

## VI DEVELOPING PHYSICAL INFRASTRUCTURE

In order to improve the quality of life of its citizens, Vision 2010 lays considerable stress on improving the current rate of economic growth in the State. Achieving and sustaining the increased rate of growth would to a very large extent depend upon the ability of the State to attract large investments to the State. However, attracting investment is critically dependent upon the availability of adequate physical infrastructure.

The State also realises that development of adequate infrastructure would possibly be the single most important determinant and challenge the State faces in achieving Vision 2010. The State would therefore put considerable stress and efforts in improving the current stock of infrastructure in the State.

Besides, contributing to the growth of all other sectors of the economy, development of infrastructure would by itself contribute significantly to the economic growth of the State, as construction activities are likely to provide large-scale employment and create a market for the core industries.

Recognising the need for developing physical infrastructure, the State has created Chhattisgarh Infrastructure Development Corporation (CIDC).

CIDC has been created with an authorised share capital of Rs.1000 million, with an initial equity allocation of Rs.100 million. The corporation, chaired by the Chief Minister has been created with the mandate and objective to:

- Promote and catalyse infrastructure development in the State
- Be the prime consultant to the State government in matters related to infrastructure development
- Commercialise projects with Public-Private-Partnership

In order to meet the above objective, CIDC would:

- Focus on and prioritise critical infrastructure needs of the State
- Facilitate private sector participation in terms of ensuring "least cost of development to the government"
- Ensure speed in the decision making and implementation process - by undertaking initial project preparation, encouraging growth of the 'developer & operator' market, clarifying issues with regard to the policy and regulatory framework, etc.
- Undertake demonstration projects on commercially viable formats
- Co-ordinate the efforts of State government departments in their interactions with the private sector

In line with its mandate, CIDC has already identified over two dozen infrastructure projects that it plans to develop in private – public partnership. It has also undertaken a

**Recognising the need of developing infrastructure, including industrial infrastructure the government has created Chhattisgarh Infrastructure Development Corporation and Chhattisgarh State Industrial Development Corporation**

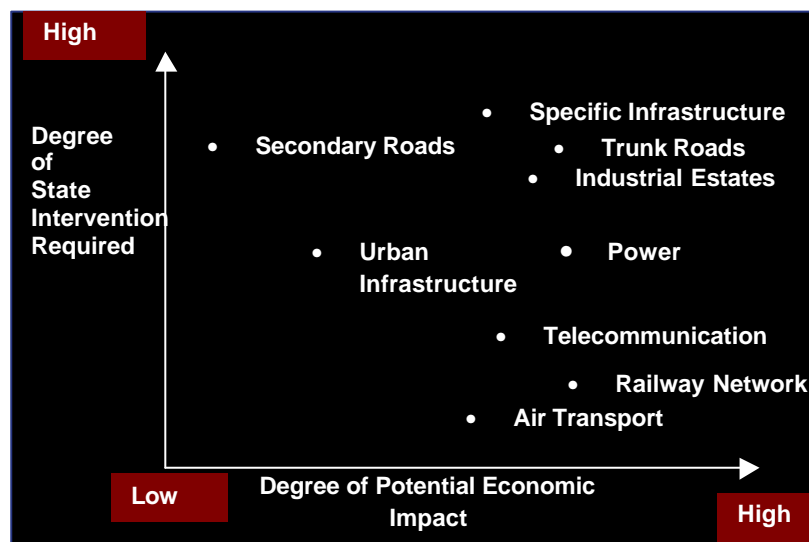
**The State realises the enormous funding requirements of infrastructure in the State and its inability to meet all of these requirements. It would therefore look at alternate sources of funding and at the same time prioritise these infrastructure investments**

comprehensive study aimed at developing an Infrastructure Development Action Plan covering all areas of infrastructure i.e. Power, Transportation, Water Resources, Industrial Estates, Urban Infrastructure and Information Technology. The action plan would be used to develop sector specific initiatives in the State.

The total requirement of funds to meet the infrastructure targets set out subsequently is expected to exceed over Rs.1,000,000 million over the next 10 years. The State also realises that it would not be possible to fund such massive requirements on its own. It would therefore look at alternate sources of funding and at the same time prioritise these infrastructure investments.

