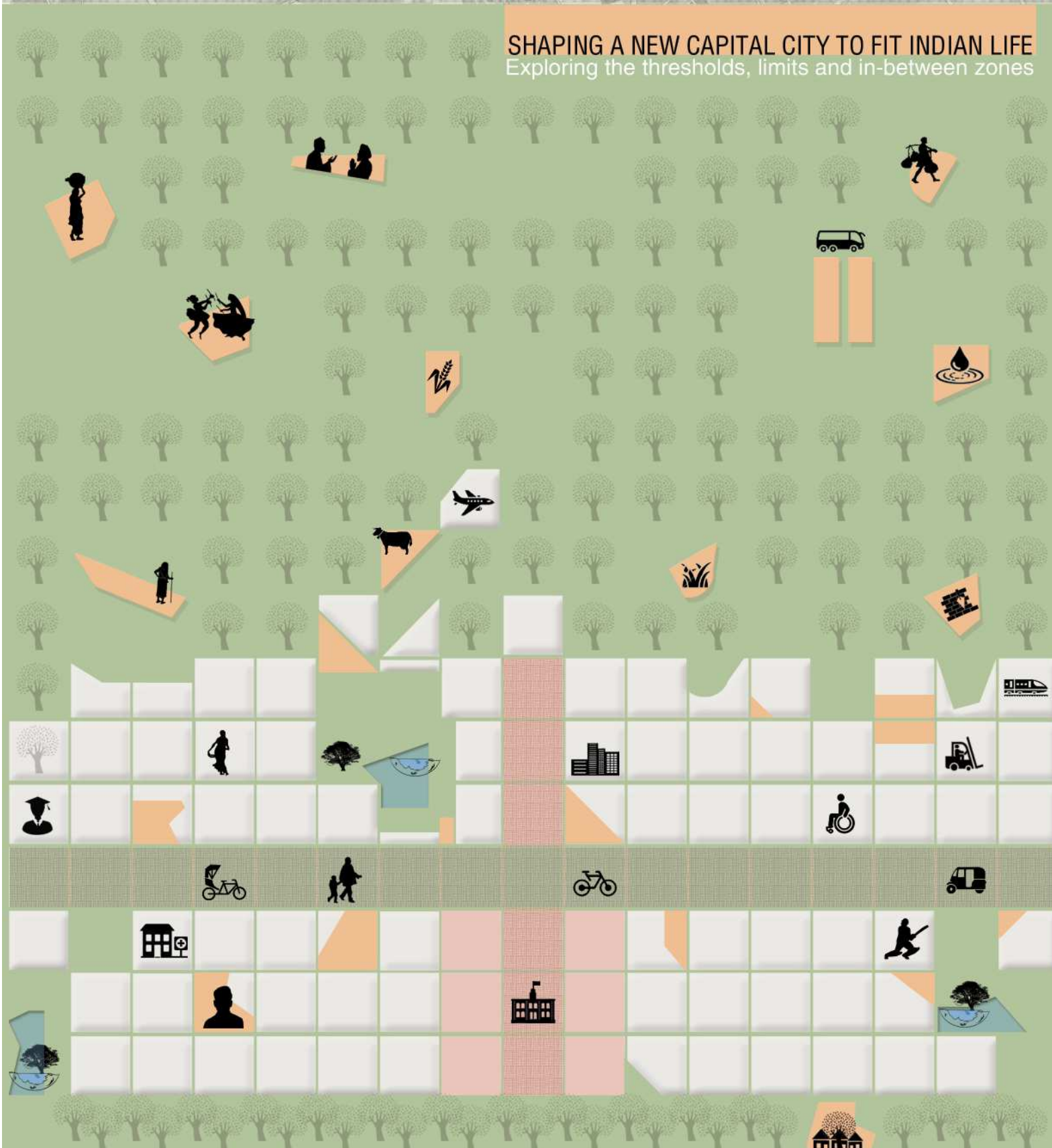
International Urban Planning Workshop
Naya Raipur, 17th-30th November 2012

les ateliers
maîtrise d'œuvre urbaine

# CONTEXT DOCUMENT
# NAYA RAIPUR
## INDIA

SHAPING A NEW CAPITAL CITY TO FIT INDIAN LIFE
Exploring the thresholds, limits and in-between zones



# Introduction



*The aim of the EAST project is an integrated urban approach to foster the sustainable development of New Towns and satellite cities in Asia. The objectives are to improve the capacities of local teams and promote networks as well as knowledge exchange. A comparative study is being built on the features and experience of New Towns, identifying good and bad practices and obstacles that those New Towns are experiencing today in the implementation of sustainable policies. It will also analyze local contexts to cope with the difference in scale. By organizing studies, seminars and panels of experts, the project contributes actively to building a solid network of experts and allows people involved in urban planning to share their views and ideas.*

*The EAST project gathers partners from Europe (ENTP – European New Towns and Pilot Cities Platform, Basildon Borough Council, and Les Ateliers), India (Naya Raipur Development Authority and the EuroIndia Centre) and China (Baoshan and Qingpu districts). The project is co-financed by the European Union (Thematic Programme "Non-state actors and local authorities in development") for a duration of 4 years, from 2011 to 2014.*

Naya Raipur is a new, planned capital city for 560,000 inhabitants, adjacent to the existing city of Raipur and currently under construction. The state government has moved to Naya Raipur on November 1st, 2012, attracting new workers, residents and businesses and beginning the establishment of a new urban population centre. This is a critical moment for the region: the way that the new city develops and is inhabited in the early years will greatly influence its future form and success. This workshop will take place at a point in time when the first steps of a new city have already been taken, but different possibilities remain open. NRDA, the development agency responsible for the new city is open to ideas and wants the professional participants to work under the les Ateliers method, to explore possibilities, with the intention of implementation of the best results.

The Naya Raipur Masterplan sets out phased development over the next 19 years through to 2031. The document defines the objective of the new city as follows:

*'It will be modern in the use of technology, uphold worthy traditions and core values, and conserve the prevailing man-nature symbiotic culture as well as abundant natural & cultural assets in the region. The citizens will be offered a wide range of living options with equity and dignity'*

Constructing a new city in India provides the opportunity to incorporate modern engineering solutions to deal with the normally chronic problems of transport, drainage, water and electricity supplies and the plan for Naya Raipur is based on a sophisticated layering of modern infrastructure. This aspect of the design is well-developed and necessary, but the fast pace of development in India has not resulted in the loss of spiritual and cultural traditions and modes, as it has in other developing countries. Religion permeates contemporary life in a myriad of ways and the culture of 'informality' is an important form of social 'glue' that mostly ensures a tolerant, diverse society. The Naya Raipur plan aims to accommodate this Indian way of life, but it is not yet clear how it will provide a spiritual and cultural infrastructure; overlapping layers that are no less important than the layers of engineering infrastructure. The goal is not to re-make society to fit a new model, but to think about how a new town can grow with the traditional ways of life. Especially in this part of India, newly urbanized people bring with them rural social norms and remain connected to the life of the village, as can be seen in the existing city of Raipur. The goal is therefore to increase the level of life of the inhabitants in a sustainable and equitable way and to recognize these social structures as a positive factor in the design of a new city.

The objective of the workshop is to explore the potential for the new city plan to achieve its goal of becoming a 'city for everyone'.

A means to explore this potential is through the 'thresholds' that are highly significant in Indian architecture and the main space where social interaction occurs. To test the potential of these spaces, four topics are given: i. 'mixity' of forms, functions and people; ii. transport and density; iii. space and water as a social resource; iv. 'positioning' of the city.

2012 has been an important time for Naya Raipur. A great deal of planning has gone into the new city; the first districts are under construction and the first inhabitants arriving, but many details will have to be worked out over the following 20 years of construction. The future of a city can never be fully planned in advance and once inhabited it will take on a life of its own.

The opportunity of the workshop is to test the new plan in certain critical respects and to make proposals for how it can be adjusted and adapted to anticipate and accommodate Indian life.

Introduction adapted from the Call for applications (by Florence Bougnoux and Roland Karthaus).

## CREDITS

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All photos by Heera Mohan and Henrique Gazzola, except when quoted.

# Acknowledgements


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ENTP

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MINISTÈRE DE L'ÉGALITÉ DES TERRITOIRES ET DU LOGEMENT

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# Summary

## section 1 - context



## section 2 - analysis

India is a federal state with a parliamentary form of government. It is the world's second most populous nation, with a complex ethnic composition and great cultural diversity, as is evidenced by the enormous number of different languages spoken. It is also the birthplace of four of the world's major religious traditions. With an increasing middle-class population and a fast-growing economy, India is among the countries with low level of urbanization, often described as two separate countries: village India, supported by traditional agriculture, and urban India, one of the most heavily industrialized areas in the world.

# CHAPTER 1

## national level context

INDIA - BRIEF HISTORY

GEOGRAPHICAL SETTING

PEOPLE AND CULTURE

ECONOMY

POLITICAL STRUCTURE

URBANIZATION PATTERN

# India - brief history

The Indus valley civilization saw its genesis in the holy land now known as India around 2500 BC. The people inhabiting the Indus River valley were thought to be Dravidians, whose descendants later migrated to the south of India. The deterioration of this civilization that developed a culture based on commerce and sustained by agricultural trade can be attributed to ecological changes. The second millennium BC was witness to the migration of the bucolic Aryan tribes from the northwest frontier into the sub continent. These tribes gradually merged with their antecedent cultures to give birth to a new milieu.


Figure 1 - Indo-Aryan Migration into India
Source:

The Aryan tribes soon started penetrating the east, flourishing along the Ganga and Yamuna Rivers. By 500 BC, the whole of northern India was a civilized land where people had knowledge of iron implements and worked as labor, voluntarily or otherwise. The early political map of India comprised of copious independent states with fluid boundaries, with increasing population and abundance of wealth fueling disputes over these boundaries.

Unified under the famous Gupta Dynasty, the north of India touched the skies as far as administration and the Hindu religion were concerned. Little wonder then, that it is considered to be India's golden age. By 600 BC, approximately sixteen dynasties ruled the north Indian plains spanning the modern day Afghanistan to Bangladesh. Some of the most powerful of them were the dynasties ruling the kingdoms of Magadha, Kosla, Kuru and Gandhara.

Known to be the land of epics and legends, two of the world's greatest epics find their birth in Indian settings - the Ramayana, depicting the exploits of lord Ram, and the Mahabharta detailing the war between Kauravas and Pandavas, both descendants of King Bharat.

Mahatma Gandhi, considered the Father of the Nation, is the pioneer behind the India's freedom struggle against British Colonialism. An ardent believer in communal harmony, he dreamt of a land where all religions would be the threads to form a rich social fabric.

# Geographical setting

India has the world's greatest mountain range, wettest city and the longest beach. To the north, Jammu and Kashmir, Himachal Pradesh, Sikkim, and the northern part of Uttar Pradesh lie along the Himalaya – Karkoram mountain ranges, which form a natural border separating India and China. The great northern plains are in stark contrast to the mountain regions. They extend with uniform

flatness from Assam and the Bay of Bengal all the way to the Afghan border. The states of Punjab, Haryana, Uttar Pradesh, Bihar and West Bengal, formed by the basins of the Indus, Ganges, and Brahmaputra rivers, are home to almost half of the Indian population, making it one of the most densely populated areas of the world.

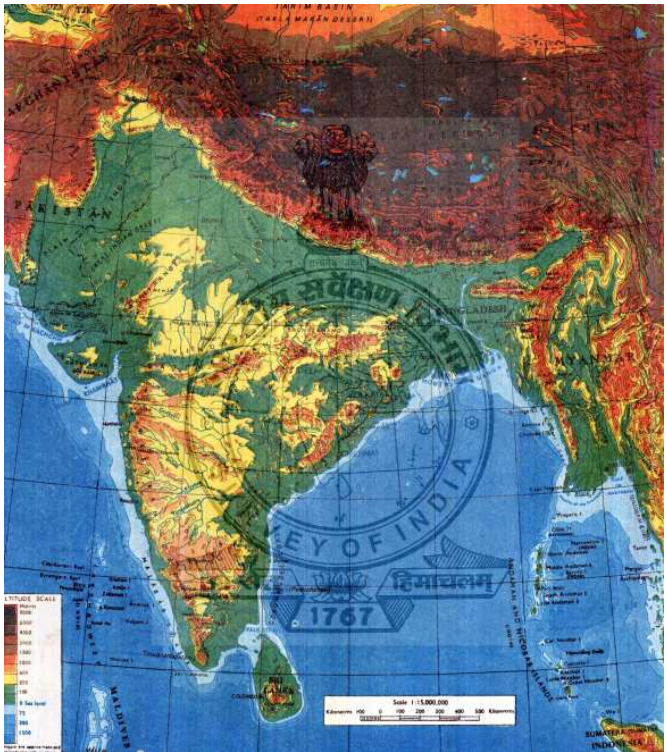



Figure 2 - Physical map of India
Source: Survey of India

# People and culture

The culture of India refers to the religious beliefs, customs, traditions, languages, ceremonies, arts, values and the way of life in India and its people.

India is the birthplace of four of the world's major religious traditions; namely Hinduism, Buddhism, Jainism and Sikhism. According to the 2001 census, Hinduism is the majority religion with 80.5% of the population of India. Islam (13.4%), Christianity (2.3%), Sikhism (1.9%),Buddhism (0.8%) and Jainism (0.4%) are the other minor religions followed by the people of India. This diversity of religious belief systems existing in India today is a result of, besides existence and birth of native religions, assimilation and social integration of religions brought to the region by traders, travelers, immigrants, and even invaders and conquerors.

India is the world's second most populous nation (after China). Its ethnic composition is complex, but two major strains predominate: the Aryan, in the north, and the Dravidian, in the south. India is a land of great cultural diversity, as is evidenced by the enormous number of different languages spoken throughout the country. Although Hindi (spoken in the north) and English (the language of politics and

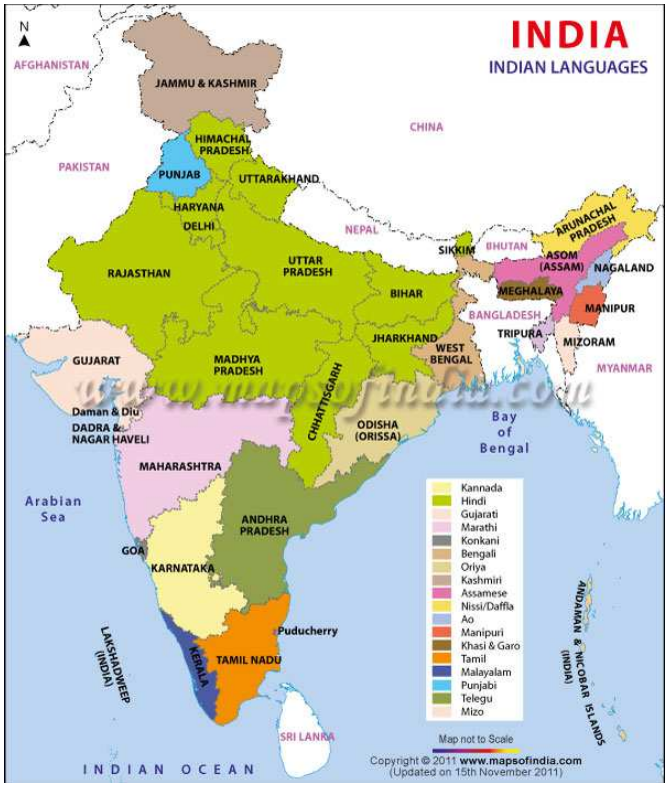



Figure 3 - Main language spoken in each Indian state
Source: www.mapsofindia.com

commerce) are used officially, more than 1,500 languages and dialects are spoken. The Indian constitution recognizes 15 regional languages (Assamese, Bengali, Gujarati, Hindi, Kannada, Kashmiri, Malayalam, Marathi, Odisa, Punjabi, Sanskrit, Sindhi, Tamil, Telugu and Urdu).

Figure 4 - Diversity of Indian people
Photos: Meena Kadri

# Economy

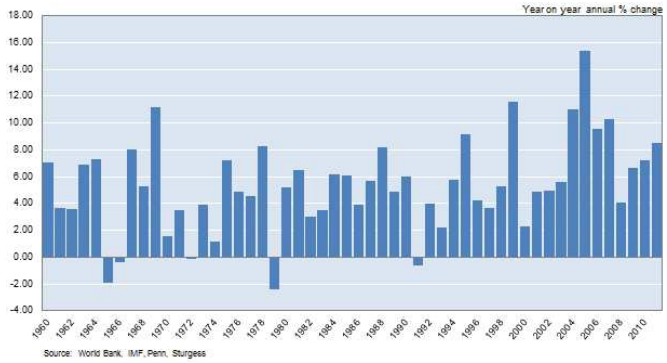



Figure 5 - Annual GDP growth in India
Source: World Bank, IMF, Penn, Sturgess

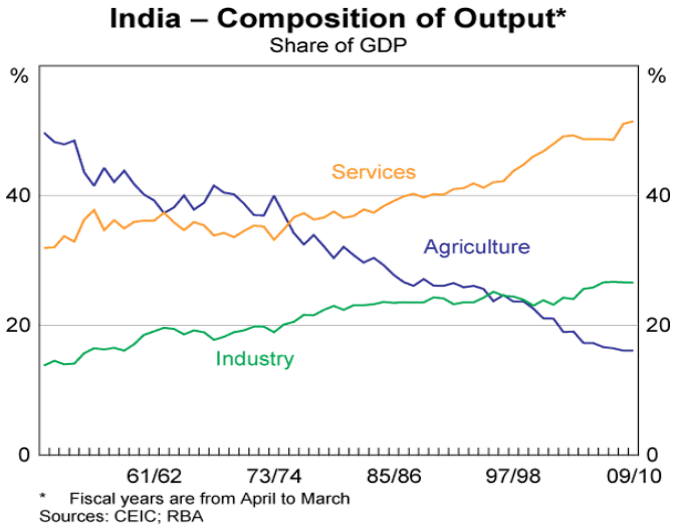



Figure 6 - Share of GDP (Composition of Output)
Source: CEIC, RBA

Economically, India often seems like two separate countries: village India, supported by traditional agriculture, where tens of millions—one fourth of population—live below the poverty line; and urban India, one of the most heavily industrialized areas in the world, with an increasingly middle-class population and a fast-growing economy. Agriculture (about 50% of the land is arable) makes up some 20% of the gross domestic product (GDP) and employs about 60% of the Indian people. Vast quantities of rice are grown wherever the land is level and water plentiful; other crops are wheat, sugarcane, potatoes, pulses, sorghum, bajra (a cereal), and corn. Cotton, tobacco, oilseeds, and jute are the principal nonfood crops. There are large tea plantations in Assam, Karnataka, Kerala, and Tamil Nadu.

Industry in India, traditionally limited to agricultural processing and light manufacturing, especially of cotton, woolen, and silk textiles, jute and leather products, has been greatly expanded and diversified in recent years; it employs about 12% of the workforce. There are large textile works at Mumbai and Ahmadabad, a huge iron and steel complex (mainly controlled by the Tata family) at Jamshedpur, and steel plants at Rourkela, Bhilainagar, Durgapur, and Bokaro. Bangalore has electronics and armaments industries. India also produces large amounts of machine tools, transportation equipment, chemicals, and cut diamonds (it is the world's largest exporter of the latter) and has a significant computer software industry. Its large film industry is concentrated in Mumbai, with other centers in Kolkata and Chennai.

