Accounts, Ratlam Municipal Corporation

From the above table it is clear that the municipal Corporation needs to take drastic measures to impose reasonable rates for water supply to improve cost recovery for water supply services in the coming years. The energy expenditure in terms of pumping of water in the distribution system is maximum i.e. 60% for the year 2008-09. The energy expenses are more than the operational expenses for water works department. Hence there is need for energy auditing of pumping stations in order to achieve better O & M practices for curtailing the losses. However, the cost recovery was more than 100% from 2005-06 to 2006-07. But due to increased expenditure on electricity, the cost recovery has decreased to 69% in the year 2008-09. It is expected that Municipal Corporation will levy fixed charges on properties for water supply once the scheme gets implemented.

### 11.4.2 Cost recovery for sanitation, street light and fire

The cost recovery for sanitation, street light and fire services obtained through the consolidated taxes which are collected along with the Property Tax. From the analysis it is clear that the cost recovery for the services is very less i.e. only 8.5% for the year 2008-09 and it has been decreasing from 32% earlier in the year 2005-06.

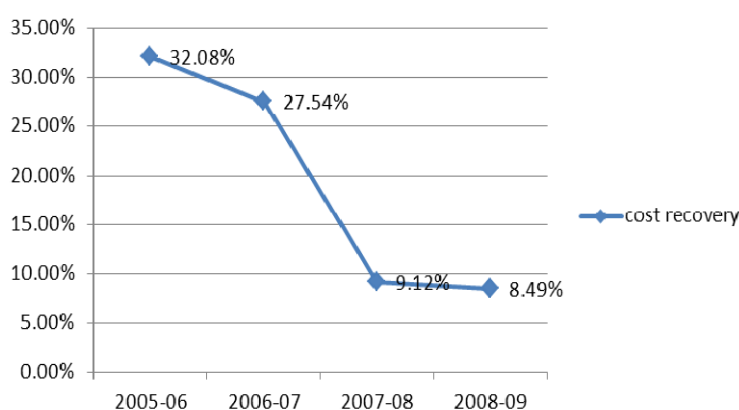
**Table 11-10: Cost Recovery for sanitation, street light & fire services in Rs. Lakhs**

| Operational expenses          | 2008-09 | 2007-08 | 2006-07 | 2005-06 |
|-------------------------------|---------|---------|---------|---------|
| Total operational expenditure | 706.7   | 657.7   | 217.88  | 171.45  |
| Consolidated tax              | 60      | 60      | 60      | 55      |
| Cost recovery                 | 8%      | 9%      | 28%     | 32%     |

Source: compiled from Municipal Accounts, Ratlam Municipal Corporation

Hence, in order to provide efficient service provision Ratlam Municipal Corporation needs to impose separate taxes for street lighting, sanitation at reasonable rates to ensure direct cost recovery for each of these services which is now collected under consolidated taxes.

**Figure 11-17 :cost recovery for street lights and fire fighting**



Source: compiled from Municipal Accounts, Ratlam Municipal Corporation

## 11.5 Issues

- Cost recovery is only 69% for water supply services and for other services it is 8% in the year 2008-09.
- The operational expenses in terms of energy expenditure for water supply are very high
- There is need to revise the water pricing for the water supply services of the Ratlam.
- There is need to levy the separate tax for municipal solid waste management services as the administration and overall operational expenditure are maximum as compared to the other departments.
- There is need to assess the properties in order to register the entire properties under the Ratlam Municipal corporation.
- Grants and transfers account for about 65% of the total revenue while municipal taxes account for only 18% of the total revenue for the year 2008-09. The share of municipal taxes to the total income need to be improved.

## 12 Institutional framework

Ratlam Municipal Corporation consists of 49 wards and has a 49 member elected Corporation and a Mayor. The administrative wing is headed by the Municipal Commissioner. The total number of permanent staff in Ratlam Municipal Corporation is 600 while the temporary staff is 1166 nos. total staff strength for Ratlam municipal Corporation including the temporary and permanent is 1766 nos.

There is formation of Mayor in Corporation (MIC) selected by the Hon. Mayor in order to deal with the issues related to their respected department headed by the MIC's member.

Following section will elaborate the role of state level agencies which are involved in external accountability and policy development formulation for Ratlam. These institutions play vital role for monitoring and regulating the several development aspects of the region of Ratlam.

### 12.1 State level departments

#### 12.1.1 City and country planning department

City and country planning department of Madhya Pradesh is governed under the Housing and Environment department, enacted by Madhya Pradesh City and Country Planning act 1973. This department provides the planning functions of regional and urban regions as per the rules mentioned under Madhya Pradesh Land Development Rules, 1974. Main functions are preparation of Development Plan and its modification. Apart from this it prepares regional development plan, monitoring and enforcement of various schemes such as integrated development of small and medium towns and urban infrastructure development scheme for small and medium towns.

#### 12.1.2 Public health engineering department

Public Health Engineering department is one of the major departments of the state of Madhya Pradesh as it is not only directly responsible for the provision of the public health but also carries the water supply and sewerage and sanitation projects in entire state. Major infrastructure projects under urban infrastructure are implemented by Public Health Engineering department both in the urban and rural areas.

#### 12.1.3 Madhya Pradesh Housing Board

Madhya Pradesh Housing Board was established under Madhya Pradesh Griha Nirnam Mandal Adhinyam, 1972. The major objective of Madhya Pradesh Housing Board is to monitor and satisfy the housing demand in the state. It

carries the functions like building housing colonies with efficient infrastructure. Housing Board also constructs the commercial, retail and other types of buildings for Health, Education and cultural activities. Madhya Pradesh Griha Nirman Manal Regulation, 1998, State Housing and Habitat Policy 2007 are the major act and policy which govern department.

### 12.1.4 District Urban Development Agency (DUDA)

District Urban Development Agency (DUDA) is the part of Urban Administration and Development Department of the Government of Madhya Pradesh. DUDA is the nodal agency for Svarna Jayanti Shehri Rojgar Yojana (SJSRY) for Ratlam region. DUDA monitors the following activities under SJSRY

- Urban Self Employment Programme (USEP)
- Urban Women Self-help Programme (UWSP)
- Skill Training for Employment Promotion amongst Urban Poor (STEP-UP)
- Urban Wage Employment Programme (UWEP)
- Urban Community Development Network (UCDN)

DUDA coordinate SJSRY and other programmes impacting the urban poor and undertake capacity building activities for all ULBs within the District.

### 12.1.5 Madhya Pradesh Pollution Control Board

The Madhya Pradesh Pollution Control Board has been vested with considerable authority and responsibility under various environment legislation to prevent the pollution. Madhya Pradesh Pollution Control Board presently looks after the implementation of following Acts:

- Water (Prevention & Control of Pollution) Act, 1974
- Water (Prevention & Control of Pollution) Cess Act, 1977
- Air (Prevention & Control of Pollution) Act, 1981
- Environment Protection Act, 1986 (certain sections)
- Public Liability Insurance Act, 1991

The main objective of M.P. Pollution Control Board is to maintain water, air and soil in healthy and usable condition for various purposes. There are 10 Regional Offices, 4 Sub Regional, 3 Single Window System, 2 Monitoring Centre equipped with trained personnel and sophisticated instruments, are constantly keeping watch on environmental activities in the state to attain the objectives.

Major functions of the boards are to reduce, control and monitor the state environmental pollution in terms of air, water and soil. Also it provides several consents for industries to establish and operate in order to maintain the environmental compliance within the state.



## 12.2 Organization

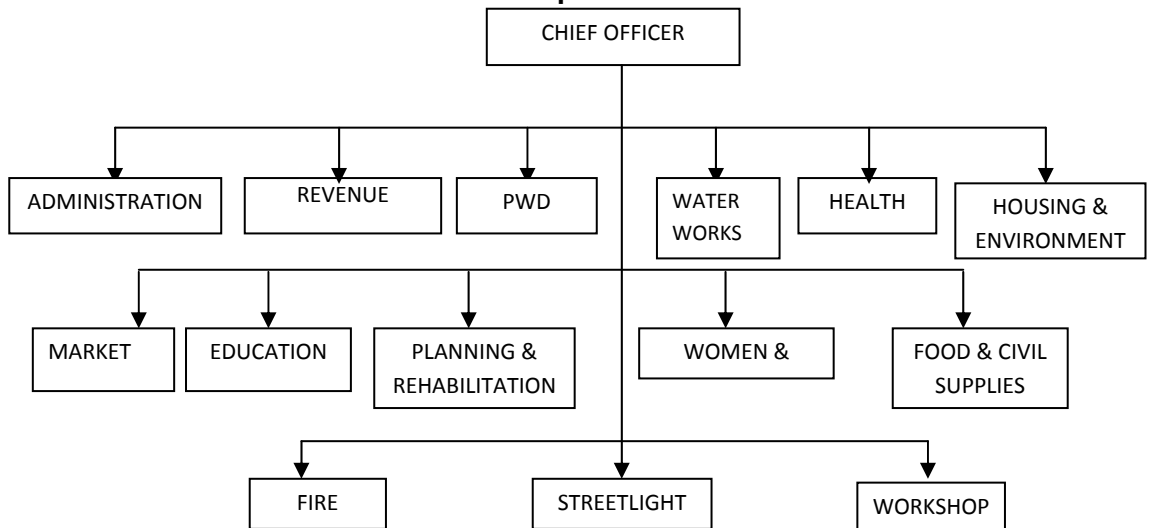
The Executive wing is headed by the Municipal Commissioner. There are 11 Departments under which Mayor in Corporation (MIC's) has been formed in Ratlam Municipal Corporation. They are:

- Housing and environment
- Revenue Department
- Accounts and General Administration Department
- Planning and Rehabilitation Department
- Public Works Department
- Water Works Department
- Health and Medicine Department
- Market (Bazaar) Department
- Education Department
- Women and Child Welfare Department
- Food and civil supplies Department

Apart from above departments formed under MIC's, there are other department existing under the Municipal Corporation are:

- Fire department
- Workshop
- Street light department

**Figure 12-1:Administrative organizational structure Ratlam Municipal corporation**



## 12.3 Staff strength

There are only 600 numbers of permanent staff in Ratlam Municipal Corporation. The present staff and the positions proposed to be filled in the near future are presented below.

**Table 12-1: Staff details of Ratlam Municipal corporation**

| Sr. No. | Particulars            | Sanctioned posts | Filled posts | Vacant posts |
|---------|------------------------|------------------|--------------|--------------|
| 1       | General Department     | 386              | 280          | 106          |
| 2       | Sanitation             | 396              | 264          | 132          |
| 3       | Development Department | 66               | 56           | 10           |
|         | <b>Total</b>           | <b>848</b>       | <b>600</b>   | <b>248</b>   |

Source: Administration Department, Ratlam Municipal Corporation

**Table 12-2: Temporary staff details of Ratlam Municipal corporation**

| Sr. No. | Temporary Staff                 | No. of employees |
|---------|---------------------------------|------------------|
| 1       | Daily wages workers before 1988 | 47               |
| 2       | Daily wages from Court Award    | 233              |
| 3       | Temporary approved daily wages  | 116              |
| 4       | Sanitation Daily wage labours   | 330              |
| 5       | Sweepers                        | 440              |
|         | <b>Total</b>                    | <b>1166</b>      |

Source: Administration Department, Ratlam Municipal Corporation

**Table 12-3: Present Staff Strength**

| Sr. No. | Designation             | Total sanctioned posts | Filled posts | Vacant posts |
|---------|-------------------------|------------------------|--------------|--------------|
| 1       | General Administration  | 9                      | 6            | 3            |
| 2       | Accounts                | 14                     | 6            | 8            |
| 3       | Revenue Department      | 44                     | 27           | 17           |
| 4       | Fire Department         | 22                     | 10           | 12           |
| 5       | Lok Nirman (PWD)        | 66                     | 56           | 10           |
| 6       | Water Supply Department | 46                     | 28           | 18           |
| 7       | Health Department       | 26                     | 15           | 11           |
| 8       | Sweepers                | 396                    | 264          | 132          |
| 9       | Others                  | 225                    | 188          | 37           |
|         | <b>Total</b>            | <b>848</b>             | <b>600</b>   | <b>248</b>   |

Source: compiled from data collected from Ratlam Municipal Corporation

The post for the Deputy Municipal commissioner is vacant for the administrative purpose which required to be filled immediately in order to administer the corporation in absence of the municipal commissioner. Also revenue department and water works department has the significant number of the vacant posts.

## 12.4 Functions of various departments

The functions of the departments under the Ratlam municipal corporation have described below:

### 12.4.1 Water works department

The water supply department is responsible for supply of water to the residential and non-domestic connections. This department is headed by assistant engineer in the absence of executive engineer. However, water supply system is old and inefficient, new water supply scheme is under construction. There are about 27400 connections have provided by the Municipal Corporation. In summer season water is being provided by water tanker in water scarce region where the direct water supply line are not available and underneath groundwater table. Also the department maintains the sump and overhead tanks for the distribution purpose. The PHE department has transferred the WTP to the corporation for operation and maintenance purpose.

### 12.4.2 Health and medicine department

This department deals with the Public Health services, sanitation facilities and municipal solid waste management. It operates and maintains the sanitation services such as cleaning of gutters, septic tanks, road sweeping and municipal solid waste collection from different secondary locations in terms of open pits.

**Table 12-4: Temporary staff details of Ratlam Municipal corporation**

| Zone number | No. of collection points |
|-------------|--------------------------|
| Zone-1      | 56                       |
| Zone-2      | 35                       |
| Zone-3      | 48                       |

*Source: compiled from data collected from Health Department.*

This department is administered by the Health officer but currently this position is vacant and operated by official from water supply department. The permanent staff strength of the Ratlam health department is 26 out of which only 15 are filled. The temporary staff included the road sweepers and gutter sweepers for solid waste management. The municipal solid waste management has divided into three zones monitored

by sanitary supervisors. There following number of collection points in each zone.

### 12.4.3 Lok Nirman (PWD) department

This department is responsible for undertaking all construction work viz. roads, drainage and buildings. There are three sub engineers under the assistant engineer to operate daily activities of the department. The department is headed by an assistant Engineer in the absence of executive engineer.

### 12.4.4 Revenue Department

This department is responsible for collection of taxes, fees, rentals and other revenue of the Municipal Corporation. The Revenue Sub Inspector is supported by assistant revenue inspectors to monitor the bill collections. The department

is headed by a Revenue Sub Inspector in the absence of revenue officer. There is no revenue inspector to monitor the revenue department.

### **12.4.5 Fire Department**

This department is responsible for operation and maintenance of the street lighting and fire safety. There is one firefighting truck with workshop provision. All the staff of this department is temporary workers. Workshop is provided with significant number of technical employees and drivers.

### **12.4.6 General Administration Department**

This department is responsible for the miscellaneous day to day administrative functions in the Municipal Corporation. The Municipal commissioner is the head of this department and also all other departments. The Accounts wing also falls under this department. The Accounts wing is responsible for upkeep and maintenance of all the accounts of the Municipal Corporation. The Accounts wing is headed by the Chief Accountant and is assisted by peons who are temporary workers.

## **12.5 Institutions responsible for service delivery**

The Municipal Corporation is responsible for planning and design, construction and operation and maintenance of all infrastructure services viz. water supply, roads, solid waste management, storm water, street lighting and fire fighting services. However, corporation has to stay in compliance with the landuse provisions under the master plan of Ratlam. The Public Health Engineering Department (PHED) has deputed their staff for implementation of water supply schemes in Municipal Corporation. The City and Country Planning Department is responsible for preparation of Master plan for the various municipal areas.

### **12.5.1 Human resources strengthening for Ratlam Municipal Corporation**

Information in relation to the staff within Ratlam Municipal Corporation gives an idea about lack of sufficient staff to operate and maintain the services to be provided to the citizens of Ratlam. There are 248 numbers of total vacancies within the municipal corporation with maximum in Health department, 143 vacant posts, which is directly related to the MSW handling and sanitation services for the citizens.

There is immediate need for staffing skilled engineers and architects for technical capacity building in order to monitor and maintain the upcoming infrastructure in term of water supply, sewerage and sanitation sectors. There can be several innovative ways for monitoring the performances of employees in such way that incentives can be provided for better performance and penalties in case of downgrade service delivery. Hence, in order to maintain the performance appraisal of all the departments and employees under it, there is need for annual appraisal report for each department with service level benchmarking and assessing the performance. Detailed institutional reforms

have been explained under the section of reforms and resource mobilization under section 17.5 explained in subsequent chapters.

### 12.5.2 Institutional Responsibility Matrix for Ratlam Municipal Corporation

In order to achieve proper creditability and accountability there is need for identification and distribution of roles and responsibilities, respectively, for each and every service under urban local body. Following table provides information for institutional responsibility matrix for infrastructure services provided under the jurisdiction of Ratlam Municipal Corporation.

**Table 12-5: Institutional responsibility matrix for Ratlam Municipal Corporation**

| Department                          | Planning & Design | Construction | Operation & Maintenance |
|-------------------------------------|-------------------|--------------|-------------------------|
| Water Supply                        | RMC/PHE           | RMC/PHE      | RMC                     |
| Sewerage                            | RMC/PHE           | RMC/PHE      | RMC                     |
| Storm water drainage                | RMC               | RMC          | RMC                     |
| Solid waste management & Sanitation | RMC               | RMC          | RMC                     |
| Roads & Transportation              | T& CP/RMC         | RMC          | RMC                     |
| Street lighting                     | RMC               | RMC          | RMC                     |
| Socio economic development          | RMC/RDA/LDA       | RMC          | RMC                     |
| Environment                         | MPCB/ULB          | MPCB/ULB     | MPCB/ULB                |
| Urban Heritage                      | RMC/SHC           | RMC          | RMC                     |
| Service to urban poor               | RMC/Housing       | RMC          | RMC                     |

*Source: analysis from the consultants.*

There can be the necessity for the interference of the state level department at several stages of service delivery but it is important to have such interference in order to achieve the external accountability of urban local body for services as well as to attain technical and financial support for strengthening service delivery.

### 12.5.3 Appointment of special officers for public awareness and IEC initiatives

In order to spread awareness especially in relation to sanitation and public health, Ratlam Municipal Corporation may appoint special officers whose responsibility to provided public awareness amongst citizens of Ratlam. These special officers will also play key role in taking initiatives under Information, education and communication (IEC) programmes. Special appointment can be entitled under "social development officer" or "Community officer" under Ratlam Municipal Corporation, which will play key role in awareness efforts along with existing Public Relation Officers (PRO's).

Information, Education and Communication (IEC) combines strategies, approaches and methods that enable individuals, families, groups, organizations and communities to play active roles in achieving, protecting and sustaining their own health.

Following can be role of "community officer" appointed for public awareness programmes:

- Initiating policy awareness in relation to health and sanitations
- Advertising the importance of health related campaigns. E.g circulation of pamphlet's, hoardings, Focused group discussions
- Creating awareness and enlightening the importance of private sector participation
- IEC programmes at micro level with assistance from respective ward representatives.

## 12.6 Reform Status

The property registry is not updated and survey need to be carried out to bring all the properties under the municipal tax assessment. Municipal Corporation has not carried out valuation of assets and valuation is a pre-requisite for migration to a Double Entry Accounting system. Presented below is the status of the Municipal Corporation vis a vis the reform measures enlisted under the JnNURM scheme.

**Table 12-6: Reform Status and Action Plan**

| Reforms  | Status  | Action Plan   |
|--|---|---|
| <b>Property Tax Reforms</b>                            |   |   |
| Survey of Properties                                   | Survey of properties not carried out by the Municipal Corporation   | Survey to be carried out to bring all the properties in Ratlam under tax assessment.                                    |
| Collection Efficiency                                  | Collection efficiency is very low. Ratio of arrears collection to current year demand collection is very high consistently. | Present property tax structure to be reviewed and stringent measures for tax recovery to be implemented.                |
| Computerisation of Records for Property Tax management | Computerisation of property tax records yet to be done.   | State Govt. can assist in computerization of records.   |
| GIS based property mapping                             | Yet to be implemented.  | State Govt. assistance required to implement it across municipal Corporations.  |
| <b>Service Provision and User charges</b>              |   |   |
| Water Supply Service                                   | Cost recovery is only 32%.  | Effective water supply system with proper water pricing mechanism need to implement.                                    |
| Sewerage Treatment Service                             | No sewer network.   | Sewer network covering all properties to be provided.   |
| Solid Waste Management Service, Street lighting        | No treatment of solid waste. 10% cost recovery.   | Comprehensive SWM to be implemented. User charges to be increased.  |
| Audits and surveys to check theft and losses           | Not undertaken.   | Staff to be trained to carry out checks and audits.   |
| <b>E – Governance</b>                                  |   |   |
| Computerisation of Records                             | No Computerization. Only one computer is provided for accounts department.  | Computerization of all records and departments to be taken up. Staff to be trained. Even accounts are not computerized. |



| Reforms   | Status   | Action Plan  |
|---|--|--|
| E-Procurement   | Nil  | Corporation needs one website under e-governance Considering the high level of personal computer penetration and internet users in Ratlam, E procurement and online bill payment can be considered for short term goals. |
| Online payment of bills   | Nil  |  |
| <b>Accounting Reforms</b>   |  |  |
| Valuation of assets and liabilities   | Nil  | Need to be taken up as immediate priority.   |
| Migration to Double Entry Accounting System   |  | Migration to double entry shall be taken up as short term goal with plan for implementation within the next five years.  |
| Revamp of the Public Financial Management (PFM) cycle, which includes internal controls                                   | Nil  | Assistance and training to be provided by the state government.  |
| <b>Financial Management</b>   |  |  |
| Review of Rentals from Municipal Properties and Fees for various services in line with the prevailing market rates        | Nil  | Assistance and training to be provided by the state government.  |
| Monitor and Control of Revenue Expenditure  | Nil  | Assistance and training to be provided by the state government.  |
| Prioritisation of expenditure on capital works in line with the infrastructure needs of the region                        | Nil  | Assistance and training to be provided by the state government.  |
| Efficient Management of Grants, Loans and Deposits  | Nil  | Assistance and training to be provided by the state government.  |
| <b>Internal Earmarking for basic services</b>   |  |  |
| Identification of BPL Families  | BPL survey completed.                          | There is requirement to implement the IHSDP scheme in order to provide the shelter and basic services to poor.   |
| Provision of basic services – Water Supply, Sanitation, Health, Education   | Housing projects to be identified under IHSDP. |  |
| Budgetary Earmarking and Actual Spending for provision of basic services  | Budget earmarking and spending not done.       | Schemes for urban poor to be prepared every year, budgeted and implemented.  |
| Impact evaluation of the schemes and implementation strategies for monitorable output indicators for each of the services | Nil.   | Framework for implementation and implementation strategies can be provided by state government.  |

Source: Compiled from data collected from Ratlam Municipal Corporation

## **12.7 Role of private sector in infrastructure service provision**

The role of private sector has been initiated with the waste treatment facility and the construction of new bus stand near Namli Road. Activities such as street light provision, door to door solid waste collection and transportation which are common among urban local bodies are not practiced at Ratlam.

## **12.8 Prioritized action plan**

Though it is imperative to implement all the reform measures mandated under the JnNURM scheme, the areas that require immediate attention are mentioned below:

### **12.8.1 Property assessment**

Survey of properties need to be carried out as an immediate priority to bring all the properties within the municipal Corporation under tax assessment. Properties which are currently exempted from payment of taxes need to be brought under the tax umbrella.

### **12.8.2 Survey of assets**

Survey and valuation of assets shall bring in accountability and also in aiding migration to double entry accounting system. It will also help the municipal corporation in exploiting the land bank and also in raising funds from external sources.

### **12.8.3 Improvement of collection efficiency and cost recovery**

The collection efficiency and cost recovery for services is very low in Ratlam. This will act as a dis-incentive for the municipal Corporation to undertake new projects to improve service delivery. Hence, the collection efficiency need to be drastically improved coupled with imposition of reasonable rates for each of the services provided by the municipal Corporation for long term financial sustainability.

### **12.8.4 Application of e-governance**

Even though Ratlam city is well advance in internet facilities the Ratlam Municipal Corporation does not have its own website. There is need to provide webpage facility along with the online bill payment facility, consumer grievance system as per the department and general information about the Ratlam city for the citizens . The corporation has the very few computer system facility and still almost entire documentation has been recorded manually. Hence with the use of best practices in the e-governance shall be implemented at the foremost to strengthen the institutional capacity of the Ratlam Municipal Corporation.

## 13 Identification of issues

### 13.1 SWOT analysis

The SWOT analysis for Ratlam according to sector analysis is presented here.

#### Strength

- ❖ Ratlam is the major Railway junction hence it provides the strong connectivity across the country.
- ❖ One of the major commercial market in terms of Sarees and Gold ornaments Ratlami shev famous and sold across the country.
- ❖ District headquarters, all the major governmental offices are in Ratlam city.
- ❖ Ratlam is located near Ujjain and the city itself is famous for its Kalika Mata temple, hence occupying an important place in religious map of the State.
- ❖ The city has few attractive locations for recreation like City palace, Barbad lake.

#### Weakness

- ❖ Inefficient water supply with low pressure
- ❖ City has no comprehensive water supply and sewerage system as on today.
- ❖ City lacks proper collection, processing and treatment facilities for solid Waste management.
- ❖ Poor financials deters Municipal Corporation from taking Capital Intensive projects
- ❖ Poor city road network and city transport facilities.
- ❖ Nagda- Ratlam industrial region has been classified as Critically Polluted Area.

#### Opportunities

- ❖ Commercial and industrial opportunities in terms of skilled labor and existing industrial area.
- ❖ DMIC passing within the proximity of city, will act as a catalyst for the development in the city and region
- ❖ Emerging real estate market.
- ❖ Commercial and industrial opportunities in terms of skilled labour and existing industrial area.
- ❖ Strategic location on the Rail map of India.

#### Threats

- ❖ Burgeoning Slums a major concerns for Ratlam
- ❖ Health hazard due to absence of proper sewerage, sanitation and storm water drains
- ❖ Haphazard growth and unplanned development
- ❖ Large number of illegal colonies
- ❖ Poor infrastructure services for the industrial area can harm the industrial growth of the region.
- ❖ Industrial growth may harm because of pollution and environment concerns.

## 13.2 Sector-wise issues

On the basis of the Sector Analysis, Demand-Supply Gap AND SWOT Analysis, the issues related to each focus area of CDP have been summarized below:

**Table 13-1: Sector-wise issues in Ratlam**

| SECTORS                                  | ISSUES  |
|--|---|
| <b>Physical growth, Land use</b>         | <ul style="list-style-type: none"> <li>▪ Unregulated physical development</li> <li>▪ Burgeoning slums and haphazard development</li> <li>▪ Lack of adequate organized open spaces and green belts</li> </ul>  |
| <b>Urban infrastructure And services</b> | <ul style="list-style-type: none"> <li>▪ Present water supply system is old and not adequate and requires improvement in terms of capacity and level of service.</li> <li>▪ Per capita supply is low (65 lpcd) against the standard norm of 135 lpcd.</li> <li>▪ Household Service coverage indicator represents coverage of about 54%. But the reliability of this indicator is the major issue.</li> <li>▪ Some areas have no water supply distribution network; water is being supplied by tankers in these areas.</li> <li>▪ The Pressure in the Water supply distribution network is deficient; and also there are large numbers of illegal connections.</li> <li>▪ Many connections are without water taps causing huge water losses during the supply hours.</li> <li>▪ At many places withdrawal of water is directly by connecting the motor to the pipe there by reducing the effective pressure in the system.</li> <li>▪ Need to maintain the computerized register for connections with new connections record according to the type of connections</li> <li>▪ Some part of the city has no distribution network in some of the areas.</li> <li>▪ Existing wastewater is being disposed into the nallah running within the city without primary treatment which is causing health hazards and unhygienic conditions.</li> <li>▪ Some parts of the city do have underground drainage system (housing colonies) but due to un-utilization, it is in dilapidated condition.</li> <li>▪ The Amrut Sagar Lake has been the disposal point of the open drainage system of the city, damaging the beauty and biodiversity of the lake.</li> <li>▪ City lacks public conveniences / sanitation facilities especially in the slum areas.</li> <li>▪ City has inadequate storm water drains, as open nallah is the only primary drain in the city area.</li> <li>▪ There is absence of secondary and tertiary drains in the city area for storm water drainage collection.</li> <li>▪ Existing nallah carries both the storm and sewer water; hence there is no scope for recycling the storm water.</li> <li>▪ Existing major nallahs does not have proper channelization.</li> <li>▪ The Corporation is unable to meet the MSW 2000 Rules.</li> <li>▪ City has not adopted Door-Door Collection and Waste Segregation system</li> <li>▪ Lack of container and dustbin provision. There are road side collection points without any proper dustbin provisions.</li> <li>▪ City does not have any designated and proper disposal facility. The waste is being dumped in open plots where it is left without being collected.</li> <li>▪ City has inadequate vehicle capacity for transporting the waste to the disposal site.</li> </ul> |

| SECTORS                           | ISSUES  |
|-----------------------------------|---|
|                                   | <ul style="list-style-type: none"> <li>▪ City has staff inadequacy &amp; most of the conservancy workers are temporary workers</li> </ul>   |
| <b>Traffic and Transportation</b> | <ul style="list-style-type: none"> <li>▪ Congestion at major road junctions in the city area, e.g. Sailana road junction, Javara road crossing (Gulmohar Chauk) and Do batti, Daat ki pool area.</li> <li>▪ Encroachments at the commercial areas causing the congestion at major market places like Chandani chauk, Ghas Bazar.</li> <li>▪ Congestion at the major roads connecting to the city area, like Indore road, Mahu road, Mandsaur Road and Nagda Road.</li> <li>▪ Most of the Slum areas do not have proper roads and connectivity. Some of the roads are kuchha and result in water logging.</li> <li>▪ Illegal bus stands at Sailana and Javra roads due lack of space availability.</li> <li>▪ Signals at the major junctions are not in operational stage.</li> </ul>  |
| <b>Urban Poverty And Slums</b>    | <ul style="list-style-type: none"> <li>▪ Documentation of slums has been done and IHSDP project report has been prepared but it has not been approved yet.</li> <li>▪ Direct Household water connection coverage is less leading to the illegal connections hence accounting to the Non-revenue Water.</li> <li>▪ Sanitation facility in slum area is very deprived affecting the health of the urban poor of the Ratlam.</li> </ul>  |
| <b>City economic Development</b>  | <ul style="list-style-type: none"> <li>▪ Lack of diversified economy. Absence of employment generating activities</li> <li>▪ Increasing poverty level and slums</li> <li>▪ Inadequate and sub-standard urban infrastructure and services likely to discourage opportunities for future economic development</li> </ul>  |
| <b>Urban Environment</b>          | <ul style="list-style-type: none"> <li>▪ Waste management is not as per SWM handling rules causing pollution.</li> <li>▪ Recreational spaces are inadequate</li> <li>▪ Public health is under threat due to absence of infrastructure facilities related to the pandemic disease.</li> <li>▪ Depletion of drinking water sources</li> </ul>   |
| <b>Municipal Finance</b>          | <ul style="list-style-type: none"> <li>▪ Cost recovery is only 69% for water supply services and for other services it is 8% in the year 2008-09.</li> <li>▪ The operational expenses in terms of energy expenditure for water supply are very high and there is need to have energy auditing for the pumps provided for the water supply.</li> <li>▪ There is need to revise the water pricing for the water supply services of the Ratlam.</li> <li>▪ Also there is need to levy the separate tax for municipal solid waste management services as the administration and overall operational expenditure are maximum as compared to the other departments.</li> <li>▪ There is need to assess the properties in order to register the entire properties under the Ratlam Municipal corporation.</li> <li>▪ Grants and transfers account for about 65% of the total revenue while municipal taxes account for only 18% of the total revenue for the year 2008-09. The share of municipal taxes to the total income need to be improved.</li> <li>▪ Capital expenditure is skewed towards road and water supply works and other infrastructure services requiring investments need to be considered.</li> <li>▪ Salary accounts for 40% of the total revenue expenditure and the same need to be curtailed in the coming years.</li> </ul> |

### 13.3 Issues identified by stakeholders

The current water supply in Ratlam city is insufficient to meet the needs of the existing population. Some part of the city does not have water distribution lines. The source of water for Ratlam city is Dholawad Dam which is the sole source of surface water supply. The current demand is 39 MLD however the water being treated and supplied to the city is around 22 MLD. To meet additional demand for treated water, Municipal Corporation supplies water through several borewells.

Comprehensive underground sewerage and storm water drainage system is unavailable in Ratlam city. There is presence of open drainage systems within the city causing diseases and unhygienic environment in the surrounding residential areas.

One of the major problems in Ratlam city is encroachments in the key commercial areas as well as on the open nallahs / natural drainage system.

Major issues highlighted by the stakeholders are:-

1. The city neither has a treatment plant for decomposing bio-degradable waste nor a scientific landfill site for non-biodegradable waste.
2. Waste segregation and door-to-door waste collection is not being practiced in the city.
3. The city lacks an effective traffic management system causing congestion on the roads due to improper parking facilities. Increase in number of vehicles is further adding to the traffic problems of the city.
4. Increase in the number of illegal colonies/ encroachments in several wards of the city are causing pressure on the service provider i.e., the Municipal Corporation.
5. Due to encroachments, slums are increasing in number within the city causing people to live in unhygienic environment due to lack of basic services to the urban poor.
6. Industrial development has been constrained in the city and there is no new major industrial activity in the city limit.
7. Internal roads in the city are in bad condition which needs to be developed in a comprehensive way by creating missing links, kutcha BT / CC roads etc.
8. Linkages to rural settlements need to be strengthened and widened.
9. There is presence of limited recreational facilities such as parks, playgrounds, libraries etc as well as community halls benefiting the citizens of Ratlam.
10. The city does not have a well operated and maintained slaughter house.

Suggestions given by the elected representatives and administrative staff and NGO/ Woman Groups/ SHGs are encapsulated as under:

1. Augment water supply from Dholawad Dam to meet the current and future drinking water demand. Further there is also a need to identify the losses in the water supply system.



2. Provide comprehensive underground sewerage/ drainage facilities in the city.
3. Develop the Industrial facilities in and around Ratlam by utilizing the USP of Ratlam i.e., the connectivity with major cities and Ratlam railway junction.
4. Provide basic infrastructure in the slum areas for urban poor.
5. Provide flyovers for the major crossroads in the city area.
6. Provide industrial development to support the economy and employment for the youth of the city.
7. Create health infrastructure facilities in the city
8. Undertake development/ beautification of existing lakes of Ratlam city.
9. Initiate water harvesting schemes in the city
10. Widen approach roads to the surrounding city areas.

## 14 Learning's from successful city transformation

The Consultant in accordance with the TOR, have adopted a case-study approach for developing the City Development Plan for Ratlam. The Consultant throughout the period of the assignment has studied a few successful city transformations and tried to inculcate the positive aspects of the City Transition Process in smaller cities. The following sections discuss the successful transition of major international and national cities/ cities.

### 14.1 Barcelona

*"No one can survive merely by conservation. If there is no new construction, the city cannot stand; not even the old will endure. Each city must find its own formula for combining existing symbols with new ones. Without the latter, antiquity becomes mere repetition."*

**Pasqual Maragall, Mayor of Barcelona 1982-97**

Barcelona is now widely recognized as one of the most successful cities in the world, internationally acclaimed for its innovative urban planning. It has survived the economic, environmental and social changes of the last decades by focusing on the provision of knowledge-based and information services to place itself in the forefront of a new urban wave, in which city planning provides high-quality opportunities for people to live and work. In short, Barcelona has been transformed into a city that provides a highly impressive urban environment to all those who visit it.

The foundation for Barcelona's transformation has been the city's Eixample District, a garden city expansion of 520 street blocks planned as long ago as 1859. Its high quality architecture, egalitarian design and ease of access have stood the test of time and it provides the model for modern city developments today.

The modern transformation of Barcelona began with preparations for the 1992 Olympics. Faced with serious problems of urban decay in both inner and peripheral districts, planners took a holistic approach and used the games as a vehicle for city-wide reforms. Olympic facilities were spread over four neglected urban areas, with the Olympic Village, developed on abandoned industrial land close to the coast, the best known feature of this period. The construction of six artificial beaches on either side of the Olympic Port has had the most impact and for the first



time in its history, Barcelona has been able to turn and face the sea with pride.

At the same time, a radical transformation of inner city districts began, with a policy of improving the social capital and mopping-up the marginal inhabitants who had given the city a reputation for serious crime.

Barcelona is now undergoing a third wave of transformation. A High Technology Zone (22@), Hyper-Community (Diagonal Mar), the Universal Forum of Cultures 2004 and a new Container Port and Logistics Park are the key developments, all constructed on coastal brown field and reclaimed land. Inner city and peripheral reforms are continuing and attention, a century on, is being refocused on the Example. Many of the residential blocks which have lost their interior open space to industrial development are seeing a gradual return of communal gardens.

## 14.2 Chandigarh

The Union Territory of Chandigarh has a total area of 114 sq. kms and has witnessed decennial population growth (1991-2001) of 44.33%. It had a population of 9, 00,914 in the last census. Chandigarh is unique, because it is the capital of two state governments, Punjab and Haryana. Chandigarh is a planned city, with a high standard of civic amenities.



Chandigarh's infrastructure was originally planned for a population of 5 lakh, but the city has expanded rapidly over the last three decades and faces problems common to other growing cities in India, including the proliferation of slums and squatter

settlements. Despite these problems, Chandigarh ranks first in India in the Human Development Index, quality of life and e-readiness.

Keeping in view the need for the investment of investible surplus, a number of major initiatives were undertaken to upgrade the infrastructure in Chandigarh to boost economic growth in the region. Chandigarh is emerging as a regional hub in the areas of service industry, education, health, information technology, food and vegetable processing etc. Chandigarh's plan clearly focuses on the targets and objectives contained in the National Common Minimum Programme.

Chandigarh's economy is changing in character as the knowledge revolution sweeps the country. In the last decade, the traditional industrial activity has not seen that rapid an increase as was seen in the activities relating to the services sector.

Right from the day the foundation of the city was laid in 1952, the Administration has been successful in transforming this city into a world class city, which can be depicted by the following Fact File:

- Number 1 in the country in terms of Human Development Index
- Chandigarh has been rated as the "Wealthiest City" of India. In terms of family wealth, it was rated as the sixth most prosperous city.
- Good Governance- A compact, efficient Administration having Quick Decision making system
- Bank Deposits- USD 4 billion with 227 branches
- Education: Seat of the prestigious Punjab University from where 145 Ph.D pass out in various disciplines, with 2 prestigious Engineering Colleges with 400 Engineers passing out every year. PGI ME&R- Prestigious Medical Research Institute of the country is situated in this city. Apart from various Colleges in the Science, Commerce and Humanities fields, 1 Architecture College and one College of Fine Arts add to the high value education institutes of the city.
- Health: 5 large Government Hospitals in the City; PGI, General Multi-Speciality Hospital, General Medical College & Hospital, One Hospital each in

the field of Homeopathy & Ayurveda. Apart from these, there are various other Hospitals in the private sector.

- Research Institutes: IMTECH, CSIO, NIPER all add to the value added Research facilities provided by the city.
- Gross Domestic Product (GDP) grew at 16.06% in the year 2004-05 against all India GDP growth of 8.2%.

### 14.2.1 Initiatives of Chandigarh administration

- **Changing Employment Patterns**

Rajiv Gandhi Chandigarh Technology Park (RGCTP) has been conceived with the idea of creating employment and it is expected that once RGCTP is completed more than 25000 professionals would be working here. Already 4500 professionals are working in RGCTP at present. As a natural corollary to creation of a single job in the IT sector, 3 other indirect jobs are created and as such 15000 jobs were created indirectly.

- **Providing Essential Public Services To The Poor**

#### **Education**

Under Sarva Shiksha Abhiyan (SSA) 10,400 children have been enrolled and the ambit of SSA is spreading its wings to cover all the out of school children/ drop-outs by the end of this financial year. To accomplish this task, a house-hold survey



has been initiated which will detect the out of school children. To encourage literacy amongst the illiterate adults, different schemes in collaboration with Gol are being launched every year. Literacy centers are being opened within the city so that every adult can be educated and provided basic minimum educational qualification.