This prioritisation of infrastructure investment would primarily be driven by the need for State intervention in projects and the degree of potential economic impact that a project is likely to have (Exhibit VI.1). The degree of State intervention would be in turn based upon the financial viability of projects.

**Exhibit VI.1**



*Source: McKinsey Quarterly and PwC research*

All projects that are commercially viable would be developed with private sector involvement, with marginally viable and unviable projects being undertaken in the joint sector.

Exhibit VI.1 also depicts the broad prioritisation of the State. As can be seen considerable stress would be laid on improving the road network in the State especially with respect to the trunk routes and connectivity with industrial centres and district headquarters. It also lays considerable stress on developing specialised infrastructure such as warehousing and cold storage facilities, export processing zones and IT connectivity. The State would also work closely with the central government to ensure strengthening of the rail, telecom and airport infrastructure in the State.

### **Targets – Vision 2010**

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In order to ensure that physical infrastructure is a source of competitive advantage for Chhattisgarh and capable of supporting the economic growth rates contained in Vision 2010, the State has set the following targets for itself:

- Establish Chhattisgarh as the power hub of the country – to create additional 10,000 MW capacity in the State
- Reduce the T&D losses in the State to less than 12%
- Ensure all its National and State Highways are 4 lane
- Ensure all villages in the State to be connected by all weather roads
- Develop Mana airport at Raipur as an International Airport
- Link all its tehsil headquarters in the State through a high speed data network

### **Current Situation**

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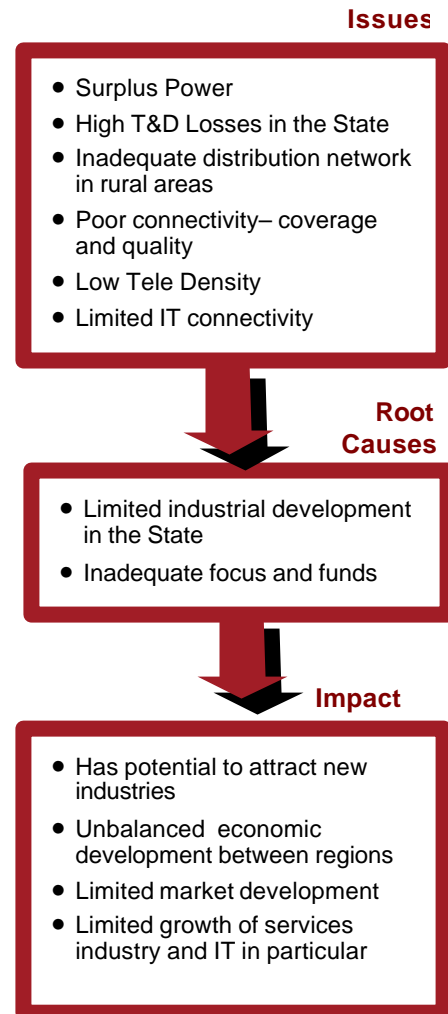
In order to meet these targets, Chhattisgarh has chalked out an action plan, which is based on a comprehensive understanding and analysis of the current situation captured in an issues-root cause-impact illustration presented in Exhibit VI.2 overleaf, and briefly discussed below:

- Availability of large quantities of coal reserves can ensure constant supply of raw material for future thermal power projects to be set up in the State. The reduced unit cost of power for such units – driven by locational advantage could act as an incentive for project developers to set up power projects in the State
- Roads are particularly important in a land-locked State like Chhattisgarh with large mineral resources. Given limited coverage of railways in the State, improvement in the road sector would be important for improving the transportation linkages within the State

Exhibit VI.2

The State would build upon the strengths in the power sector to make it a source of comparative advantage

- The road network in the State is deficient and requires improvement both in terms of absolute road length and also in terms of quality of roads. Development has been along certain corridors only and large parts of the State are still bereft of good connectivity
- The State has a locational advantage in trading. The State has one existing dry port and another dry port by the Container Corporation (CONCOR) is in the pipeline
- The State has a telephone density of close to 1. This density is lower than the national average of 2.6 for India – which is also among the lowest in the world - global average being around 14.5



**Action Plan**

As discussed before, in order to meet the targets set and address the various issues facing the infrastructure sector, the State has decided upon a number of action steps in each of the infrastructure sectors, as described below.