# Political structure (source: Constitution of India)

Figure 7 - Political Map of India
Source: Survey of India

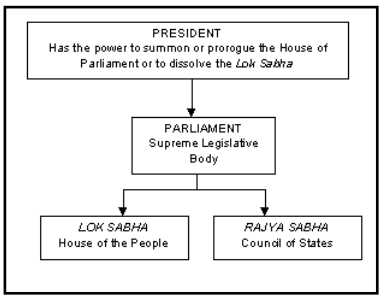



Figure 8 - National Level Government
Source: UNESCAP

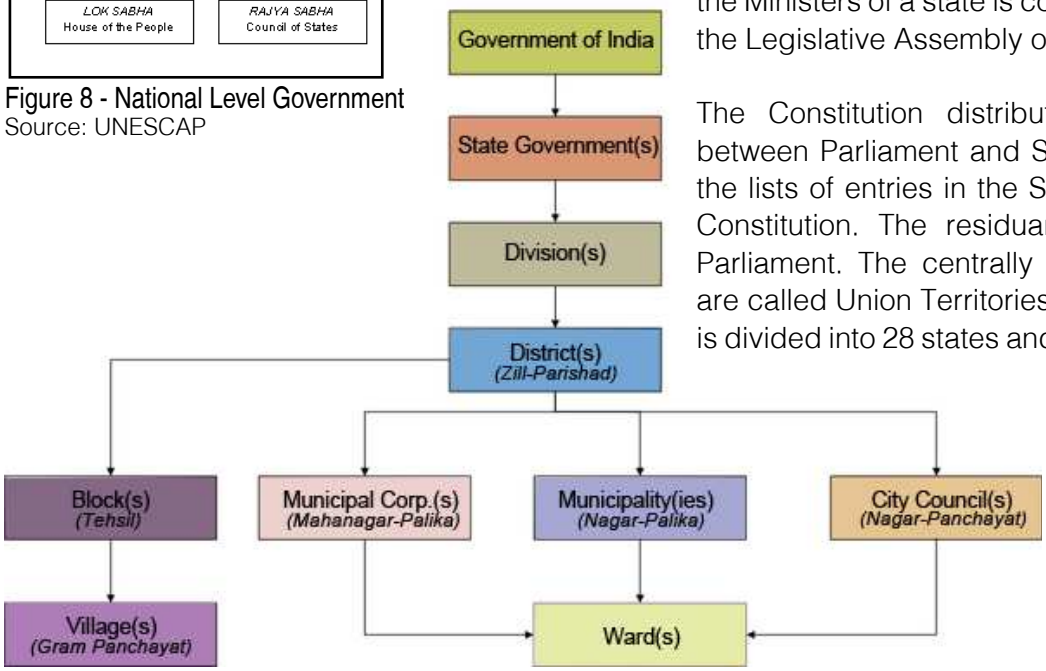



Figure 9 - Administrative structure of India
Source: UNESCAP

India is a federal state with a parliamentary form of government. It is governed under the 1949 constitution (effective since Januray, 1950). The Constitution provides for a Parliamentary form of government which is federal in structure with certain unitary features. The constitutional head of the Executive of the Union is the President. As per Article 79 of the Constitution of India, the council of the Parliament of the Union consists of the President and two Houses known as the Council of States (Rajya Sabha) and the House of the People (Lok Sabha). Article 74(1) of the Constitution provides that there shall be a Council of Ministers with the Prime Minister as its head to aid and advise the President, who shall exercise his/her functions in accordance to the advice. The real executive power is thus vested in the Council of Ministers with the Prime Minister as its head.

The Council of Ministers is collectively responsible to the House of the People (Lok Sabha). Every State has a Legislative Assembly. Certain States have an upper House also called State Legislative Council. There is a Governor for each state who is appointed by the President. Governor is the Head of the State and the executive power of the State is vested in him. The Council of Ministers with the Chief Minister as its head advises the Governor in the discharge of the executive functions. The Council of the Ministers of a state is collectively responsible to the Legislative Assembly of the State.

The Constitution distributes legislative powers between Parliament and State legislatures as per the lists of entries in the Seventh Schedule to the Constitution. The residuary powers vest in the Parliament. The centrally administered territories are called Union Territories. Administratively, India is divided into 28 states and seven union territories.

# Urbanization pattern

In Census of India, 2001 two types of town were identified:

a) Statutory towns: All places with a municipality, corporation, Cantonment board or notified town area committee, etc. so declared by state law.

b) Census towns: Places which satisfy following criteria:

i) a minimum population of 5000;

ii) at least 75% of male working population engaged in non agricultural pursuits;

iii) a density of population of at least 400 persons per km$^2$.

At the moment, India is among the countries of low level of urbanization. Number of urban agglomerations / towns has grown from 1827 in 1901 to 5161 in 2001. Number of population residing in urban areas has increased from 2.58 crores in 1901 to 28.53 crores in 2001. Only 28% of population was living in urban areas as per 2001 census.

Over the years there has been continuous concentration of population in class I towns (towns with more than 100,000 inhabitants). On the contrary the concentration of population in medium and small towns either fluctuated or declined. India's urbanization is often termed as over urbanization, pseudo-urbanization. The big cities attained inordinately large population size leading to virtual collapse in the urban services and followed by basic problems in the field of housing, slum, water, infrastructure, quality of life etc.

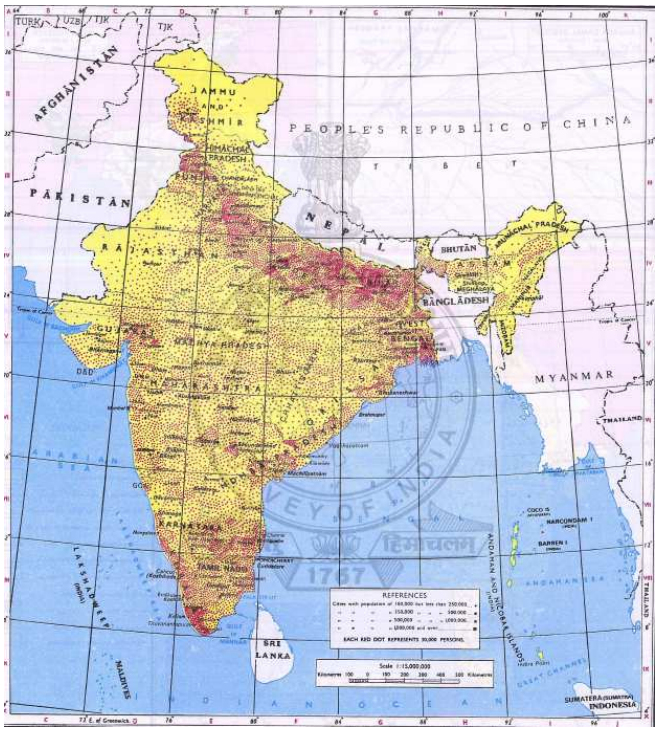



Figure 10 - Population Map of India
Sources: Survey of India

Chhattisgarh state was formed on November 1, 2000 by partitioning 16 Chhattisgarhi-speaking southeastern districts of Madhya Pradesh. It is the 10th largest state in India, with an area of 135,190 $km^2$ (52,200 sq mi). By population, it ranks as the $16^{th}$ most-populated state of the nation, being primarily a rural state with only 20% of population residing in urban areas.

# CHAPTER 2

## state level context

LOCATION OF CHHATTISGARH

HISTORY

FORMATION OF THE STATE

GEOGRAPHY

DEMOGRAPHY

THE TRIBAL POPULATION

THE MAOIST MOVEMENT

ECONOMY

URBANIZATION PATTERN

THE RISE OF A NEW CAPITAL

# Location of Chhattisgarh

Chhattisgarh is a state in Central India. The geographical location of Chhattisgarh ranges from 17°46'N to 24°5'N latitude and from 80°15'E to 84°20'E longitude. Madhya Pradesh borders Chhattisgarh in the north western part. Maharashtra borders Chhattisgarh on the west and Andhra Pradesh lies in its south. Odisha is located in the eastern side. The state of Jharkhand borders Chhattisgarh in the north eastern part.

Figure 11 - Location of Chhattisgarh in India

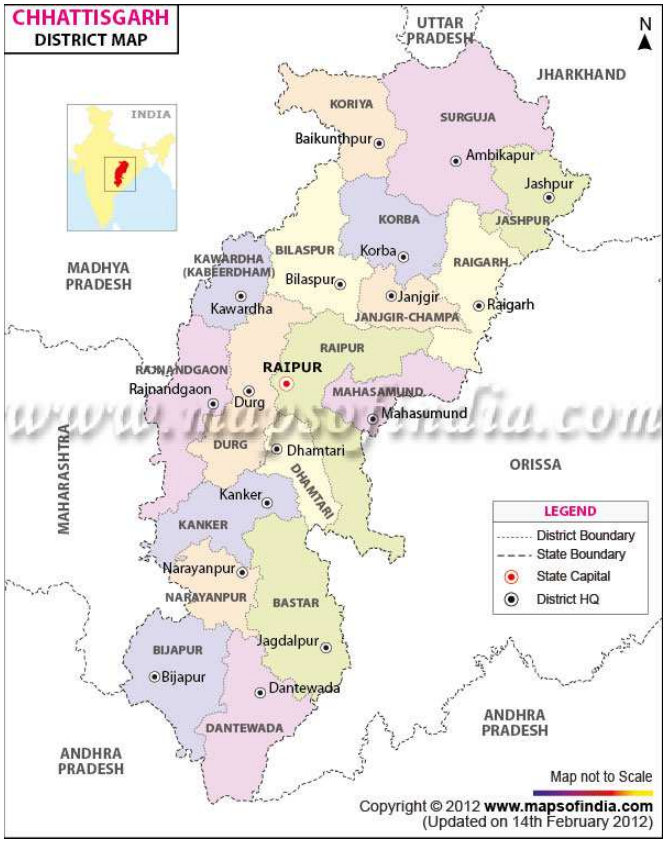



Figure 12 - Districts of Chhattisgarh
Source: www.mapsofindia.com

# History

In ancient times, this region was known as Dakshin-Kausal. This area also finds mention in Ramayana and Mahabharata. Between the sixth and twelfth centuries, Sarabhpurias, Panduavanshi, Somvanshi, Kalchuri and Nagvanshi rulers dominated this region. Kalchuris also ruled in Chhattisgarh from 980 to 1741 AD.

Chhattisgarh was under Maratha rule (Bhonsales of Nagpur) from 1741 to 1845 AD. It came under British rule from 1845 to 1947. Raipur gained prominence over the capital Ratanpur with the advent of the British in 1845. In 1905, the Sambalpur district was transferred to Odisha and the estates of Surguja were transferred from Bengal to Chhattisgarh.

The area constituting the new state merged into Madhya Pradesh on November 1, 1956, under the States Re-organization Act and remained a part of that state for 44 years. Before becoming a part of the new state of Madhya Pradesh, the region was part of old Madhya Pradesh State, with its capital at Nagpur. Prior to that, the region was part of the Central Provinces and Berar province (CP and Berar) under the British rule. Some areas constituting the Chhattisgarh state were princely states under the British rule, but later on were merged into Madhya Pradesh.

# Formation of the state

The state was formed on November 1st, 2000 by partitioning 16 Chhattisgarhi-speaking southeastern districts of Madhya Pradesh and Raipur, the largest city of the state, was selected for capital functions. It is the 10th largest state in India, with an area of 135,190 km² (52,200 sq mi). By population, it ranks as the 16th most-populated state of the nation. The population density of the state per km² is 108. It is an important electricity and steel-producing state of India. Chhattisgarh accounts for 15% of the total steel producer of the country.

The Government of Chhattisgarh recently shifted the capital to Naya Raipur to establish the identity of the state and also to provide for the insufficient social and institutional infrastructure.

# Geography

The topography of Chhattisgarh can be divided into many physiographic divisions. The Indo-Gangetic plain in the state is very fertile. The Satpura Range, Vindhyachal Mountain Range and the Maikal Range, form the hilly terrain of Chhattisgarh. The Chhota Nagpur Plateau is another important topographical division of Chhattisgarh.

The vegetation of Chhattisgarh includes the vast stretch of forests. About 44% of the total area of Chhattisgarh is covered by forest. The trees that are mostly found in the state are Sal, Bamboo, Teak, and trees of mixed deciduous variety. The soil of Chhattisgarh is rich and is known for its red color. The soil in the riverine plains is very fertile. The two most important rivers that flow through Chhattisgarh are Mahanadi and Indravati. There are numerous lakes in the state. Some of these lakes of Chhattisgarh are natural, while many of them are man - made. In the flood prone areas, dams have been constructed for the prevention of further flooding. Such dams usually form a lake by it. Numerous lakes like Burha Talab, Kho Kho lake, Maharajabandh Lake and Budhapara Lake dot the city. The presence of so many lakes certainly moulds the climate of Raipur.

The climate of the state is mainly dry and hot. In the summer months, the temperature is very high and the state is frequented by dust storms. In the months of winter, very cold wind blows over the state. Chhattisgarh receives a good amount of rainfall. The Average rainfall in the state is around 1400 mm. and about 90% of the total rainfall is confined in the Monsoon season i.e. 15th June to September. The state receives rainfall mainly from the southwest monsoon winds. The temperature varies between 30 and 47 °C (86 and 117 °F) in summer and between 5 and 25 °C (41 and 77 °F) during winter. However, extremes in temperature can be observed with scales falling to less than 0°C to 49°C.

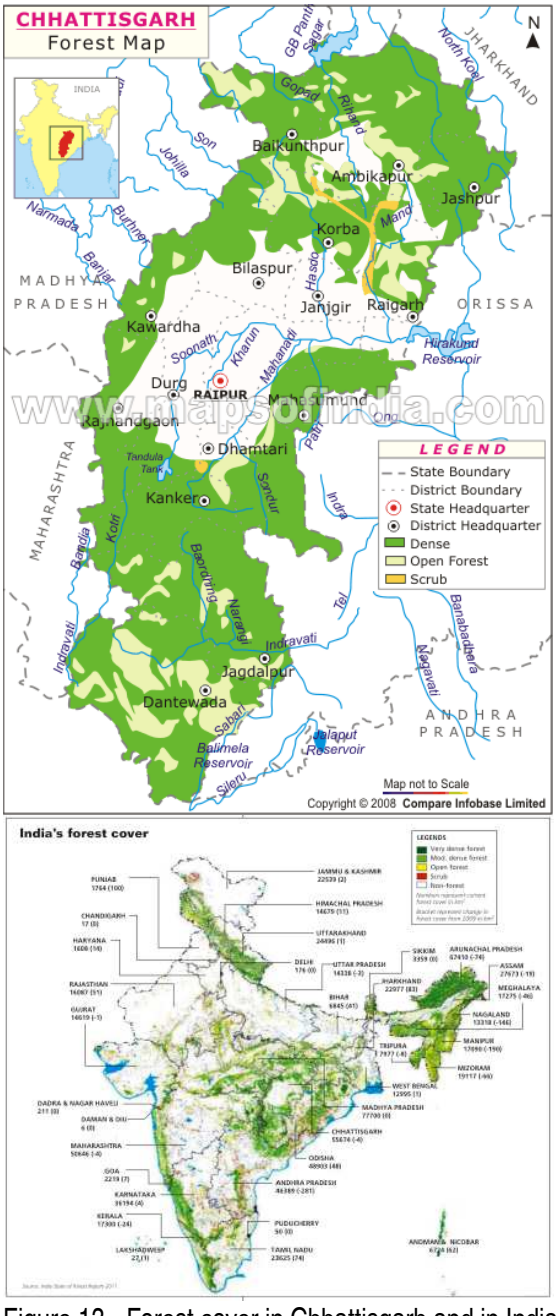



Figure 13 - Forest cover in Chhattisgarh and in India
Source: www.mapsofindia.com

# Demography

Chhattisgarh is primarily a rural state with only 20% of population residing in urban areas. According to the report from the government of India, at least 34% are Scheduled Tribes, 12% are Scheduled Castes and over 50% belong to official list of Other Backward class (OBC). Plain area is numerically dominated by castes such as Teli, Satnami and Kurmi; while forest area is mainly occupied by tribes such as Gond, Halba and Kamar/Bujia and Oraon.

The official language of the state is Hindi and is used by non-rural population of the state. Chhattisgarhi, a dialect of Hindi language, is spoken and understood by the majority of people in Chhattisgarh. Chhattisgarhi was known as "Khaltahi" to the surrounding hill-people and as "Laria" to Sambalpuri and Odiya speakers. Kosali and Odiya are also spoken by a lot of people.

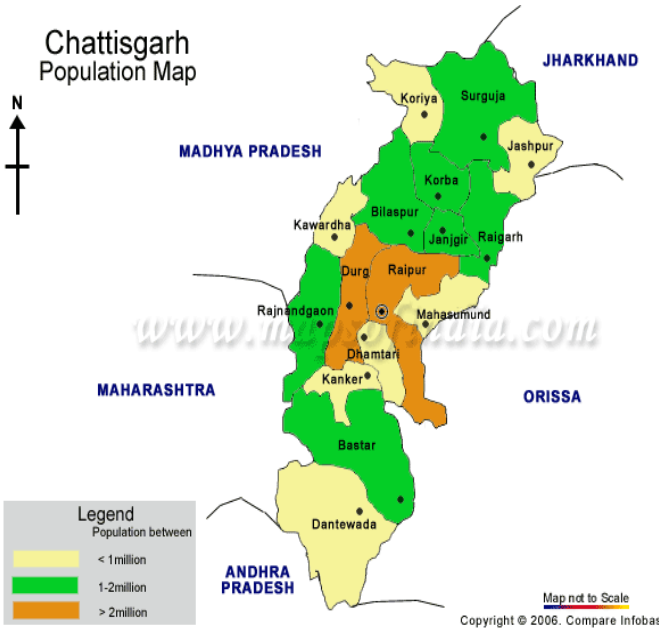



Figure 14 - Chhattisgarh Population Map as of 2006
Source: www.mapsofindia.com

# The tribal population

source: "Chhattisgarh - A State is born", Sanket Bhopal

Figure 15 - Tribals of Chhattisgarh
Photos: Collin Key and Retlaw Snellac

Chhattisgarh is generally perceived as a tribal dominated state. It also underscores a fundamentally important point that the tribals in Chhattisgarh have been able to retain their culture and traditional way of life despite the all pervasive influence of forces of modernity. While tribal people constitute 7.8% and 23% of the total population of India and Madhya Pradesh respectively they constitute 32.5% of the population of Chhattisgarh. According to the 1991 census the tribal population in the then districts of Chhattisgarh was: Durg 12.6%, Raipur 18.6%, Rajnandgaon 25.3%, Bilaspur 23.4%, Surguja 54.8%, Raigarh 45.5%, Bastar 67.7%.

The various tribes in the Chhattisgarh region are Gonds, Muria, Bhumja, Baiga, Kanars, Kawars, Halbas etc. A few of these tribes particularly the Gonds have been influenced by the Hindu tradition and have in turn influenced local practices in the Hindu tradition as well. Other tribes like the Kamars and the Baigas have largely been untouched by the mainstream and have retained more of their traditional culture and way of life.

# The Naxals

The Naxals, a loose grouping of militant communists, are believed to have made inroads into Chhattisgarh during early 1980s. However, their presence in the State was felt only in late 1990s having established their stronghold in most of tribal belts in Surguja and Bastar where the government had little presence.

Official sources estimates the number of cadres of the Naxals in Chhattisgarh to be about 3,000. The Naxals have two units - Dalams and Sanghams. The Dalams are responsible for armed attacks while a Sangham is a bunch of hardcore over ground cadres. The majority of the cadres of the Naxals are Adivasis (Aboriginal), as the Naxalites adopted a policy to forcibly recruit one person from each Adivasi family. The girls had to be given if there is no male member in the family. The increasing development and encroachment in quite remote tribal areas due to natural resources has fuelled the Naxalite movement in these areas.