#### **Health Care**

General Hospital (in Sector 16) has been upgraded to General Multi -Speciality Hospital, so as to provide quality health care to the underprivileged

General Medical College & Hospital (in Sector 32) and General Multi Speciality Hospital (in Sector 16) will cater to the primary and secondary health care needs

PGI ME&R will be upgraded to a world class referral hospital, where only complicated medical cases would be referred from the region



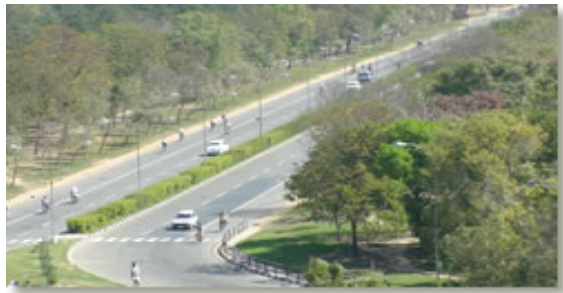
## City Development Plan, Ratlam

- A complete study of the integration of healthcare systems has been made by Director, PGI ME&R and the same has been sent to Gol
- A need has been felt for another Medical Education Centre, and a project for Rs. 240 Cr has been prepared which will be implemented under the PPP model.
- A massive drive has been started to ensure that all children are given the benefit of the medical system and this drive will cover 1.5 lakh children.
- To tackle the problem of malnutrition, the whole mid-day meal scheme has been revamped, starting with non recognized schools with 50,000 students and gradually this scheme will be extended to the 104 Government schools as well. The daily expenditure per child is Rs. 7 out of which the GOI subsidy component is Rs. 1.50. Some of the Institutes and Corporations have been given the responsibility of partially funding this endeavor.
- Tele-medicine project has been undertaken so as to integrate IT services with medical services.

### • Increasing Manufacturing Competitiveness

#### Roads

As a long term measure, Chandigarh Administration has initiated the conversion of all bitumen roads into RCC roads. Plastic waste is also being used in road construction and it is proposed to rehabilitate the rag pickers in a planned colony. (The Engineering Department will purchase plastic waste from the rag pickers and use in the construction of roads.)



#### Power

- Long term tie ups have been made with all the Power Corporations, so as to ensure uninterrupted power supply to the city.
- Talks are on with GAIL for a dedicated gas pipeline to the city for setting-up of a 250 MW power plant.
- Foreign companies have been approached for harnessing solar energy, which will include setting-up a plant for manufacturing Solar Photovoltaic Cells.
- Power T & D losses have been brought down from 24% to 19%, which will be further brought down to 16%.

#### Rajiv Gandhi Chandigarh Technology Park

- Phase I of RGCTP has been fully developed and it has been accorded SEZ status. The same has been anchored by Infosys with a state-of-the-art building ready for occupation. 15 other BTS sites have been allotted to prominent IT companies.



- A state-of-the-art Entrepreneurs Development Centre is expected to come up on a 1.5 acre plot at a cost of Rs 16 Cr, which will have plug-n-play facilities for upcoming entrepreneurs.
  - Phase II of the RGCTP is under development and has also been accorded SEZ status by GoI. Wipro is the anchor company for Phase II, and Tech Mahindra, Bharti and eSys are the co-anchors.
  - DLF Infocity has built up a state-of-the-art building on a 12.5 acre plot having a covered area of 6, 00,000 sq. ft for the use of IT companies. Big players like IBM Daksh, Infosys, Tech Mahindra, eSys, Net Solutions, Virsa Systems, etc have already starting functioning from this centre.
  - Keeping in view the demand for more IT space, Phase - III of RGCTP has been planned for which 270 acres of land is to be acquired. The acquisition process has already begun.
  - Till now Rs. 700 Cr have been invested in RGCTP. Once completed, RGCTP will bring in an investment of Rs. 5,000 crores, apart from bringing in additional 25,000 IT professionals.
- **Developing Human Resources**
    - A new state of the art Education City is expected to come up, which will have world class educational faculty and excellent infrastructure.
    - Punjab Engineering College (PEC) which is an autonomous deemed University will be soon upgraded to IIT status, enabling delivery of more value added education.
    - It is proposed to set up an IIM-level Management Institute and a branch of the National Institute of Design in the city
    - Partnership with private sector is being explored for providing IT education to young students. Infosys has already launched the programme "Catch Them Young" whereby entrance test is conducted in all the schools of the city and the students selected are given free of cost in-house training in Infosys. Intel Learn is providing IT education to teachers of Government schools, which will in turn provide IT education in the rural areas. The Administration is also in the process of upgrading select Government schools as Smart Schools, where IT programmes would be launched for the betterment of school going children.
    - C-TOSS, a programme for upgrading the soft skills for urban and rural areas enhancing employability of students under PPP model is being considered by the Administration.

### • Protecting the Environment

- Botanical Garden has been developed on an area of 178 acres in village Sarangpur, which will consist of 15 botanical sections and other features to promote eco tourism.
- 3 Lakes, two along Patiala ki Rao and 1 along Sukhna Choe are being undertaken, as part of environmental related initiatives.
- A Project for augmentation of water supply has been prepared and sent to GoI under JNNURM for approval. This will go a long way in contributing towards rain water harvesting, ground water charging and also reduce dependence on pumping out ground water.
- Tertiary water treatment plan is also under implementation which will cater to the needs of supporting 2000 parks/gardens in the city.



### • Improving Rehabilitation and Resettlement Practices

- To ensure harmonization between the old and new, the Chandigarh Perspective has been activated which has representatives of all professional and social sectors and includes members of Le Corbusier's initial team of eminent architects.
- Comprehensive Plans are in various stages of implementation in the field of housing especially to cater to the needs of the incoming IT professionals.
- FAR has been standardized across the city.
- Self certification of building plans by registered Architects.
- Promulgation of suitably modified building byelaws which have redressed long standing demand of majority of people. These byelaws also cover the conversion of Industrial Areas into Commercial Areas so that it can be upgraded to the same level as the new construction and this has had a very good response.
- Rehabilitation of slum dwellers is being undertaken in a massive way, which involves construction of 18,000 flats for which a complete new model has been worked out. Past experience has been that slum dwellers had to take loans from the unorganized sector, which got into benami transactions, resulting in the flats going into wrong hands. Under the new model, the slum dwellers would be allotted flats on rent basis which shall be non-transferable. This project will also include a home for rehabilitation of 1000 destitute children. Facilities are also being created for 1000 mentally retarded children and 1000 crippled children, both of which will have a percentage of vacancies for adults and destitute.
- Upgradation of Rehabilitation Colonies is also proposed to be launched.

## 14.2.2 Improving Governance

- **Participation of Citizens in Decision Making**

Chandigarh Administration has instituted a consultative process as broad based as possible involving people with varied expertise and experience in specialized subjects in public affairs so that aspirations of all sections of the society are reflected in governmental decisions. This initiative has successfully given a sense of participation to citizens in the decision making process making the process seamless and transparent. Such initiatives include constitution of Administrator's Advisory Corporation including its sub groups on various issues of public concern, and Chandigarh Perspective and Environmental Committee on Preservation of Ecology of Sukhna Lake etc.

The burning issue of tackling corruption needs attention. There needs to be a wide spread campaign, at the National and State levels with important functionaries of the Government at all levels introducing citizens charters and the Right to Information, which should be widely publicized to increase awareness amongst the public so that the general public is not forced to succumb to corrupt officials. Concrete steps, like deterrent, punishment, as also incentives for honest officials, will also be effective. The issue needs to be taken up at the national level, so that there is a concerted effort among all levels of Government to rid the system of corrupt officials in particular and corruption as a whole.

The Chandigarh Administration has incorporated all these measures to ensure a transparent, responsive and completely accountable Government.

- **Regaining Agricultural Dynamism**

To support the crop diversification programme undertaken by both Punjab & Haryana, the Administration is in the final stages of setting up of Terminal Market for Fruit & Vegetables for which preliminary discussions have been held with the GoI. The Administration is also putting together a Milk Village so that all UT Villages are cleaned up. A modern dairy system for Chandigarh villages is being introduced. Expressions of Interest are being invited for setting up a high value product Milk Processing Plant.

- **Disparities and Divides**

Chandigarh's plan clearly focuses on the target and objectives contained in the National Common Minimum Programme. The Administration is aiming at three areas i.e. Human Development, Infrastructure, and Environment Upgradation & Protection. Despite facing many challenges, Chandigarh Administration is constantly working towards improving the quality of life of the residents and preserving the unique character of the city of Chandigarh.

- **Development Infrastructure**

- Upgradation of Chandigarh Airport to international standards is under implementation with the first step of transfer of 8.5 acres land to the AAI. Chandigarh Administration will be allotting equal area to Air Force and Army

in lieu of this land. This will augment the physical connectivity of Chandigarh to the world and fulfill a long term need and considerably enhance export potential of the region.

- Nehru Centre for Performing Arts is being set up in Sector 34, Chandigarh which will also have the facility of an International Convention Centre and theatres.
- Rejuvenation of the City Centre in Sector 17 is being undertaken by provision of multi level parking, relaying of the floors of main plaza, provisioning of tourist information centre etc.
- Completion of Sub City Centre in Sector 34 will further boost the commercial activity of the city.
- Botanical Garden is being developed on an area of 178 acres in village Sarangpur, which will consist of 15 botanical sections and other features to promote eco tourism.
- Second state library is being completed in Sector 34.

### 14.3 Surat

The city of Surat is located in southern Gujarat, on the banks of the river Tapi. It is India's twelfth most-populous city. As in all cities, the rapid growth of population and urbanization resulted in the growth of slums, garbage, and overflowing drains. The situation would have been taken for granted had Surat not been struck by an outbreak of pneumonic plague in September 1994. The city, till then famous for its diamond merchants, came into the news for the wrong reasons. The plague became an issue of global concern. Close to 200 deaths were linked to the outbreak. The disease created widespread panic and led to a mass exodus from the city.

Apart from the human tragedy, it was a severe blow to not only Surat's economy which suffered a loss of several million rupees every day, but also to the nation's economy. The outbreak had an impact on industrial production, tourism, export, and many other areas. International flights to India were temporarily suspended, and export of food grains from Surat was banned.

The precipitating factor for the outbreak of plague in Surat was constant rain which lashed the city for more than two months, and led to flooding and large-scale water-logging in low-lying areas. The primary reason for this was the faulty drainage system. Hundreds of cattle and other animals died due to flood and water-logging. The floods, in fact, only brought to a crisis point, the dangers inherent in inadequate waste management systems.

#### 14.3.1 Battle against plague

In the face of the unprecedented crisis, Surat Municipal Corporation (SMC) immediately launched a seven-point action plan for restoring normalcy at the earliest. This involved government, non-governmental agencies, civil society, and the private sector working together. Doctors in public and private hospitals joined hands with the civic authorities. Priority was given to the cleaning of dirt

and debris, disposal of carcasses accumulated due to the floods, pumping of stagnant water, spraying of pesticides, and anti- rodent operations.

### 14.3.2 Sustaining the efforts

Environmental cleanliness became the paramount concern. Recognizing that a long-term plan was needed to sustain this initial momentum, in May 1995, the Government of Gujarat launched a major programme to clean up the city. This included a change in the personnel set-up of Surat Municipal Corporation. Within one year, through a well-orchestrated strategy, SMC increased the clearing of accumulated garbage from 50% per day at the time of the plague, to almost 94% of the 1,100 tonnes of garbage generated everyday. Primary importance was given to the monitoring, regulation and streamlining of garbage collection and disposal.

An integrated approach was adopted towards sanitation, public health and garbage management. The city was divided into 52 sanitary wards, under six administrative zones. The strategy of micro-planning included meticulous ward-level planning and took into consideration the special needs of critical spots like vegetable markets, eateries, and congested areas with heavy traffic flow. Cleanliness instructions were given to individual households, industries and eateries. Separate garbage collection methods were chalked out for each of these. The private sector also contributed in this drive, in the early stages, by offering their trucks and excavators for clearing 4,000 tons of garbage.

In the later stages, the hiring of vehicles for garbage collection, cleaning of certain roads, and transportation of municipal refuse were privatized. The private contractors worked under the supervision of the municipal staff, and penalties were imposed on them in case of non-performance of the assigned work. These measures resulted in a tremendous increase in the amount of garbage collected daily. Other indirect effects, including a tremendous boost in the morale of the employees, officials and residents of the city, were also noticeable. Surat's citizens, who had earlier accepted filth and dirt as a part of life, now had a sense of belonging and pride for the city, and a concern for its well-being.

A number of initiatives were also undertaken by the Health Department: a programme of 'public health mapping', strengthening of the health infrastructure, revival of work ethic among health workers, and an extensive sanitation drive. These measures considerably boosted the city's health indicators. Subsequently, SMC also introduced a unique system of health monitoring entailing close surveillance of health indicators on a regular basis.

This can act as an early warning system with regard to the outbreak of any epidemic in future. Improvement of sanitation in slums was one of the most important focus areas of the post-plague sanitation drive. The strategies adopted by the Corporation included in-situ development and relocation. The emphasis was on providing community facilities rather than individual facilities. Community water hydrants, pay-and-use community toilets, paved open drains, paved roads and streetlights were provided on a priority basis. NGOs like Sulabh International and Paryavaran came in to help in these initiatives.

### 14.3.3 Crisis to opportunity

Within a span of 18 months, the city made a complete reversal from being a dirty, garbage-strewn city to one of the cleanest cities in the country. This transformation of Surat was spearheaded by swift and striking initiatives taken by SMC. These were strengthened by the positive, proactive participation of other stakeholders of the city. The birth rate, death rate and infant mortality, which were showing a desirable downward trend in the last three decades, have further improved in the post-plague period.

Community participation played a key role in the rapid implementation of decisions taken by the Corporation. Following the disaster, there was a change in the attitudes of the citizens; they began to participate proactively in improving living conditions in the city. In addition to the administrative changes, change in some of the laws had an important role to play by making citizens aware of, and be responsible for certain preventive actions.

### 14.4 Performance Improvement: Developing Effective Billing and Collection Practices

In India, poor billing and collection practices primarily occurs from the lack of incentives for the service provider to even charge for services being delivered and the lack of a political will to set tariffs that would allow for recovering the costs incurred in supplying the service. Most service providers do not have well-defined and proper financial records for water supply and sanitation (WSS) service delivery. Many service providers also carry out responsibilities for supplying WSS services as one of the various other functions and, therefore, do not keep separate accounts for recording all activities connected with the WSS responsibility. Since they have no separate budgets or accounts for WSS services, any revenue-enhancing reforms fail to encourage and incentivize WSS staff to take further initiatives since financial deficiencies are cross-subsidized from other municipal account flows. They are not incentivized to collect charges, either because of the absence of any set revenue targets or because of virtually unconditional financial support from government.

- **How it affects the Service Provider?**

It seems as routine exercise for them. It should be realized that effective billing collection is the only source of revenue and cost recovery mechanism for the provider. There is need for proactive attitude towards it. Ultimately it affects its poor service level and hence further revenue reduction in terms of customer accountability. Also ultimately it losses creditworthiness to the bankers and affects the rise of capital for further investments.

- **How to improve billing and collection practices?**

- Monthly Billing system based on volumetric structure,
- Computerized system of billing
- 100 Percent Customer Metering and 100 Percent Billing Based on metering
- Automatic meter reading



- Outsourcing the billing and collection functions incentives for meter readers, e.g. Employee Incentives in Hyderabad and Bangalore. Monthly and daily targets are given, resolving customer grievances,

Also connecting poor populations are also the important strategy adopted by the city of Bangalore through AusAID, and also they are getting revenues through regular bill collection as poor population is ready to pay for safe and reliable water services.

Credible disconnection policy adopted by Manila, Bangkok, Bangalore, and Hyderabad cities for customers by warnings, legal notices, penalties and disconnection.

One time settlement schemes for the customers who had huge arrears in their bills. This was practiced in Hyderabad.

**Hyderabad:**

Consumers in Hyderabad today have the convenience of paying water bills either through e-seva or through the Hyderabad Metro Water Supply and Sewerage Board's collection counters. It is an e-governance initiative that provides citizens with an easy and hassle-free way of paying their utility bills. Currently, about 70 percent of the Board's water bills are received through e-seva. Also there are integrated service delivery centres through e-seva which provides customer with the objective of simplifying collection procedures by providing citizens with a onestop shop for a variety of Government to Citizen and Business to Citizen Services.

**Bangalore:**

In Bangalore, the water utility Bangalore Water Supply and Sewerage Board has created customer conveniences where consumers can pay bills through a variety of options such as water kiosks, Electronic Clearing Service systems, and household e-banking facilities. It is one of the first cities in the country to install 70 kiosks to help consumers pay their bills.

- **“Concept of Water Adalats”:**

Water adalats are used in Hyderabad and Bangalore to resolve long-standing issues and complaints related to service delivery. Consumers are usually informed about water adalats through all the major newspapers; they are required to register their complaints or cases in advance to facilitate collection of required information and documents from the concerned zone or circle of the water utility so as to ensure speedy complaint resolution. It is conducted once in a month of on the weekly basis. A majority of the cases registered under water adalats are related to billing problems.

**14.4.1 Performance Improvement Practice Around World: Effective Billing, Collection and Metering:**

Hundred percent billing and metering has been achieved in Manila, Bangkok, Singapore. Manila's Metropolitan Waterworks and Sewerage System the Company has 100 percent metering on all service connections, which are read monthly. The reading is electronically transferred at the end of the day to the company's computer servers for billing. Payments may be made through

certain banks approved by the company or through 180 payment centres such as.

A customer service call centre has also been set up for systematic customer feedback process. The call centre normally receives an average of approximately 1,400 calls per month for complaints including lack of water, leaks, and billing queries.

Metropolitan Waterworks Authority is the municipal utility that serves 1.7 million customers in Bangkok. Bills are generated on a monthly basis and meter readers have been appointed to read meters through the use of handheld meter reading devices with portable printers, thus providing the facility of an instant bill. This enables the customer to check the amount of water charges right away after the meter has been read. The data are transmitted through the handheld meter reading device to the Authority's server. Once the meter is read, the meter reader enters the data, checks the data entered, and then prints an invoice for the customer. The invoice is checked to see if the consumed water amount is different, that is, if it is more than 30 percent of a three-month average. If it is not, the invoice is handed over to the consumer, otherwise it is returned to the office for further investigation.

The Public Utilities Board is Singapore's national water authority. Over the years, it has shown impressive performance improvements—unaccounted-for water of 4.8 percent, coverage of 100 percent, staff-connection ratio of only 2.95 per 1,000, and accounts receivable outstanding at less than one month. One of the key areas of focus for improved commercial operations has been billing and collection practices. The Board currently has approximately 1.2 million utility accounts (96 percent domestic and 4 percent non-domestic)—all accounts are metered. The meters used comply with ISO 4064/1 Class C standards and are within 3 percent of accuracy. Domestic meters are placed at the entrance of the house to facilitate easier accessibility for their reading and maintenance. The Board has a meter workshop where regular maintenance, including servicing, reconditioning, and testing of meters, is undertaken.

### **14.5 Designing an Effective Leakage Reduction and Management Program: (Case studies: Bangalore, Jamshedpur, and Haiphong)**

Reducing non-revenue water and maintaining it at target levels is important for any service provider looking to improve quality of service, financial soundness, and creditworthiness.

In the longer term, the effectiveness of non-revenue water programs is a function of managerial efficiency and institutional accountability. To improve the NRW losses involves the continuous efforts to control physical and commercial losses. In India, more than 40% of water produced does not earn any revenue. It is lost either before reaching the consumer or not billed for it.

The approach to reducing NRW levels includes a set of technical programs and activities aimed at the optimization of water supply through improved operations and maintenance, sound commercial practices and network refurbishment, rehabilitation and management established in managerial,

organizational and institutional environment. Need to understand the magnitude of the problem by applying water balance calculation that is by dividing the input volume into authorized consumption and water losses.

A water audit in Jamshedpur indicated huge water losses in one of the main trunk lines of the network which, when repaired, immediately brought down the levels of NRW.

In Bangalore, a water audit helped determine that maximum leakages were occurring at the point of service connections, which were then accordingly controlled.

- **The District Metered Area:**

The DMA approach is a way to study problem affecting a large area by dividing it into smaller ones. In a sense, it means breaking down a big network into more numerous but smaller areas, the District Metered Areas. Then, for each area the total net inflows and the volume of water billed are measured and the NRW is calculated as the difference between the two figures. Once this is done, areas where NRW levels are higher than desired are analyzed to determine the appropriate solutions and implement them according to a prioritized program. District metered area approach has been practiced in Jamshedpur and Bangalore.

- **Staff Incentives for Billing Collection & Identifying Illegal Collections:**

Water utilities will need to provide incentives their staff to undertake better billing practices, not only checking for illegal or bypass connections but also for connections with meter inaccuracies. Improving the metering practices by replacing the old meters with the new ones, applying better technology for collection of bills, 100% metering of supply areas even though some water connections are authorized unbilled it is important to provide the meters so that we can understand the actual consumption for that consumers. Also we can provide bill copy to the consumers even though they are not liable to pay it just to realize them amount of water they are consuming. Any non-revenue water management program should ensure that incentives are aligned with the objectives of developing an efficient and reliable service provider that meets the needs of all consumers.

E.g. incentive-based performance contracts in Senegal, Uganda.

Approach to reducing and managing NRW goes beyond technical solutions. Those are addressing the institutional, Organizational, and Regulatory Arrangements for Creating a Suitable Environment for controlling NRW. E.g. decentralizing service delivery in Haiphong, Vietnam, those involve technical and administrative unbundling at ward level involving the community for operation and maintenance. The ward level offices undertook meter reading, maintenance and revenue collection once the network was rehabilitated and established.

Hence there is need for designing a Non-revenue Water Management Strategy to improve the NRW percentage, through technical and managerial skills. Implement

### **14.6 Performance contracting to implement performance improvement plans:**

Performance agreements are a means for implementing performance improvements within institutional framework that helps foster, incentivize, and sustain service delivery improvements on a long-term basis. These agreements form the basis for a market orientation approach to the delivery of public services, by exploring means for lowering costs by outsourcing certain functions, by gradually introducing incentives within the organization for incentivizing performance improvements, and so on. In undertaking such agreements, water utilities can use performance agreements in clearly defining roles and responsibilities of all stakeholders so that there are no ambiguities or overlap in functions. Under performance agreements, the public sector or higher tiers of government or the state-level water board (henceforth referred to as the Board) contracts the lower tiers of government, the operating arm of the public service provider or even the private sector (henceforth referred to as the service operator). While the responsibility of the Board remains to define what is wanted, what the performance standards are, award the contract, and monitor performance, the service operator to whom services are being contracted to remains responsible for the actual delivery of services against some set performance standards. The role of the Board then shifts from the existing role of an operator or service provider to that of a facilitator and regulator for approving and monitoring business plans, and regulating the operations and obligations of the contracted operator against set standards. While the Board sets the guidelines and defines overall objectives for a plan for performance improvements, the service operator defines what is needed so that the performance plan can comply with overall objectives and the two together reviews and revise it to reach a final action plan. Performance contracting has been intensively practiced in the eastern European countries and in India it is applied to very few cities like Mysore, Nagpur (in future) etc.

## 15 Stakeholder's consultation

The success of a City Development Plan depends on the extent of people participation. As it is very rightly said "Planning is an exercise 'For' the people, 'Of' the people and 'By' the people." People's perception and views should be given due consideration in any development programme as the entire exercise is conducted for the common good of the people.

According to the TOR, the Consultants organized the First Kickoff Workshop with assistance from ULB. The aim of the workshop was to familiarize various stakeholders with the purpose, process and expected outcomes of the CDP. Stakeholders included elected representatives, Mayor/ President, Municipal Commissioner, District Collector and people from local departments like PWD, Traffic & Transportation, Tourism Department, City and Country Planning Department, District Urban Development Agency (DUDA).

Taking ahead the Stakeholder Consultation process, the Consultants had organized a 2nd Workshop at Ratlam on 26th August, 2010. The workshop was aimed at gathering the viewpoints of the stakeholders on the City's Vision. The rationale behind conducting the second workshop was to develop a Vision for Ratlam City which is acceptable by and conceived in accordance with the Citizens of Ratlam. Subsequently, third workshop was conducted on 12<sup>th</sup> January, 2011 in order to prioritize projects and action plans. All ward councilors, steering committee members were invited for third workshop. Stakeholders have given proposal for city development plans which are enclosed in the annexure. The copy of City Vision Survey form is attached as Annexure.

### 15.1 Formation of steering group

A Steering Group comprising of the District Collector, Municipal Corporation staff, Elected Representatives of the Corporation, various line departments, NGOs, Press etc. was formed during the first workshop. The Steering Group members participated in the discussions during the course of the workshop. The Steering Group members of Ratlam city are as follows:

- Collector, Ratlam District
- Municipal Commissioner, Ratlam Municipal Corporation
- Mayor, Ratlam Municipal Corporation
- Representatives, MPUSP
- Assistant Director, City and Country Planning Department
- Executive Engineer, Public Health Engineering Department
- City Engineer, Ratlam Municipal Corporation
- Executive Engineer, Public Works Department
- Executive Engineer, Water Works Department

- President, Divisional Industries Association
- Nodal Officer, MPUSP, Ratlam Municipal Corporation
- Representatives, Municipal Support Unit
- Representatives, City Support Unit

### 15.2 First workshop-kickoff

The first kick-off workshop was held in Ratlam Municipal Corporation community hall on 4th February 2010. The participants included Steering Group members elected representatives, staff of the Municipal Corporation, representatives of NGOs/ women groups, media representatives, and general public.

The Consultants made a presentation in Hindi on the concept of CDP, its principles, process and the approach and methodology to be adopted while developing the CDP. The stakeholders were invited to express their views about the city, the problem areas and to share their vision about the city. The views of some of the stakeholders were also recorded. Following the presentation, city opinion survey formats in Hindi were distributed to the stakeholders to take individual feedback regarding the city, problems issues, vision etc.

### 15.3 First Steering group meeting

First steering group meeting was conducted at collectors office on 5th May, 2010 in Ratlam. Inception report was presented to the hon. Steering group members chaired under the Hon. Collector, District Ratlam.

The inception report was presented by the Consultant Team member, describing the kickoff workshop details and analysis of the inception report.

The Consultants also presented some of the work done by them for the next stage of Sector Analysis report. After the presentation the consultants invited the audience for suggestions and remarks.

### 15.4 Second workshop Stakeholder's consultation

The Steering Group members, elected members, staff of the municipal Corporation and the general public were invited for the 2nd workshop. The workshop was held at Sajjan Prabha Hall, Ajanta Palace Hotel, Ratlam on 26th August, 2010. The Workshop was attended by Mr. Rajendra Sharma (District Collector, Ratlam), Mr. Shailendra Daga (Mayor), Mr. Sanjay Mehta (Municipal Commissioner), Mr. Himmat Kothari (Ex-Minister), Mr. S.K. Soni (Nodal Officer, MPUSP), MIC Members, Various Department Heads, Media Personnel, Citizens etc.

The Consultant made a presentation on the City Profile and the secondary data collected on Ratlam and its administration in Hindi. The stakeholders were invited to share their vision for the city. The views of some of the stakeholders were also recorded. Following the presentation, City Vision survey formats in



Hindi were distributed to the stakeholders to take individual feedback regarding the city vision.

The findings of the surveys and the conceived Vision are explained in subsequent chapters.

The following were the major suggestions received.

### **Hon. Ex-home minister Mr.Kothari**

1. Ratlam Vision should be in line with the proposed Delhi-Mumbai Industrial Corridor and its future potential.
2. Education should be given prime importance and the possibility of developing Ratlam into an Educational hub should be explored.
3. Citizens responsibility towards a successful City Development Plan should be emphasized in the report.
4. A Probable Vision: Clean, beautiful and developed city with education hub.

### **Hon. Collector, Ratlam District**

1. The project which have been proposed under DMIC should be given due importance and a development in line with the proposed projects should be considered.
2. Importance of Stakeholder's participation for the development of city.

### **Hon.Mayor**

1. Need to find out different sources of water apart from the Dholawad Dam scheme.

### **Suggestions from different stakeholders**

1. The vacant land available within the District Hospital should be utilized for a medical College.
2. The surrounding cities provide trade opportunities; also they bring different sources of the revenue for Ratlam city. City should provide proper connectivity to these regions through proper public transport services.
3. As future plans, Railway stations should be provided at Javra Road and Pritam Nagar Proposal for Javra road and pritam nagar railway line coming future plan expansion.
4. CDP should provide viable solutions for Heavy traffic and movement management.
5. Include provision of parking facilities at various places in the CDP
6. Dedicated area demarcation for Organized Businesses. Sajjan Mill compound and ITI ground could be possible options.
7. Proper connectivity should be provided between the nearby villages and APMC market.

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8. Those market areas which are in dilapidated condition should be renovated, by increasing FSI. However if the height is being increased then proper fire fighting facilities should also be taken care of.
9. Small scale industries should be encouraged, in order to avoid emigration of small scale industry players.
10. There is an urgent need to devise strategies to enhance the export of Gold and Ratlami Sev.
11. The number of illegal colonies in Ratlam is burgeoning day by day resulting in improper and unprecedented growth of the City. Hence, activities to legalize the colonies should be adapted.
12. Emphasise on PPP based projects, in order to raise revenue for Municipal Corporation.

**Figure 15-1 :Consultants during second workshop**



The Consultants Presenting In Front Of Collector, Mayor & Ex-Home Minister



The attendees during the presentation at second workshop

## 15.5 Second and third steering group meeting

The combined second and the third steering group meeting for Ratlam City Development Plan was held on October 06, 2010 at Meeting Hall, Collector Office, Ratlam.

The purpose of the meeting was to assess the progress of the City Development Plan preparation which has been undertaken under MPUSP Programme. Darashaw & Co, the Consultants discussed, Analysis of various sectors, vision statement developed for Ratlam, the proposed Sectoral Goals and the Strategies identified for the achievement of the Goal. The Steering Committee was supposed to approve the Vision and Sector Analysis prepared by the Consultants.

Following members were present during the steering committee meeting:

1. Hon. Shri. Kaluram Jain, CEO, Zila Panchayat, Ratlam.
2. Hon. Shri. Shailendra Daga, Mayor, Ratlam Municipal Corporation.
3. Shri. Niraj Likhari, Asst. Director, City & Country Planning
4. Shri. S.K.Bansal, PWD
5. Shri. Bhavishya Kumar, D.P.O, DUDA
6. Shri. G.K.Jaiswal, Executive Engineer, Ratlam Municipal Corporation
7. Shri. Rajnikant Vyas, Representative, MLA
8. Shri. Pawan Somani, Corporationor, Ratlam Municipal Corporation
9. Shri.Govind Kakani, Councilor, Ratlam Municipal Corporation

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10. Shri. S.K.Soni, Nodal Officer, Ratlam Municipal Corporation

11. Shri.P.G.Shewade, Team Leader, CSU

12. Ms.Aparajita Mishra, SDS, CSU

13. Ms.Palak Laddha, AVP, Darashaw & Co.

14. Shri.Vineeth Menon, Senior Associate, Darashaw & Co.

15. Shri.Shivnath Patil, Associate, Darashaw & Co.

- Consultants from Darashaw & Co. presented the sector analysis, outcome of the 2nd stakeholder workshop, Vision for the city, and sectoral vision and Goals for Ratlam City Development Plan in presence of Steering committee members.
- Shri. Kaluram Jain inquired Mr. Somani, Head, Water supply about the illegal connections in Ratlam which was pointed out by consultants as a major concern in sector of water supply. Mr.Somani said that there are about more than 10000 illegal connections in Ratlam city and assured Shri.Kaluram Jain that corporation will take firm action against these issues.
- Hon. Mayor, Shir. Shailendra Daga assured Mr. Kaluram Jain that administration will look after the issues especially the water supply in terms of future demand required after 30 years and cost recovery of the same
- The consultants discussed the sectoral vision and goals for each of the sectors.
- The consultants concluded the presentation by discussing the future course of action. The consultants explained that on the basis of sectoral goals the projects will be identified for each goal and Capital investment plan shall be prepared. The next stage of Draft CDP will include project identification, Costing, City Investment Plan, phasing and prioritization of projects and Financial Operating Plan to sustain the finances of Municipal Corporation.
- The steering group members found the consultant's report satisfactory and acceptable for the next stage of Draft City Development Plan.

Attendance sheet for the Steering Group Meeting has been included in the annexure.

### 15.6 Third workshop meeting

Third workshop has been conducted on 12th January,2011 at Ratlam Municipal Corporation hall. Following key members were invited for the workshop

- Steering group members
- Ward councilors of Ratlam Municipal Corporation (R.M.C)
- Administration officials of RMC
- Industrial chambers association
- Senior citizens
- NGO's and media reporters

Consultants presented the key priority projects and action plans for the preparation of draft city development plan.

During the third workshop stakeholders provided their opinions regarding the key priority projects required for Ratlam city development.

Following suggestions provided from the key stakeholders during third stakeholder's workshop:

Dr.Rajesh Sharma, President, district congress committee Ratlam

- Provision of commercial complexes in different parts of the city.
- Generating awareness related to rain water harvesting and conservation
- Provisions for resettlement of the encroached commercial and residential properties

Mr.Jayant Vohra, President, Industrial Association

- Development and support for small scale industrial activities.
- Decongestion at Manek Chauk and Ram madir region

Ms.Yasmin Sherani, Councillor

- Provision of tenure to the slum dwellers in Arjun Nagar and Dilip Nagar
- Slum free and garbage free city planning

Mr.Pawan Somani, MIC memeber

- Conservation of heritage structures.
- Planning according to the population projection

Ms. Aditi Davesar, Councillor

- City planning with environmental management and awareness programmes for the same

Mr.Govind Kakani, MIC member

- Provision of shopping complexes and commercial hubs at different part of the city.

The proposal suggested by the stakeholder's during third workshop has been enclosed in the annexure of the report.

**Figure 15-2 :second steering committee meeting**



The Consultants during presentation at 2<sup>nd</sup> steering group meeting



The Consultants during presentation at 2<sup>nd</sup> steering group meeting



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Stakeholder's during third workshop



Stakeholder's during third workshop

### 15.7 Fourth workshop meeting

Fourth workshop has been conducted on 15th March,2011 at Ratlam Municipal Corporation hall. Following key members were present for the workshop

- Steering group members
- Ward councilors of Ratlam Municipal Corporation (R.M.C)
- Administration officials of RMC
- Media reporters

Consultants presented the key projects and costing for Ratlam city, reforms and action plans, City Investment Plan and Financial Operating Plan for the preparation of Final city development plan.

During the fourth workshop stakeholders provided few opinions regarding the projects and their costing. Consultants cleared all doubts regarding identified investments and expenditures required for Ratlam city development.

Key stakeholders were satisfied with Financial Operating Plan and were in favor of implementing the Key reforms for developing CDP, which were suggested by consultant.

Attendance sheet for the fourth workshop meeting has been included in the annexure.

Figure 15-3 :consultants during fourth workshop



Stakeholders present in 4<sup>th</sup> Workshop



Stakeholders present in 4<sup>th</sup> Workshop





Consultants Presenting to Stakeholders

## 15.8 Fourth steering group meeting

The fourth steering group meeting for Ratlam City Development Plan was held on 16<sup>th</sup> March 2011 at Meeting Hall, Collector Office, Ratlam.

The purpose of the meeting was to present final investments and projects for City Development Plan preparation which has been undertaken under MPUSP Programme. The Consultants discussed, Reforms and action plans, City Investment Plan and Financial Operating Plan for the defined vision statement developed for Ratlam and the Strategies identified for the achievement of the Vision. The Steering Committee approved the Draft City Development Plan for Ratlam prepared by the Consultants.

Following members were present during the steering committee meeting:

1. Hon. Shri. Rajendra Sharma, Collector, Ratlam.
2. Hon. Shri. Shailendra Daga, Mayor, Ratlam Municipal Corporation.
3. Shri. Sanjay Mehta, Commissioner & Secretary, RMC.
4. Ms. Damor Madam, Deputy Collector, RMC.
5. Ms. Vandana Nehra, Deputy Collector, RMC.
6. Shri. Rajnikant Vyas, MIC Member.
7. Shri. Govind Kakani, MIC Member.
8. Shri. Pawan Somani, MIC Member.
9. Shri. Sandeep Yadav, MIC Member.
10. Shri. Anwar Qureshi, Executive Engineer, Ratlam Municipal Corporation
11. Shri. G.K.Jaiswal, Executive Engineer, Ratlam Municipal Corporation
12. Shri. P. K. Rai, Representative Engineer, PWD.
13. Shri. S.K.Soni, Nodal Officer, Ratlam Municipal Corporation
14. Shri. Sachin Tatwade, Engineer RMC.
15. Ms. Palak Laddha, AVP, Darashaw & Co.
16. Shri. Shivnath Patil, Associate, Darashaw & Co.
17. Ms. Pranali Koche, Associate, Darashaw & Co.

Figure 15-4 :consultants during fourth steering group meeting



Consultants Presenting in front of Steering Group Members on Fourth Steering Members Meeting held on 16<sup>th</sup> March 2011

Consultants from Darashaw & Co. presented the projects and costing for Ratlam City Development in presence of Steering committee members. The consultants discussed required reforms and action plan about all infrastructure developments. Reforms for development and funding contain three major scenarios, Base Case Reform, Full Reforms and Partial Reforms which were fully discussed by consultants. The consultants explained this on the basis of Capital investment plan, phasing and prioritization of projects and Financial Operating Plan to sustain the finances of Municipal Corporation.

Mr. Pawan Somani, MIC Member inquired about provision and costing of Strom water drainage. In response of his query, consultant cleared all related identified projects and costing for provisions.

The steering group members found the consultant's report satisfactory and acceptable for the Finalisation of Ratlam City Development Plan.

Attendance sheet for the Steering Group Meeting has been included in the annexure.

## 16 Development of vision and strategies

### 16.1 Creation of vision statement for Ratlam City

The 2nd stakeholders workshop held in Ratlam was focused on development of Vision for the city. The workshop was divided in two sessions. During the first session of the workshop the Consultants presented their findings of the analysis of the city and discussed the key priorities with the stakeholders. The second session of the workshop was focused on creation of vision statement for the city.

All the stake holders were divided into groups of 8 to 10 and were given questionnaires to identify vision and sector wise major strategies. Based on the guidance from the consultants, each of the groups discussed the vision for the city and major strategies to fulfill the vision. The groups also discussed the sectoral visions for the city of Ratlam. After completing the exercise of filling up the questionnaires, the Consultants invited the stakeholders to come and discuss their Vision and strategies in an open forum

The vision statements expressed by the citizens during stakeholders meeting is shown below:

**Table 16-1: Vision statements expressed by stakeholders during consultation**

| Sr. No. | Vision Statement from stakeholders for Ratlam ( Vision for 30 years)   |
|---------|--|
| 1       | A city with clean roads, having all essential services, transport and parking facilities.  |
| 2       | A holistically developed city retaining its rich cultural values and be known as a Model City  |
| 3       | The City should be well developed in Industrial, Water Supply and Power sector   |
| 4       | A city having clean, pollution free environment, developed industrial cluster, all educational & health facilities, with no poverty.                 |
| 5       | Clean, Beautiful environment, with well developed slums and be a distinct city in Madhya Pradesh   |
| 6       | A city with proper sewerage & drainage lines, hassle-free transport facilities, education hub, developed medical facilities & adequate water supply. |
| 8       | A self sufficient city through plan development of job-oriented education, health facilities and sports facilities                                   |
| 9       | A sustained and planned development in order to extract maximum benefits out of the proposed DMIC Corridor   |
| 10      | To develop Ratlam as industrial after consideration of industrial and commercial prospects   |
| 11      | To develop Ratlam as model industrial city not only in MP but also in India  |
| 12      | To develop Ratlam as Industrial Hub & encroachment free city   |
| 13      | To develop clean Ratlam and green Ratlam with health and security provisions   |
| 14      | To develop Ratlam in terms of commercial, industrial and education sectors   |

## 16.2 Vision statement for Ratlam City

### **City Vision**

**To establish Ratlam City as the greatest enabler of socioeconomic development in the State of Madhya Pradesh.**

This vision would drive the development of Ratlam as the destination of choice for all who want to invest, work and live, in and around the State of Madhya Pradesh. The sustainability of the city is based on a concrete plan of actions with the required proof points to aid and maintain credibility.