**Power:** The State would build upon the strengths in this sector to make it a source of competitive advantage. Availability of surplus power in the State together with availability of large quantity of coal reserves – that ensure constant supply of raw materials for setting up future thermal power projects in the State and hence reduced cost of power generation – are two of the State’s key strength.

In order to capitalise on these strengths, as also address the various issues facing this sector, Chhattisgarh would:

- Encourage setting up of power plants by other states in Chhattisgarh by leasing coal mines to interested parties. Other than the income generated on account of wheeling charges, the State would benefit from increased employment
- Encourage Independent Power Producers to set-up power projects in the State to meet the requirements of power within the State, which is likely to increase in line

**Chhattisgarh has already initiated the process of development of road policy. Notwithstanding the policy, Chhattisgarh has already taken successful initiatives to attract private sector participation in the development of the road sector**

with the envisaged economic development. It has been estimated that the total requirement of power is likely to increase three folds over the next 10 years. In order to ensure that IPP are set-up in the State, the State would prepare for policy for IPP projects in the State. This policy would primarily be driven by:

- Requirements of financial institutions for providing financing for IPP projects.
- Escrowing capacity of Chhattisgarh State Electricity Board
- Likely issues in privatisation of distribution circle in case escrowability is granted to IPPs

With a view to encourage IPPs, Chhattisgarh has recently signed a MoU with the Jindal Group to set-up a 1000 MW power plant in the State. The State has also signed a MoU with the Government of Gujarat, who have evinced interest in setting up power projects in the State. The policy initiatives taken by the State would be focussed on enabling reform in the power sector

- For a short term augmentation of the State's power generation capacity, industrial units in the core sector requiring continuous power supply, would be allowed to set up captive power plants to ease the burden on the distribution system and improve industries' competitiveness
- The State would encourage setting up of Cogeneration facilities to increase the energy efficiency and CSEB would purchase surplus power from these facilities on a need basis
- Improve the operational efficiency of the power sector in the State, so that CSEB is not a liability on the State as in most other states. This would primarily be achieved by undertaking a comprehensive power sector reform in the State in line with successful models adopted in countries such as Chile and Argentina. However, feasibility of such models in the context of Chhattisgarh would be first evaluated
- The State is committed to encourage the use of non-conventional and renewable sources of energy such as small hydro, wind, biomass and solar energy. This would be a practical source of energy especially in places where the grid supply is not available
- Constitute a independent electricity regulatory commission to remove external influence on the operation of the power sector in the State and ensure the reduction of losses

**Roads and Transportation:** As on December 31, 2000, Chhattisgarh had a total road network of 35388.54 km of which 24005.73 km was metalled road and 11382.81 km (32%) of the total road network was unmetalled. This makes the road density per hundred square kilometres at 17.7% and 8.4% for metalled and unmetalled roads respectively. This density does not compare well with the All India average of