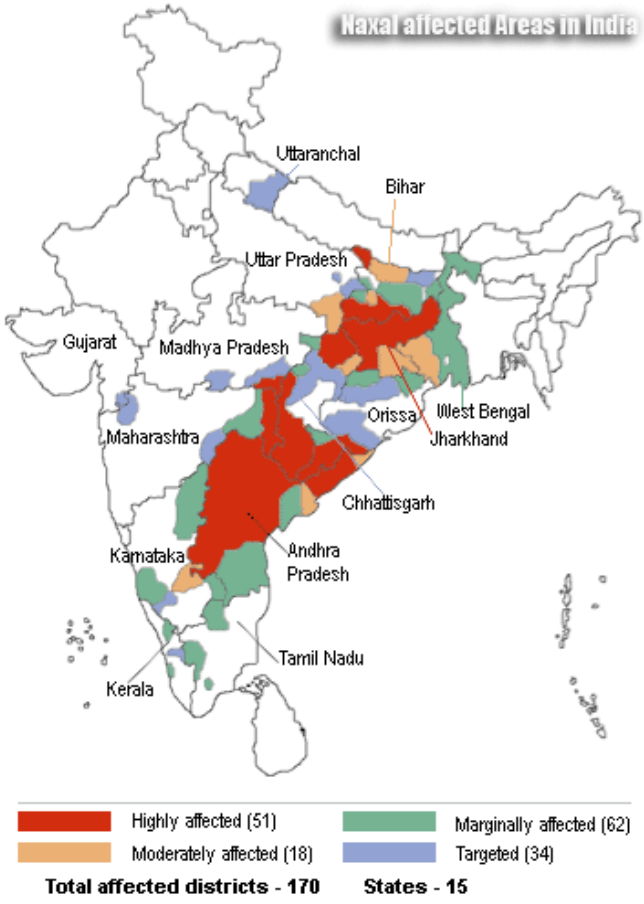



Figure 16 - Naxal affected areas in India
Source: Google Images

The reason why the Naxalites are the biggest threat to security is because of the way the issue affects States's economic development. This is apparent in several ways. For example, the more the Maoists concentrate on the poor and marginalised regions, the more economic development (which is imperative to improving those regions' conditions) will be hampered.

The conflict between economic progress and aboriginal land rights continues to fuel the Naxalite's activities. Their strongest bases are in the poorest areas of India. They are concentrated on the tribal belt such as West Bengal, Orissa, and Andhra Pradesh where locals experience forced acquisition of their land for developmental projects.

# Economy

Chhattisgarh has largely an agro-based economy despite having vast deposits of minerals. About 80% of the total population of Chhattisgarh depends on agriculture. Wheat, paddy, maize and groundnut are the major crops produced in the region. In fact, the state has often dubbed as the rice bowl of India.

The state is famous for its rice mills, cement and steel plants. Durg, Raipur, Korba and Bilaspur are in the forefront in industrial development.

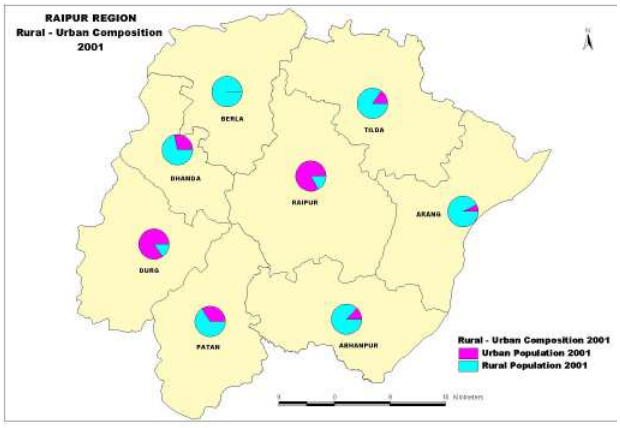



Figure 17 - Chhattisgarh GDP Growth Rate
Source: CES, 2006, Draf of Regional Plan

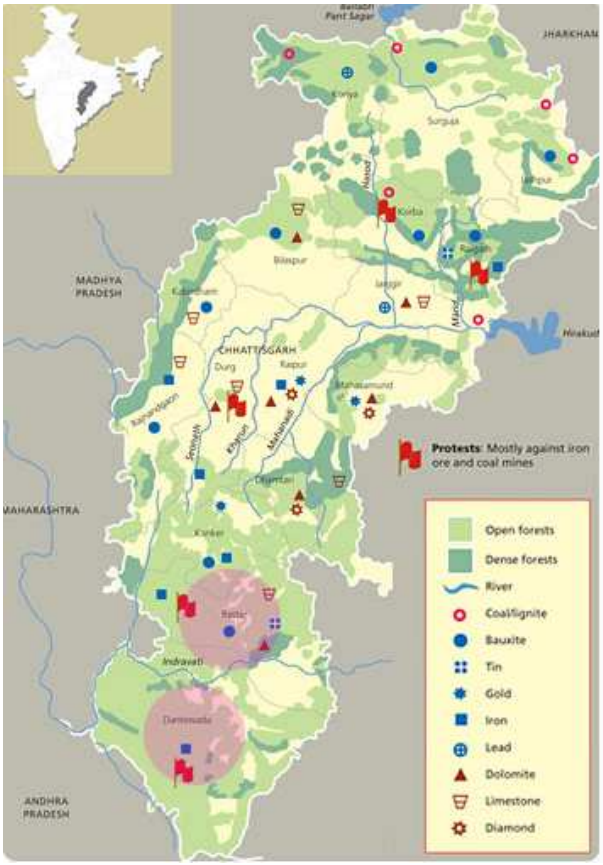



Figure 18 - Social and physical environvment of Chhattisgarh
Source: Google Images

Established in 50's, the Bhilai Steel Plant (BSP) in Durg district is the largest integrated steel plant of the country. It led to the development of a wide range of industries at Raipur and Bhilai.

There are also numerous big and small-scale cement plants in Raipur. Bilaspur and Durg districts, too, are home to a number of large-scale cement plants. Chhattisgarh produces about twenty per cent of the India's total steel and cement. A variety of mineral resources are found in this region including diamond, gold, iron ore, coal, corundum, bauxite, dolomite, lime, tin, granite etc. Notably, it is the only tin-ore producing state in the country. Other minerals such as korandum, garnet, quartz, marble, diamond are also found in Chhattisgarh.

Chhattisgarh is also a big contributor to power. According to estimates, Chhattisgarh has the potential to generate 40,000 MW of thermal and hydro power. With huge coal reserves, Chhattisgarh also offers cheap power generation which can be easily transmitted to any of the four grids of India. According to state government, about 90 percent of the villages in Chhattisgarh have been electrified.

With per capita of around 250 USD as of 2001, Chhattisgarh is considered as one of the rapidly developing states of India. Its GDP for 2004 is estimated at 12 billion USD.

# The urbanization pattern

Chhattisgarh is one of the less urbanized states of India, with only 20.09% of its population being urban according to 2001 Census, as against 26.67% in Madhya Pradesh and 27.78% in India. The State occupies 27th rank among 35 States of India on the basis of percentage of Urban Population and it is accounted for 1.46% of Total Urban Population of India in 2001.

There are wide variations in the levels of Urbanization among different Districts of the State. Among the 16 Districts of the State at the time of 2001 census, Durg District was the most urbanized District of the State, with 38.2% of the Population living in urban areas, followed by Korba District (36.3%), Raipur (30.4%), and Koriya (29.8%). The Jashpur District had the lowest level of Urbanization (4.6%), followed by Kankar (4.8%), Surguja (7.0%), Dantawda (7.2%), Kawardha (7.7%) and Bastar (10.0%). The three Districts of the State each with more than 30% Urban Population, Durg, Korba and Raipur, taken together, have 30 towns out of total of 97 in the State, and the remaining 13 Districts have 67 towns.

Table 1 - Level of Urbanization in the Districts
Source: Census 2011

| S. No. | District | % of Urban Population | Urban Pop. Growth (%) 1991-2001 |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
| 1. | Koriya | 29.8 | 5.54 |
| 2. | Surguja | 7.0 | 60.65 |
| 3. | Jashpur | 4.6 | 33.22 |
| 4. | Raigarh | 13.4 | 23.25 |
| 5. | Korba | 36.3 | 127.27 |
| 6. | Janjgir-Champa | 11.0 | 22.48 |
| 7. | Bilaspur | 24.4 | 12.75 |
| 8. | Kawardha | 7.7 | 30.87 |
| 9. | Rajnandgaon | 18.1 | 14.20 |
| 10. | Durg | 38.2 | 26.26 |
| 11. | Raipur | 30.4 | 49.77 |
| 12. | Mahasamund | 11.4 | 27.50 |
| 13. | Dhamtari | 13.2 | 12.70 |
| 14. | Kanker | 4.8 | 55.03 |
| 15. | Bastar | 10.0 | 19.28 |
| 16. | Dantewada | 7.2 | 61.44 |
| | **Chhattisgarh** | **20.18** | **36.24** |

# The rise of a new capital

The Government of Chhattisgarh envisaged Naya Raipur as the new capital city to establish the identity of the newly created state. After constituting the State of Chhattisgarh, Raipur faced shortage of space for civic Infrastructure and was ill-equipped to take on its new found role as the administrative capital of a rapidly growing state. It wouldn't be possible for the existing Raipur city to have an additional pressure on its services. Hence the site for the new town - Naya Raipur - is located in the southeastern direction of Raipur city.

## National Level Perspective

At the national level, Naya Raipur falls within the east-west urban corridor. In this corridor, which connects Mumbai to Kolkata, Nagpur and Nasik have developed as a metropolitan region, but a gap has been formed between Nasik to Kolkata. In Central India, no metropolitan cities have emerged to cater the service population. In the absence of a metropolitan region in Central India, the prospect of Raipur–Naya Raipur City to develop as a major metropolitan region is very high.

## State Level Perspective

At State level the maximum concentration of urban settlement is along NH-6, which links Raipur and its surrounding region with Eastern India to Western India. The corridor has been the major transportation route for raw materials from the State of Bihar, Odisha and Chhattisgarh, which is further transported to industrially developed area in the Western India. The major agglomerations in this corridor are: Raipur Urban Agglomeration and Durg - Bhilai Urban Agglomeration. The strong linkages can be seen in this corridor where more than 40 percent of Chhattisgarh urban population resides.

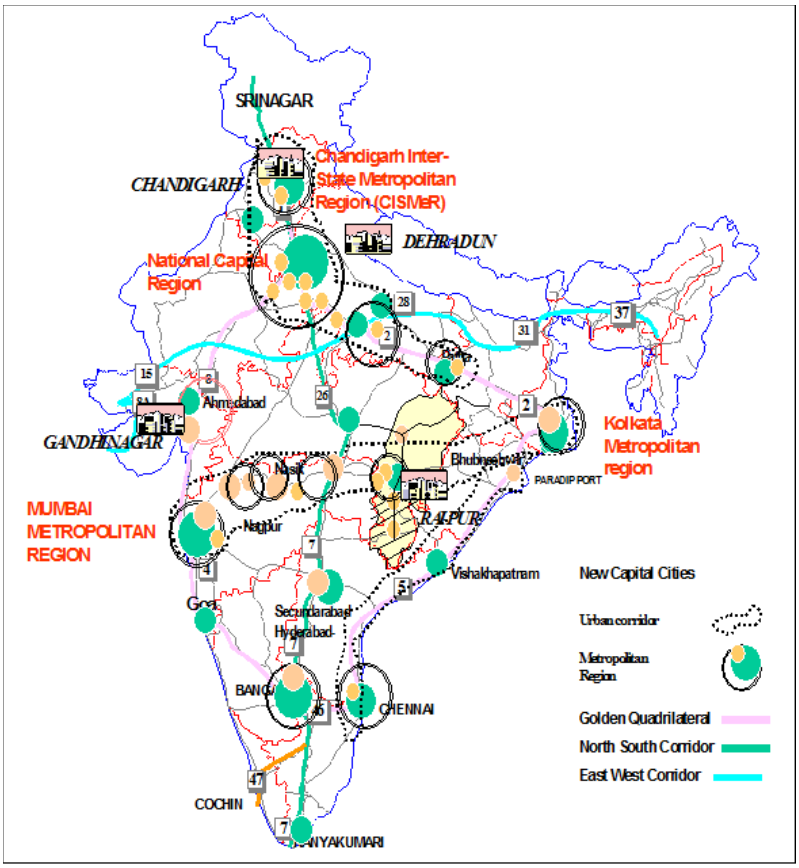



Figure 19 - National Level Perspective
Source: CES, 2006, Draf of Regional Plan

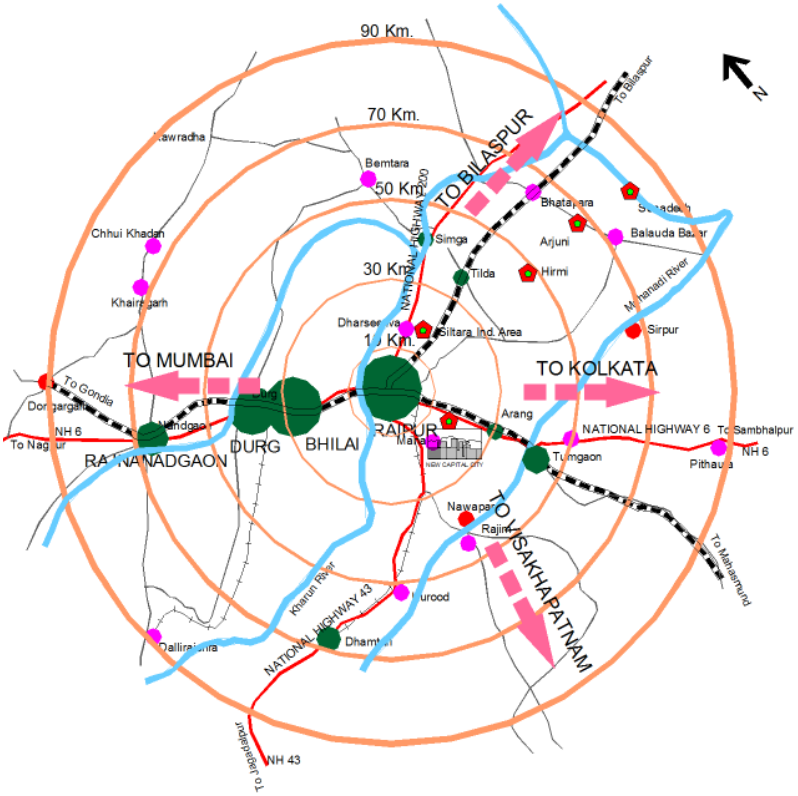



Figure 20 - State Level Perspective
Source: CES, 2006, Draf of Regional Plan

Apart from Naya Raipur, the main urban centers in the region are Raipur and Durg-Bhilai urban agglomerations. Raipur and Durg have shown diversified economy where service, trade and commerce are the dominant activities. Bhilai functions mainly as an industrial town, with the Bhilai Steel Plant polarising its economic activies.

The region is full of rivers, streams, ponds, small reservoirs and an extensive canals network. Three reserved forests are also present.

The Raipur Region is well located and crossed by many roads of national importance such as the Great Eastern Road (Mumbai–Kolkata), and Raipur-Dhamtari-Vizag. Located in the Bilaspur-Durg section of the Mumbai-Howrah railway line, it is also connected by air links with major cities of the Country.

# CHAPTER 3

## regional level context

NEIGHBORING URBAN CENTERS TO RAIPUR

DISTRIBUTION OF SETTLEMENTS AND ITS IMPACT ON WORK DEPENDENCY

POPULATION GROWTH AND DENSITY

PHYSIOGRAPHY OF THE REGION

REGIONAL LINKAGES

THE FIRST STEPS OF THE REGIONAL STUDY

# Neighbouring urban centers to Raipur

## Raipur Urban Agglomeration

Being the capital of the state, Raipur has witnessed rapid increase in population. It includes Raipur Municipal Corporation; outgrowth of Shankar Nagar, Telibandha, Labhandih, Purena, Amlidih, Changera, Raipurkhas, Raipura, Tatibandha, Hirapur Jarwai, Khamtarai, Rawabhata; and two census town of Bhanpuri and Mowa. According to 2001 census, the total population of Raipur urban agglomeration was 699,264. There are three national highways which pass through Raipur (NH-6, 43 and 200). It has an airport and it is on the main rail route between Mumbai and Kolkata.

## Durg – Bhilai Urban Agglomeration

Durg – Bhilai urban agglomeration includes Durg Municipal Corporation, Bhilai Nagar Municipal Corporation, Bhilai Charoda Municipality, Jamul Nagar Palika and Kumhari Nagar Palika located in the east part of Seonath River. According to the 2001 census, the total population of the urban agglomeration was 923,559.

Durg is a unique mixture of oldness and modernity, culture-rite and entrepreneurship. Establishment of Bhilai Steel Plant in Durg district has created vast opportunities for industrial progress on one hand and on the other hand Durg district has become centre of many other productive activities.

Bhilai Nagar is divided into 10 sectors and various other areas. It is part of the new towns set up in independent India to enhance modernization, productivity, development, in contrast to the organic development seen in Durg.

## Naya Raipur

A planned and designed Naya Raipur consists of ten fully included and fifteen partly included villages into the Development Plan. Within the peripheral control zone the total area under Capital Area Development Authority consist of 48 villages (including 2 villages under Mana Airport).

Other Areas - Apart from the urban agglomerations of Raipur and Durg-Bhilai, there are 13 urban centres and 963 villages in the region.

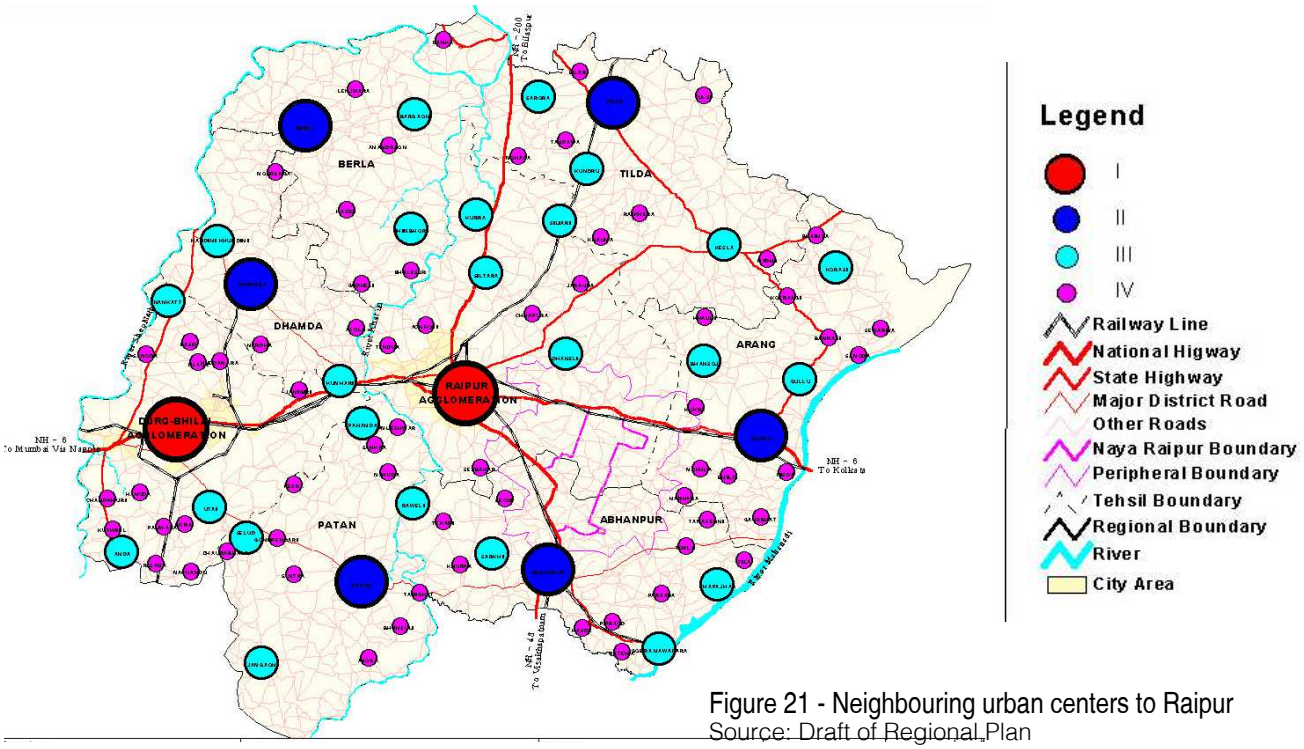



Figure 21 - Neighbouring urban centers to Raipur
Source: Draft of Regional Plan

Figure 22 - Service road in Bhilai

Figure 23 - Road edge in Bhilai


Figure 24 - Commercial Complex in Bhilai

Figure 25 - Street in Durg

Figure 26 - City center in Durg

Figure 27 - Residential quarter in Durg

# Distribution of settlements and its impact on work dependency

Raipur acts as a multifunctional city. Within the state contiguous urban regions are emerging centered around Raipur City, Durg-Bhilai and Arang all linked to Mumbai and Kolkata with increasing fast rail and road transport.