The city's vision will deliver state-of-the-art infrastructure and processes that will redefine and showcase new standards around the globe. Seamless integration of this infrastructure and advanced technology with business and public services will create a community that is totally self-supporting and accessible to all.

### 16.2.1 Key priorities

The CDP process of Ratlam has undergone extensive consultative process with its key stakeholders in prioritizing the key sectors for investments and reform initiatives. The priorities of the national and state governments including the international developmental trends have been considered in prioritizing these critical sectors which are being presented below.

- Water Supply
- Sewerage
- Solid Waste Management
- Traffic and Transportation
- Storm Water Drainage
- Urban Poverty

### 16.2.2 Sectoral strategy framework

The overall vision for the city and the prioritization of the key sectors paved the way to formulate sector specific vision and strategies. This sector specific approach with year wise strategies and corresponding year wise investments will be instrumental in framing the action plan/ implementation plan. The sector specific reforms and investments are an integral part of the year wise strategies.

## 16.3 Sectoral Goals and strategies for Ratlam

### 16.3.1 Water supply

There is a huge demand supply gap, which is likely to widen drastically in future. Per capita supply is low (65 lpcd) against the standard norm of 135 lpcd. The household level service coverage is very low i.e 54% estimated on

**Sectoral Vision: Water Supply**

**To ensure adequate, safe and treated water supply to all the citizens of Ratlam.**

the basis of number of households and the registered connections. Hence the coverage has been estimated on the basis of direct water supply connection. However in many parts of the city corporation have provided handpumps and tubewells for the purpose of drinking water supply.

• **Goals and Service Outcomes**

Considering the above challenges, the following goals for different horizon years have been identified in the following table.

**Table 16-2: Goals & Service Outcomes for Different Horizon Years**

| Sr. No. | Component          | Horizon Period                |                               |                               |
|---------|--------------------|-------------------------------|-------------------------------|-------------------------------|
|         |                    | 2015                          | 2020                          | 2025                          |
| 1       | Network Coverage   | 100%                          | 100%                          | 100%                          |
| 2       | Extent of metering | -                             | 100%                          | 100%                          |
| 3       | Per Capita Supply  | 135                           | 135                           | 135                           |
| 4       | Hours of Supply    | 4 hours daily                 | 24 hours daily                | 24 hours daily                |
| 5       | 24x7 Water Supply  | -                             | 49 wards                      | -                             |
| 6       | Quality of Water   | As per WHO / CPHEEO Standards | As per WHO / CPHEEO Standards | As per WHO / CPHEEO Standards |
| 7       | Non Revenue Water  | 15%                           | 15%                           | 15%                           |

• **Strategies**

Strategies have been identified in order to improve the service delivery of water supply with effective cost recovery in order to sustain as well as maintain the better level of service.

**Infrastructure augmentation/ refurbishment**

- Ratlam Municipal Corporation is already implementing the augmentation scheme of water supply under Dholawad dam. This scheme of Rs.36 Cr has been implemented under UIDSSMT scheme for furnish future water demand of Ratlam.
- Apart from augmentation there is a need to improve the household level coverage of water supply, which can be achieved only through the laying of distribution network at micro level.
- There is need for the provision of water meters to all the connections.
- Reduction in non-revenue water at transmission and distribution level.

**Effective cost recovery mechanism:**

- Ratlam can implement the effective and robust cost recovery mechanism through the learning from the successful transformation of other cities like, Bangalore and Hyderabad.
- Implementation of PPP in the O & M sectors with innovative monitoring procedures like performance contracting and incentives to the service provider.

- O & M maintenance plan can be prepared for regular routine system with consideration of emergency maintenance situations.
- Tariff revision: in order to achieve O & M cost recovery, Ratlam Municipal Corporation has to adopt the phase wise tariff revision policy with less political intervention.

**Water auditing and awareness campaign:**

- Water auditing may involve the leak detection studies apart from systems on quality and quantity of water drawl at consumer end which will help to achieve the effective water supply system.
- Apart from the technical provisions, ULB need to broaden the awareness campaign to reduce the illegal connections and water losses.

**Streamlining institutional responsibilities:**

- Development of Information management system for Asset records and management of water supply system.
- Provision of Effective customer grievance system with innovative and effective redressal provisions in the forms of online complaint services, “Water Adalats” etc.
- Rainwater harvesting:
- Ratlam Municipal Corporation has already mandated the rain water harvesting system for all new construction development under its jurisdiction.

**16.3.2 Sewerage and sanitation**

The existing sewer lines drain sewage into the nearby nallahs without treatment. In addition to that, wastewater recycling and reuse is also not adopted. The poor and slum dwellers lack safe sanitation facilities and hence are prone to health related diseases.

**Sectoral Vision: Sewerage and Sanitation**

**To create a clean and healthy environment by providing access to underground sewerage and sanitation system.**

To enhance the coverage of safe sanitation facilities, following goals have been identified for different horizon years.

**Table 16-3: Goals & Service Outcomes for Different Horizon Years**

| Sr. No. | Component                 | Horizon Period |      |      |
|---------|---------------------------|----------------|------|------|
|         |                           | 2015           | 2020 | 2025 |
| 1       | Network Coverage (Access) | 80%            | 100% | 100% |
| 2       | Treatment and Disposal    |                | 100% | 100% |
| 3       | Recycle and Reuse         |                | 20%  | 20%  |
| 4       | Recovery of O&M Costs     | 100%           | 100% | 100% |



- **Strategies for sewer services**

**Infrastructure augmentation/ refurbishment**

- Provision of sewage treatment plant
- Provision of underground sewerage network

**Effective cost recovery mechanism**

As mentioned in earlier section of water supply, same strategies shall be applicable to the sewerage system as well. As it may cause high operation and maintenance cost as compared with the water supply, it will require robust and stringent action of reduction of o & M cost and improve the collection efficiency.

O & M cost for sewer services can be done on PPP basis in order to reduce the risk and operational activities.

New Tariff inclusion and revision in subsequent periods:

After implementation of underground sewer network, ULB need to imply the new sewerage charges for new connection provided in order to achieve the cost recovery for the sewer service.

**Waste water treatment and reuse:**

In order to conserve the resources and environment ultimately, ULB has to attempt to recycle and reuse the treated waste water for forestry or agriculture purpose. Apart from the recycle of treated wastewater, the sludge removed in the treatment process can be converted into fertilizer, which can be resource utilization from the process.

**Infrastructure augmentation/ refurbishment**

Recruitment of trained engineering personnel for management of sewerage works will be the key aspect for the public health engineering department. It is important to provide the training and capacity building for related staff for provision of efficient service delivery.

Provision of services in terms of access for the urban poor and slum dwellers.

- **Strategies for sanitation services**

Strategies for sanitation services will be in terms of provision of public toilets in major commercial areas. It very important to mention that Ratlam immediately require provision community toilets in all slum areas with provision of sanitation services for women as well.

- Infrastructure augmentation and refurbishment:
- Provision of pay and use community toilets.
- Provision and up gradation of public urinals
- Preparation of city sanitation plan

**Private sector participation for sanitation services:**

Provision of community toilets in slum pockets can be effectively operated and maintained with help of private sector participation. The institutions like “Sulabh International” which are operating in 1200 cities since 30 years can play significant role in provision of sanitation services in Ratlam.

**16.3.3 Integrated Solid Waste Management**

The local body should effectively involve the private sector in delivering the solid waste management service. The rationale for private sector participation includes attracting project funding, new technology, cost savings and service delivery improvements.

**Table 16-4: Goals & Service Outcomes for Different Horizon Years**

| Sr. No | Component                    | Horizon Period |      |      |
|--------|------------------------------|----------------|------|------|
|        |                              | 2015           | 2020 | 2025 |
| 1      | Door to Door Collection      | 100%           | 100% | 100% |
| 2      | Source Segregation           | 100%           | 100% | 100% |
| 3      | Secondary Collection         | 100%           | 100% | 100% |
| 4      | Treatment & Disposal         | 100%           | 100% | 100% |
| 5      | Cost Recovery Mechanism      | 100%           | 100% | 100% |
| 6      | Private Sector Participation | Full           | Full | Full |

In order to achieve above outcomes, issues and deficiencies in each of the solid waste management component have been identified and the strategies for improvement both in physical and financial terms will be elaborated in the next stage of CDP preparation.

• **Strategies**

**Infrastructure augmentation and refurbishment**

- Implementation of door to door collection system
- Implementation of integrated solid waste management system

Ratlam Municipal Corporation is proposing the solid waste management system from door to door collection, transportation, treatment and disposal through public private partnership.

- Street sweeping on daily basis
- Provision of tractors, bins, push carts and containers for increasing the transportation capacity
- Encouraging local level decentralized treatment of solid waste through composting.

**Implementation of municipal solid waste (management and handling) rules-2000 of government of India**

The immediate need of the Ratlam municipal corporation is to implement the MSW handling rules, 2000 which has been made mandatory for the local body to implement from door to door collection, transportation, treatment and disposal with provisions of norms and procedures.

**Resource mobilization and O & M cost recovery mechanism:**

**1. Private sector participation**

Private sector participation has been very effective for solid waste management. Ratlam Municipal Corporation is proposing the solid waste management system from door to door collection, transportation, treatment and disposal through public private partnership.

**2. Sanitation tax to meet the cost recovery of SWM services**

There is need to introduction of sanitation tax in order to recover the O & M expenses. Tariff revisions are necessary from urban local body at substantial interval of time.

**3. IEC programmes for municipal solid waste management**

- Urban local body can formulate information education and communication programmes for MSW awareness and community participation.
- Mass communication and public awareness through attractive posters and awareness campaigning.
- Provision of hoardings at strategic locations for provision of public awareness through advertising.
- Community participation is required in Reduce, reuse and recycling of waste.
- Also it will also help in diminish the effect of “Not in my backyard” (NB) syndrome.
- Community participation will be required to avoid throwing of waste in nallah, gutter, street side and open spaces. In order to achieve the significant willingness to pay the community participation is a must for effective implementation of service provision of Municipal solid waste.
- The local body may also encourage NGO’s or co-operative rag pickers to enter this field and organize ragpickers with provision of certain incentives.

**16.3.4 Storm water drainage**

**Sectoral Vision: Storm Water Drainage**

To create effective storm water drains and ensure zero water logging.

**Table 16-5: Goals & Service Outcomes for Different Horizon Years**

| Sr. No. | Component                        | Horizon Period |      |      |
|---------|----------------------------------|----------------|------|------|
|         |                                  | 2015           | 2020 | 2025 |
| 1       | Coverage of storm water drainage | 80%            | 100% | 100% |
| 2       | Incidence of water logging       | Zero           | Zero | Zero |

**• Strategies**

**Infrastructure refurbishment and augmentation**

- Provision of stormwater drainage network
- Nallah restructuring with de-silting and alignment of existing drains.

### Primary Drain Rehabilitation and Improvement Program

The drains are inadequate to handle the flash floods as they are not systematically designed and are not fully constructed in some sections. A significant reduction in depth and width are noticed due to siltation and encroachment of drain bunds. To alleviate these, a rehabilitation and improvement program is recommended. The program would aim at the following:

- Improvement measures such as widening and deepening and construction of Sidewalls
- Construction of side walls to confirm to uniform cross-section in built up areas
- Diversion of drains at critical sections
- Construction of cross- drainage works

### Conservation of Water Bodies

As discussed, conservation of water bodies is an immediate priority for Ratlam. Though initiatives are being undertaken, a large-scale program is pertinent to restore the water bodies to their original shape and conserve them as recharge structures. Municipal Corporation through its initiatives have undertaken cleaning and beautification of Barbad lake. However, other water bodies like Amrut Sagar Lake also need similar initiative to maintain their natural beauty.

### Protection of Environmental Resources

The first and foremost intervention is the protection of environmental resources. Protection of water bodies, waterways and open spaces from further encroachments would be carried out in a co-ordinated way.

## 16.3.5 Traffic and transportation

The vision of the 'Traffic and Transportation' for Ratlam city is to achieve a transport facility system that is integrated, hassle free, efficient and sustainable, that would improve the traffic management. Ratlam being a railway junction should provide efficient transportation systems in order to capitalize on the advantage.

**Sectoral Vision: Traffic and Transportation**

**To achieve a transport facility system that is integrated, hassle free, efficient and sustainable**

**Table 16-6: Goals & Service Outcomes for Different Horizon Years**

| Sr. No. | Component                                 | Horizon Period         |                        |                         |
|---------|---|------------------------|------------------------|-------------------------|
|         |   | 2015                   | 2020                   | 2025                    |
| 1       | Road network as a % of total area         | 10%                    | 15%                    | 15%                     |
| 2       | Share of Public Transport                 | 50%                    | 75%                    | 100%                    |
| 3       | Traffic Management with signal provisions | 100%                   | 100%                   | 100%                    |
| 4       | Sidewalks length to Total road length     | 50% of the requirement | 75% of the requirement | 100% of the requirement |
| 5       | Effective Parking policies                | 25% of the requirement | 60% of the requirement | 100% of the requirement |

- **Strategies**

**Infrastructure refurbishment and augmentation**

- Construction of concrete and bitumen road with proper drainage system
- Decongestion in the central business district area with removing the encroachment and road widening
- Widening of important roads in phasewise manner
- Provision of parking lots with pavements on major roads
- Improvement of junctions and accident prone areas
- Preparation and implementation of traffic management plan
- Development of bus stands on PPP basis
- Provision of pickup station at Javra fatak, Sailana road and Bajna Road

**Resource mobilization and cost recovery mechanism through PPP**

As mentioned earlier section, the roads and transportation sector can also be operated and maintained under PPP basis. The parking provisions can also be encouraged through PPP basis. In order to decongest the core city regions like Chandani Chauk , Manek Chauk and other key market regions parking provisions are must which can be effectively implemented through private sector participation.

**Encouraging public transport system:**

Currently the public transport system is in the form of para-transit mode of transportation (in the form of auto rickshaw and tempo rickshaw). Urban local body can introduce the bus service facility with private sector participation along the certain routes in the city.

**Monitoring and evaluation of works:**

Asset management provisions for road registration, designing and implementing system to update on regular basis with details of construction, repairs and maintenance.

### 16.3.6 Urban poverty

**Sectoral Vision: Urban Poverty**

**To uplift infrastructure in slums equivalent to the mainstream city infrastructure with access to quality/ affordable housing.**

- **Poverty Reduction Strategic Plan**

With a significant amount of population in Ratlam living in slums, urban poverty is a major issue confronting the area. The sectoral vision for Ratlam is *“To uplift infrastructure in slums equivalent to the mainstream city infrastructure with access to quality/ affordable housing”*.

## City Development Plan, Ratlam

The goals formulated to achieve the vision are:

- All poor will have access to qualitative and affordable basic services
- 100 % literacy in the slum region.
- Universal access to primary health care and no mortality due to by preventable diseases
- Livelihood to all urban poor
- Affordable Housing

The strategy formulated for reducing poverty in Ratlam area includes:

- Community empowerment
- Linking livelihoods to city's economy
- Development of housing through partnerships – PPP
- Formulation of Notification and Denotification Policy

### **Slum free city planning under Rajiv Awas Yojana (RAY)**

Rajiv Awas Yojana (RAY) for the slum dwellers and the urban poor envisages a 'Slum-free India ' through encouraging States/Union Territories to tackle the problem of slums in a definitive manner. 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 city;
- Redressing the failures of the formal system that lie behind the creation of slums;
- 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.

Rajiv Awas Yojana will include:

- Conducting slum survey in the city
- Entry of data from slum survey into MIS data base
- Preparation of City and slum base maps using GIS- including cost of CARTOSAT
- Latest images, spatial total station slum surveys, integration slum MIS with GIS maps
- Engagement of consultants /technical agencies/institutions for the preparation of detailed slum free city plan
- Carrying out biometric identification of survey of slum dwellers
- Training programmes in Slum MIS/GIS, slum mapping,
- City and slum-free state planning, project management, pro poor reforms

### **De-notification of upgraded / tenured settlements and inclusion in property tax system**

Once upgraded, slums and housing colonies must be integrated with city property tax system.



### 16.3.7 Urban renewal

Ratlam City due to its importance as a regional linkage and a district

**Sectoral Vision: Urban Renewal**

**To ensure green, safe and livable city for present and future generations.**

headquarters has been attracting work force population throughout years. But this uneven rise in emigrant population has resulted in haphazard and unplanned growth of the City. The formation of Ratlam Development authority would provide the much needed impetus in planned growth management of the city. The sectoral vision for Ratlam is *“To ensure green, safe and livable city for present and future generations”*.

- **Goals and Service Outcomes**

The strategies to achieve the Urban renewal are enumerated below

- The major commercial areas should be decongested with help of removing the illegal parking in certain regions like Do batti area, Chandani chauk, Haat Bazar, Mata mandir region.
- Provision of parking spaces major commercial areas, formation of one ways and alternate route system in order to reduce the traffic intensity in market regions.
- Public awareness for usage of cycle and campaigning for Cycle day at least in twice in a month.

### 16.3.8 Other sectors

As part of total City Development Programme, other sectors apart from the above mentioned core sectors have been identified and vision and strategies have been assigned. These are as follows:

- **Housing**

**Sectoral Vision: Housing**

**To ensure housing for all with all amenities**

**Strategies**

- Implement building bye laws;
- Implement housing schemes through Madhya Pradesh Housing Board and also through private developers
- Initiate proper monitoring of development in private and cooperate housing societies

**Sectoral Vision: Economic Development**

**To attain self sustainable growth and development by creating environment friendly industrial units along with enhanced health and educational services**

• **Economic Development**

**Strategies**

- Encourage household industries
- Create organized commercial space for retail and wholesale markets
- Promote Ratlam as a Sports city for District and State Level sports activities.
- Implement Infrastructure schemes and schemes related to Urban Poor to enhance economic prospects

• **Urban Governance and Institutional Development**

**Sectoral Vision: Urban Governance and Institutional Development**

**To ensure a city managed with pro-active and efficient management systems with competent team / organization.**

**Strategies**

- Initiate and implement e-governance in first phase i.e within the year 2015.
- Capacity building through training programmes to improve efficiency and accountability in the service delivery.
- Property mapping of the existing development and updation from time to time. GIS mapping of properties for registration and assessment process.
- GIS mapping of infrastructure services like water supply, Underground sewer services after its implementation.

• **Urban Finance**

**Sectoral Vision: Urban Finance**

**To create self sustainable city by generating adequate revenues and adopting modern accounting and financial management systems / practices**

**Table 16-7: Goals & Service Outcomes for Different Horizon Years**

| Sr. No. | Component                             | Horizon Period |      |      |
|---------|---------------------------------------|----------------|------|------|
|         |                                       | 2015           | 2020 | 2025 |
| 1       | Collection efficiency of property tax | 80             | 100% | 100% |
| 2       | Dependency on Grant                   | 50%            | 30%  | 10%  |

### Strategies

- Water tax should be stringently imposed and water charges should be revised every 3 years in order to recover the costs incurred in provision of services.
- Survey of entire properties within the Municipal Corporation should be undertaken

The share of municipal taxes to the total income needs to be improved.

## • Industrial and Economic Development

### Strategies

- Development of SSI sector in Ratlam

There has been reduction in the industrial development in the Ratlam region. Hence in order to support the local and regional economy it is important to promote the industrial development in the existing industrial areas.

The small scale industrial sectors shall be proposed in order to support the agro based economy of the district. These developments can be proposed in the planning unit no. 3 and 5. As Delhi-Mumbai Industrial Corridor passing through these two sectors it will provide benefits for the development of SSI sectors along the corridor.

- Single window clearance for Industries and incentives for setting up industries.

These will act as an catalyst for the industrial development in the region with provision of incentives for setting up of industries.

- Cluster development for Food processing at the Sajjan Mill area.

Sajjan Mill region can be converted into the cluster development for food processing unit. It is nearer to the APMC market can provide relevant industrial growth for agro base sector of Ratlam. Total cluster development area can of 10 Ha with establishment of Common Facility Centres (CFC's).

- Redevelopment old unutilised buildings and offices to develop commercial spaces on PPP basis.
- Rehabilitation of shops removed in Encroachment at Amrut Sagar, Barbad Lake, Salakheda and Chamaria Naka.

Commercial regions for informal sectors can be allotted around the public spots like lakes and Bazars. As per stakeholder's recommendations during the workshops the commercial shops can be provided at Amrut Sagar and Barbad Lake, Salakheda and Chamaria Naka covering the entire periphery of the region.

## 17 Investment Prioritization Plan

The capital investment plan has been designed for next 30 years but projects have been prioritized for the next 15 years and accordingly the financial operating plan has been prepared in order to sustain the capital investment occurred during the period.

### 17.1 Basis for project identification

Capital projects have been identified on the basis of:

- Situation analysis of each sector of physical and social infrastructure
- Demand supply gap assessment with undergoing projects consideration
- Stakeholder's suggestions through workshops and group discussions.

The demand assessment has been done to identify the requirements with the projected population till the year 2040. Accordingly the capital investment plan for next 15 years with project prioritization has been provided with the financial operating plan which has been provided in the next chapter. For physical and social infrastructure sectors, the projects have been identified on rationale of infrastructure augmentation and refurbishment.

While preparing the capital investment plan, in order to avoid repetition, current ongoing projects has been considered in project identification.

The stakeholder's workshops and focus group discussions have been conducted at different stages of the CDP process. Stakeholder provided their suggestion and accordingly projects have been incorporated in the City Development Plan. Stakeholder's suggested that the project identification should be such that it will provide the inclusive development with focus on the urban poor.

### 17.2 Capital investment plan – sector specific projects

#### 17.2.1 Water supply project identification and capital investment

- **Projects identified**

Following projects have been identified to strengthen the existing water supply system:

- Implementation of proposed water supply scheme under UIDSSMT:  
It includes the construction of water treatment plant with overall capacity of 60.5 MLD. It has been provided into two phases of 15 years with 24.5 MLD in the first phase till 2025 and 36 MLD in the second phase to cater the demand till the year 2040.

- Provision of sump-wells, transmission mains and pumping mains at source and transmission level of water treatment plant to the overhead tanks.
  - Provision of water distribution lines to provide the 100% network coverage.
  - Provision of water meters in order to estimate the non-revenue water.
  - Energy auditing and utility mapping with help of GIS tool.
- **Capital investment required for water supply**

Following table provides the information on the capital investment required for water supply sector of Ratlam.

**Table 17-1: Capital Investment required for water supply Rs. In Lakhs**

| Sr. No | Project list  | Estimated Cost for 2025 | Estimated Cost for 2040 |
|--------|---|-------------------------|-------------------------|
| 1      | Construction of WTP of 24.5 MLD for 2025 before 2015 for 1st Phase (Under construction in UIDSSMT scheme) 3265.10 Lakhs | 0.00                    | 0.00                    |
| 2      | Provision of WTP of 36 MLD for 2040 after 2025-2026 and before 2030 for 2nd phase                                       | 0.00                    | 900.00                  |
| 3      | Provision of raw water pumping main of 800mm dia of 13km form Source to WTP during 2025-2030 for 2nd phase              | 0.00                    | 1880.00                 |
| 4      | Provision of clear water pumping main of 800mm dia of 8km form WTP to Ratlam city during 2025-2030 for 2nd phase        | 0.00                    | 1157.00                 |
| 5      | provision of water distribution lines of 363 km during 2011-2015 for 100% coverage                                      | 13090.00                | 13090.00                |
| 6      | provision of water distribution lines of 29 km during 2016-2020   | 830.00                  | 830.00                  |
| 7      | provision of water distribution lines of 30 km during 2021-25   | 858.00                  | 858.00                  |
| 8      | provision of water distribution lines of 32 km during 2026-2030   | 0.00                    | 915.00                  |
| 9      | provision of water distribution lines of 33 km during 2031-2035   | 0.00                    | 944.00                  |
| 10     | provision of water distribution lines of 35 km during 2036-2040   | 0.00                    | 1001.00                 |
| 11     | provision of 54081 nos of meters during 2011-2015   | 811.22                  | 811.22                  |
| 12     | provision of 3830 nos of meters during 2016-2020  | 57.45                   | 57.45                   |
| 13     | provision of 4034 nos of meters during 2021-2025  | 60.51                   | 60.51                   |
| 14     | provision of 4237 nos of meters during 2026-2030  | 0.00                    | 63.56                   |
| 15     | provision of 4441 nos of meters during 2031-2035  | 0.00                    | 66.62                   |
| 16     | provision of 4645 nos of meters during 2039-2040  | 0.00                    | 69.68                   |
| 17     | energy auditing of pumps at regular interval ( 5 years)   | 28.00                   | 58.00                   |
| 18     | utility mapping using GIS   | 40.09                   | 49.59                   |
|        | <b>Total for Water Supply Works</b>   | <b>15775.27</b>         | <b>22811.61</b>         |

Source: Analysis from the consultants

## 17.2.2 Waste water services project identification and capital investment

### • Projects identified

The following projects have been identified for waste water services in Ratlam.

Comprehensive underground sewer service which will consist of

- In order to facilitate sewer services, entire city can be divided into two zones taking into consideration of topography and railway line passing through the city. Provision of two sewage treatment plants with capacity of 32 MLD and 12 MLD respectively in order to cater demand till the year 2040. In order to facilitate sewer services, entire city can be divided into two zones taking into consideration of topography and railway line passing through the city.
- Provision of underground sewer network in order to provide the household level sewer connection
- Utility mapping using GIS
- Purchasing sullage lorry
- Rehabilitation and development of existing community toilets
- Provision of community toilets at Sheranipura ward no.36 (six no.) ward no.29, Bhaktan ki Bawdi, Manek Chowk, Sabji mandi etc
- 65 Nos. of community toilets estimated for other slum areas.

### • Capital investment required for waste water service

Following table provides the information on the capital investment required for waste water sector of Ratlam.

**Table 17-2: Capital Investment required for waste water services**

| Sr. No, | Project list   | Estimated Cost for 2025 | Estimated Cost for 2040 |
|---------|--|-------------------------|-------------------------|
| 1       | Construction of STP of 32 MLD for zone-1 before 2015-16 for the year 2040. | 2560.00                 | 2560.00                 |
| 2       | construction of STP of 12 MLD for zone-2 before 2015-16 for the year 2040  | 960.00                  | 960.00                  |
| 3       | provision of sewerage network of 345km with 80% coverage during 2010-2015  | 13310.00                | 13310.00                |
| 4       | provision of sewerage network of 24.5 km to achieve 100% during 2016-2020  | 861.00                  | 861.00                  |
| 5       | provision of sewerage network of 26.0 km to achieve 100% during 2021-2025  | 910.00                  | 910.00                  |
| 6       | provision of sewerage network of 27.0 km to achieve 100% during 2026-2030  | 0.00                    | 935.00                  |
| 7       | provision of sewerage network of 29.0 km to achieve 100% during 2031-35    | 0.00                    | 1000.00                 |
| 8       | provision of sewerage network of 30.0 km to achieve 100% during 2036-2040  | 0.00                    | 1033.00                 |
| 9       | purchasing sullage lorry for waste collection                              | 10.00                   | 10.00                   |
| 10      | utility mapping using GIS  | 39.55                   | 48.15                   |
|         | <b>Total for Sewerage Schemes</b>  | <b>18650.55</b>         | <b>21627.15</b>         |



Source: Analysis from the consultants

### 17.2.3 Storm water drainage project identification and capital investment

- Projects identified**

- Ratlam Municipal Corporation has already prepared the DPR for upgradations of nallah with channelization with cement concrete lining.
- Apart from nallah upgradation, provision of drainage network has been incorporated for priority actions in the city investment plan.
- There has been proposal for Provision of storm water drainage network across the city in order to provided proper drainage network as well as to avoid water logging in the flood prone areas

- Capital investment required for storm water service**

Following table provides the information on the capital investment required for storm water sector of Ratlam.

**Table 17-3: Capital Investment required for storm water services**

| Sr. No, | Project list   | Estimated Cost for 2025 | Estimated Cost for 2040 |
|---------|--|-------------------------|-------------------------|
| 1       | provision of storm water drainage of 527 km throughout the city during 2011-2015 | 10010.00                | 10010.00                |
| 2       | provision of 37 km storm water drainage during 2016-2020                         | 742.00                  | 742.00                  |
| 3       | provision of 39 km storm water drainage during 2021-25                           | 783.00                  | 783.00                  |
| 4       | provision of 41 km storm water drainage during 2026-30                           | 0.00                    | 823.00                  |
| 5       | provision of 43 km storm water drainage during 2031-35                           | 0.00                    | 863.00                  |
| 6       | provision of 45 km storm water drainage during 2036-40                           | 0.00                    | 904.00                  |
| 7       | channelizing the nallah of 6 km and surface drains of 14 kms                     | 2030.00                 | 2030.00                 |
|         | <b>Total for Stormwater Drainage Schemes</b>                                     | <b>13565.00</b>         | <b>16155.00</b>         |

### 17.2.4 Solid waste management project identification and capital investment

- Projects identified**

Ratlam Municipal Corporation is in process to implement the Municipal Solid Waste Handling (MSW) Rules, 2000 through public private partnership basis.

Feasibility study has been completed with technical assistance from the consultants, with concession period of seven years. However, there has been limited land availability for scientific disposal of waste which has design

capacity of 7 years only. Hence there is requirement of identification of land for dumping of waste after the period of seven years.

Following projects have been identified under municipal solid waste management of Ratlam:

- Implementation of integrated solid waste management project on PPP basis for with duration of seven years
- Provision of scientific disposal and treatment facility with capacity of 90 MTD for the year 2040
- Provision of equipments for handling of solid waste like, push carts, wheely bins, refuse compactor, dumper placer and containers of different sizes.

The entire Municipal Solid Waste Management system of Ratlam Municipal Corporation has been proposed under Public Private Partnership in order to achieve the significant private sector participation. Total solid waste management capital investment plan is Rs.4241.28 lakhs for the period upto 2040. While on priority basis till the year 2025, the capital investment plan has been estimated of 3929.26 Lakhs. All these cost can be pooled from private sector participation in the form of PPP.

• **Capital investment required for Municipal Solid Waste management**

Following table provides the information on the capital investment required for solid waste management of Ratlam.

**Table 17-4: Capital Investment required for Municipal Solid Waste management**

| Sr. No, | Project list  | Estimated Cost for 2025 | Estimated Cost for 2040 |
|---------|---|-------------------------|-------------------------|
| 1       | Integrated solid waste management project on PPP basis for consession period of 7 years | 0.00                    | 0.00                    |
| 2       | provision of scientific disposal and treatment facility for 90MTD waste for 2040        | 3600.00                 | 3600.00                 |
| 3       | provision of 217 nos of push carts between 2011-15                                      | 26.04                   | 26.04                   |
| 4       | provision of 16 nos of push carts between 2016-20                                       | 1.92                    | 1.92                    |
| 5       | provision of 16 nos of push carts between 2021-25                                       | 1.92                    | 1.92                    |
| 6       | provision of 18 nos of push carts between 2026-30                                       | 0.00                    | 2.16                    |
| 7       | provision of 18 nos of push carts between 2031-35                                       | 0.00                    | 2.16                    |
| 8       | provision of 19 nos of push carts between 2036-40                                       | 0.00                    | 2.28                    |
| 9       | provision of refuse compactor wheely bins of 1100 litres 110 nos 2015-16                | 16.50                   | 16.50                   |
| 10      | provision of refuse compactor wheely bins of 1100 litres 10 nos till 2020-21            | 1.50                    | 1.50                    |
| 11      | provision of refuse compactor wheely bins of 1100 litres 10 nos till 2025-26            | 1.50                    | 1.50                    |
| 12      | provision of refuse compactor wheely bins of 1100 litres 15 nos till 2030-31            | 0.00                    | 2.25                    |
| 13      | provision of refuse compactor wheely bins of 1100 litres 15 nos till 2035-36            | 0.00                    | 2.25                    |

| Sr. No, | Project list  | Estimated Cost for 2025 | Estimated Cost for 2040 |
|---------|---|-------------------------|-------------------------|
| 14      | provision of refuse compactor wheely bins of 1100 litres 20 nos till 2040-41                                      | 0.00                    | 3.00                    |
| 15      | provision of refuse compactor wheely bins of 600 litres with 130 nos till 2015-16                                 | 13.00                   | 13.00                   |
| 16      | provision of refuse compactor wheely bins of 600 litres with 10 nos till 2020-21                                  | 1.00                    | 1.00                    |
| 17      | provision of refuse compactor wheely bins of 600 litres with 10 nos till 2025-26                                  | 1.00                    | 1.00                    |
| 18      | provision of refuse compactor wheely bins of 600 litres with 15 nos till 2030-31                                  | 0.00                    | 1.50                    |
| 19      | provision of refuse compactor wheely bins of 600 litres with 15 nos till 2035-36                                  | 0.00                    | 1.50                    |
| 20      | provision of refuse compactor wheely bins of 600 litres with 20 nos till 2040-41                                  | 0.00                    | 2.00                    |
| 21      | provision of 4.5 m3 dumper placer container for bulk storage 8 nos till 2015                                      | 6.80                    | 6.80                    |
| 22      | provision of 4.5 m3 dumper placer container for bulk storage 1 nos till 2025-26                                   | 0.85                    | 0.85                    |
| 23      | provision of 4.5 m3 dumper placer container for bulk storage 2 nos till 2035-36                                   | 0.00                    | 1.70                    |
| 24      | provision of 4.5 m3 dumper placer container for bulk storage 2 nos till 2040-41                                   | 0.00                    | 1.70                    |
| 25      | provision of construction and demolition of waste storage container with capacity of 7.5 m3 of 2 nos by 2015-16   | 2.60                    | 2.60                    |
| 26      | provision of construction and demolition of waste storage container with capacity of 7.5 m3 of one nos by 2025-26 | 1.30                    | 1.30                    |
| 27      | provision of protective gears 1034 nos once in 2 years  | 253.33                  | 542.85                  |
|         | <b>Total for Solid Waste Management Schemes</b>   | <b>3929.26</b>          | <b>4241.28</b>          |

Source: Analysis from the consultants

## 17.2.5 Roads and transportation project identification and capital investment

### • Projects identified

Ratlam Municipal Corporation has proposed the development of bus terminus of Mhau-Nimach road on PPP basis. The feasibility study with commercial activities has been done by Ratlam Municipal Corporation under the guidance of Urban Administration and Development Department.

Following projects have been identified under roads and transportation for Ratlam.

- Road widening in the major commercial regions like Chandani Chauk and Manek Chauk.
- Construction of new roads through out the city

- Relaying of existing and proposed constructed roads at regular interval
- Development of bus terminus at Mhau-Nimach Road on PPP basis.
- Provision of pick up station at Jawra Fatak, Sailana Over Bridge, Forest office (Bajna Road)
- Provision of parking spaces on PPP basis at ward no.49 and ward no.40

• **Capital investment required for roads and transportation**

Following table provides the information on the capital investment required for roads and transportation of Ratlam.

**Table 17-5: Capital Investment required for Roads and transportation**

| Sr No | Project list  | Estimated Cost for 2025 | Estimated Cost for 2040 |
|-------|---|-------------------------|-------------------------|
| 1     | construction of new roads of 208 km till 2015-16  | 6240.00                 | 6240.00                 |
| 2     | construction of new roads of 29 km between 2016 to 2020                                       | 870.00                  | 870.00                  |
| 3     | construction of new roads of 31 km between 2021 to 2025                                       | 930.00                  | 930.00                  |
| 4     | construction of new roads of 32 km between 2026 to 2030                                       | 0.00                    | 960.00                  |
| 5     | construction of new roads of 34 km between 2031 to 2035                                       | 0.00                    | 1020.00                 |
| 6     | construction of new roads of 35 km between 2036 to 2040                                       | 0.00                    | 1050.00                 |
| 7     | relaying of existing roads ( considering 50% roads are cc roads) of 99 km length till 2015-16 | 396.00                  | 396.00                  |
| 8     | relaying of existing roads of 217 km length till 2020-21                                      | 868.00                  | 868.00                  |
| 9     | relaying of existing roads of 233 km length till 2025-26                                      | 932.00                  | 932.00                  |
| 10    | relaying of existing roads of 248 km length till 2030-31                                      | 0.00                    | 992.00                  |
| 11    | relaying of existing roads of 265 km length till 2035-36                                      | 0.00                    | 1060.00                 |
| 12    | relaying of existing roads of 282 km length till 2040-41                                      | 0.00                    | 1128.00                 |
| 13    | road widening in central commercial regions   | 100.00                  | 100.00                  |
| 14    | provision of parking spaces on PPP basis  | 40.00                   | 40.00                   |
| 15    | construction of bust stand on Mhau-Nimach road on PPP basis                                   | 50.00                   | 50.00                   |
| 16    | provision of pick up station at Jawra Fatak, Sailana Over bridge, Forest office (Bajna Road)  | 10.00                   | 10.00                   |
|       | <b>Total for Roads &amp; Transportation Facilities</b>  | <b>10436.00</b>         | <b>16646.00</b>         |

Source: Analysis from the consultants

**17.2.6 Street lighting: project identification and capital investment**

Ratlam Municipal Corporation has taken initiative for the use of energy efficient street light activities by implementing energy savers in Kalika Mata Garden. However, the situation analysis indicates that there is need for the improvement in the street light coverage with replacement taken into consideration.

• **Projects identified**

Following projects have been identified under street lighting

- Replacement of existing lights with energy saving lights

- Provision of additional street lights to cover entire streets and proposed streets in the future.
- **Capital investment required for street lighting**

Following table provides the information on the capital investment required for street lighting of Ratlam.

**Table 17-6: Capital Investment required for street lighting**

| Sr. No | Project list   | Estimated Cost for 2025 | Estimated Cost for 2040 |
|--------|--|-------------------------|-------------------------|
| 1      | replacing of existing tube lights with 6570 nos energy saving lights (28W T5 Lamps) by 2015-16 | 78.84                   | 78.84                   |
| 2      | provision of additional energy efficient street lights 6244 nos by 2015-16                     | 74.93                   | 74.93                   |
| 3      | provision of additional energy efficient street lights 957 nos by 2020-21                      | 11.48                   | 11.48                   |
| 4      | provision of additional energy efficient street lights 1008 nos by 2025-26                     | 12.10                   | 12.10                   |
| 5      | provision of additional energy efficient street lights 1059 nos by 2030-31                     | 0.00                    | 12.71                   |
| 6      | provision of additional energy efficient street lights 1110 nos by 2035-36                     | 0.00                    | 13.32                   |
| 7      | provision of additional energy efficient street lights 1161 nos by 2040-41                     | 0.00                    | 13.93                   |
|        | <b>Total for Street Lights</b>   | <b>177.35</b>           | <b>217.31</b>           |

Source: Analysis from the consultants

### 17.2.7 Industries & Economic development: project identification and capital investment

Being the major industrial region of the western Madhya Pradesh, Ratlam region has been contributing significantly in the regional and state economy. But due to lack of infrastructure and pollution concerns the industrial growth has been reduced drastically which is leading to the unemployment and economical loss for the region. Hence in order to rejuvenate the industrial growth of the region there is need to provide boost for industrial development in the form of policy framework and industrial sector development in the form of agro base industries or small scale industries. There is need to identify the incentives and policies of state and centre level in order to tap grants and incentives for industrial development.

- **Projects identified**

Following projects have been identified under Industries:

- Development of SSI sector in Ratlam to rejuvenate industrial development of the region.
- Single window clearance for Industries and incentives for setting up industries.
- Cluster development for Food processing and to support the agro base economy of the region.