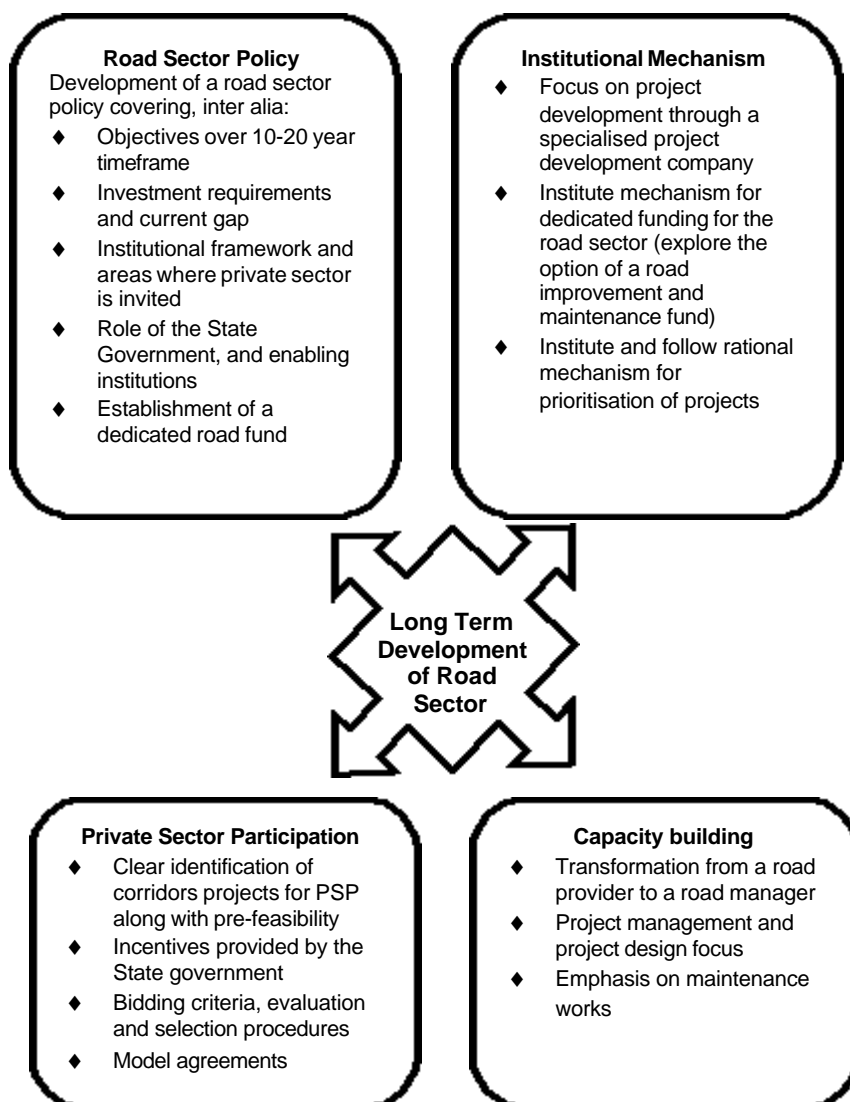
40.5% and 32.5% for metalled and unmetalled roads respectively.

Considering that the transportation sector serves as a crucial link connecting production centres with processing centres and markets, and the coverage of rail, air transport and inland waterways is fairly limited, roads becomes one of the most important aspects of the physical infrastructure in the State. Facilities for both the freight and passenger traffic would be developed. In urban areas a mass rapid transport system would be designed to cater to the needs of the increasing population of the State and to suitably develop the urban centres. Two north-south and four east-west high speed corridors would be set up to augment the needs of the State.

This sector has also been one of the most neglected sectors of the State in the past. In order to reverse this trend, the State has prepared an action plan illustrated in Exhibit VI.3.

**Chhattisgarh would also improve the current mass rapid transit system in the State to meet the requirements of urban development, rural connectivity and tourism**

**Exhibit VI.3**



**Due to the strategic importance of railways for Chhattisgarh, particularly for improving the utilisation of its mining potential, the State would work with the Ministry of Railways and Planning Commission to develop new routes and facilitate faster implementation of proposed projects**

One of the major elements of this action plan is to attract private sector participation and seek funding from multilateral funding agencies in the development of the road sector. In order to do this the government would develop a comprehensive road policy for the State and undertake capacity building of its department engaged in the development of the road sector. The objective of the capacity building exercise of the State departments would be ensure that the State has the capacity to execute large number of projects in the State.

Chhattisgarh has already initiated the process of the development of the road policy. Notwithstanding framing of the policy, Chhattisgarh has already taken successful initiatives to attract private sector participation the development of the road sector. It has recently awarded projects in public-private partnerships using the Build – Operate – Transfer (BOT) route. These include:

- Raigarh-Pathalgarh
- Kabir-Kewchi-Achankamar-Kota
- Chabutra-Onchi

Chhattisgarh would develop a mass rapid transit system in the State to meet the requirements of:

- Urban development – Increase in economic activity in the State is likely to accelerate urban development and hence need for effective and efficient urban transport
- Rural connectivity – Ensure connectivity of the urban centres with rural hinterland

In order to ensure co-ordination of all the initiatives in the road and transportation sector, an expert committee would be constituted. The State would also constitute a Highway Development Corporation for taking up highway projects all over the State

**Rail:** Railways form a very important aspect of the transportation network in the State as it serves to transport a large quantity of minerals (especially coal and iron ore) within and outside the State. The railway network in Chhattisgarh is operated by the South Eastern (SE) Railway headquartered at Kolkata, with a divisional office at Bilaspur. The total network maintained by SE Railway consists of 1038.39 route kilometres (out of this 949.28 km is broad gauge and the balance 89.11 km is narrow gauge). About 90% of the above coverage is in the State of Chhattisgarh, with the balance being in Orissa.