The classification of urban centers is based on the specialized function that indicates the close relationship between population concentration and function. The concentration of workforce in different activities reflects the economic base of the town, which supports the base population and the outside population for its services.

The activity functions in the main urban centres are diversified. Raipur and Durg have shown diversified economy where service and trade and commerce are the dominant activity. Bhilai is still functioning as industrial town, where more than 40% of workforce is engaged in industrial activity. Trade and Commerce have also gained momentum. Jamul, Chaoni are purely industrial town where about 70% of the total workforce is engaged in the industrial activity. Kumhari has also shown its orientation towards an industrial economic base.

An emerging scenario of function of town shows that the main functions of Raipur have clearly been administration, trade and commerce; Bhilai is the industrial town; Arang and Patan the distributive centers. Growth dynamics of towns in the region reflects the favoured location of many industries and business in the corridor of NH-6 and NH-200.

Table 2 - Main function of major towns

| Main Function of Town | Name of Town |
|---|---|
| Services, Trade & Commerce | Raipur, Durg, Tilda |
| Industry | Bhilai, Jamul, Kohka, Chaoni |
| Primary- (Agro-supported) | Patan, Arang |

Source: Draft of Regional Plan

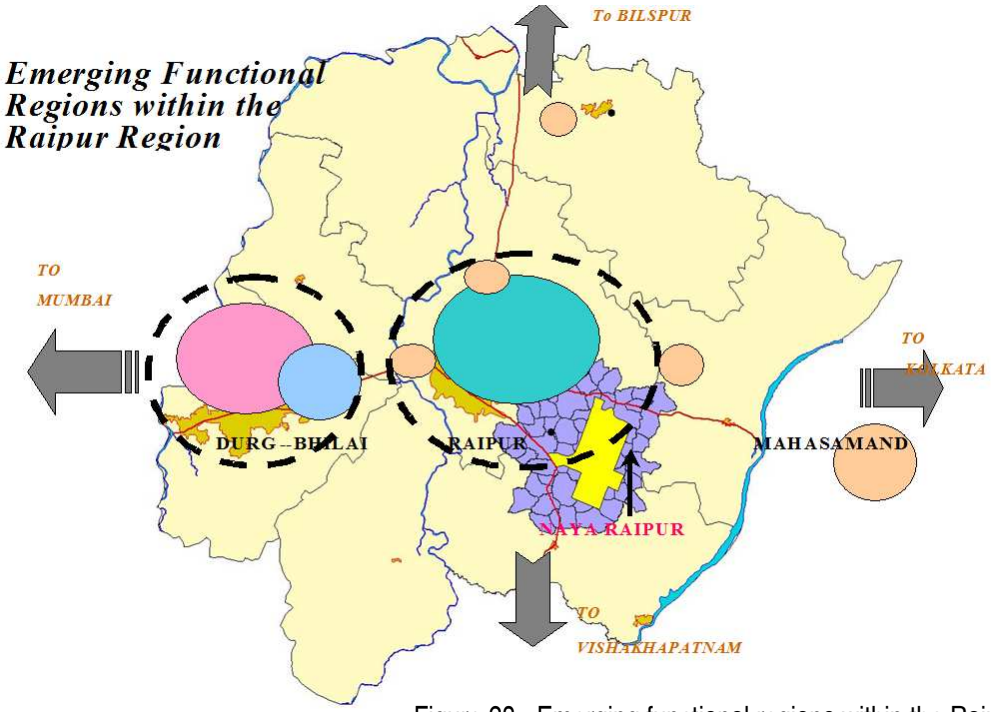



Figure 28 - Emerging functional regions within the Raipur region
Source: Draft of Regional Plan

# Population growth and density

As per 2001 census, the total population of the Raipur Sub-Region is 1,521,560 while the total population of the Durg Sub-Region is 1,538,925. Raipur tehsil has maximum population followed by Durg since these are the most industrially developed areas not only in the region but also in the state. Minimum population is in Berla tehsil which has no urban population. The average density of the region is 593 persons per sq. km. The population density in Raipur Sub-Region was 524 persons per Sq.km and Durg Sub-Region was 682 persons per Sq. km. The highest density pattern is in Durg Tehsil (1655 persons per km$^2$) followed by Raipur Tehsil (1016 persons per km$^2$). The lowest density is in Berla.

The overall decadal population growth in 1991 - 2001 in the region is 33.94 percent. Due to the formation of the new state, Raipur Sub-Region has witnessed higher increase in population growth than Durg Sub-Region. The highest population growth is in Raipur tehsil.

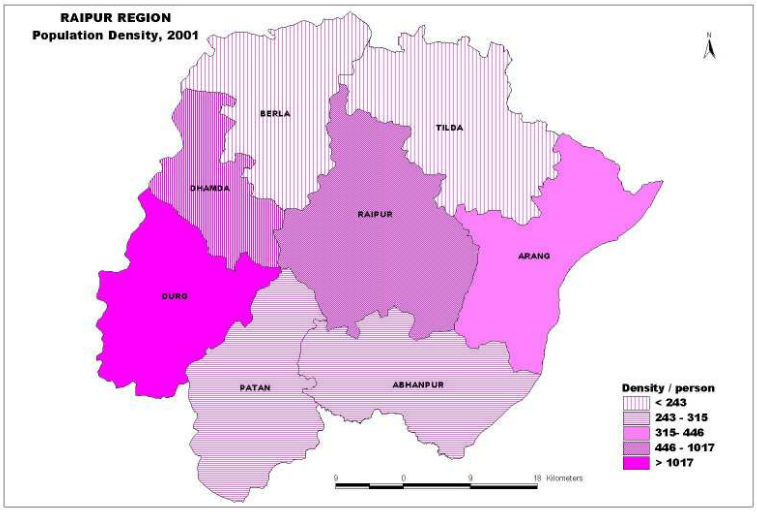



Figure 29 - Raipur Region Population Density, 2001
Source: Draft of Regional Plan

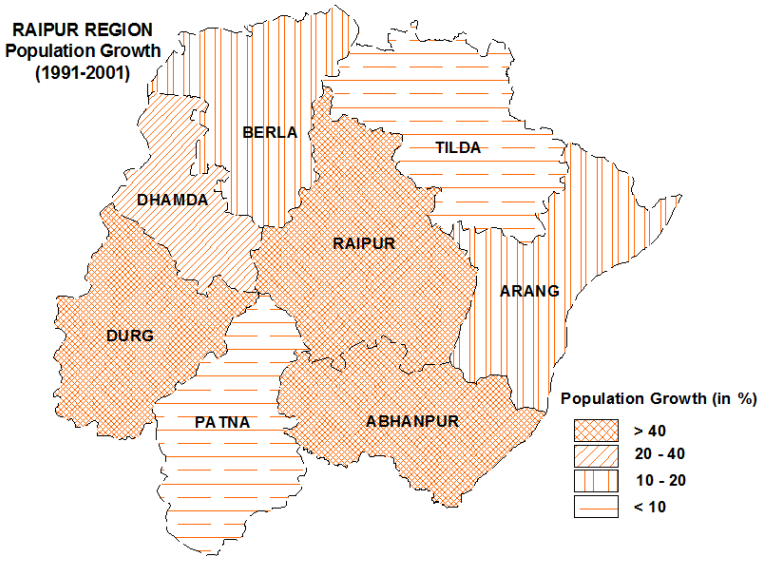



Figure 30 - Raipur Region Population Growth (1991-2001)
Source: Draft of Regional Plan

Table 3 - Tehsil Wise Area, Population and Density, 2001

| Tehsil | Area (km$^2$) | Population | Density pop. / km$^2$ | Tehsil | Area (km$^2$) | Population | Density pop. / km$^2$ |
|---|---|---|---|---|---|---|---|
| Raipur | 888.81 | 903,242 | 1016.24 | Durg | 626.00 | 1,036,537 | 1655.13 |
| Arang | 649.24 | 243,074 | 374.40 | Patan | 622.78 | 194,522 | 312.34 |
| Abhanpur | 629.63 | 197,661 | 313.93 | Berla | 623.73 | 137,469 | 220.40 |
| Tilda | 732.70 | 177,583 | 242.37 | Dhamda | 382.62 | 170,397 | 445.35 |
| Raipur Sub-Region | 2900.38 | 1,521,560 | 524.61 | Durg Sub-Region | 2255.38 | 1,538,925 | 682.33 |
| Raipur Region | 5155.76 | 3,060,485 | 593.61 | | | | |

Source: Draft of Regional Plan

Table 4 - Population Growth, 2001

| Teshsil | Population 1991 | Population 2001 | Growth rate (1991-2001) | Tehsil | Population 1991 | Population 2001 | Growth rate (1991-2001) |
|---|---|---|---|---|---|---|---|
| Raipur | 609,705 | 903,242 | 48.14 % | Durg | 728,338 | 1,036,537 | 42.32 % |
| Arang | 203,638 | 243,074 | 19.37 % | Patan | 182,749 | 194,522 | 6.44 % |
| Abhanpur | 136,138 | 197,661 | 45.19 % | Berla | 123,393 | 137,469 | 11.41 % |
| Tilda | 163,001 | 177,583 | 8.95 % | Dhamda | 138,082 | 170,397 | 23.40 % |
| Raipur Sub-Region | 1,112,482 | 1,521,560 | 36.77 % | Durg Sub-Region | 1,172,562 | 1,538,925 | 31.24 % |
| Raipur Region | 2,285,044 | 3,060,485 | 33.94 % | | | | |

Source: Draft of Regional Plan

# Physiography of the region

## Relief and Topography

In general, the surrounding Region has a gentle topography with slopes ranging between 0% to 5%. The maximum elevation in the Region occurs close to Abhanpur in the south (320m) whereas the lowest areas in the Region are along the Kharun and Mahanadi rivers (250m).

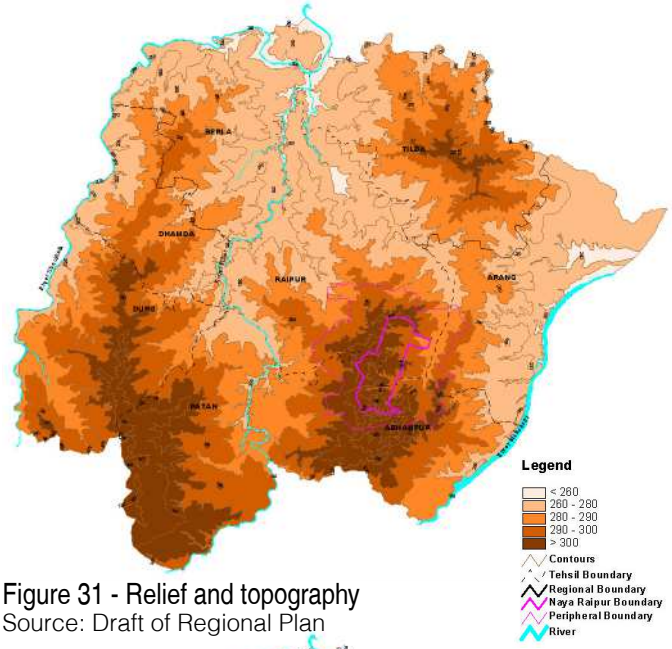



Figure 31 - Relief and topography
Source: Draft of Regional Plan

## Drainage Pattern

There are three main rivers flowing towards north and north-east within the region. These are Sheonath on the west of Durg, Kharun on the west of Raipur and Mahanadi at the extreme east of the region. Besides these, Kulhan nallah drains the area on south-east of Raipur and joins Kharun river. Other than the individual catchments areas of the rivers and nallah, sloping towards respective channels, general slope is towards east and north-east. Out of the total 192 km, 65 km of the Mahanadi River drains in the Raipur Region.

The region is full of rivers, streams, ponds, small reservoirs and canals. The region also has an extensive canal network, which is principally fed by the Mahanadi main canal that runs along the western bank of the river.

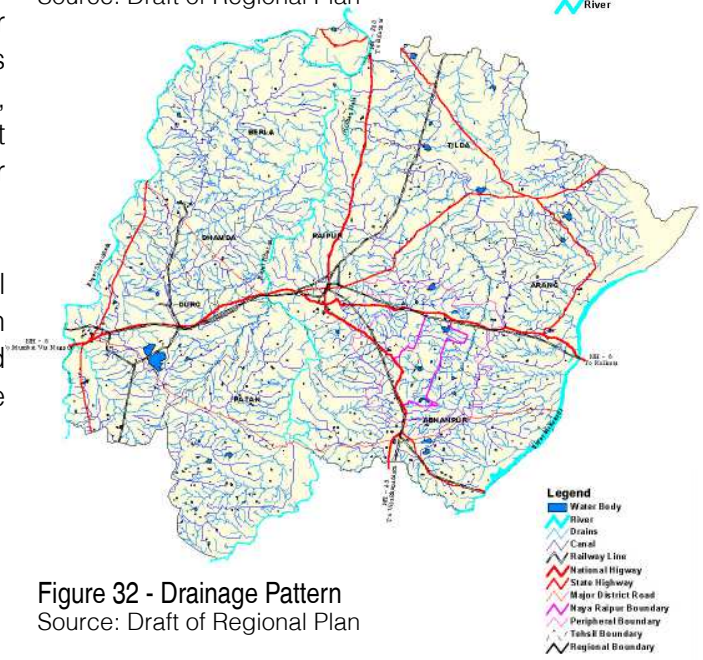



Figure 32 - Drainage Pattern
Source: Draft of Regional Plan

## Forest and Vegetation

The region has three reserved forests namely Bilari, Bilari Ghugat and Khaudabari, but these forests are now degraded. A few patches of dense forest are also observed close to Tilda. Further, social forestry plantations are present throughout the region wherein Eucalyptus and other local species like Neem, Mahua and Sisham are observed. Other tree species found in the Region consist of Peepal, Banyan and Mango trees, particularly along tank bunds. Acacia species are seen principally in the agricultural fields and in the upland stretches.

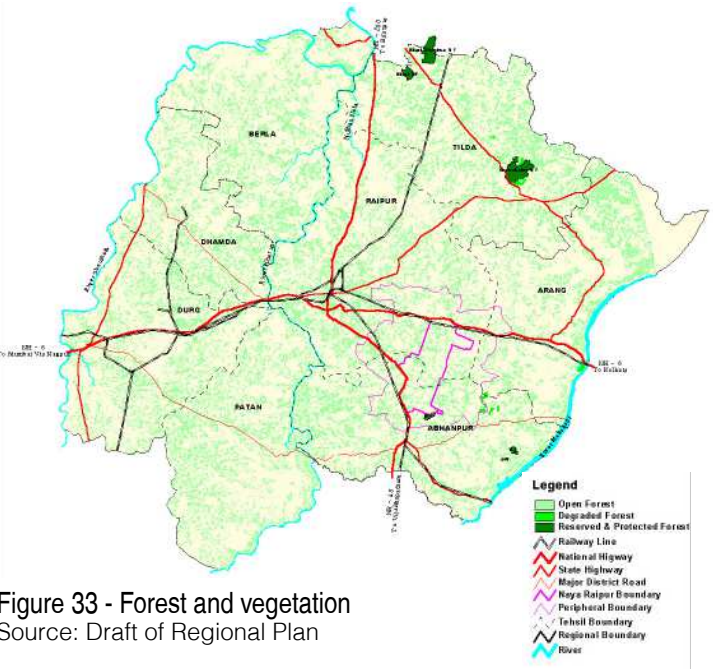



Figure 33 - Forest and vegetation
Source: Draft of Regional Plan

# Regional linkages

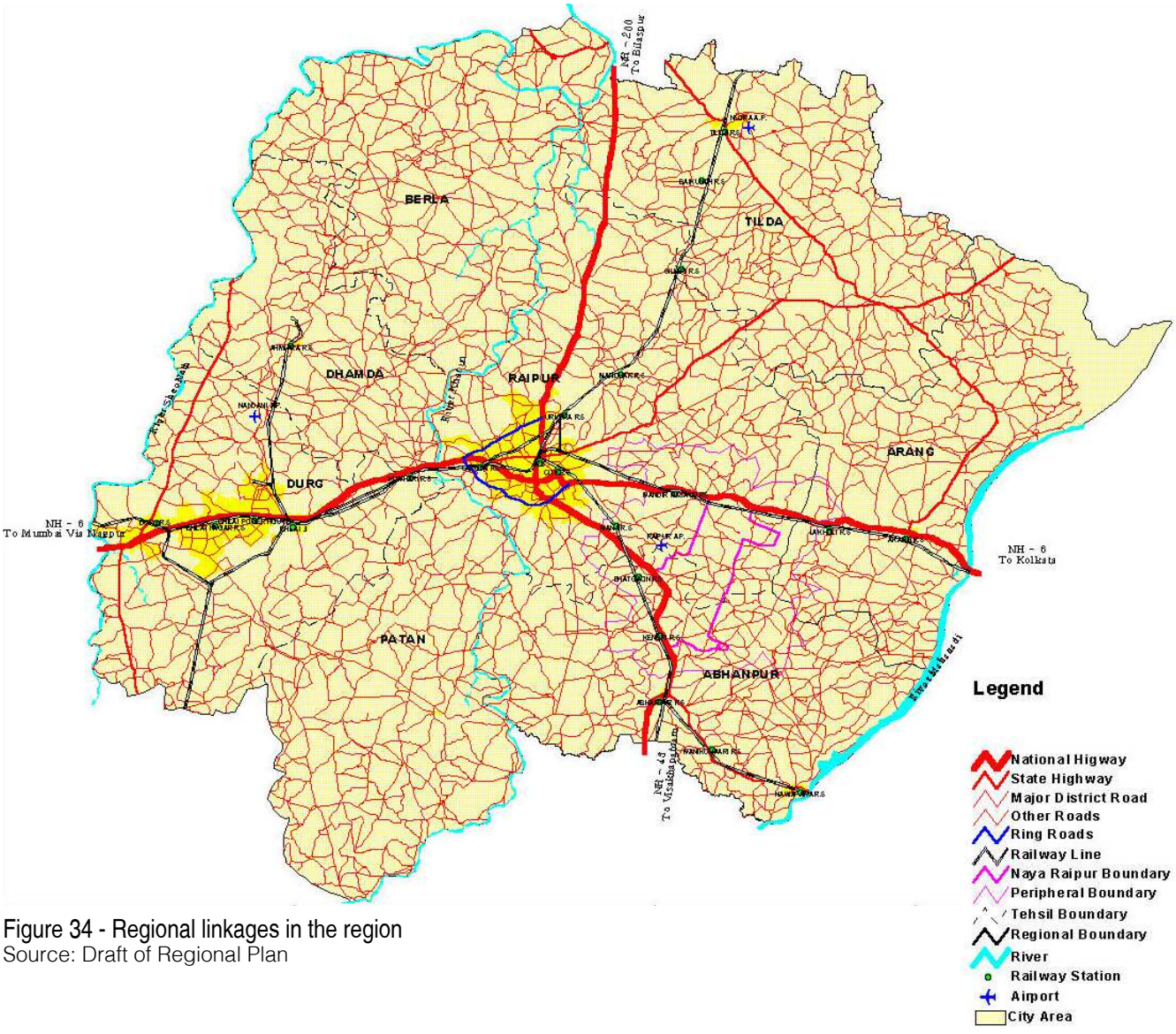



Figure 34 - Regional linkages in the region
Source: Draft of Regional Plan

The road network is the most important development determinant of any upcoming economy of the region. The Raipur Region is well located and transverse with many roads of national importance such as The Great Eastern Road (Bombay – Kolkata), and Raipur-Dhamtari-Vizag. Besides these, it is also connected by air links with major city of the Country.