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- Redevelopment of Sajjan mill area with proper plotting and commercial activities within the region.
- Redevelopment old unutilised buildings and offices to develop commercial spaces on PPP basis

**Table 17-7: Capital Investment required for industries and economic development**

| Sr. No   | Project list   | Estimated Cost for 2025 | Estimated Cost for 2040 |
|--|--|-------------------------|-------------------------|
| 1  | Preparation of Vision document and policy level strategies for development of Industrial sector in Ratlam    | 20.00                   | 20.00                   |
| 2  | Redevelopment of Sajjan mill area (preparation of Plan and layout of the proposed plotting for sale of land) | 20.00                   | 20.00                   |
| 3  | Identification of municipal assests (buildings) which can be reused and developed under PPP                  | 5.00                    | 5.00                    |
| <b>Total for Industries and Economic Development</b> |  | <b>45.00</b>            | <b>45.00</b>            |

Source: Analysis from the consultants

### 17.2.8 Socio-economic infrastructure: project identification and capital investment

For socioeconomic sector, there have been fewer provisions for the citizens under the Ratlam Municipal Corporation. There is need to have the community participation for socio-economic sector in order to achieve the inclusive growth of the sector.

#### • Projects identified

Following projects have been identified under socio-economic infrastructure:

- Provision of gasified crematorium at burial ground
- Provision of the new slaughter house
- Construction of community halls and recreation parks on PPP basis
- Development of vegetable market at Manek Chauk at PPP basis
- Development of Amrut sagar and Barbad Lake on PPP basis
- Redevelopment of Library (can be taken of PPP basis)
- Provision of shelter home for women. (one of the unutilized municipal asset or government building can be developed as shelter home for women)
- Ward wise samanvay kendra for decentralisation of Nigam works and convenience of citizens.

#### • Capital investment required for socio-economic infrastructure

Following table provides the information on the capital investment required for socio-economic infrastructure of Ratlam.



**Table 17-8: Capital Investment required for socio-economic infrastructure**

| Sr. No   | Project list   | Estimated Cost for 2025 | Estimated Cost for 2040 |
|--|--|-------------------------|-------------------------|
| 1  | creating 100 bed capacity hospital through PPP after 2030-31   | 0.00                    | 100.00                  |
| 2  | creating community halls one nos by 2025-26  | 15.00                   | 15.00                   |
| 3  | creating community halls 4 nos between 2030 to 2040  | 0.00                    | 60.00                   |
| 4  | creating gasifier crematorium in one of the burial ground by 2015-16   | 50.00                   | 50.00                   |
| 5  | creating one new slaughter house   | 100.00                  | 100.00                  |
| 6  | construction of two recreation parks for RMC on PPP basis  | 100.00                  | 100.00                  |
| 7  | Development of vegetable market at Manek Chauk on PPP basis  | 50.00                   | 50.00                   |
| 8  | Redevelopment of Library on PPP basis  | 15.00                   | 15.00                   |
| 9  | Provision of shelter home for women. (one of the unutilized municipal asset or government building can be developed as shelter home for women) | 15.00                   | 15.00                   |
| 10   | Ward wise samanvay kendra for decentralisation of Nigam works and convenience of citizens.   | 25.00                   | 25.00                   |
| <b>Total for Socio-Economic Infrastructure</b> |  | <b>370.00</b>           | <b>530.00</b>           |

Source: Analysis from the consultants

### 17.2.9 Environment protection: project identification and capital investment

- Projects identified**

Following projects have been identified under socio-economic infrastructure:

- Removing encroachment from nallahs and planting trees on sides of nallahs.
- Afforestation and planting of trees on road side, public plots.
- Development of Public gardens, playgrounds etc. (can be taken on PPP)
- Lake development and beautification

**Table 17-9: Capital Investment required for Environment protection**

| Sr. No   | Project list  | Estimated Cost for 2025 | Estimated Cost for 2040 |
|--|---|-------------------------|-------------------------|
| 1  | Development of Amrut Sagar Lake on PPP basis  | 1400.00                 | 1400.00                 |
| 2  | Development of Barbad lake on PPP   | 371.50                  | 371.50                  |
| 3  | Tree plantation on sides of nallah, road side and public plots (two lakhs per annum)          | 30.00                   | 30.00                   |
| 4  | Development of public gardens (can be taken on PPP) Kalika mata garden and amrut sagar garden | 20.00                   | 20.00                   |
| <b>Total for Environment protection and management</b> |   | <b>1821.50</b>          | <b>1821.50</b>          |

Source: Analysis from the consultants

## 17.2.10 Heritage conservation and protection: project identification and capital investment

There have been unidentified and neglected heritage sites within the Ratlam city area which need to be listed for heritage conservation in order to restore the heritage richness of the city. There is need for detailed project report for identification of heritage sites and action plan for the same.

### • Projects identified

Following projects have been identified under Heritage conservation and protection:

- Preparation of Detailed project report (DPR) for identification of buildings with historical and heritage importance and preparation of action plan for the conservation, protection and renovation of the same.

**Table 17-10: Capital Investment required for heritage conservation and projection**

| Sr. No | Project list  | Estimated Cost for 2025 | Estimated Cost for 2040 |
|--------|---|-------------------------|-------------------------|
| 1      | Preparation of Detailed project report (DPR) for identification of buildings with historical and heritage importance and preparation of action plan for the conservation, protection and renovation of the same | 20.00                   | 20.00                   |
|        | <b>Total for Urban Heritage</b>   | <b>20.00</b>            | <b>20.00</b>            |

Source: Analysis from the consultants

## 17.2.11 Urban Poor: Project identification and capital investment

### • Projects identified

Ratlam Municipal Corporation has conducted biometric survey and projects have been identified with the support from "Project Utthan" under Madhya Pradesh Urban Service for Poor programme.

However in order to cover the entire slum areas under the municipal corporation jurisdiction, the urban local body can implement the Rajiv Awas Yogana for urban poor in Ratlam. As mentioned in the sectoral analysis, the IHSDP report of RMC has been rejected by state government due to lack of data and other applicable issues in the report. In order to provide the services at micro level and to assess the funds as well as technical assistance from central and state government Rajiv Awas Yogana (RAY) for slum free city planning will be constructive approach for urban local body.

Following projects have been proposed under urban poor sector of Ratlam:

- Rajiv Awas Yogana for Slum Free City Planning
- Provision of community toilets at wards no.39, ward no.1 and Chandani Chauk region. (As per stakeholder's requirement)
- Provision of 65 nos. of community toilets in the slum regions (estimated under slum analysis)

- **Capital investment required for Urban Poor**

Following table provides the information on the capital investment required for urban poor of Ratlam.

**Table 17-11: Capital Investment required for Urban Poor**

| Sr. No | Project list   | Estimated Cost for 2025 | Estimated Cost for 2040 |
|--------|--|-------------------------|-------------------------|
| 1      | slum free city planning like Rajiv Awas Yagna etc  | 6070.80                 | 6070.80                 |
| 2      | provision of public toilets public toilettes at chandani chauk (1 nos), sherani pura slum area (6 nos), ward no.39 Dalu moti bazar (1 nos), Ward no.29 Bhaktan ki Bawdi (1 nos), | 9.00                    | 9.00                    |
| 3      | provision of community toilets in slum regions (65 nos)  | 65.00                   | 65.00                   |
|        | <b>Total for Service to Urban poor</b>   | <b>6144.80</b>          | <b>6144.80</b>          |

### 17.2.12 Urban Governance and institutional development: Project identification and capital investment

- **Projects identified**

Ratlam Municipal Corporation has begun the implementation of double entry accounting system with the technical assistance from the state government.

Following projects have been proposed under urban governance sector of Ratlam:

- E-governance with the development of new Website of Ratlam Municipal Corporation which will provide the online tax payment for properties and services.
- Property tax reforms with GIS mapping of properties
- Training and capacity building of employees for effective execution of reforms and efficiency in the service provision.

- **Capital investment required for urban governance and institutional development**

Following table provides the information on the capital investment required for urban governance and institutional development of Ratlam.

**Table 17-12: Investment required for urban governance, institutional development**

| Sr. No | Project list  | Estimated Cost for 2025 | Estimated Cost for 2040 |
|--------|---|-------------------------|-------------------------|
| 1      | municipal corporation website with E-governance with online tendering, tax payment, grievance redressal system etc. | 10.00                   | 10.00                   |
| 2      | GIS mapping of properties   | 50.00                   | 50.00                   |
| 3      | training and capacity building of employees   | 15.00                   | 15.00                   |
|        | <b>Total for urban governance and institutional development</b>   | <b>75.00</b>            | <b>75.00</b>            |

Source: Analysis from the consultants

## 17.3 Capital investment plan –Location and ward specific projects

### 17.3.1 Projects identified

Following projects have been identified which needs to be taken on priority basis

- Ward 27: Provision of Public toilets in Slums
- Ward 14: Redevelopment of Sajjan mill area
- Ward 14: Rehabilitation of old nallahs
- Ward 14: Modernisation of Sabji mandi on PPP
- Ward 04: Removing encroachment from Nallah
- Ward 1 to 10: Chanelisation of nallah to curb water logging
- Ward 06: Community toilets for women
- Ward 40: Modernisation of Sabji Mandi on PPP basis
- Ward 40: Rehabilitation of drains to stop water looging near Jain samaj and Masjid
- Ward 49: Provision of parking facilities and community toilets at Dr. Devisingh Ki Galli.
- Ward 09: provision of water supply distribution network
- Ward 09: Provision of drainage system to avoid water logging

The costing for the projects identified above has been included in each of the sector respectively.

## 17.4 Projects prioritization for Ratlam City Development Plan

After analyzing the demand assessment for the next 30 years for all the sectors, i.e. physical and social infrastructure project identification has been made for each sector. However after having situation analysis of the city and further discussion with stakeholders projects prioritization has been done for Ratlam City Development Plan.

Following table provides the priority listing of the projects in accordance with the sectors.

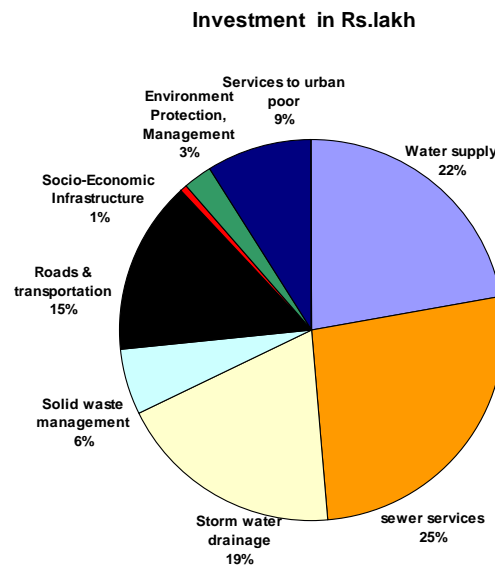
**Table 17-13: Prioritized City Investment for Ratlam**

| Sr.No.       | Sector wise investment for first phase without inflation | Investment in Rs.lakh |
|--------------|--|-----------------------|
| 1            | water supply   | 15775.26              |
| 2            | sewer services   | 18650.55              |
| 3            | storm water drainage                                     | 13565                 |
| 4            | solid waste management                                   | 3929.26               |
| 5            | roads and transportation                                 | 104.36                |
| 6            | street lights  | 177.35                |
| 7            | Industries and economic development                      | 45.00                 |
| 8            | Socio-Economic Infrastructure                            | 370                   |
| 9            | Environment Protection and Management                    | 1821.50               |
| 10           | Urban Heritage   | 20.00                 |
| 11           | services to urban poor                                   | 6144.80               |
| 12           | Urban Governance and institutional development           | 75.00                 |
| <b>Total</b> |  | <b>71009.72</b>       |

*Source: Analysis from the consultants*

The water supply sector has been given the top most priority in order to achieve the source augmentation and provide 100% household coverage to the citizens of Ratlam. Municipal Solid Waste has been prioritized followed by the water supply sector in such away that Ratlam municipal corporation will follow the environmental compliance enacted with MSW handling rules,2000 with Door to Door collection, transportation, treatment and scientific disposal of municipal solid waste. Followed by Municipal Solid Waste sector, the urban poor sector in Ratlam have to identified with number of slums and households in order to eradicate the urban poverty within the city and also it is very necessary to step forward efforts in order to restrict the further slum formation in the city may be because of immigration or lack of economic development within the city. The underground sewer and drainage services can be followed after urban poor sector, which may require high capital investments but required to be implementation subsequently in order to achieve proper sanitation services for the city. After following the physical infrastructure prioritization of social infrastructure can be given in terms of provision for recreational spaces, lake development etc. At last but not the least the institutional strengthening and capacity building is very important aspects in terms of recruitment of skilled staff and training to the existing employees in order to improve the efficiency in service delivery.

**Figure 17-1 : Capital Investment Rs.in Lakhs**



*Source: Analysis from the consultants*

## 17.5 Projects under public private partnership

Public–private partnership (PPP) describes a government service which is funded and operated through a partnership of government and one or more private sector companies.

### Advantages of public private partnership:

- The private sector is responsible for carrying out or operating the project and takes on a substantial portion of the associated project risks
- During the operational life of the project the public sector’s role is to monitor the performance of the private partner and enforce the terms of the contract
- The private sector’s costs may be recovered in whole or in part from charges related to the use of the services provided by the project, and may be recovered through payments from the public sector
- Public sector payments are based on performance standards set out in the contract
- Often the private sector will contribute the majority of the project’s capital costs, although this is not always the case

Following projects are under proposal by Ratlam Municipal Corporation under technical assistance from Urban Administration and Development Department.

- Integrated Solid Waste Management for Ratlam
- Development of bus terminus at Mhau-Nimach Road

### • Projects identified

Apart from the above projects, following projects of the Capital investment plan have been proposed under public private partnership.

**Table 17-14: Prioritized projects under PPP**

| Sr. No  | TYPE OF PROJECT UNDER PPP  | ESTIMATED COST RS.LAKHS |
|---|--|-------------------------|
| 1   | Total for Solid Waste Management Schemes   | 4241.28                 |
| 2   | provision of parking spaces on PPP basis   | 40.00                   |
| 3   | construction of bust stand on Mhau-Nimach road on PPP basis                                      | 50.00                   |
| 4   | construction of two recreation parks for RMC on PPP basis  | 100.00                  |
| 5   | Development of vegetable market at Manek Chauk on PPP basis                                      | 50.00                   |
| 6   | Redevelopment of Library on PPP basis  | 15.00                   |
| 7   | Development of Amrut Sagar Lake on PPP basis   | 1400.00                 |
| 8   | Development of Barbad lake on PPP  | 371.50                  |
| 9   | Development of public gardens (can be taken on PPP)<br>Kalika mata garden and Amrut Sagar garden | 20.00                   |
| <b>Total under Public Private Partnership</b>                 |  | <b>6287.78</b>          |
| <b>PPP projects for the implementation period (2010-2025)</b> |  | <b>5975.76</b>          |

*Source: Analysis from the consultants*



## 18 Reforms and resource mobilization

### 18.1 Overview

Urban reforms are the main focus of good governance and service delivery to the inhabitants of the urban area. Several initiatives and reforms have been taken up at the national level and state level. These reforms need to be replicated and implemented by the ULBs completely in a time bound manner.

Under the Urban Local Bodies level, reforms viz., E-Governance, shift to Accrual based double entry accounting, property tax reforms should be proposed to be achieved by 2015. The 100% cost recovery for water supply and solid waste services have been proposed to be achieved in the year 2020-21. Internal earmarking of funds for services to Urban Poor and provision of Basic services to urban poor should be planned to be achieved in the year 2021. Public Private Partnership should be encouraged through outsourcing in solid waste management, street light maintenance, STP maintenance and hiring of vehicles. Few of the suggested reforms have been implemented to some extent though at the ULB level further refinement and qualitative implementation needs to be carried out.

Implementation of Reforms is critical for achieving self sustainability for the ULB and hence mandatory and optional reforms need to be implemented in a phased manner within the scheme period. Some of the reform initiatives are already underway in the ULB with assistance from the State Government. The present status of the reforms is elaborated in this chapter.

### 18.2 Reforms and measures for Ratlam Municipal Corporation

- Financial and Accounting Reforms
- Institutional reforms
- E-Governance in Urban Local Bodies.
- Reforms in physical infrastructure

- **Financial Reforms:**

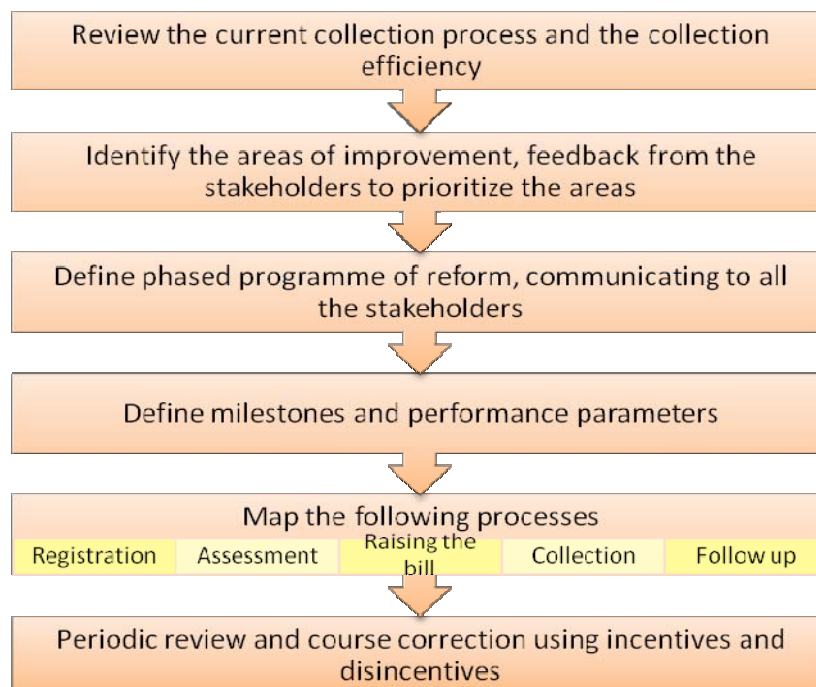
As a part of financial reforms, tax mobilization reforms in tax and non tax collection needs to be taken up for improving the financial position of the Corporation. The reform process of tax collection should be comprehensive and should focus on structural and systematic changes so that the increase in efficiency is sustained. This is vital for achieving self-sufficiency and improving its financial health to make it possible for the ULB to undertake various projects for the welfare of the people.

The revenue department of Ratlam Municipal Corporation is responsible for collection of various taxes and charges from its citizens including raising the demand for key revenue items like property tax, Integrated tax, Development charges, water charges etc., There is only one permanent sub-inspector heads the revenue department and is supported by bill collectors who are temporary workers.

There is need to maintain proper record of arrears for the other taxes like integrated tax, which all the properties levied, combine onwards street lighting, fire fighting and sanitation.

From the financial analysis, the Ratlam Municipal Taxes account for only 20% of the total income of KMC for the year 2008-09. This is attributed to the non-assessment of all the properties in the Municipal Corporation area, non imposition of taxes for the services and poor service delivery.

**Figure 18-1: A possible approach for the reform process can be as follows**



### 18.3 Property tax reforms

#### Present Status:

- Property taxes are one of the important sources of revenue for Ratlam Municipal Corporation which accounting for more than 52% of the total municipal tax income.
- Presently there is no computerization of property records.
- Ratlam Municipal Corporation will require the assistance of State Government agencies in GIS based property mapping, migration to self assessment of property tax.

Proper implementation of reforms is a pre-requisite for healthy revenue generation. Healthy growth in number of assessments, updated tax demand, periodic revisions and high collection efficiency is important for strong growth in property tax collection.

Hence the following reforms have been suggested to bring about improvement in property tax collection.

**Table 18-1: Suggested Property taxes Reforms**

- Mandatory Implementation of Revision of Property Tax once in every five years is required.
- Digitization of the property maps through GIS to identify un-assessed and under assessed properties is required.
- GIS based mapping system is advisable for each property identified on GIS (Whether it is residential, commercial or industrial).
- The above database can be crossed checked with the data from various governmental authorities/sources such as Income Tax, Profession Tax, and Mandatory Implementation of Revision of Property Tax once in every five years is required.
- Computerization of records of encroached properties, action taken, list of encroachers through MIS would enable linking the same with GIS.
- Making the payment of property tax more convenient for the assesseees through the use of various alternative modes can be explored through a decentralized approach such as:
  1. Through banks
  2. Through Post Offices, Bus terminus, Kiosks et .
  3. Through online payment through using internet.
  4. Through ECS/ EFT
- Using special schemes and incentives to encourage people to make the payment of property tax before the lapse of the due date can be considered. Rebates can be offered for advance payment of property taxes.
- The Corporation can do more initiatives to increase the number of self assessed tax payers by creating well awareness among the people themselves about the social responsibility of paying tax in time.
- Collection of arrears through innovative means such as community participation and fast track litigation methods need to be attempted. Law enforcement powers should be given to the Corporation to compel payment of taxes and other charges levied by them.
- Improve enforcement against defaulters by modifying byelaws with adequate recourse to ULB within the current framework for enforcing disconnections on defaulters.
- PSP involvement in computerization, billing, collections and survey of properties can be explored.
- Rewarding collection efforts of the employees to encourage more aggressive collection.
- List of consistent major defaulters can be published in the notice board of the Corporation office. This can be resorted in the case of extreme default.
- Suitable legislation at state level to ensure that in the case of disputed property tax the assessee should first pay the tax under protest and then can take the necessary legal recourse as done in customs/excise duties can be considered.
- Considering the future expansion of the Corporation and its properties the possibility of introducing additional collection centers to enable the citizens to pay the taxes can be looked into.
- Late payment of property tax after the grace period can be penalized with nominal charges as being done in the case of insurance payments etc.

## 18.4 Accounting Reforms

The accounts section is responsible for maintenance of all income and expenditure statements, payment, preparation and implementation of budget.

However the system of accounting is into process of converting into double entry accounting system since the one. Presently ULB have only one computer for the accounts department.

**Table 18-2: Suggested Accounting Reforms**

- There is need for the ULB to update its accounts to the latest year to provide a complete, updated details on the financial health of the ULB. Hence accounts need to be finalized within the year itself instead of a year later as seen currently. This would enable the ULB to identify the revenue gaps, financial commitments and costs of various services and take remedial measures to regain its financial health.
- As a part of a larger accounting reform process at the State level, it is suggested that the ULB can include disclosures in its Annual Accounts and other published documents details on cost recovery of essential services through direct “user charges”, indirect “taxes” and Environmental status report.
- Above suggested information can be made available to the public through various channels in simple effective language to facilitate substantial/full recovery of O&M costs of the various essential services such as Water Supply, Solid Waste Management, etc. e.g. Details on the website, distribution of pamphlets, Involving S.H.Gs/NGOs/Women Groups for spreading awareness, Public announcements etc.
- The awareness creation at various levels will increase the “willingness to pay” actions of the citizens of the area.
- The audited annual accounts can contain ULB Discussion and Analysis Report (UDAR) providing a holistic view on the financial health, quality of service level rendered, initiatives taken/proposed by the ULB to improve the city, areas of concern, targets and action plan to achieve the same etc. This report along with the Urban Performance indicators can provide a qualitative edge to the accounting and financial reporting system that can go a long way towards achieving high levels transparency, accountability and easy and smoother facilitation of the reform process required. Thus the support from the stake holders of the city would become easier if the awareness is created with these qualitative reports being prepared and shared with the key stake holders of the city.

### 18.5 Institutional Reforms

The Institutional reforms suggested for Ratlam Municipal Corporation can be broadly divided into the following heads:

- Training and Capacity Building for administrative staff and elected officials
- Private Sector Participation
- Consumer grievance
- User charges
- E-Governance

#### 18.5.1 Training and Capacity Building for administrative staff and elected officials:

There is need to provide training for administrative as well as elected member in the fields of HRD training, computer training imparting the all the clerks, accounting training, and other training areas of solid waste management, water supply and sanitation particularly for technical areas. The state government

should provide the necessary support in order to bring the capacity building for the Ratlam Municipal Corporation.

*It is recommended that the periodicity of the training shall be coupled with more qualitative in-depth focus on the type of training offered. This would result in increased awareness among the administrative staff on various issues there by enhancing their productivity and creating awareness about their responsibility towards the public. For both elected and administrative members educational and awareness tours can be organized to understand the best practices in various services of other ULBs.*

### 18.5.2 Consumer Grievance Redressal System (CGRS):

The consumer grievance redressal system process assists the urban local bodies in improving their services in the following manner:

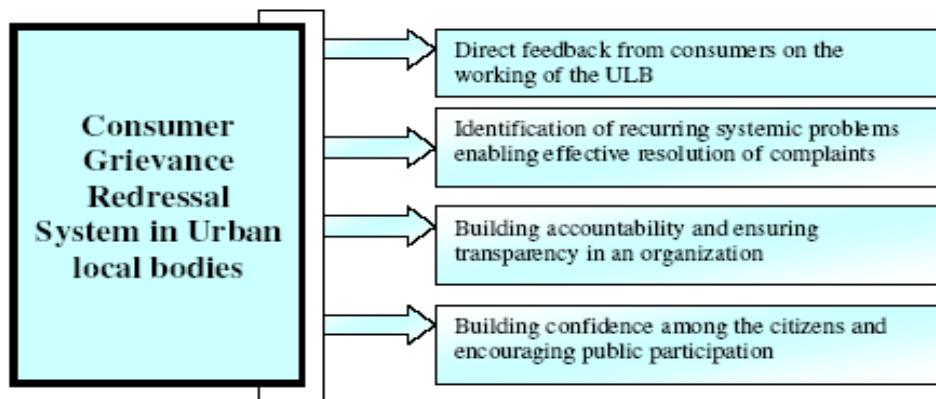
**Citizens —→ municipal Corporation:**

Consumers/ citizens voice their grievances and thus provide valuable feedback to municipal Corporation regarding the quality of services delivered.

**Municipal Corporation —→ citizens:**

Besides addressing the complaints, the feedback given by consumer/ citizens helps the municipal bodies to analyze the quality of their services and become aware of any deficiency in their services. This helps in improving the efficiency, accountability, responsiveness and transparency of municipal Corporation. All this will lead to improved service quality.

**Figure 18-2: Benefits of consumer grievance redressal system**



Source: Framework for effective consumer grievance redressal system, MOUD, GOI

### 18.5.3 Private sector participation:

Private Sector Participation in infrastructure projects and Civic services can be actively pursued in Ratlam. The objectives for initiation of PSP in Infrastructure projects / Civic Services are:

- To reduce government grant funding for infrastructure projects
- To reduce the burden on the ULB to undertake large infrastructure projects

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- To increase coverage of services in areas of water supply, sewerage and solid waste management
- To hasten the development of the region
- To improve efficiency of operations

Some of the sectors which can be considered for Private Sector Participation are:

1. Solid Waste Management
2. Water Supply Scheme
3. Sewage Treatment Plant
4. Housing for poor
5. Public Transport Initiation Project
6. Vocational Training Institutes

**Table 18-3: Areas of Privatization**

- **Solid Waste Management**

Options for Private Sector Participant to invest in Solid Waste Management Project in Ratlam are:

- Production of manure from waste
- Conversion of biogas plant into waste to energy plant when the solid waste generation reaches 100tonnes/ day in future.

- **Water Supply Scheme**

In India, Private Sector Participation in water supply schemes has not taken off fully. However, Private Sector Participation for distribution and Operation and Maintenance can be considered in future.

Private sector Participation in service delivery, collection of bill (participation can be in the form of performance contracting.)

- **Sewage Treatment Plant**

Private Sector Participant can be invited to setup treatment plant for generating bio-energy and bio fertilizer. PSP in Sewage Treatment can be taken up actively in Ratlam.

- **Housing for poor**

Dharavi model for providing housing for poor can be considered under PSP. Under this model, land occupied by slum dwellers will be developed for residential, commercial and recreational purposes and the occupants will be provided alternate housing if the developer is provided additional FSI.

- **Transportation**

Projects on BOT basis can be considered in areas of Para transit system, construction of ROBs, construction and management of pay and park parking lots.

### 18.5.4 User Charges

There is a need to introduce in phases "User Charges" for various infrastructure amenities provided by the Corporation. Cross subsidization of tariff, Innovative product structuring and community participation are some of the measures which could be explored to provide services for the urban poor.



Currently only property tax is the only direct income for Ratlam municipal Corporation. The water tax is collected only from the bulk supply through tankers to several parts of the city. For implementing the new project there will be necessary to revise the user charges for the respective services, in order to sustain and maintain the operation of the services.

In the light of the above limitations, the ULB needs to explore the option of introducing user charges in other areas too. For the proposed UGD collection of user charges for meeting O & M expenses becomes imperative. Some of the suggested areas are user charges from commercial entities and institutions for solid waste management to be extended to residential areas in phases after proper awareness is created at all levels.

#### **18.5.5 E-governance:**

*E-governance is the application of information & communication technologies to transform the efficiency, effectiveness, transparency and accountability of informational & transactional exchanges with in government, between govt. & govt. agencies of National, State, Municipal & Local levels, citizen & businesses, and to empower citizens through access & use of information.*

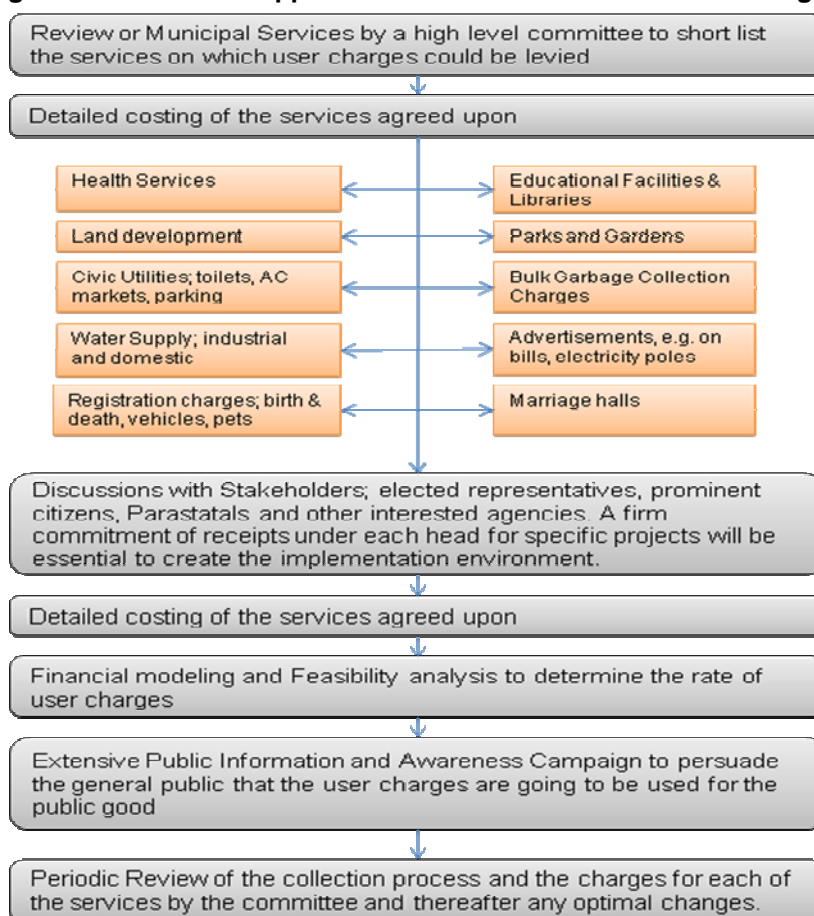
**At ULB level, an e-governance shall serve the following three basic requirements in a user friendly manner**

- Information to the office bearers for their effective discharges of their duties, safeguard the assets of the Corporation and for future planning and development of their city.
- Information to councilors to do effective service delivery to their constituents.
- Information to public to pay their duty, update the information on assessment and to get the right services of the ULB in time.

#### **Present Status:**

Unlike other municipal corporations of Bhopal, Gwalior and Indore, Ratlam municipal corporation doest not have its website for the provision of the information and e-governance services to the citizens.

**Figure 18-3: Possible approach of the Reforms for the User charges.**



## 18.6 Reform Action Plan

The broad area of reforms along with the action plan is presented below:

**Table 18-4 Reforms and action plans**

| Reforms  | Status   | Action Plan  |
|--|--|--|
| <b>Property Tax Reforms</b>                            |  |  |
| Collection Efficiency                                  | Very low. Ratio of arrears collection to current year demand collection is very high consistently. Also only 19% of the registered properties are liable to pay tax. | Present property tax structure to be reviewed and stringent measures for tax recovery to be implemented. |
| Survey of Properties                                   | Survey of properties not carried out by the Municipal Corporation.   | Survey to be carried out to bring all the properties in Ratlam under tax assessment.                     |
| Computerisation of Records for Property Tax management | Computerisation of property tax records yet to be done.  | State Govt. can assist in computerisation of records.  |
| GIS based property mapping                             | Yet to be implemented.   | State Govt. assistance required to implement it across municipal councils.                               |

| Reforms  | Status  | Action Plan   |
|--|---|---|
| <b>Service Provision and User charges</b>  |   |   |
| Water Supply Service   | 54% of properties covered.<br>Cost recovery is only 69%.    | Water supply system and network to be provided to all properties Ratlam.  |
| Sewerage Treatment Service   | No sewer network.   | Sewer network covering all properties to be provided.   |
| Solid Waste Management Service, Street lighting  | No treatment of solid waste.<br>Less than 9% cost recovery. | Comprehensive SWM to be implemented. User charges to be increased.  |
| Audits and surveys to check theft and losses   | Not undertaken.   | Staff to be trained to carry out checks and audits.   |
| <b>E – Governance</b>  |   |   |
| Computerisation of Records   | No Computerisation.   | Computerisation of all records and departments to be taken up. Staff to be trained. Even accounts are not computerized.   |
| E-Procurement  | Nil   | Considering the low level of personal computer penetration and internet users in Ratlam, E procurement and online bill payment can be considered for long term goals. |
| Online payment of bills  | Nil   |   |
| <b>Accounting Reforms</b>  |   |   |
| Valuation of assets and liabilities  | Nil   | Need to be taken up as immediate priority.  |
| Migration to Double Entry Accounting System  |   | Migration to double entry shall be taken up as short term goal with plan for implementation within the next five years.   |
| Revamp of the Public Financial Management (PFM) cycle, which includes internal controls                            | Nil   | Assistance and training to be provided by the state government.   |
| <b>Financial Management</b>  |   |   |
| Review of Rentals from Municipal Properties and Fees for various services in line with the prevailing market rates | Nil   | Assistance and training to be provided by the state government.   |
| Monitor and Control of Revenue Expenditure   | Nil   | Assistance and training to be provided by the state government.   |
| Prioritisation of expenditure on capital works in line with the infrastructure needs of                            | Nil   | Assistance and training to be provided by the state government.   |

| Reforms   | Status   | Action Plan   |
|---|--|---|
| the region  |  |   |
| Efficient Management of Grants, Loans and Deposits  | Nil  | Assistance and training to be provided by the state government.                                 |
| <b>Internal Earmarking for basic services</b>   |  |   |
| Identification of BPL Families  | BPL list available. Slum population details not available. | Survey to be done for Identification of slum population   |
| Provision of basic services - Water Supply, Sanitation, Health, Education   | Housing projects to be identified under IHSDP.             | To be implemented under IHSDP.  |
| Budgetary Earmarking and Actual Spending for provision of basic services  | Budget earmarking and spending not done.                   | Schemes for urban poor to be prepared every year, budgeted and implemented.                     |
| Impact evaluation of the schemes and implementation strategies for monitorable output indicators for each of the services | Nil.   | Framework for implementation and implementation strategies can be provided by state government. |

Source: Analysis from the consultants

## 19 Financial Operating Plan

The Financial Operating Plan (FOP) assesses the financial strength of the Corporation to implement the identified projects. The Financial Operating Plan (FOP) will forecast the municipal finances on the basis of certain assumptions on income and expenditure. The primary objective of the FOP is to ascertain the investment sustenance capacity of the corporation to undertake various projects. There are three scenario's created for financial operating plan. They are as follows:

Base case scenario: All the projected implemented without any reforms and financial projection done on the basis of past growth rate of the taxes.

Partial reforms: Projects implemented with partial reforms in certain sectors like property tax, water tax and other services.

Full reforms scenarios: projects implementation with realization of all the reforms and iterated against the revenue income and the expenditure pattern of Municipal Corporation.

### 19.1 Projection of Financial Statement

The analysis of the financials of Ratlam Municipal Corporation is presented in Section 10 of the report. The past trends in growth rates in revenue income and expenditure are assumed to continue over the next 15 years. No new revenue sources such as user charges for UGD etc. are envisaged under this scenario. Based on the past trends the projection of financials of Ratlam Municipal Corporation is prepared for the period 2010-11 to 2024-25.