Due to the strategic importance of railways for Chhattisgarh, particularly for improving the utilisation of its mining potential, the State would work with the Ministry of Railways and Planning Commission to develop new routes and facilitating fast the implementation of proposed projects.

The State would take steps necessary to ensure completion of the Bishrampur – Ambikapur rail link. The link between

Chhattisgarh would facilitate and promote the establishment of broadband digital networks in the State. It would look at using the existing transmission and distribution network of electricity utilities and the highways to establish a digital backbone network in association with the private sector

Durg and Jagdalpur via Dallirajhara and Rourkela is a proposed project. It was primarily envisaged to transport iron ore to the Bhilai Steel Plant (BSP). Since the land identified for mining in Jagdalpur has not yet been allocated to BSP, work on this line has stopped. The districts of Bastar, Dantewada and Kanker have unexplored mineral resources and if the proposed railway link is completed it would facilitate in transportation of mineral resources to the industrial centres in Raipur, Durg and Bilaspur

**Air Transportation:** The air transportation network in the State is quite limited. There is only one major airport in the State, which is situated in the capital city of Raipur. This airport serves as the gateway to places like Bilaspur, Bhilai, Raigarh, Ambikapur, Koriya, Jashpuranagar and Rajnandgaon.

In line with Vision 2010, business and commercial activity in the region is likely to increase. Therefore, good air transportation linkage with all the metropolitan cities is important to ensure that business travellers can easily travel to the State. To facilitate introduction of new routes, the State would take steps such as consider waiving landing charges and other related expenses.

The feasibility for operating regional air taxi services would also be undertaken as this would go a long way in improving the connectivity between important cities and also to promote tourism in the State.

Also the airstrips located in other cities in the State would be upgraded so that they could be used by the air taxi services and could subsequently be considered for location of new airports.

Chhattisgarh would also take steps to upgrade the Mana Airport at Raipur to an International Airport.

**Telecommunication and IT Backbone:** The telephone density in the State is very low. Chhattisgarh would work in co-operation with the central government to improve this scenario. The State would also take steps to create requisite bandwidth availability in the State so as to ensure development of IT Services in the State.

It would facilitate and promote the establishment of broadband digital networks in the State, wherein it would look at using the existing transmission and distribution network of electricity utilities and the highways to establish a digital backbone network in the State, in association with the private sector. Framing a policy on right of way would be undertaken to support this initiative.

Chhattisgarh would also promote the use of satellite communication systems to provide connectivity, especially to the remote locations in the State. Community centres would

For sustaining the economic growth potential of urban centres, the State recognises the need for upgrading the quality of Urban Infrastructure

be setup in the State to reach the rural population, and expand the reach of the information services. The State would identify specific cities to be developed as IT cities based on an assessment of the existing infrastructure and the potential for growth.

**Industrial Infrastructure:** Although Chhattisgarh is rich in terms of availability of mineral resources, it has been unable to exploit this natural advantage to spur industrial growth. Accordingly, the government would take steps in developing industrial estates to fuel industrial growth, as properly designed and implemented industrial estates hold a great potential in attracting small and medium scale value-added industries.

The State would seek active involvement of the private sector in developing these industrial parks. These industrial parks would be established after undertaking a detailed location analysis, by adapting configuration and design of the industrial estate to suit the local conditions and by developing a proper institutional framework.

The private sector would be involved in developing these industrial estates so as to improve the commercial viability of the project. The government would take up the policy making and regulatory roles.

In order to ensure proper operation and maintenance of these parks – an area of concern with most industrial parks in the State, the industrial units would be given a role in the management of the estate by giving them an equity stake in the entity. This will ensure their active involvement in the operation of the estate.

The State recognises that existing land acquisition process as one of the key constraints in aggregating contiguous tracts of land, necessary for developing industrial parks in the State. In order to address this aspect, the State government would act as a facilitator ensuring that the negotiations are free and fair and explaining to the landowners the use the land would be put to and the benefits that would accrue by undertaking such a project. Such a facilitating role of the State would be undertaken in association with the local government.