## Road Network

The region is well connected by national highways (NH-6, NH-43 and NH-200) and three state highways (SH-2, 7 and 9). All the important towns of the Region like Bhilai (25 km), Durg (41 km), Jagadalpur (297 Km), Rajnandgaon (70 km), Bilaspur (115 km) Jabalpur (369 km) and Bhopal (712 km) are connected with Raipur by Road. Naya Raipur City is connected through NH-43 near Bhatgaon and NH-6 at Nawagaon village.

## Railways

Railways form a very important aspect of the transportation network in the region as well as in the State. It helps to transport a large quantity of minerals within and outside of the state. The railway network in the state is operated by the south Eastern Railway Headquarters in Bilaspur.

All the lines runs almost parallel to the NH and SH. Raipur lies on the Bilaspur-Durg section of the Mumbai-Howrah broad guage line of South-Eastern Railways. The other lines are from Raipur to Bilaspur and Raipur to Visakhapatnam. The railway lines and station provide facility for mass communication and goods transportation over the region.

## Airways

There are three airports in the region. Out of these, Mana is public, which is around 13 km from the city of Raipur in the southeast. The small airports near Tilda and Jamul are private.

# The first steps of the regional study

The study for the Raipur Region (Initiated by Department of Town and Country planning under the Provision of Regional Plan in the Chhattisgarh Nagar Tatha Gram Nivesh Adhiniyam, 1973) which is at halt now, aimed at balanced regional development in the region through dispersal of population, economic activity and infrastructure facilities. The scope of the study is to achieve the following objectives:

- Designating area for the urban growth and proposed industrial areas in the region to a well defined area and preventing urban sprawl
- Identifying potential areas for new towns
- Designating green and forest areas as eco-sensitive zones with a view to conserve agriculture, rural, and forest areas

The Report indicates Proposal for settlement pattern, proposal for the distribution of the Industries, proposal for the improvement of road network plan, infrastructure and tourism development , Environmental aspects and also a Proposed land use plan.

The Draft Regional Study defines a study region of 5155.76 $km^2$. The Region has been delineated on the basis of its physiographic homogeneity, potential economic / functional influence on the hinterland, emerging urban growth centres and administrative boundary.

## Existing Land Use

The State has 44 percent of the total area under forest cover. However, the area under the forest in the region (27 percent) is lower than the state average. The forest cover in the region is highly degraded due to the mining activities in the dense

forest area and exploitation of forest resources for fuel wood and other forest products.

Other Non Cultivable Land in the region is 1355.39 is km$^2$ which includes wasteland, barren land, area under shrubs, pasture land and area under roads. Some parts of the wasteland are to be used for social forestry since people in Chhattisgarh have high dependence on forest. The products from these forests are to be used in developing agro-based industries in the region.

## Some observations of the study

The study designates areas like intensive development area, potential development area and areas for the development of the rural settlement.

The areas of intensive urban development include Raipur Urban Agglomeration and Durg-Bhilai Urban Agglomeration. Raipur Urban Agglomeration would mainly focus on trade and commerce and Durg-Bhilai Urban Agglomeration on heavy industries.

The areas for potential Urban Development are tehsil headquarters, other urban centres and new towns. Naya Raipur is to be the centre for state administration, new developing economic activities, software industry, education and research, and a focus on outdoor recreation.

Apart from Naya Raipur two more new towns could be developed:

- 1. Along NH-200 from Raipur to Tilda and before the mineral belt
- 2. Along the MDR which connects Durg with Patan.

These areas are connected by good transport network. Moreover, it will help to release the pressure of Raipur and Durg-Bhilai urban agglomerations in the region.

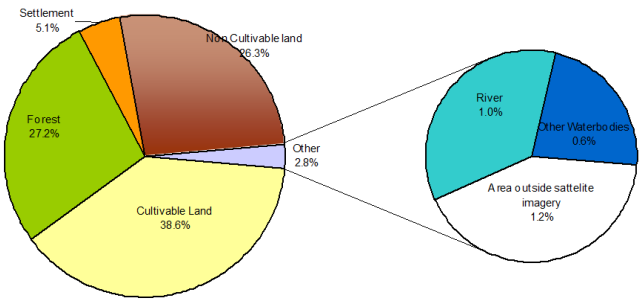



Figure 35 - Existing land utilisation pattern in the region
Source: Draft of Regional Plan

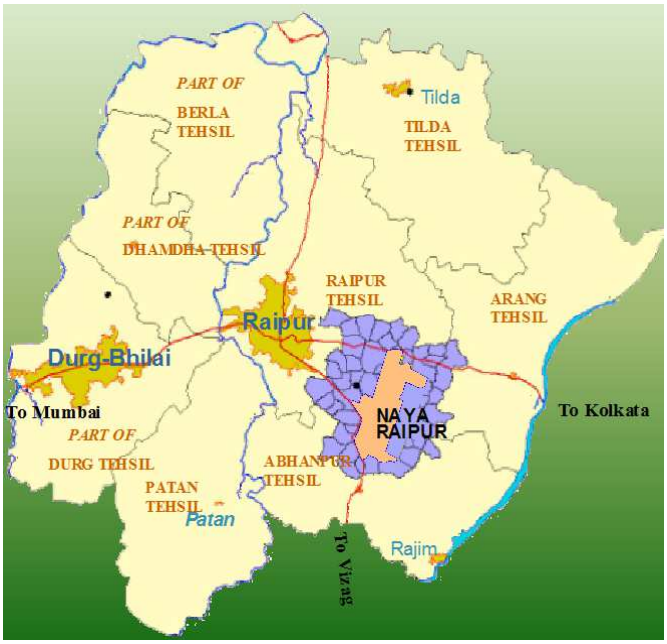



Figure 36 - Main urban agglomerations in the region
Source: Draft of Regional Plan

The structure of Raipur may be defined by a strong nucleus which acts as a major node for commercial and public activities. The major Nodes and Landmarks are along GE Road and NH-200, while Malviya Road also accommodates many historic buildings. Sadar Bazar is tradionally a wholesale market and a major commercial node within the city. The typologies in the city include traditional Mughal influenced architecture, colonial style public institutions, local style houses and modern buildings. Purani Basti is a maze of meandering lanes where the colonies are named after castes or professions of the people. A striking feature of Raipur is its ponds, locally called as 'talabs'.

Raipur Development Authority, one of the main institutions involved in local governance, has initiated a Town Development Schemes on peripheral areas with development of urban infrastructure and facilities to accommodate an increasing city population and improve the quality of urban life in Raipur.

# CHAPTER 4

## raipur - a brief

HISTORICAL EVOLUTION

EXISTING CITY STRUCTURE

MAJOR NODES AND LANDMARKS

THE URBAN CHARACTER

A TYPICAL VILLAGE

TRAFFIC AND TRANSPORTATION

THE CITY OF PONDS

GOVERNANCE AND LOCAL BODIES

RAIPUR MASTER PLAN – 2021

THE DIRECTION OF GROWTH

# Historical evolution

Raipur district was once part of Southern Kosal and considered to be under Maurya Kingdom. Raipur city had been the capital of the Haihaya Kings, controlling the traditional forts of the Chhattisgarh for a long time. The town of Raipur has been in existence since the 9th century, the old site and ruins of the fort can be seen in the southern part of the city. Satawahana Kings ruled this part till the 2nd-3rd century AD.

## Old site of Raipur

*'The old site of Raipur lays on the bank of river Kharoon, about 6,5 km southwest of the present site. Certain landmarks reveal the existence of a fort on the old site surrounded by a narrow and deep moat having four gates on the four sides. Among the factors leading to the selection of the site, the most important was the presence of a high land on the two banks of river Kharoon. Besides this, while the river on the one hand provided a defensive site, it also served as perennial source of fresh water supply'* - INTACH

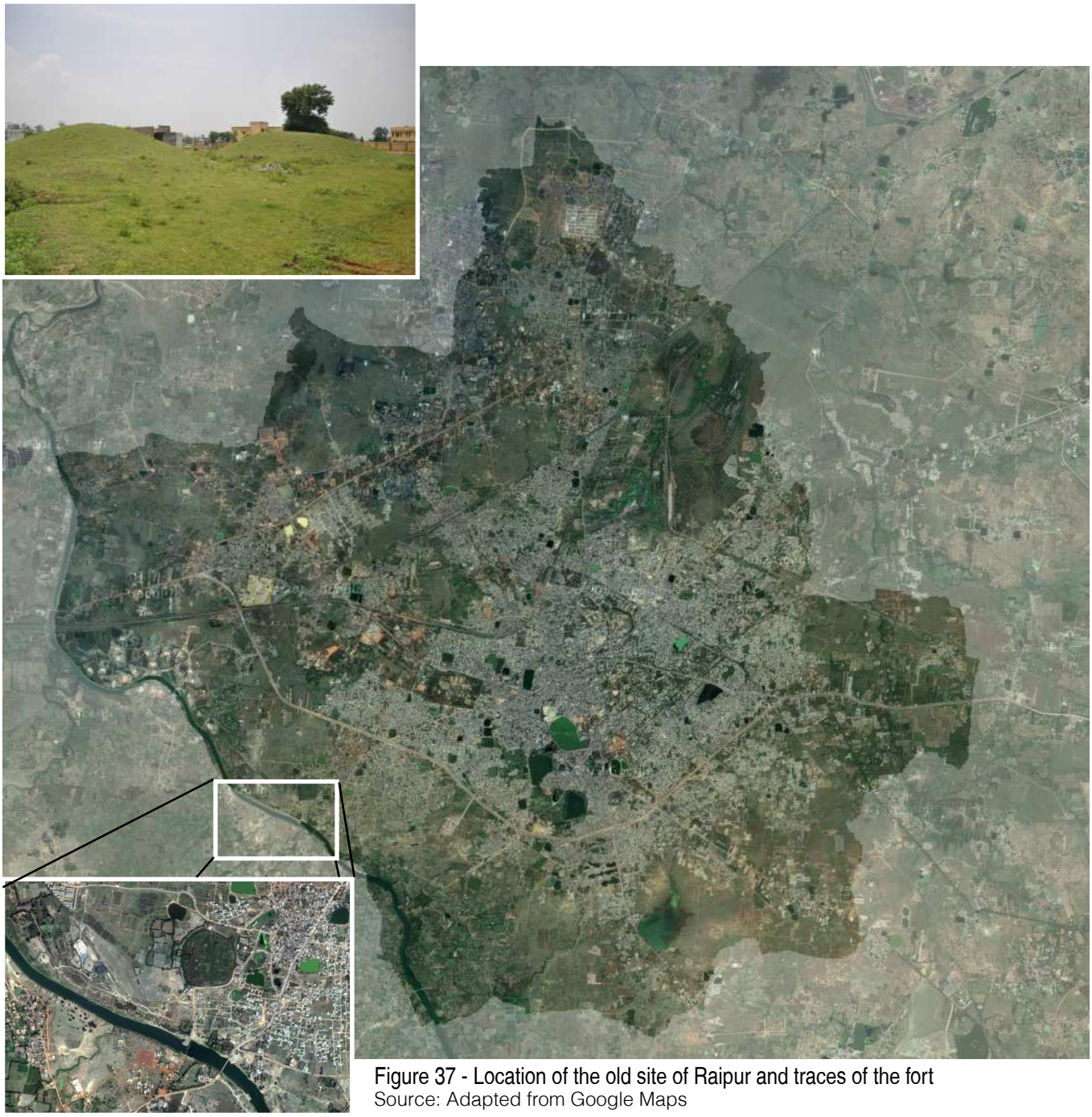


Figure 37 - Location of the old site of Raipur and traces of the fort
Source: Adapted from Google Maps

## Changing of the Site

During the reign of Bhuwaneshwardeva, the old settlement of Raipur was shifted to the present site when he got a new fort built at a better defensive site, close to the Boorha Talab in 1460 AD.

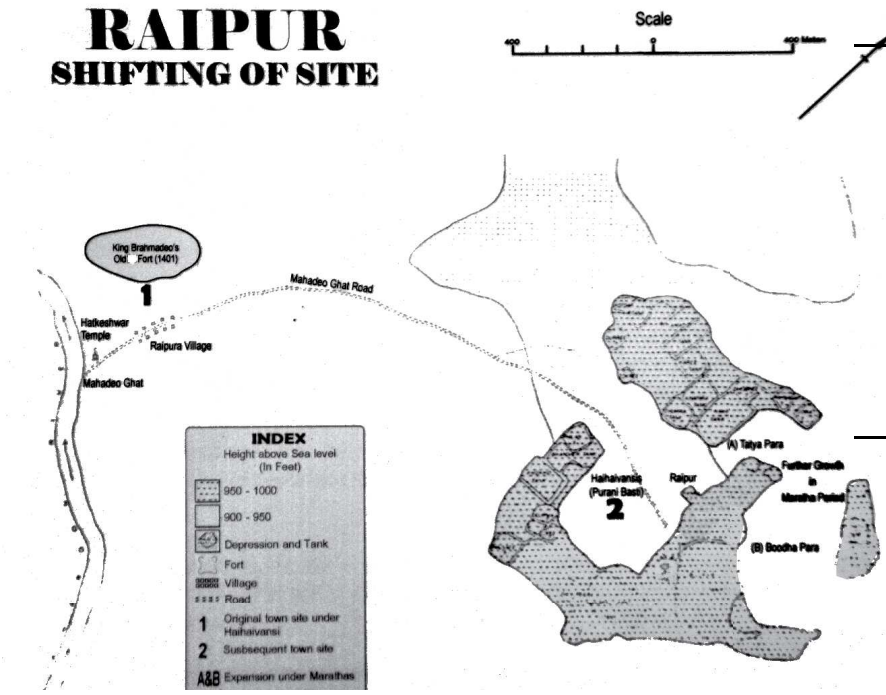
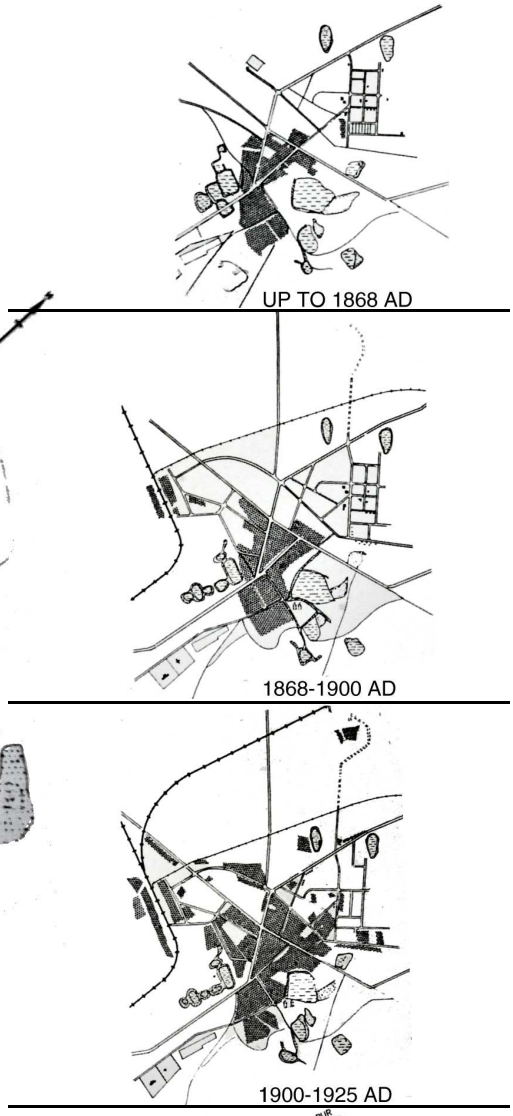



Figure 38 - Raipur: shifting of site
Source: INTACH




## Evolution

Raipur has passed through many stages of its evolution which can be broadly divided here, into the following periods;

- The Haihaivansi period
- The Maratha period
- The British period
- The Post- Independence period

The capital of Chhattisgarh was shifted from Ratanpur and it remained under the British influence from 1818 to 1947.

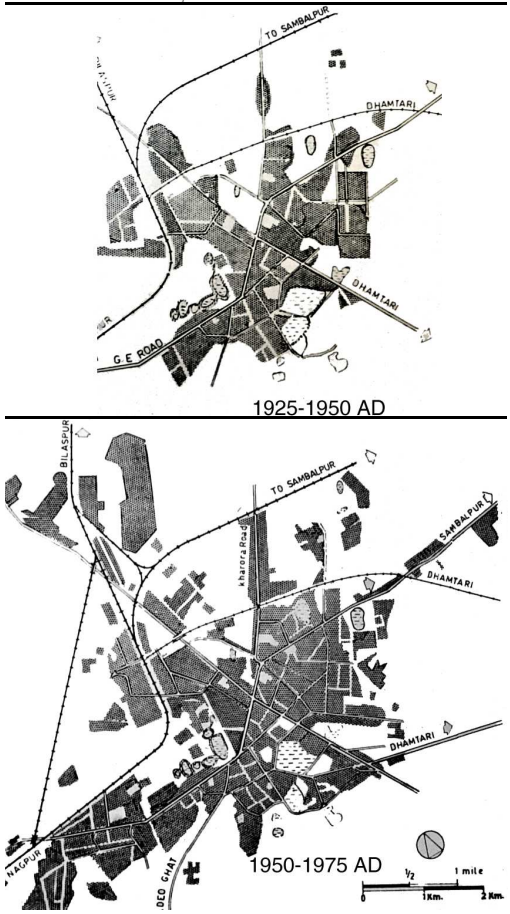



Figure 39 - Evolution of Raipur
Source: Dhar, 2002

# Existing city structure

The city structure of Raipur is defined by a strong nucleus which is the intersection of GE road and NH 200. It acts as a major node for commercial and public / semi-public activities. The growth of the city is apparently guided by the NH-6 which runs on the southern periphery of the city and restricted along the northern side by the railway line. This led to the growth of industries and wholesale markets and go-downs along it which triggered the expansion on the northeastern and southwestern side of the city.

The urban pattern is generally unorganized and unplanned resulting in urban sprawl. Though the current Raipur Masterplan 2021 has triggered high density commercial development along the eastern and western peripheral parts and planned residential development through Town Development Schemes on the adjoining green field areas along the NH-6, the inner city core lacks adequate infrastructure and basic amenities.

*"Official records also indicate the development of a huge land area by unscrupulous colonizers who changed the use of land from agricultural to residential. The unauthorized colonies and the jhuggi clusters alongside have occupied 562 hectares or more of land"* (Dhar, 2002).

Another major characteristic of the city is the interconnected system of talabs (ponds) and the settlements around it. Most of it is manmade and in a degraded condition now. The oldest of the lakes is Budha Talab which is believed to be more than 600 years old.