The assumptions for the projections of revenue income and expenditure are as follows:

**Table 19-1: Growth rate for revenue income**

| Particulars           | Growth Rate-(%) | Projected growth Rates (%) | Notes  |
|-----------------------|-----------------|----------------------------|--|
| Property tax          | 5%              | 5%                         | Growth rate for current has been assumed at 4.3% and for arrears its 5.0%. property tax levied on the rental basis |
| Consolidated Tax      | 8.63%           | 9%                         | Charges combine for sanitation, street lighting and fire fighting (minimum Rs.180)                                 |
| City Development Cess | 16.43%          | 17%                        | City development cess has been increasing consistently, hence assumed as per the estimated CAGR.                   |
| Water tax             | 2.36            | 2.36%                      | Current collection projected as per CAGR-0.7% while arrears collection projected as per CAGR-2.36 %                |

## City Development Plan, Ratlam

| Particulars              | Growth Rate-(%) | Projected growth Rates (%) | Notes   |
|--------------------------|-----------------|----------------------------|---|
| License fees             | 12.53%          | 12.53%                     | Projected as per the CAGR   |
| Grants and contributions | 15.39%          | 10%                        | Grants and contribution is very high i.e more than 50% in the income part |
| Extraordinary income     | 2.50%           | 2.50%                      | Projected as CAGR.  |

*Source: Analysis from the consultants*



Table 19-2: Financial statements under no reforms scenario

| No.      | Particulars                       | 2005-06       | 2006-07       | 2007-08       | 2008-09       | 2009-10       | 2010-11       | 2011-12       | 2012-13       | 2013-14       | 2014-15       | 2015-16       | 2016-17       | 2017-18       | 2018-19       | 2019-20       | 2020-21       | 2021-22        | 2022-23        | 2023-24        | 2024-25        |  |  |
|----------|-----------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|--|--|
| <b>i</b> | <b>Income</b>                     |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |  |  |
| <b>A</b> | <b>Municipal Taxes and rates</b>  |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |  |  |
| 1        | Property Tax                      |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |  |  |
| a        | current                           | 39.4          | 34.3          | 38.5          | 44.7          | 46.7          | 48.7          | 50.8          | 53.0          | 55.3          | 57.7          | 60.2          | 62.8          | 65.5          | 68.3          | 71.3          | 74.4          | 77.6           | 81.0           | 84.5           | 88.1           |  |  |
| b        | arrears                           | 51.5          | 75.4          | 75.2          | 77.9          | 81.8          | 85.9          | 90.2          | 94.7          | 99.4          | 104.4         | 109.6         | 115.1         | 120.9         | 126.9         | 133.2         | 139.9         | 146.9          | 154.2          | 162.0          | 170.1          |  |  |
| 2        | property tax others               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |  |  |
| 3        | City Development Cess             | 38.4          | 50.7          | 58.0          | 60.6          | 70.9          | 83.0          | 97.1          | 113.6         | 132.9         | 155.5         | 181.9         | 212.8         | 249.0         | 291.3         | 340.9         | 398.8         | 466.6          | 545.9          | 638.8          | 747.3          |  |  |
| 4        | Consolidated Tax                  | 47.7          | 48.3          | 53.7          | 61.2          | 66.7          | 72.7          | 79.2          | 86.4          | 94.1          | 102.6         | 111.8         | 121.9         | 132.9         | 144.8         | 157.9         | 172.1         | 187.6          | 204.5          | 222.9          | 242.9          |  |  |
| 5        | Others                            | 58.0          | 60.9          | 61.8          | 71.4          | 76.4          | 81.7          | 87.4          | 93.5          | 100.1         | 107.1         | 114.6         | 122.6         | 131.2         | 140.4         | 150.2         | 160.7         | 172.0          | 184.0          | 196.9          | 210.7          |  |  |
| 6        | Water Tax                         |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |  |  |
| a        | current                           | 228.0         | 242.6         | 228.9         | 232.8         | 234.5         | 236.1         | 237.8         | 239.4         | 241.1         | 242.8         | 244.5         | 246.2         | 247.9         | 249.7         | 251.4         | 253.2         | 255.0          | 256.8          | 258.6          | 260.4          |  |  |
| b        | arrears                           | 32.8          | 39.5          | 38.5          | 35.2          | 36.0          | 36.8          | 37.7          | 38.6          | 39.5          | 40.4          | 41.4          | 42.4          | 43.4          | 44.4          | 45.5          | 46.5          | 47.6           | 48.8           | 49.9           | 51.1           |  |  |
| 7        | water tax others                  | 10.2          | 11.0          | 10.6          | 10.3          | 10.3          | 10.3          | 10.4          | 10.4          | 10.4          | 10.4          | 10.5          | 10.5          | 10.5          | 10.6          | 10.6          | 10.7          | 10.7           | 10.7           | 10.7           | 10.8           |  |  |
| 8        | License Fees                      | 7.1           | 9.6           | 9.6           | 10.4          | 11.8          | 13.3          | 15.1          | 17.2          | 19.5          | 22.1          | 25.0          | 28.4          | 32.2          | 36.5          | 41.4          | 47.0          | 53.3           | 60.4           | 68.5           | 77.7           |  |  |
| 9        | Other License Fees and other fees | 43.4          | 36.7          | 46.0          | 61.8          | 69.5          | 78.2          | 88.1          | 99.1          | 111.5         | 125.5         | 141.2         | 158.9         | 178.8         | 201.2         | 226.5         | 254.9         | 286.8          | 322.7          | 363.2          | 408.7          |  |  |
| 10       | Other Taxes                       | 1.3           | 2.0           | 2.1           | 1.0           | 1.0           | 1.0           | 1.0           | 1.0           | 1.0           | 1.0           | 1.0           | 1.0           | 1.0           | 1.0           | 1.0           | 1.0           | 1.0            | 1.0            | 1.0            | 1.0            |  |  |
| B        | Other Income                      | 176.8         | 120.6         | 138.6         | 140.1         | 140.1         | 140.1         | 140.1         | 140.1         | 140.1         | 140.1         | 140.1         | 140.1         | 140.1         | 140.1         | 140.1         | 140.1         | 140.1          | 140.1          | 140.1          | 140.1          |  |  |
| C        | Income from Different Schemes     | 39.5          | 37.3          | 40.9          | 22.3          | 22.3          | 22.3          | 22.3          | 22.3          | 22.3          | 22.3          | 22.3          | 22.3          | 22.3          | 22.3          | 22.3          | 22.3          | 22.3           | 22.3           | 22.3           | 22.3           |  |  |
| D        | Grants and Contribution           | 1435.3        | 1555.7        | 2330.2        | 2205.2        | 2425.7        | 2668.3        | 2935.1        | 3228.7        | 3551.5        | 3906.7        | 4297.3        | 4727.1        | 5199.8        | 5719.8        | 6291.7        | 6920.9        | 7613.0         | 8374.3         | 9211.7         | 10132.9        |  |  |
| E        | Extraordinary (Suspense) income   | 360.7         | 350.6         | 321.7         | 388.4         | 398.1         | 408.1         | 418.3         | 428.7         | 439.4         | 450.4         | 461.7         | 473.2         | 485.0         | 497.2         | 509.6         | 522.3         | 535.4          | 548.7          | 562.4          | 576.5          |  |  |
|          | <b>Total Income</b>               | <b>2570.0</b> | <b>2675.2</b> | <b>3454.2</b> | <b>3423.1</b> | <b>3691.6</b> | <b>3986.4</b> | <b>4310.4</b> | <b>4666.5</b> | <b>5058.1</b> | <b>5488.9</b> | <b>5963.0</b> | <b>6485.2</b> | <b>7060.4</b> | <b>7694.4</b> | <b>8393.5</b> | <b>9164.6</b> | <b>10015.6</b> | <b>10955.3</b> | <b>11993.3</b> | <b>13140.5</b> |  |  |

| No. | Particulars                                 | 2005-06 | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 |  |
|-----|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--|
| ii  | Expenditure                                 |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |
| 1   | Mission 2009/08/07/06 - Important           | 107.3   | 61.3    | 29.4    | 128.6   | 136.6   | 145.1   | 154.1   | 163.7   | 173.9   | 184.7   | 196.2   | 208.4   | 221.3   | 235.1   | 249.7   | 265.2   | 281.7   | 299.3   | 317.9   | 337.6   |  |
| 2   | Vision 2009/08/07/06 - Public Welfare works | 76.7    | 122.1   | 118.8   | 129.0   | 139.3   | 150.5   | 162.5   | 175.5   | 189.6   | 204.7   | 221.1   | 238.8   | 257.9   | 278.5   | 300.8   | 324.9   | 350.9   | 378.9   | 409.2   | 442.0   |  |
| 3   | Salary Expenses                             |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |
| A   | Establishment expenses (Permanent)          | 821.9   | 867.6   | 1020.1  | 1130.1  | 1256.7  | 1397.5  | 1554.0  | 1728.1  | 1921.6  | 2136.9  | 2376.2  | 2642.4  | 2938.4  | 3267.5  | 3633.5  | 4040.5  | 4493.0  | 4996.3  | 5556.0  | 6178.3  |  |
| B   | Establishment expenses (Temporary)          | 123.5   | 130.4   | 157.8   | 172.0   | 192.0   | 214.5   | 239.5   | 267.5   | 298.7   | 333.6   | 372.6   | 416.1   | 464.7   | 518.9   | 579.5   | 647.2   | 722.8   | 807.2   | 901.4   | 1006.7  |  |
| 4   | Fuel expenses (Diesel/Petrol)               | 33.7    | 49.8    | 50.4    | 45.2    | 49.9    | 55.1    | 60.8    | 67.0    | 73.9    | 81.6    | 90.0    | 99.3    | 109.5   | 120.9   | 133.3   | 147.1   | 162.3   | 179.0   | 197.5   | 217.9   |  |
| 5   | Telephone expenses                          | 5.1     | 5.4     | 4.0     | 4.5     | 4.5     | 4.5     | 4.5     | 4.5     | 4.5     | 4.5     | 4.5     | 4.5     | 4.5     | 4.5     | 4.5     | 4.5     | 4.5     | 4.5     | 4.5     | 4.5     |  |
| 6   | Electricity expenses                        | 336.3   | 288.1   | 355.6   | 461.2   | 512.4   | 569.3   | 632.5   | 702.7   | 780.7   | 867.4   | 963.7   | 1070.7  | 1189.5  | 1321.6  | 1468.3  | 1631.3  | 1812.4  | 2013.6  | 2237.1  | 2485.4  |  |
| 7   | Different small expenses                    | 3.9     | 7.4     | 5.0     | 4.2     | 4.4     | 4.5     | 4.6     | 4.7     | 4.8     | 5.0     | 5.1     | 5.2     | 5.4     | 5.5     | 5.7     | 5.8     | 6.0     | 6.1     | 6.3     | 6.4     |  |
| 8   | Corporation office                          | 6.1     | 8.8     | 4.4     | 8.4     | 8.8     | 9.2     | 9.7     | 10.2    | 10.7    | 11.2    | 11.8    | 12.4    | 13.0    | 13.7    | 14.3    | 15.1    | 15.8    | 16.6    | 17.4    | 18.3    |  |
| 9   | Commissioner office                         | 0.7     | 0.7     | 2.0     | 1.9     | 2.0     | 2.1     | 2.2     | 2.3     | 2.5     | 2.6     | 2.7     | 2.8     | 3.0     | 3.1     | 3.3     | 3.5     | 3.6     | 3.8     | 4.0     | 4.2     |  |
| 10  | Accounts department                         | 43.8    | 38.3    | 65.8    | 49.0    | 50.8    | 52.7    | 54.7    | 56.8    | 58.9    | 61.1    | 63.4    | 65.8    | 68.2    | 70.8    | 73.5    | 76.2    | 79.1    | 82.1    | 85.2    | 88.4    |  |
| 11  | Development department                      | 24.1    | 1.2     | 2.8     | 0.4     | 0.4     | 0.4     | 0.4     | 0.4     | 0.4     | 0.4     | 0.4     | 0.4     | 0.4     | 0.4     | 0.4     | 0.4     | 0.4     | 0.4     | 0.4     | 0.4     |  |
| 12  | Stores                                      | 16.0    | 17.1    | 22.7    | 9.9     | 9.9     | 9.9     | 9.9     | 9.9     | 9.9     | 9.9     | 9.9     | 9.9     | 9.9     | 9.9     | 9.9     | 9.9     | 9.9     | 9.9     | 9.9     | 9.9     |  |
| 13  | Street lights                               | 41.2    | 23.7    | 17.1    | 20.0    | 20.0    | 20.0    | 20.0    | 20.0    | 20.0    | 20.0    | 20.0    | 20.0    | 20.0    | 20.0    | 20.0    | 20.0    | 20.0    | 20.0    | 20.0    | 20.0    |  |
| 14  | Public works                                | 294.2   | 489.4   | 505.9   | 602.1   | 602.1   | 602.1   | 602.1   | 602.1   | 602.1   | 602.1   | 602.1   | 602.1   | 602.1   | 602.1   | 602.1   | 602.1   | 602.1   | 602.1   | 602.1   | 602.1   |  |
| 15  | Waterworks                                  | 61.0    | 113.3   | 160.3   | 116.1   | 116.1   | 116.1   | 116.1   | 116.1   | 116.1   | 116.1   | 116.1   | 116.1   | 116.1   | 116.1   | 116.1   | 116.1   | 116.1   | 116.1   | 116.1   | 116.1   |  |
| 16  | Workshop                                    | 6.8     | 20.1    | 9.0     | 5.6     | 6.1     | 6.6     | 7.1     | 7.7     | 8.3     | 8.9     | 9.7     | 10.4    | 11.3    | 12.2    | 13.1    | 14.2    | 15.3    | 16.5    | 17.9    | 19.3    |  |
| 17  | Public Relation                             | 11.3    | 9.7     | 14.2    | 14.0    | 15.1    | 16.3    | 17.5    | 18.9    | 20.3    | 21.9    | 23.5    | 25.4    | 27.3    | 29.4    | 31.6    | 34.1    | 36.7    | 39.5    | 42.5    | 45.8    |  |
| 18  | Finance Department                          | 1.0     | 1.0     | 2.0     | 0.3     | 0.3     | 0.3     | 0.3     | 0.3     | 0.3     | 0.3     | 0.3     | 0.3     | 0.3     | 0.3     | 0.3     | 0.3     | 0.3     | 0.3     | 0.3     | 0.3     |  |
| 19  | Tax collection Department                   | 0.3     | 0.3     | 0.4     | 0.2     | 0.2     | 0.2     | 0.2     | 0.2     | 0.2     | 0.2     | 0.2     | 0.2     | 0.2     | 0.2     | 0.2     | 0.2     | 0.2     | 0.2     | 0.2     | 0.2     |  |
| 20  | Extraordinary Suspense Expenses             | 388.6   | 292.9   | 244.6   | 331.2   | 331.2   | 331.2   | 331.2   | 331.2   | 331.2   | 331.2   | 331.2   | 331.2   | 331.2   | 331.2   | 331.2   | 331.2   | 331.2   | 331.2   | 331.2   | 331.2   |  |
| 21  | loans and interest                          | 169.6   | 83.3    | 136.8   | 263.6   | 276.8   | 290.6   | 305.1   | 320.4   | 336.4   | 353.2   | 370.9   | 389.4   | 408.9   | 429.3   | 450.8   | 473.3   | 497.0   | 521.9   | 547.9   | 575.3   |  |
|     | Total Expenditure                           | 2572.9  | 2631.8  | 2929.0  | 3497.6  | 3735.6  | 3998.5  | 3929.9  | 4251.0  | 4605.9  | 4998.3  | 5432.4  | 5912.6  | 6443.9  | 7032.0  | 7683.0  | 8403.8  | 9202.1  | 10086.3 | 11065.9 | 12151.2 |  |
|     | Surplus/Deficit Rs in lakhs                 | -3.0    | 43.4    | 525.2   | -74.5   | -44.0   | -12.1   | 380.5   | 415.5   | 452.2   | 490.6   | 530.7   | 572.6   | 616.5   | 662.4   | 710.5   | 760.8   | 813.5   | 869.0   | 927.5   | 989.3   |  |

### 19.1.1 Revenue expenditure

The Operation and Maintenance Expenditure under base case and reforms scenarios will remain the same as in both the cases. The assumptions for revenue expenditure projection for fifteen years are presented below.

- **Current Revenue Expenditure**

- The administration expenses like Salary expenses for Corporation or, others in administrative department, have been assumed to be growing at the CAGR of 11.20%.
- Electricity expenses are growing at the rate of 11.10% hence it has been projected with the same CAGR.
- Other departmental expenses have been decreasing apart from the PWD and water works. These have been considered same as of the last year i.e 2008-09 as a base year.
- The CAGR for the fuel expenses has been 10.3 % hence projected with the same rate.
- Under Public conveniences and facilities fire fighting and street lighting are assumed the growth rate of 7% and 10% respectively as the financial information is available only for two years.
- Under Water Works Department, Purchases and Maintenance have been assumed to be growing at 5%.

**Table 19-3: Growth rate for revenue expenditure**

| Particulars               | CAGR-(%) | Projected Growth Rates (%) |
|---------------------------|----------|----------------------------|
| Establishment Expenses    | 11.2%    | 11%                        |
| Electricity Expenses      | 11.1%    | 11.10%                     |
| Public works              | 26.96%   | 0%                         |
| Water works               | 23.93%   | 0%                         |
| Accounts department       | 3.76%    | 3.76%                      |
| Public relation           | 7.66%    | 7.66%                      |
| Finance department        | -30.43%  | 0%                         |
| Tax collection department | -4%      | 0%                         |
| Public relation           | 7.66%    | 7.66%                      |

### 19.2 Capital Expenditure and O&M for new projects

The cost of capital works sector-wise have been elaborated in chapter 16 of this report. The projects for Ratlam Municipal Corporation has been worked out based on estimated demand supply analysis of various physical and social infrastructure requirements of the city and feedback of stakeholders consultation on the city's needs for the next 15 years. The projects identified are vital for meeting the basic requirements of the city as per the infrastructure standards. In the event of the city not undertaking the project, the key problems would be poor infrastructure resulting in poor service delivery and loss of potential revenue from new revenue streams like UGD. To overcome these issues the framework for FOP is developed taking into account existing strengths of the city and also reducing the inefficiencies in the system.

Phasing of the identified projects is done based on demand supply gap analysis, project prioritization based on stakeholder consultation and financial sustainability for taking up the projects. The summary of capital costs for the phase i.e 2011-12 to 2024-25 and the phasing is presented below:

**Table 19-4: Capital Investment for first phase of Ratlam CDP**

| <b>Sector</b>                                  | <b>Total</b>    | <b>2010-11<br/>to 2014-<br/>15</b> | <b>2015-16<br/>to 2019-<br/>20</b> | <b>2020-21<br/>to 2024-<br/>25</b> |
|--|-----------------|------------------------------------|------------------------------------|------------------------------------|
| water supply                                   | 15775.27        | 13945.70                           | 900.21                             | 929.36                             |
| sewer services                                 | 18650.55        | 16874.50                           | 863.45                             | 912.60                             |
| storm water drainage                           | 13565.00        | 12040.00                           | 742.00                             | 783.00                             |
| solid waste management                         | 3929.26         | 3773.51                            | 76.80                              | 78.95                              |
| roads and transportation                       | 10436.00        | 6836.00                            | 1738.00                            | 1862.00                            |
| street lights                                  | 177.35          | 153.77                             | 11.48                              | 12.10                              |
| Industries and economic development            | 45.00           | 45.00                              | 0.00                               | 0.00                               |
| Socio-Economic Infrastructure                  | 370.00          | 370.00                             | 0.00                               | 0.00                               |
| Environment Protection and Management          | 1821.50         | 1821.50                            | 0.00                               | 0.00                               |
| Urban Heritage                                 | 20.00           | 20.00                              | 0.00                               | 0.00                               |
| services to urban poor                         | 6144.80         | 6144.80                            | 0.00                               | 0.00                               |
| Urban Governance and institutional development | 75.00           | 75.00                              | 0.00                               | 0.00                               |
| <b>Total</b>                                   | <b>71009.72</b> | <b>62099.78</b>                    | <b>4331.94</b>                     | <b>4578.01</b>                     |

Assuming contingency of 3% of project cost and cost escalation at the rate of 5% year on year the total project cost is Rs. 79278.10 lakhs.

The Operation and Maintenance Expenditure for the new projects have been assumed as percentage of the project cost. The O&M expenditure for the period between 2011-12 and 2025-26 for new projects is presented below:

Table 19-5: O&amp;M required for Capital investment

| Sector - Physical Infrastructure   | O&M as % of | 2011-12 | 2012-13 | 2013-14       | 2014-15       | 2015-16       | 2016-17       | 2017-18        | 2018-19       | 2019-20        | 2020-21     | 2021-22       | 2022-23       | 2023-24        | 2024-25     | 2025-26        |
|------------------------------------|-------------|---------|---------|---------------|---------------|---------------|---------------|----------------|---------------|----------------|-------------|---------------|---------------|----------------|-------------|----------------|
| water supply                       | 6%          |         |         | 527.3         | 720.9         | 924.2         | 937.8         | 952.2          | 967.3         | 983.1          | 999.7       | 1017.7        | 1036.7        | 1056.6         | 1077.5      | 1099.4         |
| sewer services                     | 4%          |         |         | 417.5         | 570.8         | 731.8         | 740.6         | 749.9          | 759.6         | 769.8          | 780.5       | 792.4         | 804.9         | 818.0          | 831.8       | 846.2          |
| storm water drainage               | 4%          |         |         | 303.7         | 415.2         | 532.2         | 539.8         | 547.8          | 556.1         | 564.9          | 574.1       | 584.3         | 595.0         | 606.3          | 618.1       | 630.5          |
| solid waste management             | 10%         |         |         | 6.4           | 8.7           | 11.2          | 104.1         | 201.7          | 304.1         | 411.7          | 524.7       | 526.1         | 527.5         | 529.1          | 530.7       | 532.4          |
| roads and transportation           | 3%          |         |         | 123.8         | 169.2         | 217.0         | 230.3         | 244.2          | 258.9         | 274.3          | 290.5       | 308.7         | 327.8         | 347.9          | 368.9       | 391.1          |
| street lights                      | 3%          |         |         | 2.9           | 4.0           | 5.1           | 5.2           | 5.3            | 5.4           | 5.5            | 5.6         | 5.7           | 5.8           | 6.0            | 6.1         | 6.2            |
| <b>Total O &amp; M expenditure</b> |             |         |         | <b>1381.5</b> | <b>1888.8</b> | <b>2421.4</b> | <b>2557.8</b> | <b>2701.01</b> | <b>2851.4</b> | <b>3009.25</b> | <b>3175</b> | <b>3234.9</b> | <b>3297.7</b> | <b>3363.72</b> | <b>3433</b> | <b>3505.76</b> |

The O&M expenditure for social infrastructure is assumed to be met by the revenues from the same.

### 19.3 Sustainability of Municipal Corporation without implementation of reforms

The sustainability of the Municipal Corporation to undertake new projects is as under: under the no reforms scenario the corporation will be able to generate the cumulative surplus of Rs.4745.90 Lakhs only. The ultimate sustainability of project cost under “no reforms scenario” is -44.42% only.

**Table 19-6: Sustainability of the projects without reforms**

| Sustainability under "No Reform" Scenario                                     | Value          | Units     |
|---|----------------|-----------|
| Total project cost for phase-I  | 79278.10       | Rs. Lakhs |
| O&M for the new projects for 15 years   | 39964.13       | Rs. Lakhs |
| 15 year net revenue surplus of Ratlam Municipality under "base case scenario" | 4745.90        | Rs. Lakhs |
| <b>Sustainability of project cost under "No Reform" scenario</b>              | <b>-44.42%</b> | <b>%</b>  |

Without implementation of Reforms Ratlam Municipal Corporation will not be able to sustain the Operation and Maintenance expenditure of new projects proposed.

### 19.4 Financial Operating Plan (FOP) considering reforms measures

This FOP is based on a whole range of assumptions related to income and expenditure. These are critical to understand the financial projections worked out, sustenance of the projected increase in revenue and expenditure under various scenarios and surplus thus generated. The assumptions would help in understanding the extent of investment sustenance for future projects envisaged. On the basis of four year financial information the projection for the income and expenditure has been calculated under “No Reform” scenario for the financial sustainability of the urban local body.

From the above, it is clear that the ULB need to undertake reforms for sustainable operations. Hence, two levels of reforms have been considered viz. Partial Reforms and Full Reforms.

**Table 19-7: Scenario's for Financial Operating Plan**

| Scenarios                  | Details  |
|----------------------------|--|
| “Partial Reforms” Scenario | Implementation of all the projects with partial implementation of Reforms  |
| “Full Reforms” Scenario    | Implementation of all the projects with complete implementation of Reforms |

The key reforms are highlighted in the Table below. The total reforms suggested have been elaborated in the chapter, “Reforms and Resource Mobilization”

Table 19-8: Key reforms for Ratlam CDP

| Particulars  | Current practice   | Reform suggested  |
|--|--|---|
| Revision in property tax rates   | Adhoc revision   | 15% increase in every 3 years   |
| Service level coverage (water supply - no. of assessments)                     | 50% coverage at present  | 100% coverage by 2015-16  |
| Revision in initial deposit for New Water Connections                          | Rs.1050 for residential<br>Rs.2050 for commercial                  | 15% increase every 3 years for each new connection  |
| Revision in Water Charges  | Rs.90 per month for residential<br>Rs.180 per month for commercial | 15% increase every 3 years  |
| Revision in Initial Deposit for New UGD Connections                            | No UGD currently   | Rs.4000 for residential and Rs.7000 for commercial as advance deposit with 15% increase every 3 years for each new connection |
| Revision in monthly user charges for UGD                                       | No UGD currently   | consolidated in the integrated tax  |
| Revision in User charges towards Sanitation, Street Lighting and Fire Fighting | Rs.180 collected per annum.<br>Adhoc revision                      | 15% increase every 3 years  |

#### 19.4.1 Partial reforms scenario

In the "Partial Reforms Scenario" the present levels of collection efficiency and lower tax rates for water supply and sewer are considered. Similarly advanced deposit charges for water and sewer connections are not considered. The collection efficiency of about 60% has been considered in this case. Reform measures towards direct cost recovery and collection efficiency upto 85% are not considered in this case. Routine revenue expenses including Operations and Maintenance of existing assets and new assets created have also been considered and loaded to the FOP. Revenue surplus thus generated indicates Corporation's capacity to service the usual capital expenditure in the normal course of running its operations.

#### 19.4.2 Full projects with reforms scenario

In the "Full Project with Reforms" scenario advance deposits for water and sewer connections as per practices prevalent in other municipalities of similar profile are considered. Similarly water and sewer taxes prevalent in other municipalities of similar profile have been considered. The collection efficiencies are assumed to gradually improve to the level of 85% over the period of five years. The implications on the investment and borrowing capability of the Corporation for all the identified projects are worked out.

#### 19.4.3 Revenue income

In case of taxes and non-tax revenue such as property taxes, water charges and sewerage charges where the base and basis of revenue is fairly well known and



predictable, the likely revenue is forecast based on certain assumptions regarding growth in number of assessment, revision in average revenue per property (for property taxes), revision in charges/Tariffs (water charges and sewerage). The assumptions with regard to forecasting income from property tax, water charges and sewerage charges are presented below.

- **Property Taxes**

**Table 19-9: Key assumptions for forecasting income from property tax**

| Description   | Current Level     | Partial Reforms Scenario                                     | Full Reforms Scenario  |
|---|-------------------|--|--|
| Annual Growth in Number of Assessment                 | No data available | Increase with 5 % per year                                   | Increase with 5 % per year   |
| Property Tax charges                                  | Area base method  | Average tax Rs 1200 and minimum tax of Rs.400 per properties | Average tax Rs 1200 and minimum tax of Rs.400 per properties                             |
| Periodic Increase in Average Revenue per property (%) | ----              | 15% increase in every 3 years                                | 15% increase in every 3 years  |
| Collection efficiency (%)                             | 60%               | 60% assumed for the 15 years                                 | Gradual increase in collection efficiency to 85% by 2015-16 and then continuous assumed. |

- **Water Charges**

**Table 19-10: Key assumptions for forecasting income from water tax**

| Description   | Current Level   | Partial Reforms Scenario   | Full Reforms Scenario      |
|---|-----------------|----------------------------|----------------------------|
| <b>% OF WATER CONNECTIONS TO PROPERTY TAX ASSESSMENT</b>                      |                 |                            |                            |
| 2009-10   | 50%             |                            |                            |
| By 2025-26  |                 | 100%                       | 100%                       |
| <b>INITIAL DEPOSIT FOR NEW WATER SUPPLY CONNECTIONS ( Rs. per connection)</b> |                 |                            |                            |
| Domestic (Rs.)  |                 |                            |                            |
| From 2010-11 till 2025-26   | Rs.1050         | Rs.1050                    | Rs.4000                    |
| Increase  |                 | 15% increase every 3 years | 15% increase every 3 years |
| Non-Domestic (Rs.)  | Rs.2050         | Rs.4000                    | Rs.7000                    |
| Rate of increase  |                 | 15% increase every 3 years | 15% increase every 3 years |
| <b>WATER CHARGES (per month)</b>  |                 |                            |                            |
| Domestic (Rs.)  |                 |                            |                            |
| 2009-10   | Rs.90 per month |                            |                            |
| After Water Supply scheme implementation                                      |                 | Rs. 1080 per year          | Rs. 1080 per year          |
| Rate of increase  |                 | 15% increase every 3 years | 15% increase every 3 years |
| Non-Domestic (Rs.)  |                 |                            |                            |

| Description                                | Current Level    | Partial Reforms Scenario   | Full Reforms Scenario      |
|--|------------------|----------------------------|----------------------------|
| 2008-09                                    | Rs.180 per month |                            |                            |
| After Water Supply scheme implementation   |                  | Rs.2160 per year           | Rs.2160 per year           |
| Rate of increase                           |                  | 15% increase every 3 years | 15% increase every 3 years |
| <b>WATER CHARGES COLLECTION EFFICIENCY</b> |                  |                            |                            |
| Collection efficiency                      | 80%              | 80%                        | 90%                        |

• **Sewerage Charges**

**Table 19-11: Key assumptions for forecasting income from sewer tax**

| Description   | Current Level | Partial Reforms Scenario                        | Full Reforms Scenario                           |
|---|---------------|---|---|
| Number of UGD Connections   | Nil           | 100% of Total Number of Property tax assessment | 100% of Total Number of Property tax assessment |
| Assumed Ratio of Domestic and Non-Domestic to the total UGD Connections   | Nil           | 90:10   | 90:10   |
| <b>MONTHLY USER CHARGES</b><br>(Note: Monthly User charges would be collected after the UGD Project is completed) |               |   |   |
| Domestic (Rs./Year.)  |               |   |   |
| 2008-09   | Nil           |   |   |
| After Sewer scheme implementation   |               | Rs.90   | Rs.90   |
| Rate of increase  |               | 15% increase every 3 years                      | 15% increase every 3 years                      |
| Non-Domestic (Rs./Year.)  |               |   |   |
| 2008-09   | Nil           |   |   |
| After Sewer scheme implementation   |               | Rs.180  | Rs.180  |
| Rate of increase  |               | 15% increase every 3 years                      | 15% increase every 3 years                      |
| <b>DEPOSIT FEE /CONNECTION</b>  |               |   |   |
| Domestic (Rs.)  | Nil           | Rs.1050   | Rs.4000   |
| Rate of increase  |               | 15% increase every 3 years                      | 15% increase every 3 years                      |
| Non-Domestic (Rs.)  | Nil           | Rs.2050   | Rs.7000   |
| Rate of increase  |               | 15% increase every 3 years                      | 15% increase every 3 years                      |
| <b>SEWER CHARGES COLLECTION EFFICIENCY</b>  |               |   |   |
| Collection efficiency sewer charges   | Nil           | 80%   | 90%   |

## 19.5 Financial projections under partial reform scenario

The “Partial Reforms” Scenario, the finances of Corporation is forecast for the next 15 years considering about 80% collection efficiency for Water Supply, Sewer and Property Tax. The rates of taxes and deposits are also assumed to be less compared to Full Reforms Scenario. Revenue surplus thus generated indicates Corporation’s capacity to service the usual capital expenditure in the normal course of running its operations. The revenue surplus position of the Corporation over the next 15 year period upto 2025-26 is presented below.

Table 19-12: Projected Financial Statement for Partial Reforms Scenario (Rs. In Lakhs)

| No.                                | Particulars                       | 2005-06       | 2006-07        | 2007-08       | 2008-09        | 2009-10        | 2010-11        | 2011-12        | 2012-13        | 2013-14        | 2014-15        | 2015-16        | 2016-17        | 2017-18        | 2018-19        | 2019-20        | 2020-21       | 2021-22      | 2022-23        | 2023-24        | 2024-25        | 2025-26        |  |
|------------------------------------|-----------------------------------|---------------|----------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|--------------|----------------|----------------|----------------|----------------|--|
| <b>i Income</b>                    |                                   |               |                |               |                |                |                |                |                |                |                |                |                |                |                |                |               |              |                |                |                |                |  |
| <b>A Municipal Taxes and rates</b> |                                   |               |                |               |                |                |                |                |                |                |                |                |                |                |                |                |               |              |                |                |                |                |  |
| 1                                  | Property Tax                      |               |                |               |                |                |                |                |                |                |                |                |                |                |                |                |               |              |                |                |                |                |  |
| a                                  | current                           | 39.4          | 34.3           | 38.5          | 44.7           | 448.9          | 471.4          | 494.9          | 567.4          | 627.5          | 658.9          | 755.3          | 835.4          | 877.2          | 1005.5         | 1112.1         | 1167.7        | 1338.6       | 1480.6         | 1554.6         | 1782.1         | 1971.0         |  |
| b                                  | Arrears                           | 51.5          | 75.4           | 75.2          | 77.9           |                |                |                |                |                |                |                |                |                |                |                |               |              |                |                |                |                |  |
| 2                                  | Property tax others               |               |                |               |                |                |                |                |                |                |                |                |                |                |                |                |               |              |                |                |                |                |  |
| 3                                  | City Development Cess             | 38.4          | 50.7           | 58.0          | 60.6           | 118.8          | 122.4          | 126.0          | 129.8          | 133.7          | 137.7          | 141.9          | 146.1          | 150.5          | 155.0          | 159.7          | 164.5         | 169.4        | 174.5          | 179.7          | 185.1          | 190.6          |  |
| 4                                  | Consolidated Tax                  | 47.7          | 48.3           | 53.7          | 61.2           | 92.7           | 97.3           | 111.6          | 123.4          | 129.6          | 148.5          | 164.3          | 172.5          | 197.8          | 218.7          | 229.7          | 263.3         | 291.2        | 305.7          | 350.5          | 387.6          | 407.0          |  |
| 5                                  | Others                            | 58.0          | 60.9           | 61.8          | 71.4           | 77.8           | 84.8           | 92.4           | 100.7          | 109.8          | 119.7          | 130.5          | 142.2          | 155.0          | 168.9          | 184.1          | 200.7         | 218.8        | 238.5          | 259.9          | 283.3          | 308.8          |  |
| a                                  | Water Tax                         | 228.0         | 242.6          | 228.9         | 232.8          | 234.5          | 236.1          | 237.8          | 239.4          | 592.8          | 732.3          | 768.9          | 928.5          | 974.9          | 1023.7         | 1074.9         | 1297.9        | 1362.8       | 1431.0         | 1502.5         | 1814.3         | 1905.0         |  |
| 7                                  | water tax others                  | 10.2          | 11.0           | 10.6          | 10.3           | 10.3           | 10.3           | 10.4           | 10.4           | 10.4           | 10.5           | 10.5           | 10.5           | 10.5           | 10.6           | 10.6           | 10.7          | 10.7         | 10.7           | 10.7           | 10.8           | 10.8           |  |
| 8                                  | License Fees                      | 7.1           | 9.6            | 9.6           | 10.4           | 11.8           | 13.3           | 15.1           | 17.2           | 19.5           | 22.1           | 25.0           | 28.4           | 32.2           | 36.5           | 41.4           | 47.0          | 53.3         | 60.4           | 68.5           | 77.7           | 88.2           |  |
| 9                                  | Other License Fees and other fees | 43.4          | 36.7           | 46.0          | 61.8           | 69.5           | 78.2           | 88.1           | 99.1           | 111.5          | 125.5          | 141.2          | 158.9          | 178.8          | 201.2          | 226.5          | 254.9         | 286.8        | 322.7          | 363.2          | 408.7          | 460.0          |  |
| 10                                 | Other Taxes                       | 1.3           | 2.0            | 2.1           | 1.0            | 1.1            | 1.1            | 1.2            | 1.2            | 1.3            | 1.3            | 1.4            | 1.5            | 1.6            | 1.6            | 1.7            | 1.8           | 1.9          | 2.0            | 2.1            | 2.2            | 2.3            |  |
| C                                  | Other Income                      | 176.8         | 120.6          | 138.6         | 140.1          | 147.1          | 154.4          | 162.1          | 170.2          | 178.7          | 187.7          | 197.1          | 206.9          | 217.3          | 228.1          | 239.5          | 251.5         | 264.1        | 277.3          | 291.2          | 305.7          | 321.0          |  |
| Income from Different              |                                   |               |                |               |                |                |                |                |                |                |                |                |                |                |                |                |               |              |                |                |                |                |  |
| D                                  | Schemes                           | 39.5          | 37.3           | 40.9          | 22.3           | 24.0           | 26.0           | 28.0           | 30.3           | 32.7           | 35.3           | 38.2           | 41.2           | 44.5           | 48.1           | 51.9           | 56.1          | 60.5         | 65.4           | 70.6           | 76.3           | 82.4           |  |
| E                                  | Grants and Contribution           | 1435.3        | 1555.7         | 2330.2        | 2205.2         | 2315.5         | 2431.2         | 2552.8         | 2680.5         | 2814.5         | 2955.2         | 3103.0         | 3258.1         | 3421.0         | 3592.1         | 3771.7         | 3960.2        | 4158.3       | 4366.2         | 4584.5         | 4813.7         | 5054.4         |  |
| F                                  | Extraordinary (Suspense) income   | 360.7         | 350.6          | 321.7         | 388.4          | 398.1          | 408.1          | 418.3          | 428.7          | 439.5          | 450.5          | 461.7          | 473.3          | 485.1          | 497.2          | 509.6          | 522.4         | 535.4        | 548.8          | 562.6          | 576.6          | 591.0          |  |
| G                                  | sewer tax                         |               |                |               |                | 0.0            | 0.0            | 0.0            | 0.0            | 592.8          | 732.3          | 768.9          | 928.5          | 974.9          | 1023.7         | 1074.9         | 1297.9        | 1362.8       | 1431.0         | 1502.5         | 1814.3         | 1905.0         |  |
| H                                  | sewer connection deposits         |               |                |               |                |                |                |                |                | 29.7           | 168.8          | 44.3           | 46.5           | 56.2           | 59.0           | 61.9           | 74.8          | 78.5         | 82.5           | 99.6           | 104.5          | 109.8          |  |
| <b>Total Income</b>                |                                   | <b>2537.2</b> | <b>2635.74</b> | <b>3415.7</b> | <b>3387.94</b> | <b>3949.97</b> | <b>4134.64</b> | <b>4338.66</b> | <b>4598.28</b> | <b>5824.02</b> | <b>6486.24</b> | <b>6752.08</b> | <b>7378.46</b> | <b>7777.39</b> | <b>8269.96</b> | <b>8750.18</b> | <b>9571.2</b> | <b>10193</b> | <b>10797.1</b> | <b>11402.6</b> | <b>12642.9</b> | <b>13407.3</b> |  |

| No. | Particulars   | 2005-06        | 2006-07        | 2007-08        | 2008-09        | 2009-10        | 2010-11       | 2011-12        | 2012-13       | 2013-14       | 2014-15        | 2015-16        | 2016-17        | 2017-18        | 2018-19       | 2019-20        | 2020-21        | 2021-22        | 2022-23        | 2023-24        | 2024-25        | 2025-26        |
|-----|---|----------------|----------------|----------------|----------------|----------------|---------------|----------------|---------------|---------------|----------------|----------------|----------------|----------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| ii  | <b>Expenditure</b>                                  |                |                |                |                |                |               |                |               |               |                |                |                |                |               |                |                |                |                |                |                |                |
| 1   | Mission 2009/08/07/06 - Important development works | 107.31         | 61.28          | 29.44          | 128.6          | 135.03         | 141.78        | 148.87         | 156.31        | 164.13        | 172.34         | 180.95         | 190            | 199.5          | 209.48        | 219.95         | 230.95         | 242.49         | 254.62         | 267.35         | 280.72         | 294.75         |
| 2   | Vision 2009/08/07/06 - Public Welfare works         | 76.67          | 122.12         | 118.77         | 129.01         | 135.46         | 142.23        | 149.35         | 156.81        | 164.65        | 172.89         | 181.53         | 190.61         | 200.14         | 210.14        | 220.65         | 231.68         | 243.27         | 255.43         | 268.2          | 281.61         | 295.69         |
| 3   | Salary Expenses                                     |                |                |                |                |                |               |                |               |               |                |                |                |                |               |                |                |                |                |                |                |                |
| A   | Establishment expenses (Permanent)                  | 821.86         | 867.59         | 1020.12        | 1130.12        | 1220.53        | 1318.17       | 1423.63        | 1537.52       | 1660.5        | 1793.36        | 1936.83        | 2091.77        | 2259.12        | 2439.8        | 2635.03        | 2845.83        | 3073.5         | 3319.38        | 3584.93        | 3871.73        | 4181.46        |
| B   | Establishment expenses (Temporary)                  | 123.46         | 130.44         | 157.79         | 171.96         | 185.72         | 200.57        | 216.62         | 233.95        | 252.67        | 272.88         | 294.71         | 318.29         | 343.75         | 371.25        | 400.95         | 433.02         | 467.67         | 505.08         | 545.49         | 589.13         | 636.26         |
| 4   | Fuel expenses (Diesel/Petrol)                       | 33.69          | 49.83          | 50.38          | 45.24          | 48.86          | 52.77         | 56.99          | 61.55         | 66.47         | 71.79          | 77.53          | 83.74          | 90.43          | 97.67         | 105.48         | 113.92         | 123.04         | 132.88         | 143.51         | 154.99         | 167.39         |
| 5   | Telephone expenses                                  | 5.05           | 5.42           | 3.98           | 4.47           | 4.47           | 4.47          | 4.47           | 4.47          | 4.47          | 4.47           | 4.47           | 4.47           | 4.47           | 4.47          | 4.47           | 4.47           | 4.47           | 4.47           | 4.47           | 4.47           | 4.47           |
| 6   | Electricity expenses                                | 336.32         | 288.09         | 355.62         | 461.22         | 493.51         | 528.05        | 565.01         | 604.57        | 646.88        | 692.17         | 740.62         | 792.46         | 847.93         | 907.29        | 970.8          | 1038.76        | 1111.47        | 1189.27        | 1272.52        | 1361.6         | 1456.91        |
| 7   | Different small expenses                            | 3.92           | 7.4            | 4.98           | 4.24           | 4.37           | 4.5           | 4.63           | 4.77          | 4.92          | 5.06           | 5.21           | 5.37           | 5.53           | 5.7           | 5.87           | 6.05           | 6.23           | 6.41           | 6.61           | 6.8            | 7.01           |
| 8   | Corporation office                                  | 6.14           | 8.75           | 4.37           | 8.38           | 9.05           | 9.77          | 10.56          | 11.4          | 12.31         | 13.3           | 14.36          | 15.51          | 16.75          | 18.09         | 19.54          | 21.1           | 22.79          | 24.61          | 26.58          | 28.71          | 31.01          |
| 9   | Commissioner office                                 | 0.7            | 0.73           | 2.04           | 1.92           | 1.98           | 2.04          | 2.1            | 2.16          | 2.23          | 2.29           | 2.36           | 2.43           | 2.51           | 2.58          | 2.66           | 2.74           | 2.82           | 2.9            | 2.99           | 3.08           | 3.17           |
| 10  | Accounts department                                 | 43.83          | 38.27          | 65.8           | 48.96          | 50.92          | 52.96         | 55.07          | 57.28         | 59.57         | 61.95          | 64.43          | 67.01          | 69.69          | 72.47         | 75.37          | 78.39          | 81.52          | 84.78          | 88.17          | 91.7           | 95.37          |
| 11  | Development department                              | 24.1           | 1.16           | 2.75           | 0.41           | 0.41           | 0.41          | 0.41           | 0.41          | 0.41          | 0.41           | 0.41           | 0.41           | 0.41           | 0.41          | 0.41           | 0.41           | 0.41           | 0.41           | 0.41           | 0.41           | 0.41           |
| 12  | Stores  | 15.97          | 17.13          | 22.73          | 9.88           | 9.88           | 9.88          | 9.88           | 9.88          | 9.88          | 9.88           | 9.88           | 9.88           | 9.88           | 9.88          | 9.88           | 9.88           | 9.88           | 9.88           | 9.88           | 9.88           | 9.88           |
| 13  | Street lights                                       | 41.2           | 23.68          | 17.13          | 19.95          | 19.95          | 19.95         | 19.95          | 19.95         | 19.95         | 19.95          | 19.95          | 19.95          | 19.95          | 19.95         | 19.95          | 19.95          | 19.95          | 19.95          | 19.95          | 19.95          | 19.95          |
| 14  | Public works  | 294.23         | 489.42         | 505.91         | 602.09         | 602.09         | 602.09        | 602.09         | 602.09        | 602.09        | 602.09         | 602.09         | 602.09         | 602.09         | 602.09        | 602.09         | 602.09         | 602.09         | 602.09         | 602.09         | 602.09         | 602.09         |
| 15  | Waterworks  | 60.98          | 113.3          | 160.28         | 116.07         | 116.07         | 116.07        | 116.07         | 116.07        | 116.07        | 116.07         | 116.07         | 116.07         | 116.07         | 116.07        | 116.07         | 116.07         | 116.07         | 116.07         | 116.07         | 116.07         | 116.07         |
| 16  | Workshop  | 6.84           | 20.08          | 8.98           | 5.63           | 5.63           | 5.63          | 5.63           | 5.63          | 5.63          | 5.63           | 5.63           | 5.63           | 5.63           | 5.63          | 5.63           | 5.63           | 5.63           | 5.63           | 5.63           | 5.63           | 5.63           |
| 17  | Public Relation                                     | 11.25          | 9.68           | 14.16          | 14.04          | 15.16          | 16.38         | 17.69          | 19.1          | 20.63         | 22.28          | 24.06          | 25.99          | 28.07          | 30.31         | 32.74          | 35.36          | 38.18          | 41.24          | 44.54          | 48.1           | 51.95          |
| 18  | Finance Department                                  | 0.98           | 0.95           | 2.01           | 0.33           | 0.33           | 0.33          | 0.33           | 0.33          | 0.33          | 0.33           | 0.33           | 0.33           | 0.33           | 0.33          | 0.33           | 0.33           | 0.33           | 0.33           | 0.33           | 0.33           | 0.33           |
| 19  | Tax collection Department                           | 0.26           | 0.27           | 0.37           | 0.23           | 0.23           | 0.23          | 0.23           | 0.23          | 0.23          | 0.23           | 0.23           | 0.23           | 0.23           | 0.23          | 0.23           | 0.23           | 0.23           | 0.23           | 0.23           | 0.23           | 0.23           |
| 20  | Extraordinary Suspense Expenses                     | 388.59         | 292.91         | 244.61         | 331.23         | 331.23         | 331.23        | 331.23         | 331.23        | 331.23        | 331.23         | 331.23         | 331.23         | 331.23         | 331.23        | 331.23         | 331.23         | 331.23         | 331.23         | 331.23         | 331.23         | 331.23         |
| 21  | loans and interest                                  | 169.58         | 83.28          | 136.8          | 263.57         | 276.75         | 290.59        | 305.12         | 320.37        | 336.39        | 353.21         | 370.87         | 389.41         | 408.88         | 429.33        | 450.79         | 473.33         | 497            | 521.85         | 547.94         | 575.34         | 604.11         |
|     | <b>Total Expenditure</b>                            | <b>2572.93</b> | <b>2631.78</b> | <b>2929.02</b> | <b>3497.55</b> | <b>3667.62</b> | <b>3850.1</b> | <b>3686.84</b> | <b>3897</b>   | <b>4122.6</b> | <b>4364.72</b> | <b>4624.68</b> | <b>4903.79</b> | <b>5203.5</b>  | <b>5525.4</b> | <b>5871.04</b> | <b>6242.34</b> | <b>6641.49</b> | <b>7069.67</b> | <b>7530.04</b> | <b>8024.71</b> | <b>8556.29</b> |
|     | <b>Surplus/Deficit Rs in lakhs</b>                  | <b>-35.73</b>  | <b>3.96</b>    | <b>486.68</b>  | <b>-109.61</b> | <b>282.35</b>  | <b>284.55</b> | <b>651.82</b>  | <b>701.28</b> | <b>1701.5</b> | <b>2121.52</b> | <b>2127.4</b>  | <b>2474.67</b> | <b>2573.88</b> | <b>2744.6</b> | <b>2879.14</b> | <b>3328.87</b> | <b>3551.85</b> | <b>3727.45</b> | <b>3872.56</b> | <b>4618.18</b> | <b>4850.98</b> |

## 19.6 Sustainability of Corporation with implementation of financial reforms

As seen above, the total revenue surplus of Municipal Corporation under "Partial Reform" scenario for fifteen years upto 2025-26 is Rs. 41925.64 lakhs. This revenue surplus can sustain 2.47% of the total project cost envisaged. The sustainability under this scenario is presented below.