The State would capitalise on the existing favourable labour situation and develop policies to reform the labour sector.

**Urban Infrastructure:** Managing urban development for a state in its first decade of existence would be a significant challenge for Chhattisgarh. As economic activity gathers momentum, so too will the process of urbanisation. In India, urban centres contribute about 60% of India's GDP while accounting for only 30% of the total population, translating to an urban-rural productivity ratio of 7:2. As the State moves from harnessing its primary sector potential to the development of industrial and service sectors, urban centres

The State would adopt new approaches in urban development through involvement of professional agencies and private sector. A start has already been made in this regard with the appointment of City and Industrial Development Corporation (CIDCO), of Maharashtra, as advisor for the capital city project

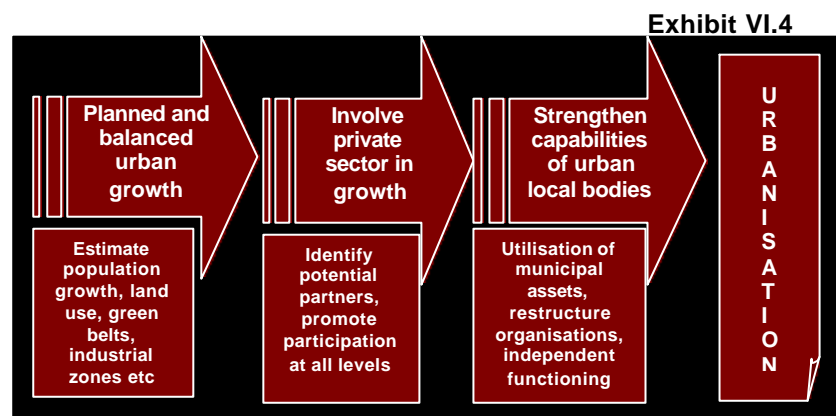
would gain in relative importance as engines of continued economic growth. Five cities in the State would be developed as mega-cities to keep up with the momentum of economic activity.

For sustaining the economic growth potential of urban centres, the State recognises the need for upgrading the quality of Urban Infrastructure (UI) consisting of urban water supply and sanitation, solid waste management, street lighting, fire fighting, urban roads, bridges, housing, commercial complexes, etc.

Further, the State has also constituted a high powered committee which is working on transforming Raipur, capital of Chhattisgarh into a modern capital city. As part of this initiative:

- A water supply project for meeting the requirements of an estimated population of 2.5 million by 2031 is being planned;
- A transportation hub in the city is being created; and
- The transmission and distribution network is being strengthened for reliable power supply

In order to ensure that urbanisation in Chhattisgarh contribute effectively to the economic growth, the State would undertake (Exhibit VI.4):



- Planned and balanced urban growth
- Involve private sector in managing urban growth
- Strengthen the capabilities of the local bodies in urban areas

***Planned and balanced urban growth***

Chhattisgarh has a low rate of urbanisation (17.4%) as compared to the whole of India (28.5%). With formation of the State the rate of urbanisation is likely to witness an increase. This would lead to increased pressure on existing urban areas. Since land available within existing areas is likely to be limited, emphasis will be laid on identification of

### **Exhibit VI.5 Innovative mechanisms for Urban Development**

#### ***Land Pooling and Readjustment (LP/R)***

LP/R is widely used in Southeast Asia for managing and financing land development in urban-fringe area. Rural land parcels in urban-fringe areas are assembled and converted into planned layout of roads, public utility lines, open spaces, building plots, etc. Some of the plots are sold for project cost recovery while other land parcels are allotted to rural land parcel owners. This technique enables adequate land space for network infrastructure like roads, water and sewerage lines, etc.

#### ***Transferable Development Rights (TDR)***

Under TDR, the owner of a plot of land, which is reserved for public purpose, is eligible for the award of transferable development rights in the form of Floor Space Index (FSI) equal to the gross area of the reserved plot to be surrendered. Such FSI is made available to the land owner in the form of a Development Right Certificate (DRC). DRC is a negotiable instrument that can be used by the owner or transferred to other persons. TDRs have been successfully used by CIDCO in development of Navi Mumbai and is increasingly being used by ULBs in Maharashtra.