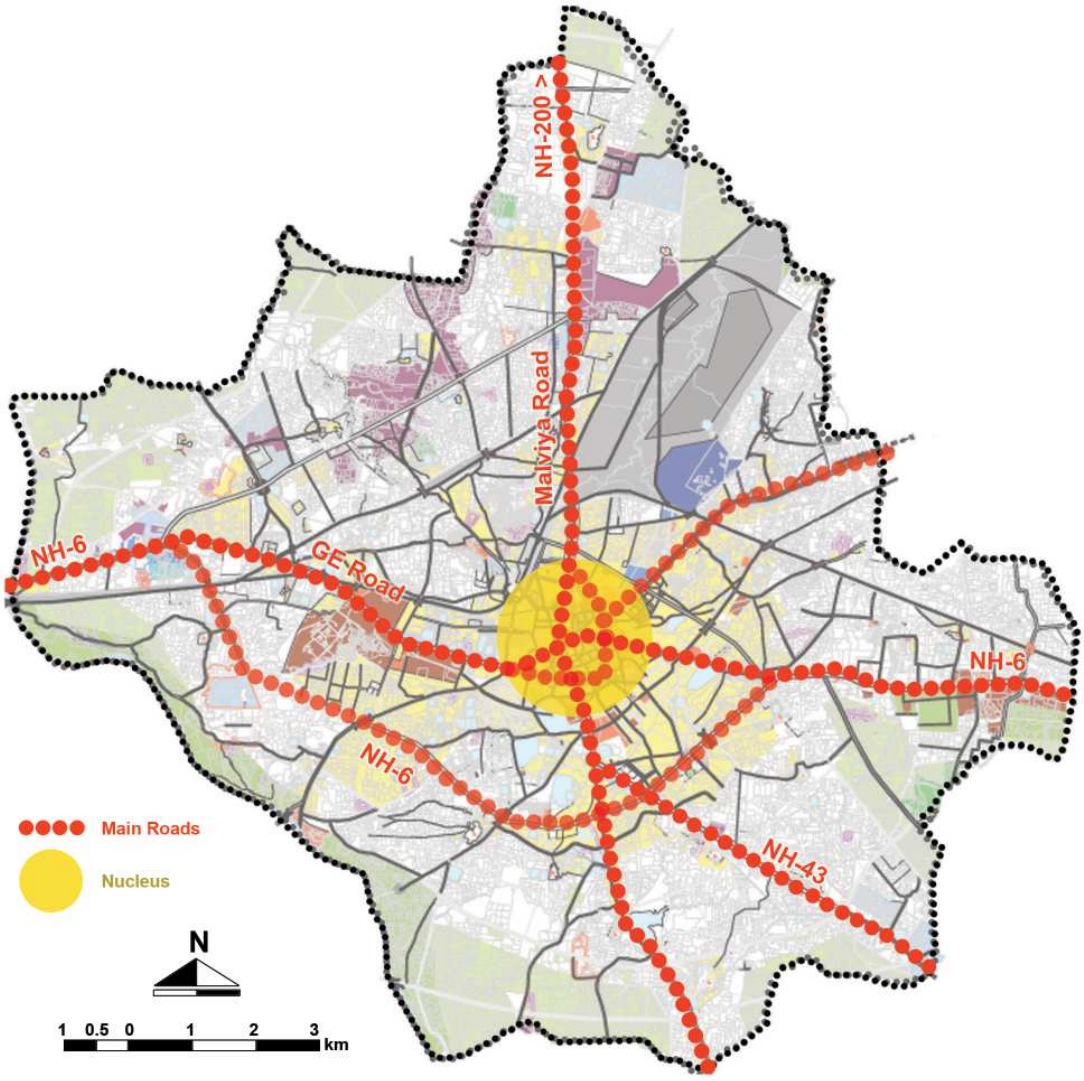



Figure 40 - Main roads of city structure
Source: Adapted from Google Maps

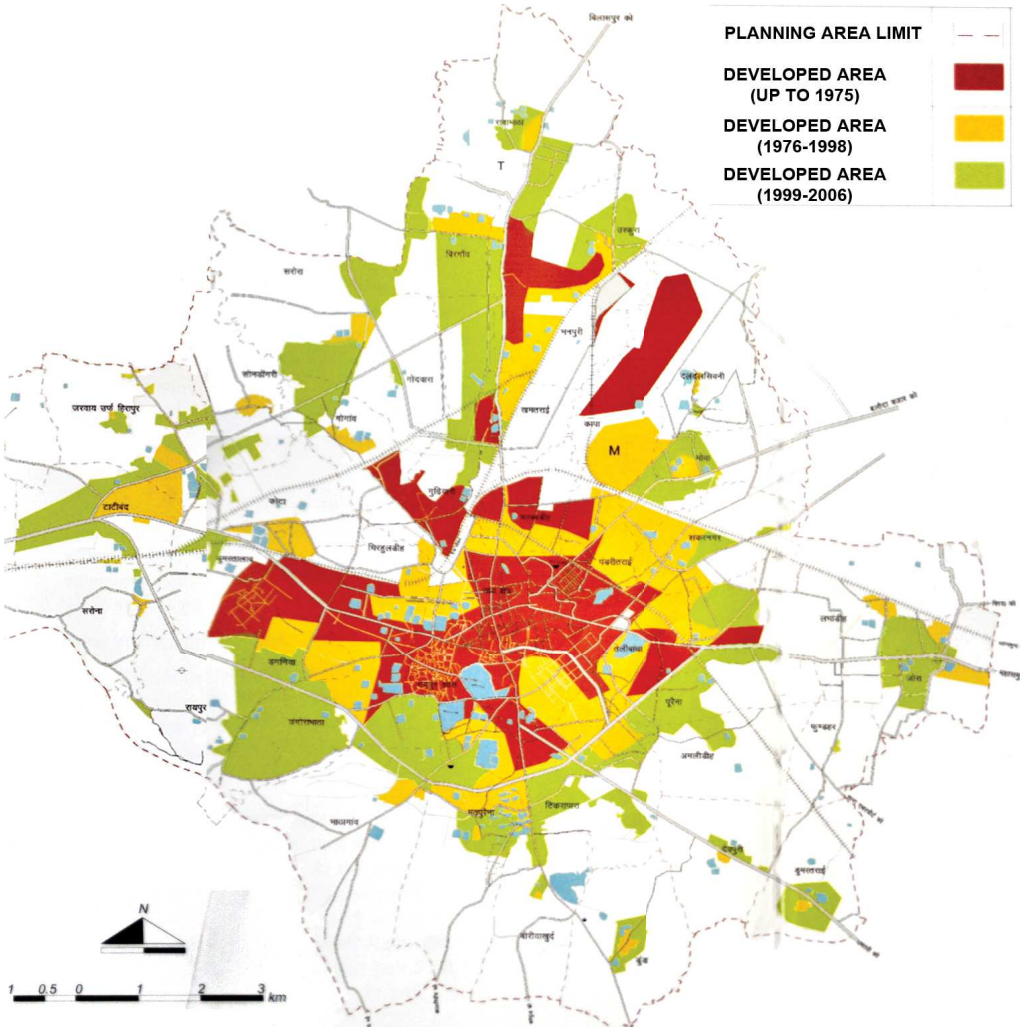



Figure 41 - Urban Sprawl in Raipur
Source: Raipur Masterplan 2021

Figure 42 - Water bodies in Raipur
Source: Raipur Masterplan 2021

# Major nodes and landmarks

The major Nodes and Landmarks are along the G.E road and NH 200 like Telibandha Lake, Jaistambh Chowk, Gadi Chowk, Sadaar Bazaar, Malviya road etc. The historic nodes developed during different periods are Raipura and Purani Basti (Kalchuri period), Brahmanpara and Taytapara (Maratha period) and Civil lines, Malviya road and Sadar Bazar (British period).

The 1.5 km long Malviya Road connects the Great Eastern Road with Kotwali and accommodates many historic buildings including the Imperial bank of India, Gole Bazar etc. The Jaistambh Chowk is where a 'Jaistambh' (Victory Pillar) was erected in Raipur celebrating Independence in 1947. These pillars were placed at the centrally located areas in all major cities in India. Close to the Malviya Road is the Sadar Bazar, traditionally a wholesale market and a major commercial node within the city.

Figure 43 - Jaistambh Chowk

Figure 44 - Telibandha

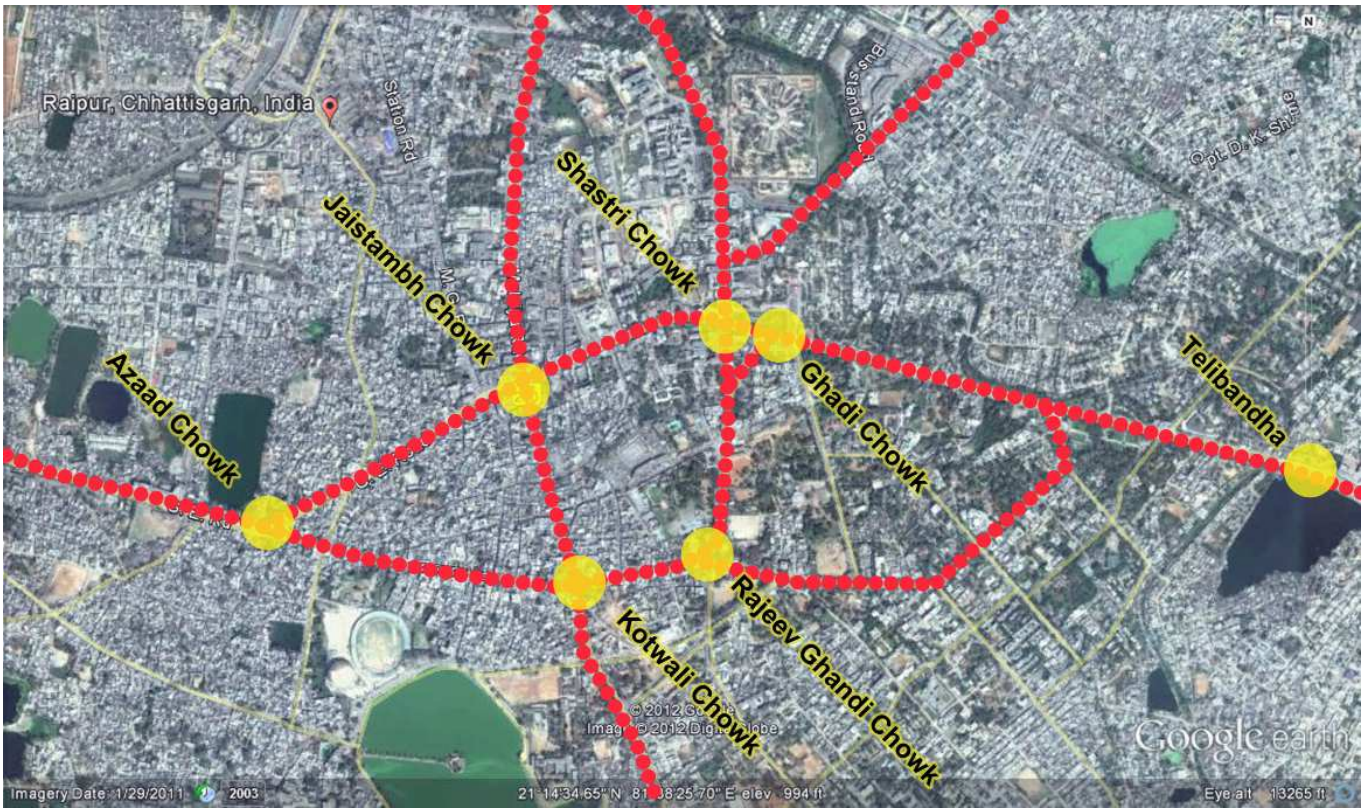



Figure 45 - Major nodes (chowks) in Raipur
Source: Adapted from Google Earth


Figure 46 - Some of the major nodes and landmarks

# The urban character

In any traditional Indian cities one can find 'Mixity' in its physical and social character. The urban streets are inherently accommodative and there are constant negotiations for space. Many streets are 'shared spaces' by default. The streets have a good mix of land uses where there are commercial shops on the ground floor with residential on the top floor. The traditional residential neighborhoods are necessarily connected to the major streets but always maintain a hierarchy of transition spaces for privacy and security. Also the building elements, like a verandah, which is a semi open space abutting the street, encourage interaction with the street but still offer privacy.

*"Even though Raipur doesn't have a rich architecture which to boast about its culture and tradition, the character of the city is well intact in its streets. The traditional constructions in the region were basically of earth and bricks. The use of stone was limited because there were no mountains, the primary source of stone. All the temples are also made of brick and mud. A traditional house in Raipur was made of bricks, mud and had a courtyard, verandah, drawing room, and a store room.*

*'Purani Basti (the old settlement) has a unique character. It is a maze of meandering lanes where the colonies are named after castes or professions of the people."* (Dhar, 2002). These Mohallas are knitted together with community level temples and public spaces. However the traditional character of the area is deteriorating due to the lack of proper conservation measures.

The typology and the urban character of the present city vary from traditionally crafted Mughal influenced architecture, colonial style public institutions, local style houses and modern buildings. The modern typology is high rise apartment blocks with commercial on the ground floor and residential on the top floors. The malls which are coming on the outskirts of the city are of contemporary architecture style and are giving a new definition to the public spaces in the city.

Figure 49 - Street in Mumbai
Source: Google Images

Figure 47 - A typical house in Chhattisgarh
Source: Archinomy

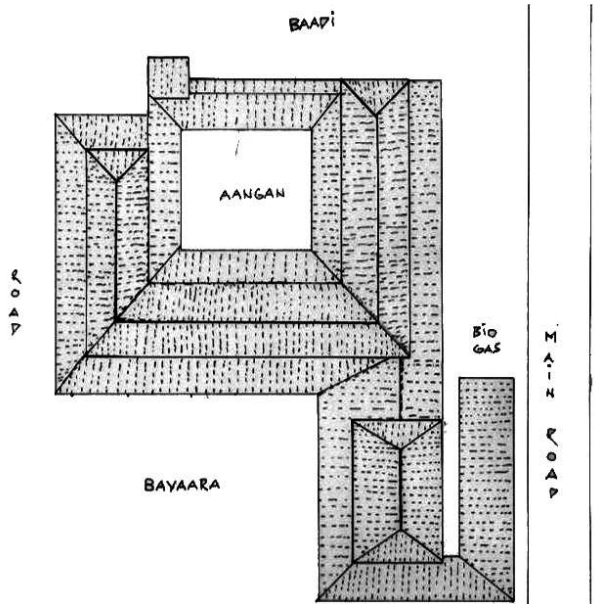



Figure 48 - Plan of a typical house in Chhattisgarh
Source: Archinomy

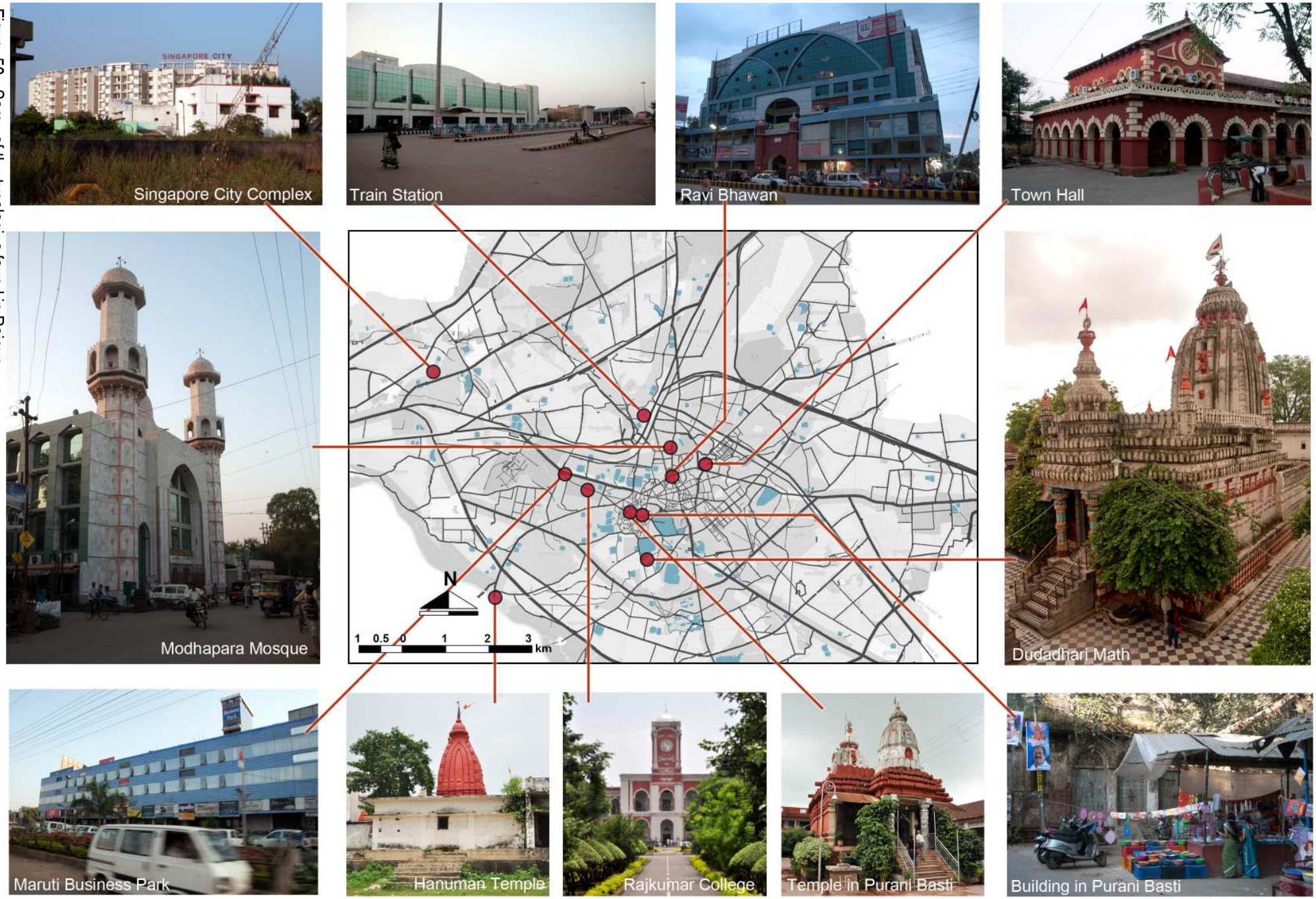



Figure 50 - Some of the typologies found in Raipur

# A typical village

Chhattisgarh comprises several villages. A major portion of the state`s total population lives in the villages. There are about 19,744 villages in Chhattisgarh and the villages represent a wonderful social and cultural diversity. People of various religions live in the villages in harmony.

Agriculture is the principal occupation in the villages. About 80% of the total population of Chhattisgarh is dependent on agriculture. There are several villages in the outer fringes of the city which are still intact in its customs. A typical village has a gathering/public space with shops and platforms for congregation of the villagers. The muddy streets are narrow and meandering with single storey houses located on either side. The streets converge at places to form semi public spaces for temple shrines. There are also open concrete podiums with roofing on the public spaces where cultural fairs and festivals happen.

The village is surrounded by paddy fields which is the primary source of occupation. Part from this, grazing ground for cattle's and goats are adjacent to this. The Ponds or 'Talabs' are important characteristic of any village. The villages depend on the Talab for daily use activities. Where there are more than one Talab within a village, there are sluices which help in releasing water during the monsoons. The water level in the talab needed to be controlled by these channels for its outflow. In some villages, the water from the talab is used for irrigation through these canals.