**Table 19-13: sustainability under partial reforms scenario**

| Sustainability under "Partial Reforms" Scenario   | Value        | Units     |
|---|--------------|-----------|
| Total project cost for phase-I  | 79278.10     | Rs. Lakhs |
| O&M for the new projects for 15 years   | 39964.13     | Rs. Lakhs |
| 15 year net revenue surplus of Ratlam Municipality under "base case-partial reforms scenario" | 41925.64     | Rs. Lakhs |
| <b>Sustainability of project cost under "Partial Reforms" scenario</b>                        | <b>2.47%</b> | <b>%</b>  |

## 19.7 Financial projections under full reform scenario

In the "Full Reforms" scenario, the finances of Corporation are forecast for the next 15 years considering about 90% collection efficiency achievement gradually over a period of five years for Water Supply, Sewer and Property Tax. The rates of taxes and deposits are taken based on charges prevalent in cities of similar profile elsewhere in the country. The Full Project scenario envisages public contribution substantially for water supply and sewer and also direct cost recovery to the extent of Revenue surplus thus generated indicates Corporation's capacity to service the usual capital expenditure in the normal course of running its operations. The revenue surplus position of the Corporation over the next 15 year period upto 2025-26 is presented below.

Table 19-14: Projected Financial Statement for Full Reforms Scenario (Rs. In Lakhs)

| Sr. No.  | Particulars                       | 2005-06       | 2006-07        | 2007-08       | 2008-09        | 2009-10        | 2010-11        | 2011-12        | 2012-13        | 2013-14       | 2014-15        | 2015-16       | 2016-17        | 2017-18        | 2018-19       | 2019-20       | 2020-21        | 2021-22        | 2022-23      | 2023-24        | 2024-25        | 2025-26        |       |
|----------|-----------------------------------|---------------|----------------|---------------|----------------|----------------|----------------|----------------|----------------|---------------|----------------|---------------|----------------|----------------|---------------|---------------|----------------|----------------|--------------|----------------|----------------|----------------|-------|
| <b>i</b> | <b>Income</b>                     |               |                |               |                |                |                |                |                |               |                |               |                |                |               |               |                |                |              |                |                |                |       |
| A        | Municipal Taxes and rates         |               |                |               |                |                |                |                |                |               |                |               |                |                |               |               |                |                |              |                |                |                |       |
| 1        | Property Tax                      |               |                |               |                |                |                |                |                |               |                |               |                |                |               |               |                |                |              |                |                |                |       |
| a        | current                           | 39.4          | 34.3           | 38.5          | 44.7           | 448.9          | 471.4          | 570.6          | 613.5          | 665.6         | 700.5          | 797.1         | 847.6          | 889.9          | 1061.2        | 1128.3        | 1184.7         | 1412.7         | 1502.1       | 1577.2         | 1880.7         | 1999.7         |       |
| b        | arrears                           | 51.5          | 75.4           | 75.2          | 77.9           |                |                |                |                |               |                |               |                |                |               |               |                |                |              |                |                |                |       |
| 2        | property tax others               |               |                |               |                |                |                |                |                |               |                |               |                |                |               |               |                |                |              |                |                |                |       |
| 3        | City Development Cess             | 38.4          | 50.7           | 58.0          | 60.6           | 118.8          | 122.4          | 157.5          | 173.1          | 189.4         | 206.6          | 212.8         | 219.2          | 225.7          | 232.5         | 239.5         | 246.7          | 254.1          | 261.7        | 269.5          | 277.6          | 286.0          |       |
| 4        | Consolidated Tax                  | 47.7          | 48.3           | 53.7          | 61.2           | 92.7           | 97.3           | 129.6          | 130.6          | 137.4         | 163.4          | 166.7         | 175.0          | 208.7          | 221.9         | 233.0         | 277.8          | 295.4          | 310.2        | 369.9          | 393.3          | 412.9          |       |
| 5        | Others                            | 58.0          | 60.9           | 61.8          | 71.4           | 77.8           | 84.8           | 92.4           | 100.7          | 109.8         | 119.7          | 130.5         | 142.2          | 155.0          | 168.9         | 184.1         | 200.7          | 218.8          | 238.5        | 259.9          | 283.3          | 308.8          |       |
| a        | Water Tax                         | 228.0         | 242.6          | 228.9         | 232.8          | 234.5          | 236.1          | 237.8          | 239.4          | 239.4         | 239.4          | 239.4         | 239.4          | 239.4          | 239.4         | 239.4         | 239.4          | 239.4          | 239.4        | 239.4          | 239.4          | 239.4          | 239.4 |
| 7        | water tax others                  | 10.2          | 11.0           | 10.6          | 10.3           | 10.3           | 10.3           | 10.4           | 10.4           | 10.4          | 10.5           | 10.5          | 10.5           | 10.5           | 10.6          | 10.6          | 10.7           | 10.7           | 10.7         | 10.7           | 10.8           | 10.8           |       |
| 8        | License Fees                      | 7.1           | 9.6            | 9.6           | 10.4           | 11.8           | 13.3           | 15.1           | 17.2           | 19.5          | 22.1           | 25.0          | 28.4           | 32.2           | 36.5          | 41.4          | 47.0           | 53.3           | 60.4         | 68.5           | 77.7           | 88.2           |       |
|          | Other License Fees and other fees | 43.4          | 36.7           | 46.0          | 61.8           | 69.5           | 78.2           | 88.1           | 99.1           | 111.5         | 125.5          | 141.2         | 158.9          | 178.8          | 201.2         | 226.5         | 254.9          | 286.8          | 322.7        | 363.2          | 408.7          | 460.0          |       |
| 9        | Other Taxes                       | 1.3           | 2.0            | 2.1           | 1.0            | 1.1            | 1.1            | 1.2            | 1.2            | 1.3           | 1.3            | 1.4           | 1.5            | 1.6            | 1.6           | 1.7           | 1.8            | 1.9            | 2.0          | 2.1            | 2.2            | 2.3            |       |
| 10       | Other Income                      | 176.8         | 120.6          | 138.6         | 140.1          | 147.1          | 154.4          | 162.1          | 170.2          | 178.7         | 187.7          | 197.1         | 206.9          | 217.3          | 228.1         | 239.5         | 251.5          | 264.1          | 277.3        | 291.2          | 305.7          | 321.0          |       |
|          | Income from Different Schemes     | 39.5          | 37.3           | 40.9          | 22.3           | 24.0           | 26.0           | 28.0           | 30.3           | 32.7          | 35.3           | 38.2          | 41.2           | 44.5           | 48.1          | 51.9          | 56.1           | 60.5           | 65.4         | 70.6           | 76.3           | 82.4           |       |
| D        | Grants and Contribution           | 1435.3        | 1555.7         | 2330.2        | 2205.2         | 2315.5         | 2431.2         | 2552.8         | 2680.5         | 2814.5        | 2955.2         | 3103.0        | 3258.1         | 3421.0         | 3592.1        | 3771.7        | 3960.2         | 4158.3         | 4366.2       | 4584.5         | 4813.7         | 5054.4         |       |
|          | Extraordinary (Suspense) income   | 360.7         | 350.6          | 321.7         | 388.4          | 398.1          | 408.1          | 418.3          | 428.7          | 439.5         | 450.5          | 461.7         | 473.3          | 485.1          | 497.2         | 509.6         | 522.4          | 535.4          | 548.8        | 562.6          | 576.6          | 591.0          |       |
| F        | sewer tax                         |               |                |               |                | 0.0            | 0.0            | 0.0            | 0.0            | 667.0         | 823.9          | 865.1         | 1044.6         | 1096.8         | 1151.7        | 1209.2        | 1460.1         | 1533.2         | 1609.8       | 1690.3         | 2041.1         | 2143.1         |       |
|          | sewer connection deposits         |               |                |               |                | 0.0            | 0.0            | 1397.5         | 823.8          | 111.1         | 631.1          | 165.7         | 174.0          | 210.1          | 220.6         | 231.6         | 279.6          | 293.6          | 308.4        | 372.3          | 390.9          | 410.5          |       |
| <b>G</b> | <b>Total Income</b>               | <b>2537.2</b> | <b>2635.74</b> | <b>3415.7</b> | <b>3387.94</b> | <b>3949.97</b> | <b>4134.64</b> | <b>5861.32</b> | <b>5518.74</b> | <b>6155.3</b> | <b>7256.89</b> | <b>7180.8</b> | <b>7825.76</b> | <b>8273.98</b> | <b>8823.8</b> | <b>9287.9</b> | <b>10214.3</b> | <b>10911.9</b> | <b>11494</b> | <b>12182.8</b> | <b>13579.6</b> | <b>14314.2</b> |       |



| Sr. No. | Particulars   | 2005-06 | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 | 2025-26 |  |
|---------|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--|
| ii      | <b>Expenditure</b>                                  |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |
| 1       | Mission 2009/08/07/06 - Important development works | 107.31  | 61.28   | 29.44   | 128.6   | 135.03  | 141.78  | 148.87  | 156.31  | 164.13  | 172.34  | 180.95  | 190     | 199.5   | 209.48  | 219.95  | 230.95  | 242.49  | 254.62  | 267.35  | 280.72  | 294.75  |  |
| 2       | Vision 2009/08/07/06 - Public Welfare works         | 76.67   | 122.12  | 118.77  | 129.01  | 139.33  | 150.48  | 162.52  | 175.52  | 189.56  | 204.72  | 221.1   | 238.79  | 257.89  | 278.52  | 300.8   | 324.87  | 350.86  | 378.93  | 409.24  | 441.98  | 477.34  |  |
| 3       | Salary Expenses                                     |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |
| A       | Establishment expenses (Permanent)                  | 821.86  | 867.59  | 1020.12 | 1130.12 | 1220.53 | 1318.17 | 1423.63 | 1537.52 | 1660.5  | 1793.36 | 1936.83 | 2091.77 | 2259.12 | 2439.8  | 2635.03 | 2845.83 | 3073.5  | 3319.38 | 3584.93 | 3871.73 | 4181.46 |  |
| B       | Establishment expenses (Temporary)                  | 123.46  | 130.44  | 157.79  | 171.96  | 185.72  | 200.57  | 216.62  | 233.95  | 252.67  | 272.88  | 294.71  | 318.29  | 343.75  | 371.25  | 400.95  | 433.02  | 467.67  | 505.08  | 545.49  | 589.13  | 636.26  |  |
|         | Fuel expenses (Diesel/Petrol)                       | 33.69   | 49.83   | 50.38   | 45.24   | 48.86   | 52.77   | 56.99   | 61.55   | 66.47   | 71.79   | 77.53   | 83.74   | 90.43   | 97.67   | 105.48  | 113.92  | 123.04  | 132.88  | 143.51  | 154.99  | 167.39  |  |
| 4       | Telephone expenses                                  | 5.05    | 5.42    | 3.98    | 4.47    | 4.47    | 4.47    | 4.47    | 4.47    | 4.47    | 4.47    | 4.47    | 4.47    | 4.47    | 4.47    | 4.47    | 4.47    | 4.47    | 4.47    | 4.47    | 4.47    | 4.47    |  |
| 5       | Electricity expenses                                | 336.32  | 288.09  | 355.62  | 461.22  | 493.51  | 528.05  | 565.01  | 604.57  | 646.88  | 692.17  | 740.62  | 792.46  | 847.93  | 907.29  | 970.8   | 1038.76 | 1111.47 | 1189.27 | 1272.52 | 1361.6  | 1456.91 |  |
| 6       | Different small expenses                            | 3.92    | 7.4     | 4.98    | 4.24    | 4.37    | 4.5     | 4.63    | 4.77    | 4.92    | 5.06    | 5.21    | 5.37    | 5.53    | 5.7     | 5.87    | 6.05    | 6.23    | 6.41    | 6.61    | 6.8     | 7.01    |  |
| 7       | Corporation office                                  | 6.14    | 8.75    | 4.37    | 8.38    | 8.8     | 9.24    | 9.7     | 10.19   | 10.7    | 11.23   | 11.79   | 12.38   | 13      | 13.65   | 14.33   | 15.05   | 15.8    | 16.59   | 17.42   | 18.29   | 19.21   |  |
| 8       | Commissioner office                                 | 0.7     | 0.73    | 2.04    | 1.92    | 1.98    | 2.04    | 2.1     | 2.16    | 2.23    | 2.29    | 2.36    | 2.43    | 2.51    | 2.58    | 2.66    | 2.74    | 2.82    | 2.9     | 2.99    | 3.08    | 3.17    |  |
| 9       | Accounts department                                 | 43.83   | 38.27   | 65.8    | 48.96   | 50.92   | 52.96   | 55.07   | 57.28   | 59.57   | 61.95   | 64.43   | 67.01   | 69.69   | 72.47   | 75.37   | 78.39   | 81.52   | 84.78   | 88.17   | 91.7    | 95.37   |  |
| 10      | Development department                              | 24.1    | 1.16    | 2.75    | 0.41    | 0.41    | 0.41    | 0.41    | 0.41    | 0.41    | 0.41    | 0.41    | 0.41    | 0.41    | 0.41    | 0.41    | 0.41    | 0.41    | 0.41    | 0.41    | 0.41    | 0.41    |  |
| 11      | Stores  | 15.97   | 17.13   | 22.73   | 9.88    | 9.88    | 9.88    | 9.88    | 9.88    | 9.88    | 9.88    | 9.88    | 9.88    | 9.88    | 9.88    | 9.88    | 9.88    | 9.88    | 9.88    | 9.88    | 9.88    | 9.88    |  |
| 12      | Street lights                                       | 41.2    | 23.68   | 17.13   | 19.95   | 19.95   | 19.95   | 19.95   | 19.95   | 19.95   | 19.95   | 19.95   | 19.95   | 19.95   | 19.95   | 19.95   | 19.95   | 19.95   | 19.95   | 19.95   | 19.95   | 19.95   |  |
| 13      | Public works  | 294.23  | 489.42  | 505.91  | 602.09  | 602.09  | 602.09  | 602.09  | 602.09  | 602.09  | 602.09  | 602.09  | 602.09  | 602.09  | 602.09  | 602.09  | 602.09  | 602.09  | 602.09  | 602.09  | 602.09  | 602.09  |  |
| 14      | Waterworks  | 60.98   | 113.3   | 160.28  | 116.07  | 116.07  | 116.07  | 116.07  | 116.07  | 116.07  | 116.07  | 116.07  | 116.07  | 116.07  | 116.07  | 116.07  | 116.07  | 116.07  | 116.07  | 116.07  | 116.07  | 116.07  |  |
| 15      | Workshop  | 6.84    | 20.08   | 8.98    | 5.63    | 5.63    | 5.63    | 5.63    | 5.63    | 5.63    | 5.63    | 5.63    | 5.63    | 5.63    | 5.63    | 5.63    | 5.63    | 5.63    | 5.63    | 5.63    | 5.63    | 5.63    |  |
| 16      | Public Relation                                     | 11.25   | 9.68    | 14.16   | 14.04   | 15.16   | 16.38   | 17.69   | 19.1    | 20.63   | 22.28   | 24.06   | 25.99   | 28.07   | 30.31   | 32.74   | 35.36   | 38.18   | 41.24   | 44.54   | 48.1    | 51.95   |  |
| 17      | Finance Department                                  | 0.98    | 0.95    | 2.01    | 0.33    | 0.33    | 0.33    | 0.33    | 0.33    | 0.33    | 0.33    | 0.33    | 0.33    | 0.33    | 0.33    | 0.33    | 0.33    | 0.33    | 0.33    | 0.33    | 0.33    | 0.33    |  |
| 18      | Tax collection Department                           | 0.26    | 0.27    | 0.37    | 0.23    | 0.23    | 0.23    | 0.23    | 0.23    | 0.23    | 0.23    | 0.23    | 0.23    | 0.23    | 0.23    | 0.23    | 0.23    | 0.23    | 0.23    | 0.23    | 0.23    | 0.23    |  |
| 19      | Extraordinary Suspense                              | 388.59  | 292.91  | 244.61  | 331.23  | 331.23  | 331.23  | 331.23  | 331.23  | 331.23  | 331.23  | 331.23  | 331.23  | 331.23  | 331.23  | 331.23  | 331.23  | 331.23  | 331.23  | 331.23  | 331.23  | 331.23  |  |
| 20      | Expenses  | 169.58  | 83.28   | 136.8   | 263.57  | 276.75  | 290.59  | 305.12  | 320.37  | 336.39  | 353.21  | 370.87  | 389.41  | 408.88  | 429.33  | 450.79  | 473.33  | 497     | 521.85  | 547.94  | 575.34  | 604.11  |  |
| 21      | loans and interest                                  | 2572.93 | 2631.78 | 2929.02 | 3497.55 | 3671.24 | 3857.81 | 3699.15 | 3914.49 | 4145.9  | 4394.49 | 4661.68 | 4948.85 | 5257.51 | 5589.3  | 5945.99 | 6329.47 | 6741.79 | 7185.15 | 7661.92 | 8174.67 | 8726.13 |  |
|         | <b>Total Expenditure</b>                            |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |  |
|         | Surplus/Deficit Rs in lakhs                         | -35.73  | 3.96    | 486.68  | -109.61 | 278.73  | 276.84  | 2162.17 | 1604.26 | 2009.4  | 2862.4  | 2519.12 | 2876.92 | 3016.47 | 3234.5  | 3341.91 | 3884.86 | 4170.09 | 4308.84 | 4520.92 | 5404.95 | 5588.04 |  |

## 19.8 Sustainability under full reform scenario

As seen above, the total revenue surplus of Municipal Corporation under " Full Reform" scenario for five years upto 2015-16 is Rs. 3943.31 lakhs. This revenue surplus can sustain 22.39 % of the total project cost envisaged. The sustainability under this scenario is presented below.

**Table 19-15: Sustainability under full reforms scenario**

| Sustainability under "Full Reforms" Scenario   | Value         | Units     |
|--|---------------|-----------|
| Total project cost for phase-I   | 79278.10      | Rs. Lakhs |
| O&M for the new projects for 15 years  | 39964.13      | Rs. Lakhs |
| 15 year net revenue surplus of Ratlam Municipality under"base case-partial reforms scenario" | 59192.58      | Rs. Lakhs |
| <b>Sustainability of project cost under "Full Reform" Scenario</b>                           | <b>24.25%</b> | <b>%</b>  |

## 19.9 Funding option for Ratlam Municipal Corporation

Based on the financial assessment of Ratlam Municipal Corporation, with analysis under three scenarios viz. Without Reforms, Partial Reforms and Full Reforms it can be seen that even with partial implementation of Reforms the Corporation can sustain about 6.40% of the project cost. Hence, on a conservative level, the following funding option can be adopted for Ratlam Municipal Corporation.

**Table 19-16: Funding options Ratlam City Development Plan**

| Funding Option     | Contribution as % of project cost |
|--------------------|-----------------------------------|
| Central Government | 80%                               |
| State Government   | 10%                               |
| Ratlam Corporation | 10%                               |

## 19.10 Optimal financial operating plan for Ratlam Municipal Corporation.

The financial sustainability analysis has been carried out for the Municipal Corporation under "Business as Usual" and "Full Project with Reforms scenario. The proportion of the project cost which the ULB can support under each of the scenarios is arrived at is mentioned under following table.

Funding pattern for the major infrastructure sectors like water supply, sewerage and municipal solid waste can be organized through several schemes like UIDSSMT etc. In order to provide the basic services to urban poor, schemes like Rajiv Awas Yognna need to be taken into consideration in order to form the financial resources for urban poor.

Table 19-17: Financial Operating Plan for Full Reforms Scenario (Rs. In Lakhs)

| Financial Operating Plan under full reform scenario  | 2011-2012       | 2012-2013       | 2013-2014       | 2014-2015       | 2015-2016      | 2016-2017      | 2017-2018      | 2018-2019      | 2019-2020      | 2020-2021     | 2021-2022      | 2022-2023      | 2023-2024      | 2024-2025      |
|--|-----------------|-----------------|-----------------|-----------------|----------------|----------------|----------------|----------------|----------------|---------------|----------------|----------------|----------------|----------------|
| Project Cost   | 22602.20        | 14761.60        | 12069.79        | 10010.00        | 2656.19        | 1734.31        | 821.94         | 785.75         | 821.94         | 168.00        | 1458.57        | 1337.75        | 908.94         | 872.75         |
| Projects under PPP   | 0.00            | 4977.63         | 770.00          | 36.19           | 0.00           | 36.19          | 4.42           | 36.19          | 0.00           | 36.19         | 0.00           | 42.76          | 0.00           | 36.19          |
| Ultimate project cost  | 22602.20        | 9783.97         | 11299.79        | 9973.81         | 2656.19        | 1698.12        | 817.52         | 749.56         | 821.94         | 131.81        | 1458.57        | 1294.99        | 908.94         | 836.56         |
| Contingency  | 678.07          | 293.52          | 388.99          | 299.21          | 79.69          | 50.94          | 24.53          | 22.49          | 24.66          | 3.95          | 43.76          | 38.85          | 27.27          | 25.10          |
| Cost escalation  | 1130.11         | 1002.86         | 1781.13         | 2149.42         | 733.86         | 577.52         | 332.81         | 357.88         | 453.16         | 82.89         | 1036.08        | 1030.63        | 805.00         | 819.77         |
| <b>Sub-total</b>   | <b>24410.37</b> | <b>11080.35</b> | <b>13419.91</b> | <b>12422.44</b> | <b>3469.73</b> | <b>2326.59</b> | <b>1174.86</b> | <b>1129.93</b> | <b>1299.76</b> | <b>218.66</b> | <b>2538.40</b> | <b>2364.47</b> | <b>1741.21</b> | <b>1681.43</b> |
| <b>Funding</b>   |                 |                 |                 |                 |                |                |                |                |                |               |                |                |                |                |
| Central Government contribution @80%   | 0.80            | 19528.30        | 8864.28         | 10735.93        | 9937.95        | 1861.27        | 939.89         | 903.94         | 1039.81        | 174.93        | 2030.72        | 1891.57        | 1392.97        | 1345.14        |
| State Government contribution @10%   | 0.10            | 2441.04         | 1108.03         | 1341.99         | 1242.24        | 346.97         | 117.49         | 112.99         | 129.98         | 21.87         | 253.84         | 236.45         | 174.12         | 168.14         |
| Municipality contribution including public deposits for Water Supply and Sewer scheme @10% | 0.10            | 2441.04         | 1108.03         | 1341.99         | 1242.24        | 346.97         | 117.49         | 112.99         | 129.98         | 21.87         | 253.84         | 236.45         | 174.12         | 168.14         |
| <b>Financial Operating Plan under full reform scenario</b>                                 |                 |                 |                 |                 |                |                |                |                |                |               |                |                |                |                |
| Surplus of Municipality  | 2244.61         | 1721.71         | 2166.27         | 3063.59         | 2769.97        | 3183.34        | 3384.96        | 3672.22        | 3856.65        | 4485.25       | 4865.58        | 5109.79        | 5438.69        | 6451.99        |
| Loan to fund new project   |                 | 780.00          | 950.00          | 400.00          | 400.00         | 150.00         | 40.00          |                |                |               |                |                |                |                |
| Interest on loan   | 0.10            |                 | 78.00           | 213.00          | 253.00         | 268.00         | 272.00         | 268.00         | 263.00         | 203.00        | 133.00         | 53.00          | 0.00           | 0.00           |
| Repayment of loan  |                 |                 | 0.00            | 0.00            | 0.00           | 0.00           | 0.00           | 40.00          | 50.00          | 600.00        | 700.00         | 800.00         | 530.00         | 0.00           |
| Closing Balance of Short term Loan   |                 |                 | 780.00          | 1730.00         | 2530.00        | 2680.00        | 2720.00        | 2680.00        | 2630.00        | 2030.00       | 1330.00        | 530.00         | 0.00           | 0.00           |
| Less contribution of Ratlam Municipality towards projects                                  | 2441.04         | 1108.03         | 1341.99         | 1242.24         | 346.97         | 232.66         | 117.49         | 112.99         | 129.98         | 21.87         | 253.84         | 236.45         | 174.12         | 168.14         |
| Less O&M due to new projects   | 0.00            | 944.87          | 1499.25         | 2014.31         | 2552.22        | 2839.93        | 3045.05        | 3232.82        | 3427.08        | 3633.95       | 3825.73        | 4068.57        | 4315.87        | 4564.48        |
| Opening Balance  |                 |                 |                 |                 | 598.73         | 616.51         | 609.26         | 599.68         | 618.08         | 604.67        | 631.11         | 584.12         | 535.89         | 954.59         |
| Net Surplus/ Deficit   |                 |                 |                 |                 | -196.42        | 370.81         | 102.03         | -9.58          | 18.40          | -13.41        | -46.99         | -48.23         | 418.69         | 1719.36        |
| <b>Closing Balance</b>   | <b>131.86</b>   | <b>502.67</b>   | <b>604.70</b>   | <b>598.73</b>   | <b>616.51</b>  | <b>609.26</b>  | <b>599.68</b>  | <b>618.08</b>  | <b>604.67</b>  | <b>631.11</b> | <b>584.12</b>  | <b>535.89</b>  | <b>954.59</b>  | <b>2673.95</b> |

From the above it is clear that the Municipal Corporation will be able to fund 10% of the project cost and also meet its O&M obligation under "Full Reforms" scenario. Since public contribution is envisaged in funding water supply and sewer scheme, PPP model can be considered for implementation and O&M.

Proven model that can be considered is the Water Supply Scheme under PPP implemented in Khandwa city in Madhya Pradesh. The project cost of Khandwa water supply scheme is Rs. 106.72 Crores of which the Central and the State Government contributions are 80% and 10% respectively. The remaining 10% is to be borne by the Concessionaire viz. Vishwa Infrastructure, Hyderabad. The O&M shall be the responsibility of the Concessionaire and the Concession period is 25 years.

### 19.11 Alternative funding options for identified projects.

Ratlam Municipal Corporation has limited financial resources for funding the projects identified. The Municipal Corporation may not be able to avail funds for all the projects identified unless all the reform measures are implemented. Alternative funding sources are presented below:

#### 19.11.1 Pooled Financing Mechanism

Tamilnadu Urban Development Fund (TNUDF) and Karnataka Urban Infrastructure Development Finance Corporation (KUIDFC) are two entities which brought out an innovative funding mechanism for projects i.e. "Pooled financing". Pooled Financing are of two types (i) a "blind pool", where a bond bank raises sufficient funds based on its own credit rating and then on lends to the local body; and (ii) a "project-specific pool", where several projects are pooled and lumped together in a bond issuance, thereby significantly reducing transaction costs and improved pricing. Tamilnadu Fund used the second arrangement, wherein 14 Urban Local Bodies of the state pooled some water and sanitation projects under a special purpose vehicle called the Water and Sanitation Pooled Fund (WSPF) and raised about Rs. 300 million from the bond market at an interest of 9.2% in the year 2002.

Similar funding mechanism can be considered for less credit worthy borrowers like Ratlam Municipal Corporation which has a poor debt repayment record.

#### 19.11.2 Nodal Agency/ State Government Agencies Funding

- Municipal Corporations like Ratlam with their limited financial resources are not in a position to fund ROBs and flyover projects. ROBs in certain places are taken up by the railways and flyovers and other roads by the state PWD.
- Low cost sanitation projects can be funded by NGOs and State Government with the Municipal Corporation contributing to a portion of the cost and acting as a facilitator in implementation.

### 19.11.3 Public Private Partnership (PPP)

Public Private Partnership projects are gaining importance in recent years even with smaller municipalities. Parking lots, solid waste management, hospitals and even slum redevelopment programmes are implemented under PPP wherein the private sector develops the facility, operates for a specified concession period and transfer the facility back to the local body. Though large scale participation of private sector is lacking in water supply schemes, Chandrapur Municipal Corporation has implemented water supply scheme under PPP.

#### 1. Water Distribution in Chandrapur

The objective of the project was to reduce huge water losses, to the tune of around Rs 1.83 crores) every year, and increase coverage and service delivery efficiencies to the 3,00,000 population of Chandrapur city. Water distribution for the local community was therefore handed over to the private sector participant i.e M/s Gurukripa Associates & Contractors Pvt. Ltd. in 2004 successfully. Both distribution of water to existing users as well as the maintenance of the Filter Plant was entrusted to the private player. Additionally, the private player was required to:

- Lay one km additional line every year – thus expanding distribution
- All the employees would be the private company's own employees (Chandrapur Municipal Corporation(CMC) was short of manpower at the time and would therefore place their own manpower at other places in the corporation requiring additional deployment)
- Technical supervision to be done by the CMC Nodal Engineer with a regular program of inspection of the filter plant, every 3 to 4 days

The initial investment of the project was Rs 3.0 Crs. The private party injected Rs 50 lacs and raised another Rs 2.5 crs by selling 50% equity on a premium. The revenue sharing arrangement for the private player was -

- Private player to collect tariff charges
- Revenue sharing arrangement, such that private player makes a total payment of Rs 1.59 Cr. to the municipal corporation in 10 years
- Private player allowed to increase tariff charges by 10% every 3 years

#### 2. Tertiary Water Treatment of Sewage in Surat

Surat Municipal Corporation has adopted the PPP route for setting up of a tertiary sewage treatment plant to treat secondary treated water from Bamroli Sewage Treatment Plant to supply Industrial Grade Water to Pandesara Industrial Estate and Surat Municipal Corporation on Design Build Finance Operate and Transfer (DBFOT) basis for a concession period of 20 years under PPP.

The private party initially planned on a break-even in the third year of operations but due to steep rise in electricity charges (35% increase in three years) the breakeven was delayed by a year. The operational efficiencies after appointment of the private sector participant is highlighted below:

**Table 19-18: Operational Efficiencies after appointment of Private Sector**

| Before appointment of the private sector participant              | After appointment of the private sector participant  |
|---|--|
| Leakages-the main problem (56 leakages to main water supply line) | Leakages removal through technological solution  |
| Low discharge   | <ul style="list-style-type: none"> <li>▪ Replacement of rusted pipes (about 50 km)</li> <li>▪ Replacement of Pipelines leading to improved carriage capacity and extending water supply to additional households</li> </ul>  |
| Low pump efficiency (repairs at every 3-4 months)                 | <ul style="list-style-type: none"> <li>▪ Oil lubrication system of pumps modified to water lubrication and preventive maintenance initiated</li> <li>▪ Pump breakdown and repairs frequency changed from about quarterly to almost nil</li> <li>▪ Breakdown time brought upto 24-48 hours from one week</li> </ul>   |
| Low water tax collections   | <ul style="list-style-type: none"> <li>▪ Streamlining of water tax collection system with improved quality of supply.</li> <li>▪ Recovery % of water tax improved from 60% to 95%</li> <li>▪ No of complaints reduced from 100 to 10</li> </ul>  |
| More complaints from users  | <ul style="list-style-type: none"> <li>▪ Per capita supply of water increased from 70 lpcd to 130 lpcd</li> <li>▪ The private player has received requests from other neighbouring cities to run this pilot there also.</li> <li>▪ Even where the private company was not required to expand coverage (in a year), consumers started coming to the private player on their own with offers to fund the cost of laying distribution pipelines themselves if the private party would distribute water to them also.</li> </ul> |

Source: Analysis

o **Development of Parking Lots under PPP**

- Brihanmumbai Municipal Corporation (BMC) has developed a multi-storied mechanized parking lot on a PPP basis at Bhulabhai Desai Road, Mumbai
- BMC is also in the process of developing seven mechanised parking lots at Dadar, Borivali, Kurla, Powai, Matunga on PPP basis
- Jaipur Municipal Corporation has commissioned a study for development of parking lots under PPP at 5 sites in Jaipur

o **Other PPP projects**

- Municipal Solid Waste management projects under PPP have been implemented in Delhi, Bangalore, Chennai, Jodhpur and Sirsa
- Bus terminals at Dehradun, many cities in Gujarat and Amritsar on PPP

- Thriupur water supply and sewer project on Build Own Operate and Transfer basis - Water supply infrastructure to draw raw water and distribute for industrial and domestic users.
- Alandur underground sewerage scheme – Public participation in the scheme by financial contribution in the form of upfront payment for service connections
- Desalination Plant at Chennai to treat 100 MLD sea water by reverse osmosis on Design Build Own Operate and Transfer basis for 25 years.

The above projects highlight the importance of private sector involvement in implementation of various projects. The number PPP projects till date under JNNURM in various sectors are as follows:

**Table 19-19: PPP Projects implemented under JNNURM**

| Sector                 | Number                         | Cost (Rs. Crores) |
|------------------------|--------------------------------|-------------------|
| Water Supply           | 3 (Project related)            | 246.61            |
| Sewerage               | 1 (Project related)            | 31.47             |
| Solid Waste Management | 17 (Operation and Maintenance) | 873.91            |
| MRTS                   | 1 (Project related)            | 476.15            |

Source: JNNURM

PPP projects bring in the much required funds for the project, reduce project delays, and improve operational efficiencies and quality of service delivery. Further, municipal Corporations should not be involved in maintenance of parks, schools, hospitals; recreational facilities as these facilities can be developed on commercial formats successfully with private sector participation and the Corporations shall focus its efforts towards provision of basic infrastructure facilities. With PPP gaining importance even in the provision of basic infrastructure, the municipal Corporations shall play the role of facilitator in implementation of these projects.

#### 19.11.4 City Planning Schemes

“Gujarat Model” of land pooling for implementation of infrastructure projects has helped the state to achieve urbanization at a faster rate than the rest of the states in the country. While the urban development Acts in the rest of the country focus on direct acquisition of land from owners, the Gujarat City Planning and Urban Development Act, 1976, lays down the city planning or TP scheme procedure for land acquisition. Under the TP scheme, 40 per cent of the land in the area earmarked for infrastructure development is ‘pooled’ in from land owners. The rest 60 per cent of land remains with the owners, which they are allowed to sell or else develop in accordance with the urban development scheme. In this way, land owners are not forced to sell land to the urban development authority at cheap rates. As land prices shoot up, sometimes by 10-20 or even 100 per cent, with the development of infrastructure in the area, owners are not averse to ‘pooling’ in 40 per cent of their land. According to authorities, there have been instances where entire villages have approached the AUDA for including their land under a TP scheme.



From the 40 per cent land 'pool', 20 per cent is earmarked for development of road network, five-eighth per cent for garden and lake developments, another five-eighth per cent for construction of houses for economically weaker sections, and the remaining five-eighth per cent is auctioned by the urban development authority. Money raised from the auctioned land helps cover infrastructure development expenses like the cost of laying of roads, gardens, lakes, flyovers, etc.