#### ***PwC Research***

potential sites for urban development and following an integrated planning approach.

The State would follow an integrated approach to urban development by laying special emphasis on spatial planning, taking take into account the following:

- Expected future population growth
- Land use configuration, infrastructure networks for water supply, sewerage, etc.
- Creation of green belts.
- Industrial development zones

To this end, all districts in the State would prepare district spatial plan to dovetail to the State plan. The district plans will collate and integrate plans of urban and rural areas. Further, city level spatial plans will dovetail to the district plans. The spatial plans prepared at all levels will include specific projects for infrastructure and economic development. Adopting this approach would enable the State to identify and execute inter-district infrastructure projects like creation of trunk infrastructure - mass transit corridors, railway networks, transport and logistics hubs, etc. The spatial plans would also form the basis for infrastructure development plans by local bodies.

Given the potential for large-scale urban development in the State, availability of land for growth of new urban areas will be extremely essential. The State would continuously identify potential land banks for development of new urban areas. The State will adopt new approaches in urban development through involvement of professional agencies and private sector. A start has already been made in this regard through the appointment of City and Industrial Development Corporation (CIDCO), of Maharashtra, as advisor for the capital city project. The project aims at creating a new capital city for the State.

In developing land banks, the State would unlock the potential value of land through use of innovative mechanisms like Land Pooling and Readjustment technique (L/PR) and Transferable Development Rights (TDRs) (Exhibit VI.5). These will facilitate the government in managing and financing urban land development. This will be particularly important in assembling and converting land parcels in urban-fringe areas for large-scale development.

The State would take steps to streamline the process of land acquisition so as to reduce the time taken for acquisition.

#### ***Private Sector Participation***

The State will be in the forefront of involving private sector participation in development of large urban centres with the State taking the responsibility of developing the trunk infrastructure. Well-developed land parcels with appropriate

### **Exhibit VI.6 Ahmedabad Municipal Corporation**

AMC was facing financial strain in 92-93 with accumulated losses of more than Rs. 350 million. AMC took a series of cohesive steps to transform itself into one of the municipal corporations in the country within 4-5 years. These steps were:

- Preventing leakage in octroi and property tax systems
- Improvement of systems – financial management, valuation of goods, etc.
- Involvement of NGOs and CBOs
- Organisational restructuring and professionalisation of management – lateral recruitment of
- Preparation of comprehensive investment plans
- Private sector participation in solid waste management, street cleaning, road maintenance, etc.
- Utilisation of professional agencies for project execution

Between 94-98, octroi revenues grew annually by 17%, property tax-23% and non-tax income-20%. In 1997-98 AMC became the first local body in the country to raise a municipal bond issue for Rs. 100 crore.

**Source: PwC Research**

trunk infrastructure will be allotted to private developers for further development. The private developers will provide on-site infrastructure and dispose off the developed plots. This would ensure that there is better cost recovery.

### **Urban Local Bodies (ULBs) – focus of urban management**

Traditionally, the management of urban centres in India and also in Chhattisgarh has been fragmented with multiple agencies like urban local bodies, development authorities, city improvement trusts, State government departments, etc. The government will transform the institutional framework in urban centres to make the local bodies as the centre of all urban development process with efforts of all other institutions feeding into the efforts of ULBs.

Such a transformational role for ULBs requires enhancing the capacities of ULBs to manage urban centres. This will be achieved through:

- Enhancing resource mobilisation through tax and non-tax avenues
- Innovative utilisation of municipal assets – land and building for revenue generation
- Adhering to principles of full cost recovery for utility services
- Enhancing efficiency and coverage of municipal services through private sector participation
- Improving financial management through application of commercial principles and practices
- Capacity building through use of information technology and training of staff
- Development of infrastructure master plan and utilisation of professional expertise in execution
- Restructuring of organisation to increase responsive to citizens
- Enhancing participation of citizens in operation and management of services

Ahmedabad Municipal Corporation is widely recognised as one of the better ULBs in the country. Exhibit VI.6 highlights the initiatives taken by AMC in transforming itself. Change is a slow and time consuming process and therefore, the State would therefore draw out a long-term plan for ULBs, which will help them achieve the above transition.