Figure 51 - Village near Devbaloda

Figure 52 - Pond in Naya Raipur

Figure 53 - Village life in Chhattisgarh
Source: www.cgspice.net

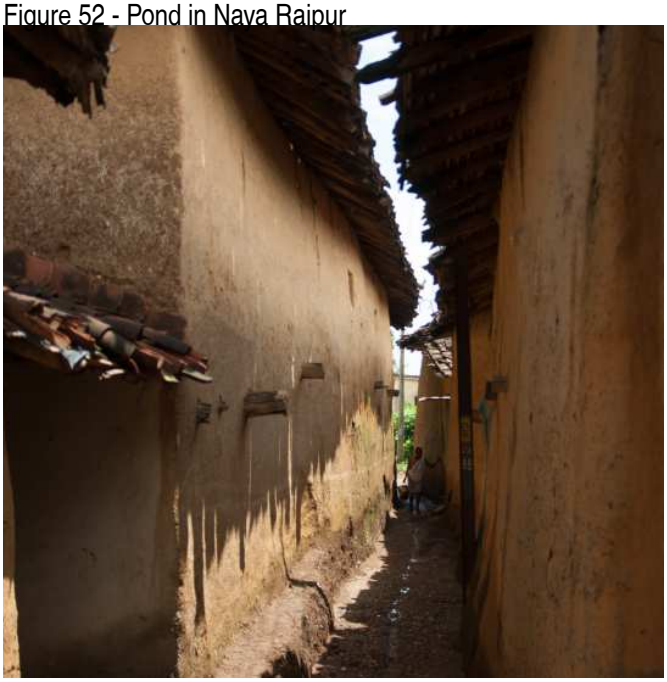


Figure 54 - Village near Devbaloda

# Traffic and transportation

Figure 55 - Different transportation modes in Telibandha

*'Despite ongoing urbanization, the demand for bicycles in Chhattisgarh is the highest in the country. Of every 1000 people, 98 own a cycle as against the national average where only 8 out of every 1000 own a bicycle. Until March 31, 2000 only 7.81 lakh vehicles were registered in Chhattisgarh, of these 6.43 lakh comprised motorcycles and scooters. The number of cars and jeeps was 31,000; taxis and three-wheelers 7,000; buses and mini-buses 12,000; trucks 35,000 and tractors and trailers 51,000.*

*The firm basis for a road system was laid down in Raipur in the times of the Marathas when the Great Eastern Road from Nagpur to Sambalpur was laid with the help of European Engineers. Until the time when the Nagpur – Raipur Railway line was laid in 1888, the road was the most important link from the commercial point of view. In 1862 the only metalled road in the district was the Great Eastern Road – the Imperial line – running from Nagpur to Sambalpur through Raipur*' (Dhar, 2002).

Presently, the city has exceeded the carrying capacity of its roads which are very much in an unmaintained stage. The traffic studies shown in the Raipur Development Plan 2021 reveal a huge shortage in the infrastructure. The study emphasizes the busy traffic nodes within the city and shows that the percentage of two wheelers and Cycle Rickshaws are higher than that of Heavy vehicles. Also it has been highlighted that during the peak hours, the traffic is higher at the central part of the city, like Jaistambh Chowk, than in Sharda Chowk or Tatyaband Chowk. Also the central areas of the city lack sufficient parking spaces where the areas near Sadar Bazaar, Kotwali Chowk, Jaistambh Chowk experience high demand for parking requirements. Some of the existing parking lots are either not maintained.

Figure 56 - An Indian street

Figure 57 - Sadar Bazar


Figure 58 - 2-wheeler on street parking in Raipur

# The city of ponds

A striking feature of Raipur is its ponds, locally called as 'talabs'. Dug for various purposes across the country, here the aim was to store water for domestic use and also to help increase the water table. The ponds not only helped in irrigation, but also were scientifically developed for water harvesting. *'30 years ago there were once 130 ponds is the city but now the estimated number is only about 30 – 35 which are also in a bad condition'* says Journalist Lalit Surjan. *The Older Raipur Master Plan proposed to fill some of the Talab and use up that land for commercial development and residential colonies, some parts of it was taken forward by the government. This affected the society who where depended on these Talab for their livelihood.*

*'The New Master plan proposes a historic step for the development of 54 ponds within and outside Raipur city. As many as 54 ponds have been identified in the master plan of which 16 had been earmarked for commercial use in the Old Master plan. The Government has changed the Land use of these Talab and proposed it to be developed as Tourist spots.*

*Traditionally there are certain tribes who were responsible for digging up the Ponds. The act earned respect among the society and there was collective owner ship towards the cleaning and maintenance of the Ponds. As the mud taken out of the ponds where very fertile, it was distributed to the farmers within and outside the village. Each pond has certain element along it which is inevitable for its existence. Every pond has a small Temple, a shaded tree (some time with raised platforms for resting) and a wooden or stone pillar on the banks used for measuring the depth of the ponds.'* (Dhar, 2002)

Raipur is dotted with such man-made ponds which were interconnected and acted as water detention ponds. But gradually as the city grew and the water supply lines were laid, the talabs were ignored and the road network interfered with these water channels.

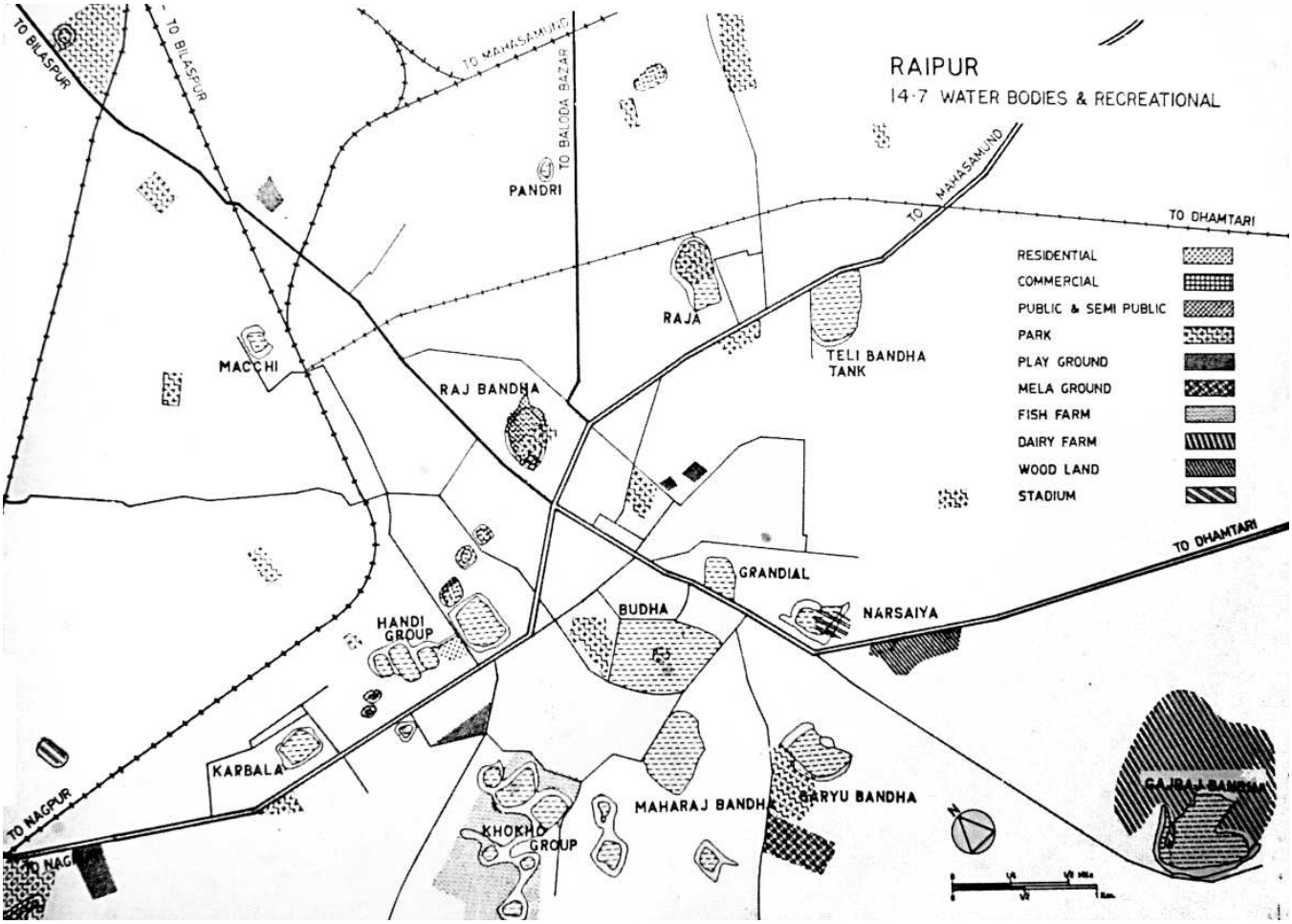



Figure 59 - Map of water bodies in Raipur
Source: Dhar, 2002

Hence the ponds are currently not maintained properly.

This is an example of a potential incompatibility between urban and rural practices that the Naya Raipur masterplan will have to deal with.

Figure 60 - Kankali Talab and the Ghat along it.

Figure 61 - Social gathering space in front of a pond

Figure 62 - Ghat on the edge of Khokho Talab

Figure 63 - Temple on the edge of a pond

# Governance and local bodies

source: City Development Plan – Under JNNURM (2006-2013)

Raipur Urban Agglomeration consists of the Raipur Municipal Corporation and a few outgrowths. A number of institutions are involved in the governance of Raipur city and surrounding Peri-Urban areas that constitute the Agglomeration. Some of them were established through Acts of legislature and others are part of state's governance framework.

The urban governance structure in city of Raipur comprises area level agencies under the department of urban development of Government of Chhattisgarh (GoC) as described below.

## Raipur Municipal Corporation (RMC)

Raipur Municipal Council was formed in the year of 1867 and on 26th August 1961 it was upgraded to Municipal Corporation status.

Raipur Municipal Corporation (RMC) has for administrative purpose divided the Raipur City into 8 zones and 70 wards. It has 70 elected councilors representing each ward. The Mayor is elected directly and selects a 10 member mayor-in-council from elected councilors. The Mayor-in Council is constituted for a five-year term. On the executive side, the Municipal Commissioner is the head of RMC. Besides the Commissioner, there are two Deputy Commissioners in-charge of Finance and Revenue & General Administration. The State Government has taken an initiative to upgrade administrative structure of RMC to cope up with increasing responsibilities. Additions to the supervisory structure are envisaged.

The functional domain of RMC consists of water supply, sewerage, sanitation, roads, streetlight, general public health, fire brigade services, parks and gardens, poverty alleviation etc. It runs 13 secondary schools whereas the State Government runs the primary schools. There are 14 hospitals in Raipur. It also maintains the fire services and horticulture services. The Corporation administers the centrally sponsored schemes for poverty alleviation.

Table 5 - Roles and responsibilites - inter relationship of various departments
Source: NRDA

| Institutions | Development of Master Plan | Urban Development | Water Supply | | Sanitation | City Road | Solid waste Mgmt | Housing | Slum Improvement |
|---|---|---|---|---|---|---|---|---|---|
| | | | Development | O&M | | | | | |
| Town & Country Planning Directorate | ✓ | | | | | | | | |
| ULBs-Municipal Corporations Municipalities and Nagar Panchayats | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ |
| Town and country Development Authority | | ✓ | | | | | | | |
| Public Health Engineering Department (PHED) | | | ✓ | | | | | | |
| Special Area Development Authority (SADA) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Chhattisgarh Housing Board | | | | | | | | ✓ | |

## Naya Raipur Development Authority (NRDA, former CADA)

NRDA is responsible for the development of Naya Raipur which is the present capital city of Chhattisgarh. NRDA role is of a planning, development and urban governance agency for the capital city and would focus on urban Infrastructure planning.

## Raipur Development Authority (RDA)

The Raipur Development Authority is playing a very significant role in carrying about planned and organized growth. The basic premise of all the Development Authorities in India is the realization of the fact that there is distinction between Growth and Development and the latter has to be achieved through strategic use of the available resources. It concentrates on special functions like housing, planning, restructuring and urban development. Where RMC (Raipur Municipal Corporation) is responsible for the development within the Municipal Boundary, RDA plans the development in the whole Raipur city boundary.

## Town and Country Planning Department

The main function and activity of Town & Country Planning are governed under Chhattisgarh Nagar Thata Gram Nivesh Adhiniyam 1973 Act and rules prepared are under Chhattisgarh Nagar Tatha Gram Nivesh Niyam 1976 and Chhattisgarh Bhumi Vikas Niyam 1984. The main functions are, preparation of Town Development Plan, Review Evaluation and Modification of existing Development Plan, Preparation of Regional Development Plan, Monitoring and Enforcement of various schemes such as Integrated Development Plan of Small and Medium Towns (IDSMT) and Urban Infrastructure Development scheme for Small & Medium Towns (UIDSSMT), Control on unauthorized development in towns and functions of State Nodal Agency for National Urban Information System Scheme. The Town and Country Planning looks into the planning for the state and region also.

## State Urban Development Agency

The Ministry of Urban Development and Poverty Alleviation, Government of India, in the year 1995 suggested that State Urban Development Agency (SUDA) / Urban Development Finance Corporation or a similar institution be constituted at State level:

- To handle all the funds released under Centrally-sponsored and State Plan schemes.
- To manage State Urban Development Fund,
- To coordinate and monitor various urban various urban development programmes.

In accordance with the suggestion of Central Government, the State Urban Development agency Chhattisgarh (SUDA) was constituted under the Chairmanship of the Departmental Minister and the District Urban Development agencies (DUDA) in all the 16 Districts were constituted and registered under the CG Registration of Firms and Societies Act, 1973. The SUDA Chhattisgarh has been registered on 11th June, 2001.

## Key Issues in Governance

The City Development Plan under the Jawaharlal Nehru National Urban Renewal Mission (2006–2013) prepared by Raipur Municipal Corporation list out the Key issues in Governance are Political Fragmentation, Lack of proper Municipal Legislations, Lack of Clarity in Local Functions, Lack of Inter-Departmental Co-ordination, Inter Institutional Co-ordination, Functional and Spatial Fragmentation in Metropolitan Area, Municipal-Parastatal Coordination, Jurisdictional Issues, No Transparency and Accountability, Impact of Rapid Development, Grievance Redressal.

There is a need to address these institutional and other challenges to provide good Governance to the city. Unless the roadblocks are removed, economic development is hampered and efficient service delivery becomes difficult.

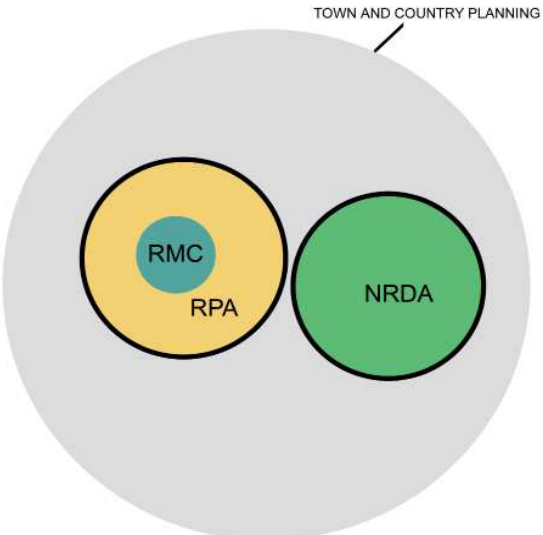



Figure 64 - Diagram with the conceptual administrative boundaries

# Raipur Masterplan 2021

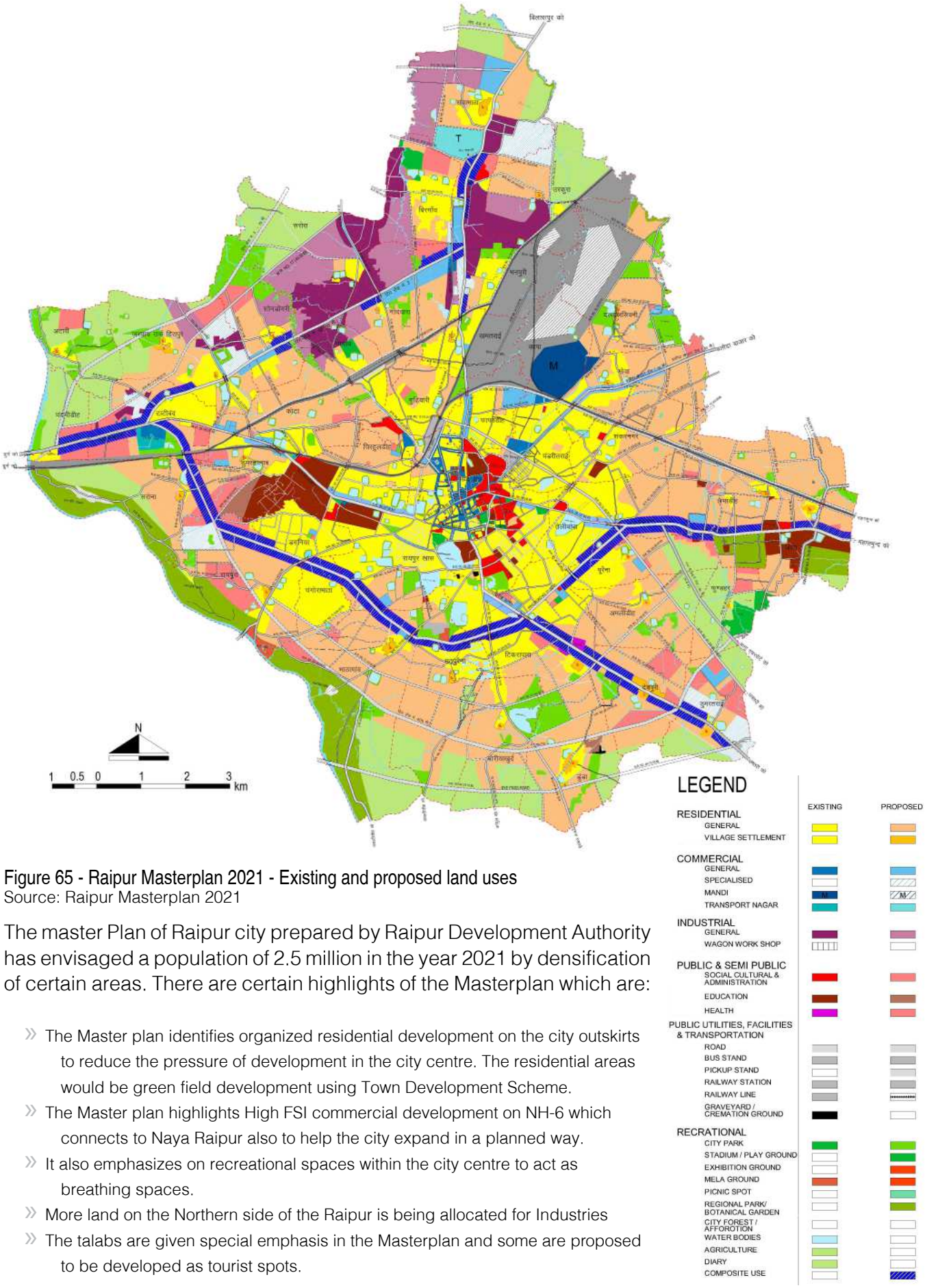



**Figure 65 - Raipur Masterplan 2021 - Existing and proposed land uses**
Source: Raipur Masterplan 2021

The master Plan of Raipur city prepared by Raipur Development Authority has envisaged a population of 2.5 million in the year 2021 by densification of certain areas. There are certain highlights of the Masterplan which are:

- The Master plan identifies organized residential development on the city outskirts to reduce the pressure of development in the city centre. The residential areas would be green field development using Town Development Scheme.
- The Master plan highlights High FSI commercial development on NH-6 which connects to Naya Raipur also to help the city expand in a planned way.
- It also emphasizes on recreational spaces within the city centre to act as breathing spaces.
- More land on the Northern side of the Raipur is being allocated for Industries
- The talabs are given special emphasis in the Masterplan and some are proposed to be developed as tourist spots.

# The direction of growth

The Implementation of the Masterplan is divided in phases where the first phase initiates Residential development on the northeastern and southwestern sides of the city and also commercial development as strips along NH 6. The Malls and apartment projects on the highway are testimonies to this.

The Raipur Development Authority has initiated a planned development of the city by proposing Town Development Schemes on city peripheral areas with development of necessary quality urban infrastructure and facilities to meet the aspirations of the people of the new State. This is proposed to accommodate a rapidly increasing city population and provide for an improved quality of urban life in Raipur. The implementation of Town Development Schemes (TDS) will cause a planned and a regulated city development and expansion incorporating residential, commercial, cultural, institutional and educational sector developments with adequate public amenities.

As a pilot project, the Town Development Scheme 04, 'Kamal Vihar' is a step towards a planned urban growth of Raipur.