### **19.11.5 Other sources of project funding**

- The municipal Corporation can leverage its land assets for implementation of projects through private sector participation. Alternatives include granting higher Floor Space Index, Transfer of Development Rights for raising funds for projects. However this depends on the real estate demand in the region
- Energy Efficiency Projects especially in Street lighting and Solid waste management and waste recovery are eligible for availing carbon credits (Certified Emission Reductions) which are tradable. However, the projects should be large enough for application for CERs under Clean Development Mechanism

## **19.12 Supervision of capital works and maintenance**

### **19.12.1 Appointment of Project Management Consultants for Implementation**

Ratlam Municipal Corporation lacks trained manpower to carryout supervision of the projects and monitoring of the quality of work within the stipulated costs and without delays is a challenge. Appointment of Project Management Consultants for monitoring of the projects is essential.

### **19.12.2 Turnkey contracts with minimum years of operation obligation**

With the Municipal Corporations lacking skilled staff in design, execution and operation and maintenance, project contracts can be structured as turnkey contracts with the contractor be made responsible for design, construction and operation and maintenance for a specified number of years, say, 5 years. During the O&M phase, the contractor can train the municipal Corporation employees to undertake O&M in subsequent years.

### **19.12.3 Induction of Technical staff**

Induction of trained and skilled manpower is essential in municipal Corporations as they are responsible for service delivery of basic infrastructure facilities – Water Supply, Sewer, Roads etc. In Ratlam Municipal Corporation there are no skilled staffs for each sector and the City Engineer is the only technical person with a planning background. Training also needs to be imparted to the staff of the municipal Corporation in technical areas, administration, use of IT tools and Management Information Systems.

#### 19.12.4 Outsourcing of municipal functions

To maintain a lean organization, Municipal Corporations can outsource some of its functions for a fixed consideration. This improves efficiency and reduces the burden on the municipal Corporation. Some of the areas where outsourcing of functions is practiced are:

- Street lighting
- Solid waste management
- O&M of parks
- Accounting

Even O&M for water treatment and distribution systems, sewer treatment and distribution systems, tax collection can also be outsourced to improve efficiency and ensure effective service delivery.

An aerial photograph of a city, likely Ratlam, showing a grid street pattern, green spaces, and buildings. The image is used as a background for the text.

Special Paper 1

# Measures for making Ratlam a Sustainable city-

**Sustainable city is a city conceived on principles of sustainability, which would address environmental issues plaguing the cities of today**

# 1 Cities and Climate Change

**'It is no longer a scientific question as to whether the climate is changing, but the question is the timing and magnitude of Climate Change'**

## 1.1 Climate Change – Relevance and Context

Climate change has origins in anthropogenic activities and is engaging the attention of planners, governments, and politicians worldwide. Climate change is recognized both as a threat and a challenge. The impact of human activities on climate and climate systems is unequivocal. The governments of the countries across the world are engaged in working out the impacts and associated vulnerabilities of their economies to impending projected climate change.

Climate has a significant role in the economic development of India. Many sectors of the economy are climate sensitive. In India, the meteorological records indicate rise in the mean annual surface air temperature by 0.4°C with not much variations in absolute rainfall. However, the rates of change in temperatures and precipitation have been found to be varying across the region. The intensity and frequency of heavy precipitation events have increased in the last 50 years. The tide gauge observations in the last four decades across the coast of India also indicate a rise in sea level at the rate of 1.06-1.25 mm/year. Further, some preliminary assessments point towards a warmer climate in the future over India, with temperatures projected to rise by 2-4 °C by 2050s. No change in total quantity of rainfall is expected, however, spatial pattern of the rainfall are likely to change, with rise in number and intensity of extreme rainfall events.

The sea level is also projected to rise with cyclonic activities set to increase significantly with warmer oceans. The continuous warming and the changing rainfall pattern over the Indian region may jeopardize India's development by adversely impacting the natural resources such as water forests, coastal zones, and mountains on which more than 70% of the rural population is dependent.

**Climate change is recognized both as a threat and a challenge**

The physiographic features and the geographic location, which control the climate of the country, bestows it with great wealth of its natural resources, surface and ground water availability, forestry and vegetation. The region abounds in very rich collection of flora and fauna, and some of these locations exhibit a high degree of species endemism and constitute biodiversity hotspots of the world. There is an ever increasing recognition of the need for

impact assessment related to climate change and undertaking suitable assignments for reducing projected adverse impacts of climate change.

## **1.2 Urbanisation and Climate Change perspective**

About 30% (285.35 million people, 2001 census) of the Indian population resides in urban areas. In post-independence era while population of India has grown three times, the urban population has grown five times. Urban areas are heavily dependant on fossil fuels (often imported), for the maintenance of essential public services, for powering homes, transport systems, infrastructure, industry and commerce. The fossil fuels are increasingly becoming more expensive due to scarcity of fuel and increase in demand. In addition to this, the environmental and social impacts of the consumption of fossil fuels are increasingly becoming a concern. These impacts include air pollution, global warming, waste disposal problems, land degradation and the depletion of natural resources.

Urbanization and economic development are leading to a rapid rise in energy demand in urban areas. Urban areas have emerged as one of the biggest sources of Green House Gas (GHG) emissions, with buildings alone contributing to around 40% of the total GHG emissions. As per latest UN report one million people are moving to urban areas each week. It is estimated that around two-thirds of the world population will be living in cities in 2050. This requires a tremendous shift in energy resources in urban areas. In recognition of this, various cities around the world are setting targets and introducing polices for promoting renewable energy and reducing GHG emissions. London has announced 20% Carbon emission reduction by 2010; New York and 200 other U.S. cities have set a similar target. Tokyo has announced 20% share of renewables in total consumption by 2020 and Australian government has initiated a Solar Cities programme.

Several Indian cities and towns are experiencing 15% growth in the peak electricity demand. The local governments and the electricity utilities are finding it difficult to cope with this rapid rise in demand and as a result most of the cities/towns are facing severe electricity shortages. There is a need to develop a framework that will encourage and assist cities in assessing their present energy consumption status, setting clear targets for and preparing action plans for generating energy through renewable energy sources and in conserving energy utilized in conducting urban services.

## **1.3 Sustainable city – the city of Future**

In addition to the increasing energy consumption, electricity shortages, depleting natural resources there are other problems like unplanned growth, unmanageable cities and deteriorating quality of life. A one pack smart solution to break from viscous cycle of degenerating cities and unending shortages is growth driven by Sustainability principles.

Sustainable city is a city conceived on principles of sustainability, which would address environmental issues plaguing the cities of today. Sustainable cities make prudent use of available land, encourage energy-efficiency, resource

efficiency and promote healthy buildings for users. Traffic clogged city centers are reclaimed for pedestrians, green spaces are preserved and expanded, recycling schemes are promoted, and environment friendly buildings are designed.

What our cities will look like in the future will depend on, how they are planned or, much more important, whether they are planned at all. The key point is that planning and management has a key role in ensuring sustainability.

Many of the problems associated with our cities exist because they have not been planned, or the planning has been ineffective or misdirected and secondly due to due to inefficient management and governance of the cities. Sustainable cities will look at the existing cities and aim at making policy changes and indentify strategies which will improve the status of existing cities and address environmental issues.

Give the background to 'Sustainable City', it is imperative to say that it is a mammoth to recreate and revitalize our cities to "Sustainable city". However, a Journey of 1000 miles begins with a small step. And there are definitely number of short term and implementable strategies which will embark us in the direction Sustainable cities.

This Special paper focuses on two categories of such implementable strategies that can be undertaken by Ratlam Municipal Corporation. These strategies are explained in subsequent sections.

**Sustainable city is a city conceived on principles of sustainability, which would address environmental issues plaguing the cities of today**

## 2 Energy Efficiency strategies for the city

The Energy efficiency strategies for city can be broadly categorized under two heads. Strategies and measures applicable at city level for provision of services and strategies applicable at building level

### 2.1 Energy Efficiency in Ratlam Municipal Corporation

Municipalities are spending large amounts of their revenue on purchasing energy for providing local public services such as street lighting and water supply.

Municipal energy efficiency saves scarce commodities and stretches tight budgets, giving citizens improved access to electricity, water, heat and air conditioning. Energy efficiency in municipal water supply systems can save water and energy while reducing costs and improve service at the same time.

For those bearing the financial responsibility for local public services, efficiency in the provision of energy and water is one of the few cost-effective options available for meeting growing demands for vital services such as electricity, water and wastewater treatment. The budgets for these services often lack funds to invest in improvements, and public entities are looking for ways to finance energy efficiency projects. Among many possible options, performance contracting offers a mechanism for municipalities and public utilities to finance efficiency improvement projects without upfront investment.

Performance contracting became popular because the goods and services associated with the project are paid from the savings accrued from it, which allows municipalities to finance the improvements. Performance contracts are inherently flexible and can be structured to best fit the needs of the involved parties.

Performance contracts often involve an Energy Service Company (ESCO) but sometimes the services can be provided by engineering firms, such as water engineering companies in case of efficiency project involving water supply. However, ESCO participation in the project is beneficial because such companies have managerial, technical and turn-key project implementation skills that often are lacking at the municipalities, combined with the ability to structure project financing. Based on the municipalities' needs, the ESCOs can finance EE implementation and collect their dues from shared or guaranteed savings accruing from the EE project.



### 2.1.1 Energy Efficiency Strategies in Municipal Sector

The major energy loads in any are typically the water pumping systems, street lighting, sewage treatment and handling, and electricity distribution. Municipal buildings such as offices, hospitals, schools also contribute to the high municipal energy bills. Therefore, the following systems are those most commonly addressed by a municipal energy efficiency audit:

- Street lighting
  - Water Pumping
  - Sewage pumping
  - Electrical distribution
  - Municipal Buildings
- **EE measures in street lighting**

Street lighting is one of the major sources of energy consumption in municipal sector. A comprehensive survey of street lighting systems needs to be conducted and meetings with officials responsible for designing, installation and operation and maintenance are to be conducted. The specifications of types of lamps being used in various roads in the city should be mapped and based on the energy audit of street lighting and the data collected from the Municipal Corporation, appropriate projects can be implemented. There is a good potential of reducing the consumption by installing multitab ballast with astronomical timer switch. The following strategies can be envisaged:-

#### 1. Replacement of High Pressure Sodium Vapor Lamps with LED lights

High mast tower lights of 400W, 250 W, 70 W are generally used for street lighting in most of the ULB's which can be replaced with more energy efficient LEDs of 125 W, 70 W and 28 W respectively. A 100% target to replace the high mast tower lights can be set with year wise target. Ratlam Municipal Corporation can adopt ESCO model financing for Energy Efficiency street lighting projects.

#### Strategies

*Ratlam has 7575 street lights positioned all over the municipal areas out of which 299 street lights are in not in working position. The details of different types of streetlight in Ratlam are given below. There are 706 nos of CFL tube lights out of which 681 nos are 72 watt CFL and 25 nos are of 85 watt CFL.*

|                            |      |
|----------------------------|------|
| 40 W Tube Lights           | 1712 |
| 250 W Sodium Vapor Lamps   | 3955 |
| 150 W Sodium Vapor Lamps   | 174  |
| 70 W Sodium Vapor Lamps    | 549  |
| 250 W Metal light fitting  | 424  |
| 125 W vapour light fitting | 43   |
| 85 W CFL fitting           | 27   |

|                               |      |
|-------------------------------|------|
| 72 W CFL fitting              | 681  |
| 250 W High mast fitting       | 5    |
| 400 W Metal light fitting     | 5    |
| total number of street lights | 7575 |

### Recommendations for Replacement of Street Lights

- Replacement of 1712 40 W Tube light with 8W LED lights or 28 W T5 lights
- Replacement of 174 Nos 150 W High Pressure Sodium Vapor with 55 W LED lights
- Replacement of 3995 Nos 250 W High Pressure Sodium Vapor with 130 W LED lights

**From the above recommendations we can achieve a total savings of around 2475533 KW per annum and monetary savings of Rs 68, 77,704 per annum**

## 2. Sensors for Automatic on/off of street lights

Automatic street lights ensure that energy is not wasted by lights turned on during day time. Most of the ULBs predominantly follow manual switching of street lights which results in labour costs, energy wastage and poor efficiency. The best solution is to install automatic sensors.

### Strategies

*In Ratlam Municipal corporation it has been observed that the operating load for street lighting remains same throughout the night. In order to reduce the energy load it is suggested to install the multi tab ballast which varies the load of the lamp according to the traffic load during the night.*

*Multitab ballast comes with a facility of setting the time for which the lamp will run up to its full facility. So during the evening operating hours the timer is set for the full loading of the lamp and during midnight onwards it will be set for 50% loading of the lamp. Astronomical timer switch will help in reducing the wastage of lighting consumption as due to seasonal variation the operating hours of street lighting does change. So the switch doesn't allow street light to get on before the dusk and after the dawn.*

*Astronomical timer switch will be installed which will help in reducing the wastage of lighting consumption as due to seasonal variation the operating hours of street lighting does change. So the switch doesn't allow street light to get on before the dusk and after the dawn*

- **EE measures in water pumping**

Water pumping is another energy consuming activity in the municipal sector. According to the BEE estimates approximately 25% of energy savings can be achieved from initiatives in water pumping systems alone.

## 1. Improvement of Design Efficiency in Pumping System

### Strategies

*For the proposed water supply scheme, a detailed study should be conducted to assess the volume of water to be pumped and height at which the pumps need to be located.*

*The proper designing of the pumping system using the fluid flow analysis softwares can bring out energy savings in running and maintenance of water pump systems to the tune of 20%.*

## 2. Installation of variable speed drivers

Major energy loss is caused due to the improper dimension and adjustments, by properly adjusting the pump speed using variable speed drivers these losses can be reduced.

### Strategies

*It is expected to achieve around 5% energy savings by installing variable speed drivers in water pumping systems.*

### 2.1.2 Other Energy Efficiency Measures

Sector wise survey (Residential, Commercial, Industrial and Municipal) could be conducted to assess the energy consumption scenario and based upon the survey results various energy efficiency projects can be implemented.

### Strategies

*The major energy saving measures that can have maximum impact are as follows.*

- *Replacement of incandescent lamps with CFL*
- *Replacing the conventional T-12 (40 Watt) copper ballast tube lights with the energy efficient T-5 (28 watt) electronic ballast tube lights. The saving would be around 42% per tube light.*
- *Replacing the conventional ceiling fans which consumes (70-80watt) with energy efficient fans (which consumes 50 watt). The savings will be 37% per fans.*
- *Replacing the existing unitary air conditioners with the BEE star labeled air conditioners.*

*The overall electricity savings can be achieved by implementing all the above measures would be approximately more than 20% of the total consumption in various sectors of the city.*

## 2.2 Building Energy Efficiency – Existing policy Framework

In India there are two Building codes (policy frameworks) which deal with the construction of buildings and with Energy efficient design of buildings - the National Building codes 2005 (NBC 2005) and the new Energy conservation of buildings codes 2006 (ECBC 2006). The national building codes only consider regulations in building construction primarily for the purposes of regulating administration, health and safety, materials and construction requirements and building and plumbing services whereas the ECBC 2006 consider energy conservation and energy efficiency in buildings to provide minimum requirement for the energy efficient design and construction of buildings. The NBC 2005 refers to a wide variety of building type and ownership whereas ECBC 2005 only refers to commercial buildings and some building complexes.

The ECBC 2006 mainly considers administration and enforcement, the building envelope, HVAC, service hot water and pumping, lighting and electric power to encourage conservation of energy. These are considered during construction of new buildings and while doing additions to existing buildings.

At present the Energy Conservation Act 2001 empowers the state governments to adjust the codes according to local conditions. This encourages inconsistency in building practices across to country and can lead to huge deviations from the existing codes. There are currently various state designated agencies for implementation of this code. The regulating authority is different for each state and is responsible for enforcing the adapted building codes for that state. Experts check the plans for new buildings or changes to existing buildings and permit the builder to carry out construction if the design meets the code requirements. They are rejected and sent for alteration if they do not meet the requirements. After the building is built it must again be certified as complete by the state designated agency before it is used.

The Bureau of Energy Efficiency is working on certifying Energy Auditing Agencies in order to evaluate buildings energy use, which will enable better regulation of energy conservation in buildings.

### 2.2.1 Sustainable Construction /Green Buildings

Green Building is the practice of increasing the efficiency while ensuring healthy indoor environment for the buildings by minimizing their use of power, water, and materials, thus reducing building impact on the environment and on the limited resources of the planet, through better site selection, design, construction, operation, maintenance, and dismantling - the complete building life cycle.

In order to encourage green rating practices of buildings, IGBC has come up with LEED rating. Points are given for different criterion at the site planning, building planning and construction, and the building operation and maintenance stages of the building life cycle. The entire constructions for all the new and existing construction can follow the Green Building standards.

The related concepts of sustainable development and sustainability are integral to green building. Effective green building can lead to

- Reduced operating costs by increasing productivity and using less energy and water,
- Improved public and occupant health due to improved indoor air quality, and
- Reduced environmental impact by, for example, lessening storm water runoff and the heat island effect.

### Demand Comparison: Conventional Vis a Vis Green Building

|                                     | Conventional Building        | Green Buildings *            |
|-------------------------------------|------------------------------|------------------------------|
| Air-conditioning Cooling Load       | 150 SFT/TR                   | 600 SFT/TR                   |
| Electrical Demand Load              | 10 WATT/SFT                  | 4 WATT/SFT                   |
| Lighting Power Density office area  | 2 WATT/SFT                   | < 0.6 WATT/SFT               |
| Lighting Power Density retail area  | 4 WATT/SFT                   | < 1 WATT/SFT                 |
| Lighting Power Density parking area | 1 WATT/SFT                   | < 0.15 WATT/SFT              |
| Potable Water Demand                | 45 Liters per day per person | 20 Liters per day per person |

\* - As per the Green measures adopted

Green buildings are scored by rating systems, such as the Leadership in Energy and Environmental Design (LEED) rating system developed by the Indian Green Building Council, and other locally developed rating systems like GRIHA

#### Strategies

##### **Green Building Implementation Framework Model for ULB**

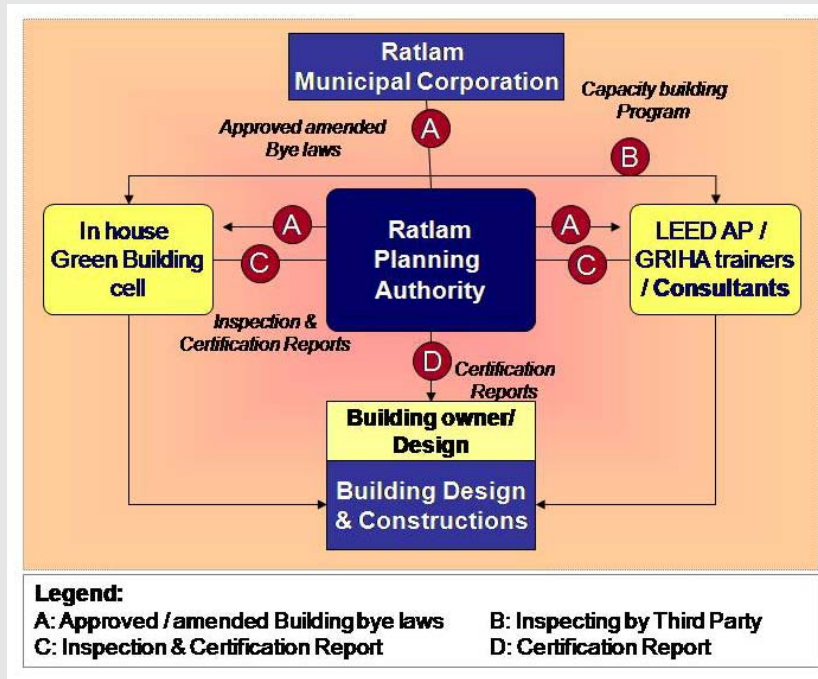
*In order to propagate the energy efficient/ green building in the jurisdiction of Ratlam Municipal Corporation the construction of commercial, industrial and residential complexes / townships as per the green building standards can be made mandatory by ULB or some special financial incentives such as property tax rebates or incentives in electricity bills etc can be given by the ULB.*

*For the effective implementation of sustainable construction as per the LEED / GRIHA criteria ULB should set up a Green Building cell which can be a subset of the JNNURM cell, which will consist of members of town planning authority, PWD and ULB who will be trained on Green Building concept and also seek the help of LEED AP or GRIHA certified professionals.*

*This green building cell will be responsible for the approval of all plans in order to ensure that it is as per the criteria of LEED / GRIHA which can also have a third party inspection from LEED AP / GRIHA certified professionals who in turn will give the certification report to town planning department advising them on any changes to be*

made in plan if required or recommending approval. The model framework is depicted in Figure below. ULB should conduct an extensive training programme either by GRIHA or IGBC ( Indian Green Building Council) for all the local architects and people involved in civil construction in order to do effective capacity building on Green buildings with the help of MNRE.

**Figure : Implementation Framework Model for ULB**



### 2.2.2 Steps to be taken for effective implementation of Energy Efficiency in Buildings

Other additional measure which can be taken by Ratlam Municipal Corporation are as follows:

#### Strategies

- ULB can offer financial assistance for reduction in energy use in lighting systems that go beyond the ASHRAE guidelines. This incentive allows energy efficient lighting to be a cost effective measure, ULB can also offer subsidies for indoors and outdoors solar lighting devices for community and individual users.
- As of now there are no subsidies offered for most energy efficient HVAC systems and for the use of natural water coolers. ULB can offer financial incentives for more energy efficient HVAC systems. This encourages their use in new buildings and when retrofitting existing buildings.
- Financial assistance or subsidy can be given to solar heating systems in particular which will be preferred option for the city as this technology being suitable for the climate of the city.
- ULB by notification in consultation with state government, BEE can amend the energy conservation building codes to suit the conditions and factors prevailing

*in Ratlam*

- *Direct every owner or occupier of a building or building complex to comply with the provisions of the energy conservation building codes.*
- *Direct, if considered necessary for efficient use of energy and its conservation, any consumer referred to get energy audit conducted by an accredited energy auditor.*
- *Take all measures necessary to create awareness and disseminate information for efficient use of energy and its conservation.*
- *Arrange and organize training of personnel and specialists in the energy conservation techniques for efficient use of energy and its conservation.*
- *Take steps to encourage preferential treatment for use of energy efficient equipment and appliances.*
- *ULB can also work out on possibility of establishing an energy conservation fund with adequate contribution from State government, private entities in city etc in order to enhance the financing of EE projects to be implemented.*



## 3 Renewable Energy Strategies for the City

India has been dependant on fossil fuels such as coal, oil and gas for its energy requirements. Today, more than 65% of its capacity is fossil fuel dependant. Despite the recent discoveries of gas as well as initiatives to develop coal reserves, it is likely that our dependence on fossil fuels will continue in near future. The reserves of fossil fuels are constantly depleting. Additionally in last couple of years, the price of fossil fuels has shown a consistent upward trend.

Given this scenario, it is of paramount importance that the country develops all possible domestic energy sources. India cannot afford to ignore any source of energy just because those sources are currently expensive, since economic loss due to non – supply of electricity will be greater than the cost of selected sources of energy. Minimising dependence on import of conventional fuel and provision of energy to all at affordable prices should be the main concerns for energy policy of India.

### 3.1 Solar Water Heating Systems

It is a well known fact that the solar energy can be used for water heating. Solar water heater is a commercialized technology in India. A 100 litres capacity SWH can replace an electric geyser for residential use and saves 1500 units of electricity annually.



It has been observed that residents of Ratlam, use electricity/fossil fuels for water heating; Based upon a detailed survey conducted among the household and commercial establishments an annual target can be kept for shifting to solar water heating systems.

#### **Strategies for Promotional Schemes for development of SWHS**

- *Financial Assistance through interest rate / capital subsidy*
- *Building bye-laws amendment to mandate SWHS installation*
- *Utility rebates for SWHS installations*
- *Standardisation of Solar Collectors*
- *Inclusion of Solar Energy in ECBC*

*The use of 1000 SWHs of 100 litres capacity each can contribute to a peak load saving of 1 MW. A SWH of 100 litres capacity can prevent emission of 1.5 tones carbon dioxide per year.*

### 3.2 Solar Cookers

Solar cookers can be used in households to cook items such as rice, lentils, prepare simple cakes etc. It takes 1 to 2 hours to cook these items. The extensive use of solar cookers can lead to substantial reduction in monthly electricity bills. The basic cost of box type solar cooker ranges from Rs 4500 – 6000. A single cooker can cater to the needs of 4-5 people and replace 3-4 LPG cylinders per year.



#### **Strategies**

*MNRE provides subsidy to the extent of 30% of the cost limited to RS 1500 per cooker and based upon a detailed survey conducted among the household and commercial establishments an annual target can be kept for installing solar cookers*

### 3.3 Solar lanterns to replace kerosene lamps

A solar lantern consists of three main components – the solar PV panel, the storage battery, and the lamp. A single charge can operate the lamp upto 4-5 hours.

The cost of solar lantern ranges from Rs 1500 – Rs 3000 and based upon a detailed survey conducted among the household and commercial establishments an annual target can be kept for solar lanterns



### 3.4 Solar Home Lighting Systems

A solar home lighting system can provide 3-4 hours of light during power cut period. A solar home lighting system with 74 Wp solar module can replace 3-4 kerosene lamps thereby can save 10-15 litres of kerosene per month. The

cost of a solar home lighting system varies from Rs 8000 – Rs 20000 depending upon capacity.

#### **Strategies**

*MNRE provides a subsidy of Rs 8000 for a 74 Wp system and based upon a detailed survey conducted among the household and commercial establishments an annual target can be kept for solar home lighting systems.*

### **3.5 Solar PV for Home Invertors**

They can be used to charge batteries of home invertors for supplementing the grid electricity. They consist of a solar panel module and a charge control system.

#### **Strategies**

*Ratlam has regular powercuts everyday and large number of households and commercial establishments are using invertors. A 250 Wp Solar PV, home inverter system costs approximately Rs 30000 and based upon a detailed survey conducted among the household and commercial establishments an annual target can be kept for solar PV for home invertors*

### **3.6 Solar PV for replacement of DG/ Kerosene generator sets**

During load shedding hours many of the upper middle class households in the city use DG/Kerosene generator sets. A target of 10% of these households has can be kept to replace it with solar power packs. A 1000 Wp solar power pack has been considered which costs about Rs 2 Lakhs.

#### **Strategies**

*Ratlam has regular powercuts everyday and large number of households and commercial establishments are using invertors. A 250 Wp Solar PV, home inverter system costs approximately Rs 30000 and based upon a detailed survey conducted among the household and commercial establishments an annual target can be kept for solar PV for home invertors*

### **3.7 Rooftop Solar PV**

Its is observed that commercial and municipal sectors cover substantial area in the city out of total area. Roof top solar PV based grid connected system may well be quite feasible in the city. It has been observed that the commercial buildings, government buildings etc have adequate amount of roof area which are not being used. The grid connected solar PV systems of

100-500 KW are technically feasible in commercial buildings while 25-50 kW capacity systems might be feasible in residential sector.

MNRE has recently announced the rooftop solar PV policy. The scheme on Demonstration and promotion of solar photovoltaic devices /systems in urban areas & industry focuses on roof top SPV systems.

### Strategies

*Commissioners Office , Town Hall, City development Authority office can be take on pilot basis and can be taken on priority to demonstrate success of such projects to public and same could be replicated elsewhere. In large commercial establishments like hotels, shopping complexes, theatres, hospitals etc and institutions like schools, colleges and universities, roof top solar from 100 to 250 KW capacities might be recommended.*

## 3.8 Solar Street Lights along main road

Solar street lights use SPV panels to convert sunlight to electrical energy that is stored in a battery box. A basic solar powered streetlight consists of an SPV module, a battery, a lamp with charge controller and a lamp post. The cost of solar street lighting system is approximately Rs 20,000. MNRE provides subsidy at the rate of Rs 9600 per streetlight.

### Strategies

*A target can be kept of installing certain nos of solar streetlights along the main road. This could be financed by giving advertising rights to various MNCs who will in turn install the lights with no financial implications on the city*

## 3.9 Solar Traffic Lights

Solar traffic lights can solve the problem of failure of conventional traffic lights due to frequent break down in power supply. Solar powered traffic lights employ energy efficient LED which consume very nominal energy and thus could be installed at reasonable cost.

### Strategies

*A target can be kept to make certain number of traffic lights solar powered. The cost of a solar traffic light is approximately Rs 25000. MNRE gives subsidy up to 50% of the cost of the system or Rs 2.5 Lakhs whichever is less*

## 3.10 Solar Hoardings

Large advertisement hoardings in cities employ 4-12 lamps& consume a vast amount of energy. A solar hoarding uses SPV to convert sunlight to electricity required to illuminate the hoarding.

**Strategies**

*A target can be kept to convert certain nos hoarding into solar hoardings. The approximate cost of solar hoardings start form Rs 1 lakh onwards. MNRE gives ubsidy to the extent of 50% of the cost or Rs 15000 per 100 Wp whichever is less.*

Apart from these the following options could also be considered

- Use of solar blinkers on roads might be an effective approach towards highlighting the solar city concept within the city and energy saving.
- Solar powered, LED display boards could be set up at the strategic locations in the city. These boards would not only display the fact that Ratlam as a Sustainable city but also display pollution levels, temperature updates, and messages useful to general public.
- Provision of solar powered lights and fountains in the prominent public gardens and parks in the city could be made thereby spreading the solar city message.

**3.11 Energy from Municipal Solid Waste**

Waste to energy projects reduces the volume of waste going to landfills by 60-90%, saving the land, ensuring safe disposal and reducing emissions from residual waste. Refuse derived fuel (RDF) process or pelletisation is a thermal process , where the waste is dried and compressed to make pellets. Under the MSW 2000 rules , its is mandated that all municipalities address the issue of scientific management of MSW. RDF generation from MSW can increase energy efficiency of solid waste processing and reduce emissions.

**Strategies**

*The project can be developed on PPP route where MNRE gives a subsidy subject to a ceiling of RS 1.5 Crore per MW.*

**3.12 Energy from Sewerage Treatment Plants**

Treatment of waste water is very vital for heath of the citizens of the city. Generating biogas and thereby electricity, and ability to sell carbon credits can be important sources of income that help in recovering the cost of construction.



**Strategies**

*The approximate cost of biomethanation projects from sewerage treatment plant is Rs 10 Crore per MW, for which MNRE is providing subsidy to the tune of Rs 3 Crore per MW under the scheme of energy from urban & industrial waste.*

**3.13 Capacity Building and Awareness Generation**

In order to inculcate the energy conservation techniques in the common architecture, it is essential that all the practitioners be properly trained in energy efficient or Green Architecture. ULB may organize a series of training programmes for the planners, architects, electrical, HVAC and lighting consultants and engineers involved in the building sector. These courses, tailor made to suit different levels, would have to be imparted to all the professionals, in public as well as in private sector – on a regular basis.

Specific training programmes need to be designed for front line workers and technicians and also for those in supervisory role, for effective monitoring of energy demand.

Public awareness and education being central to successful changeover to solar city, it is imperative for ULB to engage the public through sustained awareness campaigns and communicate the benefits of energy conservation and renewable energy to different user groups, including local elected representatives.

A key component of the awareness campaign would be to capture school children's attention towards energy efficiency and clean future. Thus the campaign for the school children will include the following elements:

- Inter School essay and drawing competitions
- Inter School quizzes
- Workshops and seminars
- Exhibitions and demonstrations
- Field Trips

ULB can also initiate awareness campaigns along with electricity departments to generate a public response on energy conservation like door to door campaign, newsletters etc.

## **Energy Education Park**

In order to demonstrate the various new and renewable sources of energy technologies and creation of awareness and publicity amongst students, teachers, rural and urban masses about the uses and benefits of renewable energy systems and devices a state level energy education park can be constructed in city which will act as the epicenter for the solar city cell and hub for various promotional activities

### **Concept Brief – Energy Park**

It should a park with the theme of generation and usage of various forms of renewable energy sources— surrounded by a beautiful garden having abundant greenery, flowers, attractive musical fountain, and a unique waterfall. It should make all citizens realize the urgent need to use renewable energy sources to the maximum in our day-to-day life, as conventional forms.

### **Components of Park**

#### ***Solar Energy***

The entire park and the garden should be illuminated through solar SPV systems

#### ***Bio Energy***

A biogas plant of 10 m<sup>3</sup> capacity can be installed in the park, and also some kind of energy plantations which will act as the fuel to this plant, which will help in propagating this idea

#### ***Wind Power, Hydel Power and Ocean Energy***

Small aero generators and micro hydel plants could be installed in the park along with a working model which educates people on how energy is generated from oceans

### **Other proposed attractions**

#### ***Solar boat***

An artificial lake could be created in the park where visitors can enjoy a ride in the solar/ paddle boats in the lake. The motor of these boats is driven by batteries charged with solar modules that are mounted on the roof of the boat. Youngsters can enjoy rides in the small paddle boats.

#### ***Solar car***

Solar cars could be proposed for children up to the age of 10. The roofs of these cars should be made of solar cells that power the motor through batteries. Children can drive these cars and thus know about pollution-free battery operated vehicles.

#### ***Solar hut***

A beautiful solar hut with ethnic painting by local artists and depicting the city culture and tradition and brass industry could be constructed in the park. Solar huts can be hired for a family get together or a picnic. The following facilities are provided in the solar hut.

- o Air conditioner
- o Solar refrigerator
- o Solar lighting system



- o Solar-powered computer system
- o Solar-powered television
- o Solar-powered fan and cooler

The electricity required to run all the above systems should be generated through a solar PV power plant.

**Solar Shop**

Solar shop can be put up in the park from where the citizens can purchase various solar equipments and devices.

*The approximate cost of the park will around RS 1 Crore, which can be finalised upon the preparation of the DPR. ULB should initially call for quotations for preparation of DPR and concept plan for the park*

## 4 Financing Schemes & models

Lack of adequate finance is one of the reasons that even being technically and economically viable, many of the energy conservation or renewable energy projects / programmes do not get implemented. The financing of solar cities is quite challenging as the quantum of finance for various strategies varies from few hundred rupees to several crores of rupees. Therefore a variety of financing institutions and schemes has to be integrated to evolve a feasible financing plan.

### 4.1 Financing Options

#### 4.1.1 Grants/ finance from central government, state government and international agencies.

There are several central and state government agencies that give grants or create special funds for the purpose of providing finance for various renewable energy and energy efficiency projects. Several international lending and donor institutions such as World Bank, the Asian development bank etc have projects and funds for development of EE and RE projects.

Ministry of Urban Development could also be approached for assistance under their scheme like JNNURM for MSW and STP (Sewerage Treatment Plant) projects. ADB is lending to IREDA for an Integrated Renewable Energy Development Project which has solar roof top as one of the components. Similarly there are bilateral funding agencies like USAID, DFID etc who can finance or give grants to certain projects.

#### 4.1.2 Self financing – recovery of investment through tax or tariffs

Under this model, Nagar Nigam or DISCOM (PVVNL) can allocate funds for development of various projects under solar city programme, which can be through loans. Tax, tariff or user fee collection could be used to self finance the projects.

#### 4.1.3 Project finance

In this model, project work is awarded to private entity on a PPP route and a SPV is established which in turn enters into contract with suppliers and buyers and financial institutions lend to the SPV based on the cash flows of the project. Grid connected solar PV plants and large waste to energy projects can be put up through project financing.

#### 4.1.4 Revolving Fund

A revolving fund (RF) is usually set up to finance an explicit activity/s that is clearly defined by the holders of the fund. RF is one time investment and it can come from multiple sources, the best scenario here is to create a RF from the subsidy amount that is to be obtained. This RF will be maintained by the JNNURM cell.

#### 4.1.5 ESCO Financing

An ESCO designs, implements and finances energy efficiency and energy conservation projects on behalf of its customers on a guaranteed performance basis. The project design is such that the savings will usually be large enough to service the debt assumed to implement the measures and leave a surplus that is shared between the customer and the ESCO. An ESCo risks its payments on the performance of the measures implemented and the equipment installed. Because the payments to an ESCo are contingent upon the magnitude of the actual savings, ESCos are often called Performance Contractors. Some ESCos may even finance projects, recovering their investment from the resulting savings. In other words an ESCo is a single-window solution to all aspects of energy efficiency improvement.

A typical ESCo project includes the following elements:

- Investment grade energy audit;
- Identification of possible energy saving and efficiency improving actions;
- Comprehensive engineering and project design and specifications;
- Guarantee of the results by proper contract clauses
- Code compliance verification and guarantee;
- Procurement and installation of equipment;
- Project management and commissioning;
- Facility and equipment operation & maintenance for the contract period;
- Monitoring and verifications of the savings results; and Project financing.

A number of financing options are available for Energy Performance Contract Projects. These include:

- Bank Financing
- Direct Customer Financing
- Public Financing (bonds)
- ESCo or third party financing

No matter which option is used to finance the project, the financing of the project is ensured through two main types of contracts:

- Shared Savings, and
- Guaranteed Savings.

**Shared Savings:**

Under a shared savings structure the ESCo finances the project, usually by borrowing money from one or more third parties. This structure is much less common than the guaranteed savings structure. In the case of shared savings, the ESCo assumes not only the performance risk, but the financial risk as well (including the underlying customer credit risk). The customer assumes no financial obligation other than to pay a percentage of the actual savings to the ESCo over a specified period of time. This obligation is not considered debt and does not appear on the customer’s balance sheet. The portion of savings paid to the ESCo is always higher for shared savings than the guaranteed savings projects, reflecting the ESCo’s significantly greater risk and expense for borrowing money.



Since the ESCO is a service company, it typically has few assets that it can offer as a security to a lender. To add to this, the ESCO assumes the risk of non-performance of the measures as well as the credit risk of the customer. This makes borrowings by ESCOs expensive. As a commercial entity, the ESCO has no option but to recover this cost from its customers, and this results in higher share of the savings going to the ESCO: something not quite in the customers best interest. For this reason this model was found to be less attractive as ESCO markets matured. The Guaranteed Savings system overcomes this hurdle.

**Guaranteed Savings:**

Under a guaranteed savings structure, the customer finances the project in return for a guarantee from the ESCO that the project’s energy savings will cover the customer’s debt service. Thus, the customer assumes the obligation to repay the debt to a third party financier, which is often a commercial bank or a leasing company. If the project savings fall short of the amount needed for



debt service, the ESCO pays the difference. If the savings exceed the guarantee amount, the customer and the ESCO usually share the excess savings. The size of the share and the method of calculation vary widely, depending on the degree of risk assumed and the extent of services provided by the ESCO.

It is important to note that in a typical guaranteed savings project, the ESCO has no contractual relationship with the bank or leasing company. The ESCO's guarantee is to the customer, and is a guarantee of performance (that the project will result in enough cost savings to repay the loan assumed to finance it), not a guarantee of payment. As a consequence, the bank or leasing company confines its risk analysis to the customer's general credit standing. The financial institution may regard the performance guarantee as a form of credit enhancement.

Energy efficiency in street lighting, water pumping, and cluster based projects in industries are some of the projects that can be implemented in ESCO mode.

#### 4.1.6 Municipal /Energy Efficiency/Carbon Bonds

Issuing bonds makes the most sense when the size of the issuing agency is significant enough to attract investors for financing its ventures. Issuing bonds involves good amount of preparatory work that consist of analyzing and forecasting the projects financial resources, and launching a procedure for getting credit rating from credit agency. Here Nagar Nigam can itself or Madhya Pradesh Urja Vikas Nigam Ltd. (MPUVN) on behalf of Nagar Nigam can issue bonds with state government or IREDA. MNRE guarantee so that the bonds gets placed easily and fund inflow happens in time.

#### 4.1.7 Clean Development Mechanism

If proper documentation and procedures are followed and appropriate steps are taken as per the UNFCCC standards this would act as an excellent source of revenue

### 4.2 Implementation Strategy

#### Implementation strategy

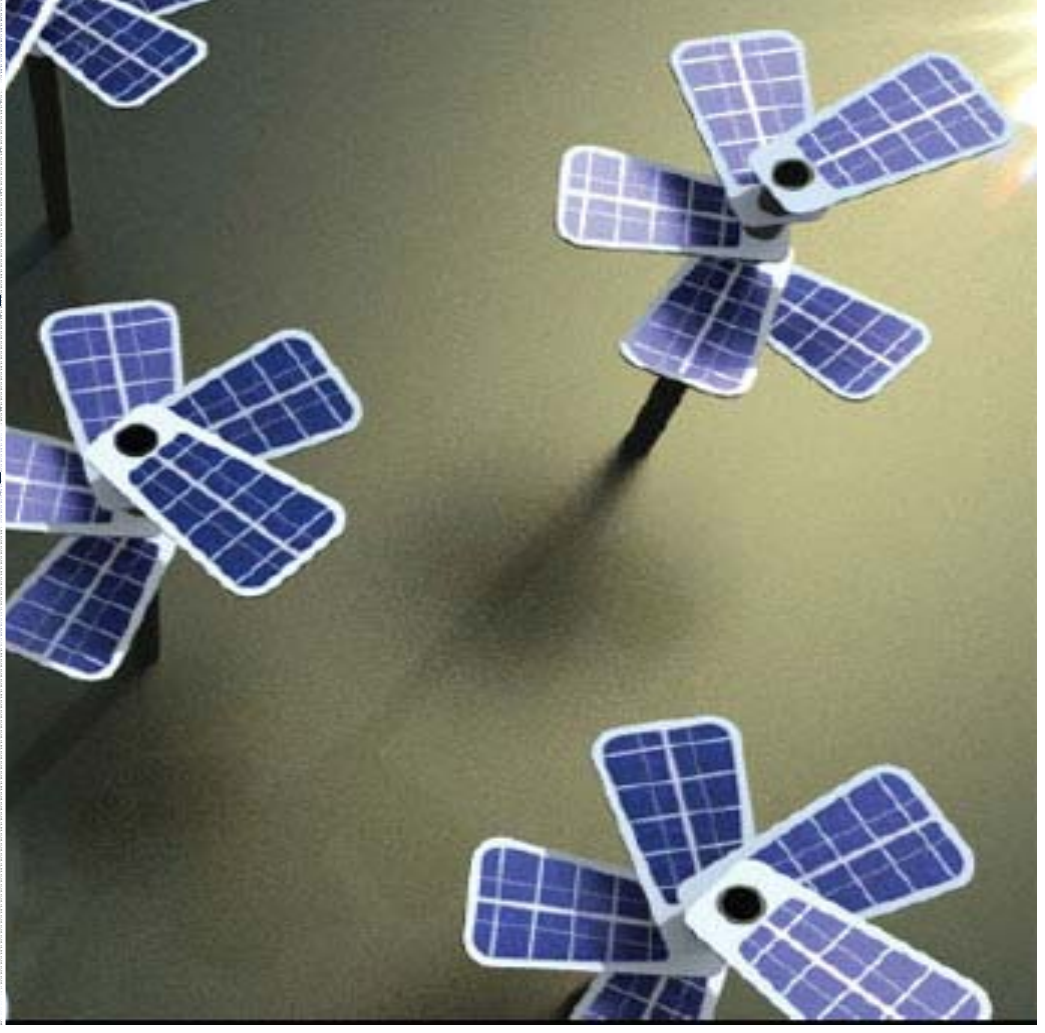
| no | Project                     | Implementing Agency                             | Responsible Stakeholder | Financing Model  |
|----|-----------------------------|---|-------------------------|--|
| 1  | Solar Water Heating Systems | Solar water heating manufacturers /distributors | ULB/ DISCOM             | IREDA Loans , MNRE Subsidy , Carbon financing, rebate on electricity bills |

| no | Project   | Implementing Agency  | Responsible Stakeholder                    | Financing Model  |
|----|---|--|--|--|
| 2  | Solar Cookers   | Solar Cooker manufacturers /distributors                       | ULB /State Nodal Agency/ Private developer | Carbon financing , MNRE Subsidy  |
| 3  | Solar Lanterns  | Solar Photovoltaic Manufacturers                               | ULB/ DISCOM/ State Nodal Agency            | Revolving fund, Carbon Financing   |
| 4  | Solar Home Lighting Systems   |  |  |  |
| 5  | Solar Hoardings   |  |  |  |
| 6  | Solar Traffic lights  |  |  |  |
| 7  | Solar Street lights   |  |  |  |
| 8  | Solar Invertors   |  |  |  |
| 9  | SPV Power Plants  | Renewable energy project developer (PPP)                       |  | Project finance, Carbon financing  |
| 10 | MSW and STP Power Plant   | Renewable energy project developer (PPP) through BOO/BOT basis |  | Project finance, Carbon financing  |
| 11 | LED/CFLs instead of incandescent bulbs  | ESCO   | ULB /DISCOM                                | Performance contract, carbon financing, rebate on electricity bills        |
| 12 | Energy efficient electrical appliances such as fans , refrigerators, air conditioners | ESCO   | ULB/ DISCOM                                | Performance contract, Bonds, carbon financing, rebate on electricity bills |
| 13 | Energy efficient water pumping systems  | ESCO   | ULB/ DISCOM                                | Performance contract, Bonds, carbon financing, rebate on electricity bills |



**Special Paper 2**

# **Energy Efficiency in Street Lighting- Ratlam**





# 1 Energy Efficiency in Street lighting systems

Municipalities are spending large amounts of their revenue on purchasing energy for providing local public services such as street lighting and water supply. Municipal energy efficiency saves scarce commodities and stretches tight budgets, giving citizens improved access to electricity, water, heat and air conditioning.

For those bearing the financial responsibility for local public services, efficiency in the provision of energy and water is one of the few cost-effective options available for meeting growing demands for vital services such as electricity, water and wastewater treatment. The budgets for these services often lack funds to invest in improvements, and public entities are looking for ways to finance energy efficiency projects.

The major energy loads in any are typically the water pumping systems, street lighting, sewage treatment and handling, and electricity distribution. Municipal buildings such as offices, hospitals, schools also contribute to the high municipal energy bills. Therefore, the following systems are those most commonly addressed by a municipal energy efficiency audit:

- Street lighting
- Water Pumping
- Sewage pumping
- Electrical distribution
- Municipal Buildings

This paper focuses on Energy efficiency strategies for Ratlam Municipal Corporation.

## 1.1 Street lighting in Ratlam Municipal Corporation

Ratlam has 7575 street lights positioned all over the municipal areas out of which 299 street lights are in not in working position. Total connected load from all the heavy and light bulb street lights is 1442 KW.

**Connected load details.**

|                                 |       |     |
|---------------------------------|-------|-----|
| <b>40 W Tube Lights</b>         |       |     |
| Number of lamps                 | 1712  | nos |
| Wattage of each lamp            | 40    | W   |
| Total Connected Load            | 68480 | W   |
| <b>250 W Sodium Vapor Lamps</b> |       |     |
| Number of Lamps                 | 3955  | nos |
| Wattage of each Lamp            | 250   | W   |
| Wattage of Ballast              | 30    | W   |
| Total Wattage of 1 lamp         | 280   | W   |

|                                      |                 |            |
|--------------------------------------|-----------------|------------|
| Total Load                           | 1107400         | W          |
| <b>150 W Sodium Vapor Lamps</b>      |                 |            |
| Number of Lamps                      | 174             | nos        |
| Wattage of each Lamp                 | 150             | W          |
| Wattage of Ballast                   | 30              | W          |
| Total Wattage of 1 lamp              | 180             | W          |
| Total Load                           | 31320           | W          |
| <b>70 W Sodium Vapor Lamps</b>       |                 |            |
| Number of Lamps                      | 549             | nos        |
| Wattage of each Lamp                 | 70              | W          |
| Wattage of Ballast                   | 30              | W          |
| Total wattage of 1 lamp              | 100             | W          |
| Total Load                           | 54900           |            |
| <b>250 W Metal light fitting</b>     |                 |            |
| Number of Lamps                      | 424             | nos        |
| Wattage of each Lamp                 | 250             | W          |
| Wattage of Ballast                   | 30              | W          |
| Total wattage of 1 lamp              | 280             | W          |
| Total Load                           | 118720          |            |
| <b>125 W vapour light fitting</b>    |                 |            |
| Number of lamps                      | 43              | nos        |
| Wattage of each Lamp                 | 125             | W          |
| Wattage of Ballast                   | 30              | W          |
| Total wattage of 1 lamp              | 155             | W          |
| Total Load                           | 6665            | W          |
| <b>85 W CFL fitting</b>              |                 |            |
| Number of lamps                      | 27              | nos        |
| Wattage of each Lamp                 | 85              | W          |
| Total Load                           | 2295            | W          |
| <b>72 W CFL fitting</b>              |                 |            |
| Number of lamps                      | 681             | nos        |
| Wattage of each Lamp                 | 72              | W          |
| Total Load                           | 49032           | W          |
| <b>250 W High mast fitting</b>       |                 | nos        |
| Number of lamps                      | 5               | nos        |
| Wattage of each Lamp                 | 250             | W          |
| Total Load                           | 1250            | W          |
| <b>400 W Metal light fitting</b>     |                 | nos        |
| Number of lamps                      | 5               | nos        |
| wattage of each lamp                 | 400             | W          |
| Total Load                           | 2000            | W          |
| <b>total number of street lights</b> | <b>7575</b>     | nos        |
| <b>Failed street lights</b>          | <b>299</b>      | nos        |
| <b>total working street lights</b>   | <b>7276</b>     | <b>nos</b> |
| <b>Total Connected Load</b>          | <b>1442062</b>  | W          |
|                                      | <b>1442.062</b> | KW         |

Source: Department of street lights, Ratlam Municipal Corporation

## 1.2 Energy Efficiency Initiative

As a part of energy saving initiative Ratlam Municipal Corporation has taken some efforts by providing the CFL tubes for street lighting purpose of different wattages. There are 706 nos of CFL tube lights out of which 681 nos are 72 watt CFL and 25 nos are of 85 watt CFL.

Increasing energy efficiency will assist the ULB's and municipalities in expanding infrastructure and improving services for public (especially in context of energy price increases), and shift activities to more sustainable directions. It generates environmental benefits through reduced emissions of greenhouse gases and local air pollutants. It also stimulates new services, creating value and local jobs. Improving energy efficiency both by reducing quantities of energy consumed and by changing processes, offers a powerful tool for achieving sustainable development by reducing the need for investment in energy infrastructure and by cutting fuel costs.

### Recommendations for Replacement of Street Lights

#### a. Replacement of 1712 nos of 40 W Tube light with 8W LED lights or 28 W T5 lights

The table below shows the investment analysis and payback for replacing the 1712 nos 40 W tube lights

**Investment analysis and payback (40 W tube lights)**

| SN | Type of Fixture          | Calculation            | Unit                     | Tubelight<br>40 W | LED 8 W   | T5 28W    |
|----|--------------------------|------------------------|--------------------------|-------------------|-----------|-----------|
|    |                          |                        |                          | [A]               | [B]       | [C]       |
| 1  | Working Hours/Day        | -                      | Hrs/ Day/<br>Fixture     | 10                | 10        | 10        |
| 2  | Power Consumption        | -                      | KW/ Day/<br>Fixture      | 0.4               | 0.08      | 0.28      |
| 3  | Annual Power Consumption | [2] x 365              | KW/<br>Annum/<br>Fixture | 146               | 29.2      | 102.2     |
| 4  | Power Saving             | [A]-[B], [A]-<br>[C]   | KW/<br>Annum/<br>Fixture | 0                 | 116.8     | 43.8      |
| 5  | Total Nos of Fixtures    |                        | Nos                      | 1712              | 1712      | 1712      |
| 6  | Total Power Saving       | [4] x [5]              | KW/<br>Annum             | 0                 | 199961.6  | 74985.6   |
| 7  | Monetary Saving          | 3.10x [6]              | Rs/<br>Annum             | 0                 | 619880.96 | 232455.36 |
| 8  | Life of Lamp             | -                      | Years                    | 2.2               | 12        | 5         |
| 9  | Cost of Lamp             | -                      | Rs/lamp                  | 0                 | -         |           |
| 10 | Replacement Cost         | [5] x [9] x<br>12/ [8] | Rs/12 Yrs                | 0                 |           |           |
| 11 | Cost of Fixture          | -                      | Rs/Fixture               | 1500              | 4500      | 3000      |
| 12 | Total Cost of Fixtures   | [5] x [11]             | Rs                       | 2568000           | 7704000   | 5136000   |
| 13 | Maintenance Cost         | -                      | %                        | 10                | 0.5       | 0.5       |

| SN | Type of Fixture                     | Calculation              | Unit      | Tubelight<br>40 W | LED 8 W   | T5 28W    |
|----|-------------------------------------|--------------------------|-----------|-------------------|-----------|-----------|
| 14 | Total Maintenance Cost              | $[12] \times [13] / 100$ | Rs/12 Yrs | 256800            | 38520     | 25680     |
| 15 | Maintenance Cost                    | $[14]/12$                | Rs/Yr     | 21400             | 3210      | 2140      |
| 16 | Salvage Value of HPSV Fixture @ 50% | $[12A] \times 0.5$       | Rs        | -                 | 0         |           |
| 17 | Net Investment                      | $[10] + [12] - [16]$     | Rs        | 2568000           | 7707210   | 5136000   |
| 18 | Net Saving                          | $[7] - [15]$             | Rs/Annum  | -                 | 616670.96 | 230315.36 |
| 19 | Payback Period                      | $12 \times [17] / [18]$  | Month     | -                 | 149.98    | 267.60    |

**b. Replacement of 174 Nos 150 W High Pressure Sodium Vapor with 55 W LED lights**

The table below shows the investment analysis and payback for replacing the 174 nos 150 W HPSV lamps.

**Investment analysis and payback (150 W HPSV lamps)**

| SN | Type of Fixture                     | Calculation                      | Unit                     | HPSV (150) | LED(55)    |
|----|-------------------------------------|----------------------------------|--------------------------|------------|------------|
|    |                                     |                                  |                          | <b>[A]</b> | <b>[B]</b> |
| 1  | Working Hours/Day                   | -                                | Hrs/ Day/<br>Fixture     | 12         | 12         |
| 2  | Power Consumption                   | -                                | KW/ Day/<br>Fixture      | 1.8        | 0.66       |
| 3  | Annual Power Consumption            | $[2] \times 365$                 | KW/<br>Annum/<br>Fixture | 657        | 240.9      |
| 4  | Power Saving                        | $[A]-[B], [A]-[C]$               | KW/<br>Annum/<br>Fixture | 0          | 416.1      |
| 5  | Total Nos of Fixtures               |                                  | Nos                      | 174        | 174        |
| 6  | Total Power Saving                  | $[4] \times [5]$                 | KW/<br>Annum             | 0          | 72401.4    |
| 7  | Monetary Saving                     | $2.75 \times [6]$                | Rs/<br>Annum             | 0          | 199103.85  |
| 8  | Life of Lamp                        | -                                | Years                    | 2.2        | 12         |
| 9  | Cost of Lamp                        | -                                | Rs/lamp                  | 0          | -          |
| 10 | Replacement Cost                    | $[5] \times [9] \times 12 / [8]$ | Rs/12 Yrs                | 0          |            |
| 11 | Cost of Fixture                     | -                                | Rs/Fixture               | 6000       | 15000      |
| 5  | Total Cost of Fixtures              | $[5] \times [11]$                | Rs                       | 1044000    | 2610000    |
| 13 | Maintenance Cost                    | -                                | %                        | 10         | 0.5        |
| 14 | Total Maintenance Cost              | $[12] \times [13] / 100$         | Rs/12 Yrs                | 104400     | 13050      |
| 15 | Maintenance Cost                    | $[14]/12$                        | Rs/Yr                    | 8700       | 1087.5     |
| 16 | Salvage Value of HPSV Fixture @ 50% | $[12A] \times 0.5$               | Rs                       | -          | 0          |

| SN | Type of Fixture | Calculation        | Unit     | HPSV (150) | LED(55)   |
|----|-----------------|--------------------|----------|------------|-----------|
| 17 | Net Investment  | [10] + [12] – [16] | Rs       | 1044000    | 2611087.5 |
| 18 | Net Saving      | [7] - [15]         | Rs/Annum | -          | 198016.35 |
| 19 | Payback Period  | 12 x [17]/ [18]    | Month    | -          | 158.23    |

Source: Analysis by consultants

**c. Replacement of 3995 Nos of 250 W High Pressure Sodium Vapor with 130 W LED lights**

The table below shows the investment analysis and payback for replacing the 3995 nos 250 W HPSV lamps.

**Table 0-1: Investment analysis and payback (250 W HPSV lamps)**

| Sr. no | Type of Fixture                     | Calculation            | Unit                   | HPSV(250)   | LED(130)        |
|--------|-------------------------------------|------------------------|------------------------|-------------|-----------------|
|        |                                     |                        |                        | [A]         | [B]             |
| 1      | Working Hours/Day                   | -                      | Hrs/ Day/<br>Fixture   | 12          | 12              |
| 2      | Power Consumption                   | -                      | KW/ Day/<br>Fixture    | 3           | 1.56            |
| 3      | Annual Power Consumption            | [2] x 365              | KW/ Annum<br>/ Fixture | 1095        | 569.4           |
| 4      | Power Saving                        | [A]-[B], [A]-<br>[C]   | KW/ Annum<br>/ Fixture | 0           | 525.6           |
| 5      | Total Nos of Fixtures               |                        | Nos                    | 3995        | 3995            |
| 6      | Total Power Saving                  | [4] x [5]              | KW/Annum               | 0           | 2099772         |
| 7      | Monetary Saving                     | 2.75x [6]              | Rs/Annum               | 0           | 5774373         |
| 8      | Life of Lamp                        | -                      | Years                  | 2.2         | 12              |
| 9      | Cost of Lamp                        | -                      | Rs/lamp                | 550         | -               |
| 10     | Replacement Cost                    | [5] x [9] x 12/<br>[8] | Rs/12 Yrs              | 11985000    |                 |
| 11     | Cost of Fixture                     | -                      | Rs/Fixture             | 8000        | 32000           |
| 5      | Total Cost of Fixtures              | [5] x [11]             | Rs                     | 31960000    | 12784000<br>0   |
| 13     | Maintenance Cost                    | -                      | %                      | 10          | 0.5             |
| 14     | Total Maintenance Cost              | [12] x [13]/<br>100    | Rs/12 Yrs              | 3196000     | 639200          |
| 15     | Maintenance Cost                    | [14]/12                | Rs/Yr                  | 266333.3333 | 53266.6         |
| 16     | Salvage Value of HPSV Fixture @ 50% | [12A] x 0.5            | Rs                     | -           | 15980000        |
| 17     | Net Investment                      | [10] + [12] –<br>[16]  | Rs                     | 43945000    | 11191326<br>6.7 |
| 18     | Net Saving                          | [7] - [15]             | Rs/Annum               | -           | 5721106         |
| 19     | Payback Period                      | 12 x [17]/<br>[18]     | Month                  | -           | 234.7           |

Source: Analysis by consultants

From the above recommendations we can achieve a total savings of around 2475533 KW per annum and monetary savings of Rs 68, 77, 704 per annum.

## 2 ESCO in street lighting

An Energy Service Company (ESCO) is a business company that develops, installs and finances Projects designed to improve energy efficiency and reduce the maintenance costs for facilities for a period of time. ESCO generally acts as a Project Development Company for a wide range of tasks and assumes the technical and performance risk associated with the Project. Typically, they offer the following services

- Develops, design and finance energy efficiency projects.
- Install and maintain the energy efficient equipment.
- Assume that the project will save the amount of energy guaranteed.

These services are included in the Project's cost and are to be met from the savings generated.

The main features of the project besides saving of energy include installation of a central computerized control room through which operation of control boxes can be done remotely and the information of switched off lights, energy readings of different central boxes can be known.

### Case example: Vijayawada Municipal Corporation

The VMC is presently spending nearly Rs 60 lakhs annually towards maintenance of street lighting. VMC floated open bids for implementation of energy saving project for Municipal Street Lighting, by inviting ESCO operators, with a contract period of 5 years in January, 2006. This Operation & Maintenance contract invited experienced and qualified bidders to run the street lighting network in the entire City.

In response to the tender, bids were received from five firms of which only two qualified in the technical bid. Out of the above firms, the successful bidder quoted for 41.5% saving of energy and out of it, the firm offered to take 92.7% as their share towards cost of installations and maintenance of street lighting and to transfer 7.3% to VMC. The successful bidder quoted the following conditions

| Description   |                        |
|---|------------------------|
| Expected Energy Savings   | 41.50%                 |
| Percentage share of savings to ESCO on energy units saved   | <b>92.70%</b>          |
| Percentage share of savings to customer (VMC) on energy units saved                                 | <b>7.30%</b>           |
| Percentage share of VMC in terms of percentage of total current consumption [(1) x B]               | <b>3.03%</b>           |
| For maintenance of street lighting including labour and materials (to be paid to the bidder by VMC) | <b>No extra amount</b> |

**Contract Economics**

During the contract period, the VMC will get Rs.12.00 lakhs per annum as its share in savings and also save Rs.53.00 lakhs in maintenance per annum. Therefore every year, the VMC would get a saving of Rs. 65.00 lakhs per annum. During the five year contract period, the VMC will save Rs.3.25 cores. In addition, after the contract period, VMC will be left with the energy saving equipment worth Rs. 3.00 crores. At the end of 5 years, VMC will get total benefit of Rs. 6.25 crores. Further, after the contract period, the VMC will get annual saving of Rs.170 lakhs in current charges for street lighting. Besides, for savings over and above the assured 42.7%, the VMC will get 75% share and the ESCO will get the remaining 25%.



Special Paper 3

# Community Policing Ratlam



# Community Policing

# 1 Community policing for Ratlam

## 1.1 Introduction

*"Community Policing is understood as Policing with the help of Community."*

Community Policing is a collaborative effort between Police and Community to identify problems of crime, disorder and involves all elements of the community in the search for solutions to these problems. This concept brings the police and community into a closer working relationship and calls for greater responsibility on citizens.

Community policing includes the following:

- Maintenance of order and peace
- Security, safety of the people and property
- Ensure effective enforcement of law
- Detection of crimes
- Orderly flow of traffic in urban areas and in highways and lot more

Thus discussing the objective of Police in relevance to community reveals to concept of community policing which ideally is:

*"Policing, as far as possible and practicable, by the community itself which means that any or all the functions mentioned above may be performed by the community to the extent they can and the remaining functions to be performed by the police with the assistance and involvement of the community to the maximum extent possible."*

The concept of Community Policing started from village Kotwal, where a person from the community performs the functions of the police in the village. Home-guards were another form of community policing. Even this has now become more a part of police force than of the community.

Civil defence / emergency relief plan developed primarily on involvements and participation of the people in performing the safety, security, relief, and crisis management functions of the police during emergency. But now the idea needs a broader vision, more and regular involvement of Citizens and Police itself.

Few examples of Community Policing are:

- Informal arrangements of night watchman, patrolling an area and obtaining remuneration from the house-holds of the area, is another form of community policing at the initiative of the watch-man but with the willing acceptance of the neighbourhood.

- Security arrangements in housing complexes and housing societies, security arrangements in factories and large establishments are another form of community policing.
- Institutions like Peace committees activated during period when there is serious apprehension / threat of breakdown of law and order.
- Civil defence plans / emergency relief plans during riots or wide spread breakdown of law and order.
- The concepts of rural policing by community (Kotwal),
- Trained people in the community to perform the functions of the police when required (home-guards)
- Identified Sector Wardens, Chief wardens etc (under civil defence / emergency relief plan), Special police officers, Honorary Magistrates and involvement of people in trail of offences.

Thus, citizens can form groups within the society or the area they live or work. Such social group can enroll themselves with the Police and work hand in hand with Police to solve problems, minimize disorders in the society and thus achieve the very objective of Community Policing.

## 1.2 Evolution

The evolution of police in India over the years, has been guided by the compulsions and needs of the dominant ruling class, may it be a Maurya or Gupta king, a Moghul Monarch, the British running a colonial system to achieve their ends of occupation or even, sadly, so, in our present day democratic arrangement. We must well understand that the Police have been the principle medium through which the dominant classes have sought to perpetuate their hold on power and authority by means fair or foul. Thus, making the Police an instrument of oppression and giving it the image of a rough and ready ruler friendly organization rather than that of an agency, which is impartial and neutral and which objectively enforces the rule of law.

Ironically, in our country's post independent history too any move to change the basic framework, which even remotely lead to the lessening of control over the Police has been resisted wholeheartedly by the powers that be. In over half a century of independence many commissions were set up and recommendations received without much has been done to let the Police come out its negative image.

Even today Police continue to be inextricably enmeshed in and unable to come to terms with contemporary social reality and increasingly becoming alien and painfully irrelevant in the current Indian situation. The crying need to move from a negative to positive image is always present in the police's minds. The society too - informally - wants these most manifest arms of governance to become more people friendly and compassionate - like the British "Bobby" - may be. Having known the Police only as a repressive corrupt and aggressive agency, the society had to be the first to get involved in the processes, which the Police executed. It was also felt that such efforts would essentially and actively have to come from the Police itself.

This was the guiding force for us in Madhya Pradesh to launch ourselves into the entire gamut of Police - Community relations. Though informally efforts in this direction had been made at different levels earlier but a concerted deliberate and formal effort was launched in 1995 at Indore. These initiatives were also emulated by other districts and are getting accepted as an effective mode of improving Police - Community Relations.

### 1.3 Initiatives in past for Madhya Pradesh

The concept of village Defence Society involving people in Community policing was first introduced in 1956 in M.P. in the infested areas with the express purpose of enlisting the corporation of the villages in the fight against the dreaded dacoits. At the outset such defence societies were first established in Gwalior, Bhind and Morena districts. Subsequently this was extended to Shivpuri, Datia, Guna, Rewa, and Sagar districts as well.

Madhya Pradesh Government, appointed one Chief Organizer, 17 Tehsil Organizer, along with supporting staff for the purpose. These societies creative work proved very useful to the Police Department over the year. In the 90s the government was again seized of the matter and as a result the "Madhya Pradesh Gram Tatha Nagar Raksha Samiti Vidheyak 1999" was enacted in the legislature. It sought to establish the village defence societies as well as the City defence societies in the remaining parts of the State also.

Superintendent of Police of the districts are primarily responsible for the constitution and smooth functioning of these Gram Raksha and Nagar Raksha Samities. The task of constituting these societies got a major fill following the passage of the Bill. The number of such societies spread over the 41 districts of the State and the total number of members of society is as follows:

| Sr. No. | Society                 | No. of Societies | No. of Members  |
|---------|-------------------------|------------------|-----------------|
| 1       | Village Defence Society | 33,804           | 3,17,140        |
| 2       | City Defence Society    | 3, 896           | 46,014          |
|         | <b>Total</b>            | <b>37,770</b>    | <b>3,63,154</b> |

#### Range wise details of Gram / Nagar Raksha Samities and Members

| S.No.              | Range / Distt. | No. of Samities | No. of Members      |                    |                     |
|--------------------|----------------|-----------------|---------------------|--------------------|---------------------|
|                    |                |                 | Nagar Raksha Samiti | Gram Raksha Samiti | Nagar Raksha Samiti |
| <b>Sagar Range</b> |                |                 |                     |                    |                     |
| 1                  | Sagar          | 1066            | 134                 | 1045               | 1286                |
| 2                  | Panna          | 852             | 40                  | 6211               | 356                 |
| 3                  | Damoh          | 695             | 63                  | 7082               | 688                 |
| 4                  | Chhatarpur     | 917             | 160                 | 13505              | 2069                |
| 5                  | Tikamgarh      | 596             | 137                 | 9453               | 1550                |
| <b>Rewa Range</b>  |                |                 |                     |                    |                     |
| 1                  | Rewa           | 773             | 61                  | 7521               | 785                 |
| 2                  | Satna          | 9               | 8                   | 232                | 266                 |
| 3                  | Sidhi          | 524             | 15                  | 10479              | 380                 |

|                          |             |      |     |       |      |
|--------------------------|-------------|------|-----|-------|------|
| 4                        | Shahdol     | 684  | 126 | 4693  | 1071 |
| 5                        | Umariya     | 181  | 33  | 1445  | 177  |
| <b>Bhopal Range</b>      |             |      |     |       |      |
| 1                        | Bhopal      | 448  | 172 | 3720  | 2322 |
| 2                        | Sehore      | 972  | 40  | 8905  | 607  |
| 3                        | Raigrarh    | 912  | 92  | 10563 | 1281 |
| 4                        | Vidisha     | 1400 | 75  | 10273 | 971  |
| <b>Hoshangabad Range</b> |             |      |     |       |      |
| 1                        | Hoshangabad | 610  | 75  | 6675  | 765  |
| 2                        | Raisen      | 1430 | 136 | 6800  | 897  |
| 3                        | Betul       | 603  | 58  | 3905  | 437  |
| 4                        | Harda       | 399  | 21  | 3593  | 409  |
| <b>Gwalior Range</b>     |             |      |     |       |      |
| 1                        | Gwalior     | 455  | 92  | 6102  | 1877 |
| 2                        | Shivpuri    | 1122 | 156 | 14763 | 1596 |
| 3                        | Guna        | 775  | 11  | 6932  | 469  |
| <b>Chambal Range</b>     |             |      |     |       |      |
| 1                        | Morena      | 550  | 75  | 6513  | 1534 |
| 2                        | Bhind       | 951  | 91  | 9710  | 1296 |
| 3                        | Datia       | 448  | 55  | 5360  | 1081 |
| 4                        | Sheopur     | 163  | 34  | 2260  | 350  |
| <b>Indore Range</b>      |             |      |     |       |      |
| 1                        | Indore      | 578  | 24  | 4755  | 3701 |
| 2                        | Dhar        | 1038 | 80  | 11872 | 718  |
| 3                        | Jhabua      | 1161 | 756 | 5805  | 6575 |
| 4                        | Khargone    | 734  | 94  | 6795  | 617  |
| 5                        | Khandwa     | 910  | 95  | 9072  | 1102 |
| 6                        | Badwani     | 447  | 19  | 3164  | 278  |
| <b>Ujjain Range</b>      |             |      |     |       |      |
| 1                        | Ujjain      | 1084 | 167 | 10931 | 1917 |
| 2                        | Mandsaur    | 923  | 31  | 10157 | 637  |
| 3                        | Ratlam      | 873  | 83  | 6147  | 805  |
| 4                        | Dewas       | 557  | 53  | 3564  | 357  |
| 5                        | Shajapur    | 1085 | 94  | 12337 | 1063 |
| 6                        | Neemuch     | 580  | 49  | 5592  | 552  |
| <b>Jabalpur Range</b>    |             |      |     |       |      |
| 1                        | Jabalpur    | 1050 | -   | 6959  | -    |
| 2                        | Chhindwara  | 1635 | 111 | 14094 | 1277 |
| 3                        | Seoni       | 694  | 25  | 5289  | 256  |
| 4                        | Narsinghpur | 704  | 79  | 4158  | 513  |
| 5                        | Katni       | 473  | 117 | 2861  | 120  |
| <b>Balaghat Range</b>    |             |      |     |       |      |
| 1                        | Balaghat    | 758  | 45  | 5645  | 454  |
| 2                        | Mandla      | 521  | 6   | 3838  | 145  |
| 3                        | Dindori     | 464  | 8   | 7365  | 507  |

These societies have the primary responsibility in their respective villages of protection of people and their property as well as maintenance of peace and harmony. Since the villagers who become the members of the societies are ignorant of their duties as well as the methods they are supposed to employ in carrying out these duties, efforts are a foot to organize training camps for them. Proposals have been sent to the Government for allocation of funds to meet the requirement of such training camps. A six day training schedule is considered useful which will entail an expenditure of nearly of Rs. 30 crores. To begin with

the Naxalite infested districts of Balaghat, Mandla and Dindori have been earmarked for such training at an estimated cost of Rs. 1.2 crores in the first phase.

The State Government is also considering a proposal to arm the members of the societies so as to enable the members to discharge their duties in a determined manner. The members would be entitled to use weapons as long as their membership lasts. In the meantime the district police authorities have been advised to help the eligible and willing members obtain valid arms licences.

Efforts are being made to form such Gram Raksha Samities in every village of the state and impart training to the members. Meetings at various levels are also being organized to sensitize the members towards the role they are expected to play in maintenance of Law and Order in their respective jurisdiction.

For six days training camp the following statistics and expenses are proposed for members of the committee:

| S. No. | Training Days | Expenses per head per day | Total no. of members | Total Expenses     |
|--------|---------------|---------------------------|----------------------|--------------------|
| 1      | 1             | Rs. 150 /-                | 3, 23, 145           | 4, 84, 71, 750.00  |
| 2      | 6             | Rs. 150 /-                | 3, 23, 145           | 29, 08, 30, 500.00 |

To avail the weapons for the members of committee an amendment in the Vidheyak is required, although they can keep weapons with them during the period of their membership. Proposal is also made to purchase weapons by members, which are captured by police, if members have an arms act license.

Before passing of "Madhya Pradesh Village and City Community Policing Vidheyak 1999", in 1956, the ranked officer, governing officers which are authenticated by Government in Gwalior, Chambal, Sagar and Rewa Districts are proposed to incorporate as a unit in Police Department. On every police station level, attempts are made to cent-percent establish the Village Protection Committee. Efforts are also made to give training on police station level to all members. Summits are also organized in districts for activation of the Mission. Expectations are there from the government to pay some money to members and providing them with weapons license and budget allocation for training and make appropriate changes in the Vidheyak for this purpose.

#### 1.4 Advisory Committee at district level

There will be an advisory committee to assist and advise the Superintendent of Police.

- All important sections of the Society may find representations in the committee.
- Women and deprived communities should have proportionate representation.
- Representation of the 3 tier panchayat and urban bodies in the district may also be included.

- Good voluntary agencies engaged in the areas of assertion of human rights, women development, SC and ST development may also be associated.
- The advisory committee should meet once in a month.

It may suggest -:

- Steps for community involvement in police functions.
- Assist in implementing such suggested measures.
- Monitor implementations of these measures.
- Assist in redressal in people's grievances.
- Review the law and order situation in the district.
- Review the progress in investigation, detection of crimes and the pace in the prosecution.

## 1.5 Community policing schemes in MP

The initiative undertaken by the Police in Madhya Pradesh are as follows:

### **Parivar Paramarsh Kendra (Family Counseling Centers)**

Launched on 10th October 1995. Aimed at alleviating the suffering of women in the family setup in our society.

This effort has positively galvanized the functioning of the Police department hitherto not known to or associated with positive humanitarian endeavor. In Indore 9 centers are working to save the families from disintegrating. These centers are run by the active support and cooperation of volunteers from society, these include social workers, lawyers, medical professional's etc. Out of the 2909 complains received at these centers 2364 have resulted in settlement after counseling, a success rate of 81.26%. In cases where legal aid was required female lawyers associated with this effort provide this aid free.

### **Nagar Suraksha Samiti (Town Defense Committee)** Launched in Jan.1996

Originally aimed at creating a group of right thinking citizens without any criminal record or known political affiliations, this effort has acquired dimensions, which were not originally thought of. Apart from assisting the police in doing its normal duties like managing major processions, generating awareness about police working, assisting in management of traffic. These centers have proceeded beyond the original charter and organized social work such as blood donation/grouping/HIV testing, tree plantations, cleanliness drive etc. This has helped in improving Police-Community relations and insured coordination. There is a great enthusiasm amongst the citizens to join the societies.

### **De-Addiction Camp** Launched in 1995

Although the State Govt. had formally set up a De-addiction Committee in the year 1989. This committee in its real sense started functioning effectively for the last four years, as a part of Police initiatives to organize De-addiction camps. For these camps services of three government doctors and one private practitioner



were hired. Each camp was of 45 days duration. Initially Detoxification was done for the first two weeks and thereafter for one month duration the edicts of Brown Sugar were treated through psychological and psychiatrics therapy. Yoga was used as a mode to make these addicts more positive in their mind. The family members, after counseling were requested to behave normally with the patients. These services were rendered free of cost. N.S.S.(National Social Service) volunteers were engaged to follow up the cured addicts. An effort is also being made to provide training and loans where possible, to the cured persons for their rehabilitation. More than 150 persons in Six camps were treated and they are now leading normal life.

### **Gram Suraksha Samiti (Village Defense Committee)**

There are 28875 member are working in a total 3525 Village Defense Committees. Patrolling local law and order maintenance during festivals and various other works of village improvement are being carried out through these members. Apart from the above Police has also carried out work of adult education and literacy expansion through these Committees.

For example, Road construction / repair work in Shajapur District was done through voluntary labor contribution. 320 villages in 16 police stations areas connected with main roads. Work of road leveling, repair of drainage systems and reconstruction of damaged roads was carried out through voluntary labor contribution of Police and village defense committees.

### **Mobile Police Thana Launched in October 1996**

This is a novel initiative towards providing social justice to villagers. Under these initiative officers of police station camp at a fixed place, date and time. Officers of revenue and forest department are also requested to be present depending on the need. These meetings are held to dispose off the minor incidents or problems of the village. 353 villages have benefited by this scheme.

### **Bal Mitra Scheme Launched in October 1997**

Under this scheme, school students of different age group are brought to Police Stations to acquaint them with the working of the Police station and give them the opportunity to interact with Police Officers. This is done with the help of the school administration. Besides the opportunity to exchange views with Policemen, this effort helps allay the fear of about the Police from the minds of these children. Thus their negative views and fears about the Police change favorably.

## **1.6 Community involvement**

### **Rural Areas**

- Village youth to be selected by the community for training to perform police functions within the village.
- Number of persons should be passed on same norms, say one persons per hamlet or one persons per 100 households.

- They should consist of women and person belonging to deprived groups because:
  - Traditionally kotwals came from deprived communities.
  - More importantly, community police largely consisting of the women and deprived classes and communities would lead to more balanced powersharing by counter veiling the money and power influences of social status in the village community.
- Persons selected to be such as are most likely to live in the villages.
- Educational qualification may be flexible.
- All should be provided through training for the police functions required to be discharged in the rural context.
- Women to be trained initially separately with an arrangement for joint-training for some time towards the end of the training programs.
- Village police should be under the control of Gram Sabha.
- It should perform the following functions:
  - Maintenance of order, peace and tranquility in the village.
  - Prevention of crime by appropriate watch and ward duty, keeping eye on the visit, movement and conduct of outsiders/ strangers.
  - Investigation and detection of minor crimes, to be defined as those that are compoundable or as can be further made compoundable by appropriate amendments of laws.
  - Prosecution of these cases in the Gramsabha/ Gram Nyayalaya.
  - Maintenance of order and smooth flow of traffic during special social, religious congregation like fairs.
- An arrangement of net-working amongst a cluster of villages so that a village in the time of special need may call upon community police of other village to assist.
- Community women police, in addition to be usual responsibility may also be entrusted with the task of acting during domestic violence and atrocities on women.

### **Urban Areas**

Similar approach may be adopted for urban areas with the difference that :

- There may be higher qualifications for the trainees.
- Wards and neighborhoods may be put in place.
- Instead of the Gramsabha, Wardsabha may supervise the work of community police.
- A system of registration of private security agencies operating in housing complexes factories and major establishments may be put in place.
- Closer interaction of the police station with the community police may be organized because of proximity and easy accessibility.

- Advisory Committee at the police station may have representatives of community police system in the wards under the jurisdiction of the urban police station.

**Police Stations**

- An advisory committee should be constituted for a police station.
- It should have proportionate representation from women and deprived communities.
- Representatives of the 3 tier panchayat and local urban bodies in the area should also be included.
- Voluntary agencies of high reputation may also be included.
- There should be no educational qualifications but preference may be given to educated/ enlightened citizens.
- Advisory committee should meet at least once in a month.
- Where there is a major crime or break-down of law and order it should meet as early as possible to take stock of the situation.
- The committee should review the function of the police during the month, look into grievances and complaints given by the citizens, make arrangement for their expeditions redressal satisfactory to the citizens, monitor the progress in investigations of crimes and in presenting challans.
- Approve, sending of final reports advise for further investigations.
- Approve putting off challans.
- Recommend the appointment of special police officers for areas and periods to be specified.

**Nomination to Advisory Committee**

- Nominations to Advisory Committee should not be treated as a matter patronage.
- Nominations should be non-partisan and for the purpose of making police pro-people and to establish be close community police interaction.
- The mechanism of nomination should involve consultation and consent of the ruling as well as opposition groups.





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