Figure 66 - Some buildings in the outskirts of Raipur (along NH-6 and in Mowa)

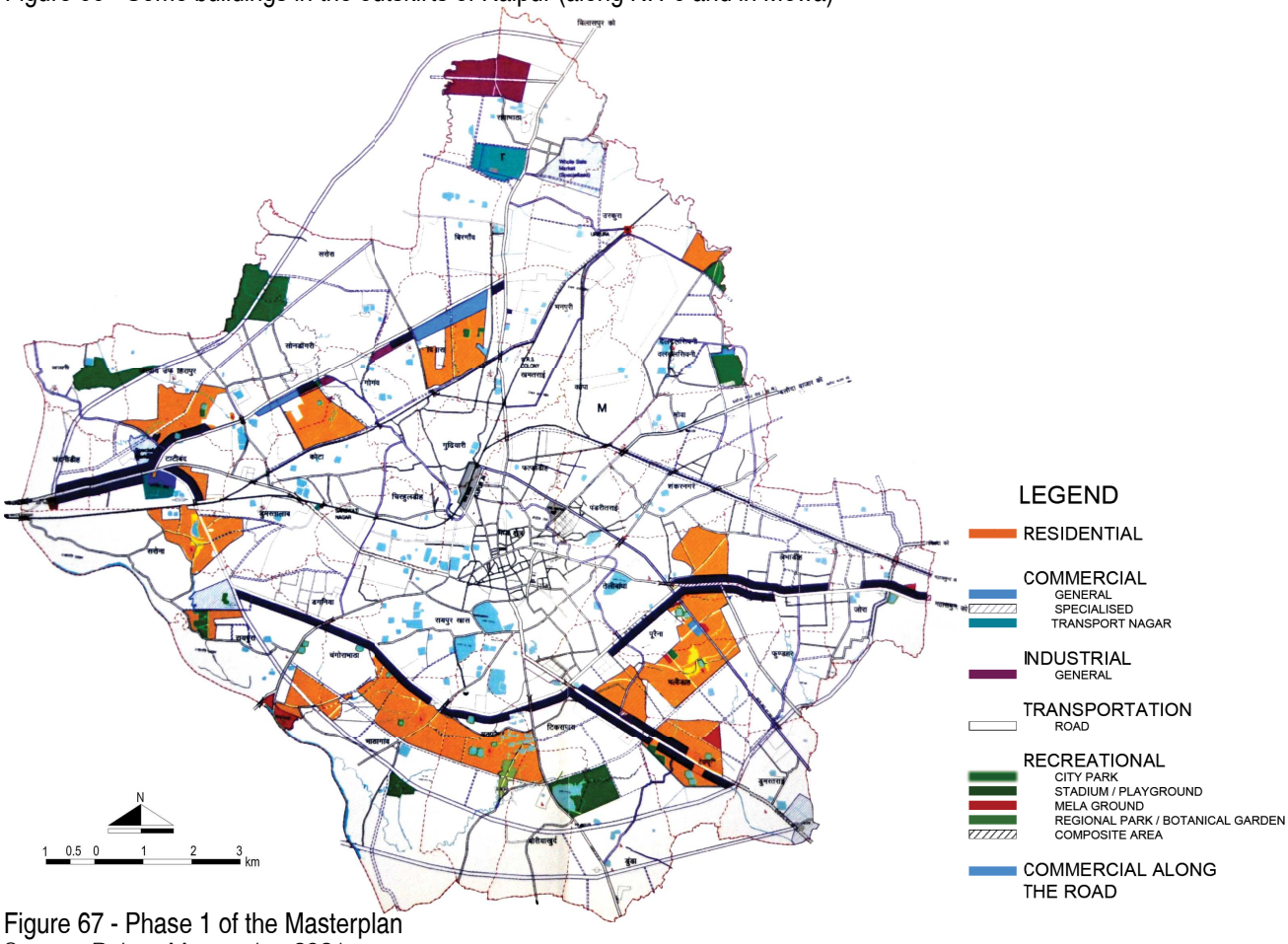



Figure 67 - Phase 1 of the Masterplan
Source: Raipur Masterplan 2021

## The Town Development Scheme – Kamal Vihar Project

The Town Development Scheme-4 (Kamal Vihar) is drawn in accordance with the Chhattisgarh Nagar Tatha Gram Nivesh Adhiniyam 1973, and the Raipur Development Plan 2021 (Punarvilokit). The scheme involves reconstitution of land for urban development so as to cater to the demands of a growing city population.

Reconstitution of land is a process wherein undeveloped urban land is developed due to laying of all urban infrastructure services and utilities, including making provisions as stipulated in the Chhattisgarh Bhumi Vikas Niyam 1984, National Building Code of India 2005, the relevant Development Plan of the city, National Urban Housing and Habitat policy, 2007 and the Chhattisgarh Awas Niti 2003/1995. The process involves "partnering" with landholders in the scheme area wherein the landholders have 'surrendered' their undeveloped land to the Development Authority which, in turn:

- [A] Prepares detailed layout plans in accordance with the Development Plan (The Masterplan), relevant laws, guidelines and norms,
- [B] Develops the urban infrastructure in the area,
- [C] Returns developed plots to the landholders who had surrendered their undeveloped land to the Authority.

The urban infrastructure development works underway include construction of all roads, drains, water supply system, sewerage system, electrical network, street lighting, community open spaces and gardens, bus-stops, fire stations, land reservation for EWS (Economically Weaker section) dwellings, etc.

It is a self financing scheme. The entire cost of the infrastructure developed has been assessed by the Development Authority and a certain portion of the developed plots has been retained by it. The cost of the works is proposed to be recovered by the Authority by sale of these retained plots.

The developed plot returned to the landholder is therefore a certain percentage of the original undeveloped land, corresponding to the land available after lying of all infrastructure facilities and utilities and the portion retained by the Authority for financing the project on a no profit no loss basis. The process does not require land acquisition for urban infrastructure development which is laid well before any significant population migrates to the scheme area.

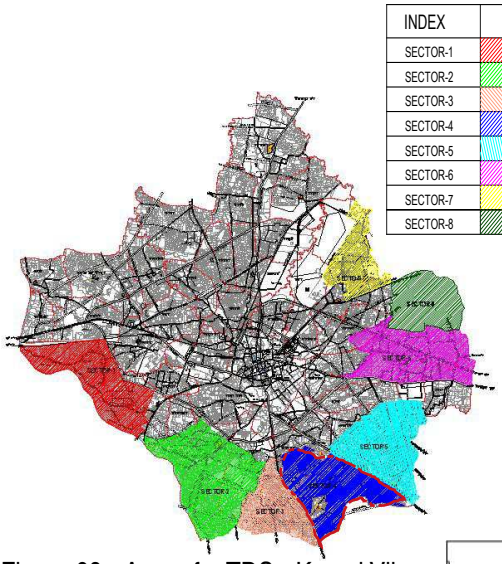



Figure 68 - Areas for TDS - Kamal Vihar is the Sector 4.
Source: Buildkrafft, Raipur

Figure 69 - Sub-sector in Kamal Vihar
Source: Buildkrafft, Raipur

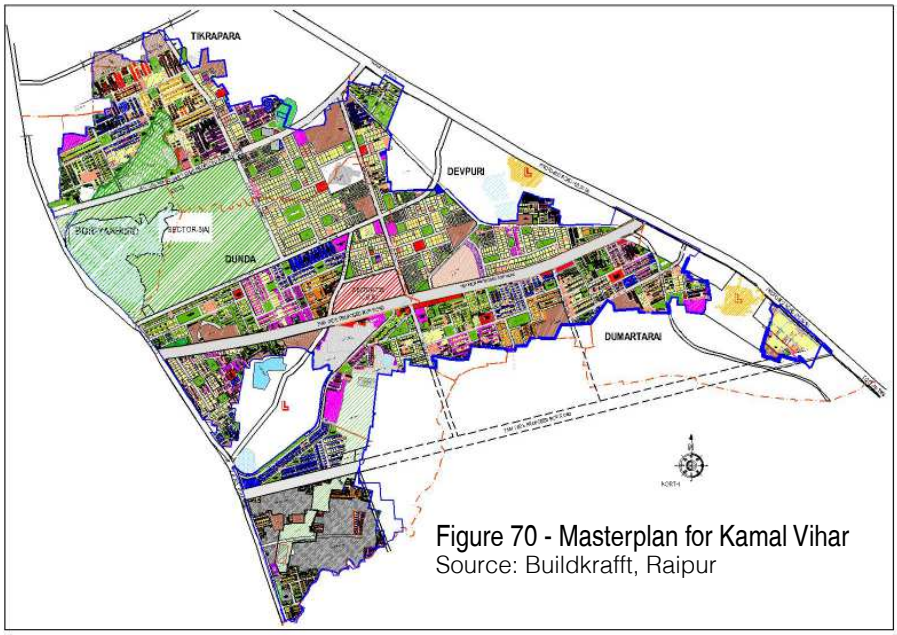



Figure 70 - Masterplan for Kamal Vihar
Source: Buildkrafft, Raipur

Naya Raipur would be a planned and designed city of the 21st century to focus on socio-economic and cultural life of Chhattisgarh. The New city is set in salubrious natural surroundings accessed by an express way and it is envisaged as a lively and vibrant city with state of art physical, social and economic infrastructure, to be developed in phases for an estimated population of 560,000 by the year 2031.

# CHAPTER 5

## the new capital - naya raipur

THE DEVELOPMENT PLAN
Location, Boundaries, Existing Villages,
The natural system, Concept, The Master Plan,
The Transportation System

THE URBAN DESIGN GUIDELINES

PROPOSED PROJECTS

THE CURRENT STATUS

# The development plan

In the early 2000, when the Government of Chhattisgarh ventured to build a new town near Raipur, the Capital Area Development Authority (CADA), now renamed as Naya Raipur Development Authority (NRDA) was set up under the Chhattisgarh Nagar Tatha Gram Nivesh Adhiniyam 1973 as a Special Area Development Authority (SADA). The authority consists of Chairman, Vice Chairman and Members. The act defines the role of NRDA as follows:

- a. To prepare Development Plan for the Special area
- b. To implement the approved development plan
- c. To acquire, hold, develop, manage and dispose of land and property
- d. To accept grant from the state govt. and raise loans.

## Location

Considering the importance of Raipur as a major node in the trade network of Central India, a site located about 15km southeast from it, in the west of River Mahanadi was chosen for Naya Raipur. The presence of industrial growth centers on the north and west would acts as an economic catalyst for the development of the region. The transportation network (Mana airport, NH-6 and NH-43 highways and proximity to Mumbai-Kolkata railway line) provides good connectivity in the regional and national levels.

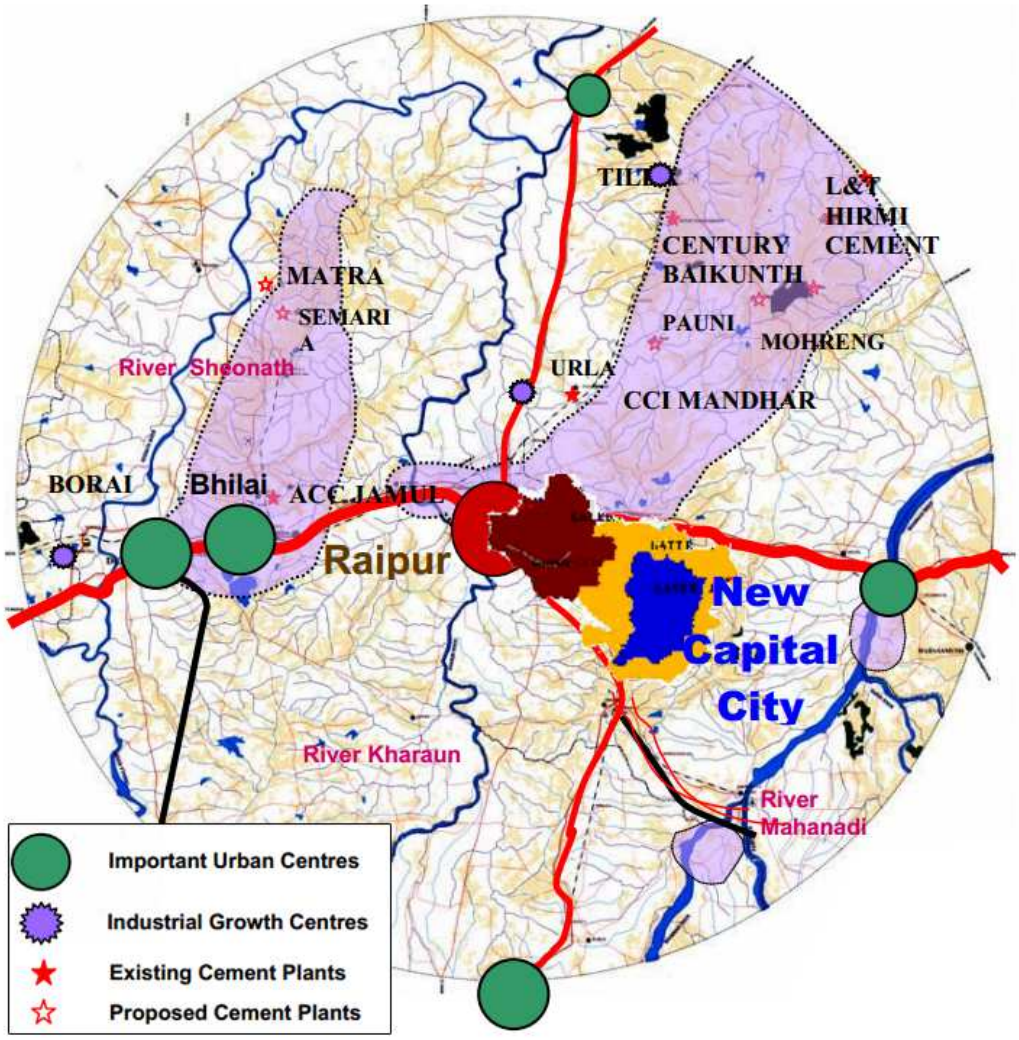



Figure 71 - Location of Naya Raipur City in the region

Source: NRDA, 2008

## Boundaries

The distance between the two cities is not too close that both merge, with effects on the proposed new image of the city, nor so distant that they keep a complete independence, overshadowing Raipur. The final location of the site clearly defines two distinct cities, but their proximity and economic and social interdependency might lead to a conurbation in the future.

The city is bounded on the north and south by existing railway lines and to the west by the airport. The area is divided into 3 layers: Naya Raipur itself (Layer-I, including a 500m-wide green belt), the peripheral zone (Layer-II) and the airport zone (Layer-III). Layer-II acts as a buffer between the two cities' cores, keeping its current agricultural role, but to be provided with social facilities for the existing population.

## Existing Villages

The 41 Abadi areas (the traditional settlements of the villages) within the boundaries were declared urban villages and their expansion will be regulated. The villages inside Layer-I were incorporated inside sectors of the Masterplan, while only one of them, Rakhi, is being relocated.

The villagers are economically dependent on the agricultural activities they perform in the surrounding areas and, with the construction of the new capital, especially those inside Layer-I will be directly affected. In this scenario, a training program is being conducted to provide the local population with new opportunities and insert them in the local urban economy of the new city. The urban villages are providing workers for construction and industries.

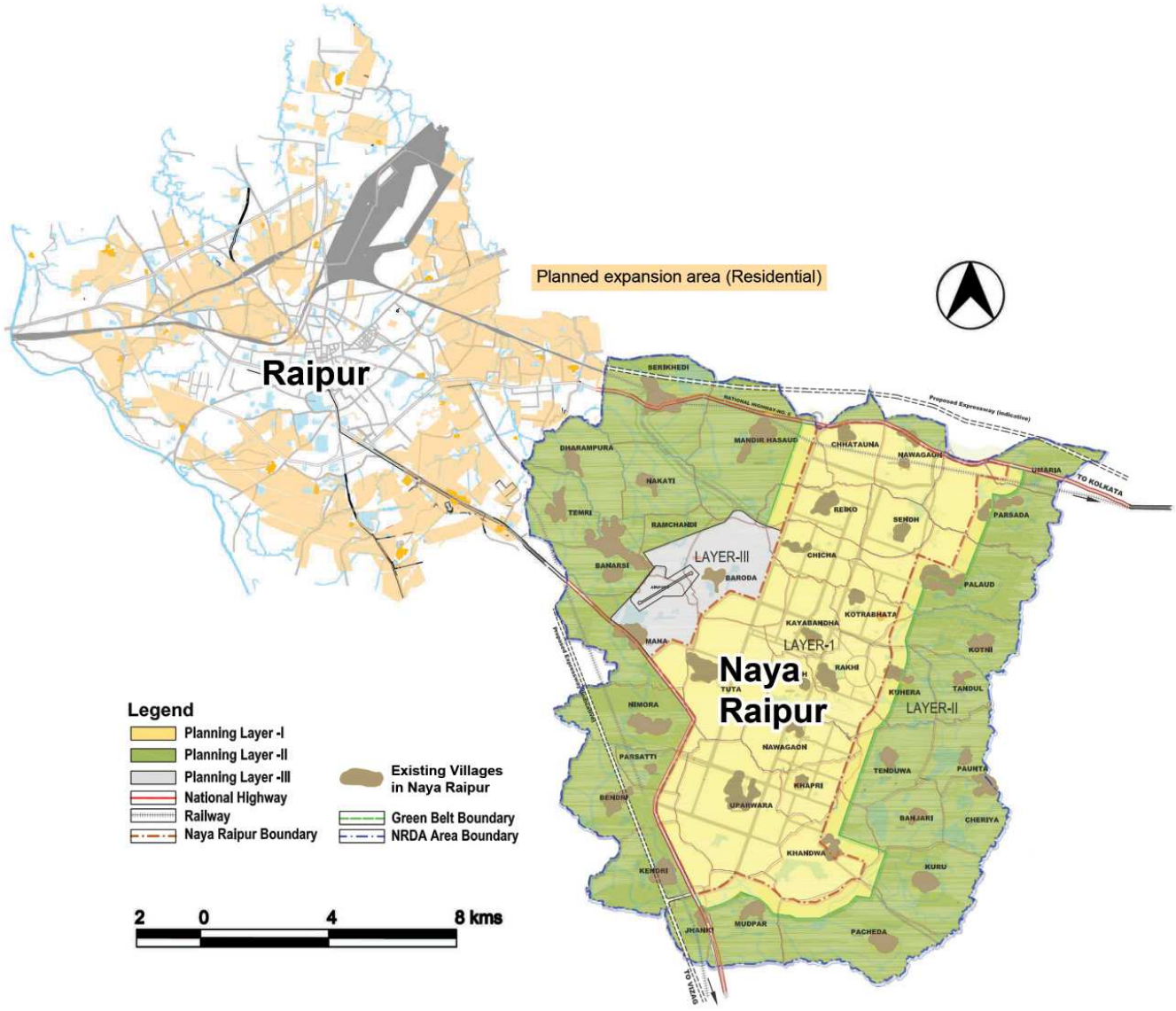



Figure 72 - Boundaries and existing villages in Naya Raipur
Adapted from NRDA, 2008

Village Development Plans for each of the villages are being prepared and provisions for basic infrastructure are being made, according to the hierarchical importance of each village in the local context. Any new construction coming up within the village settlement is subject to approval from the concerned local body.

The existing houses in the villages are to be least disturbed as much as possible within the Village Development Plan (VDP).The ownership of the lands within the villages to large extents have been Government and Farmlands. While the Naya Raipur Development Authority (NRDA) has taken due initiative in acquiring the relevant lands for the City development, it has excluded the 'Abadi' areas. Baseline Socio-Economic Surveys (BSES) have been conducted in the villages under the Village Development Plan (VDP) with a primary purpose of tabulating the village population and its development status in terms of economy and lifestyle.

## The natural system

The new city is developed in an area with a number of water bodies and plantations. The attempt is to conserve all the existing features, such as lakes, ponds, rivers and irrigation canals. Water from the three lakes - Kumhari, Pirdaon and Kurud - can be tapped for supplying water, while three rivers cross the delineated region: River Mahanandi and two seasonal rivers, Seonath and Kharun. Mahanadi River has perennial flow and is a dependable source of water. Water would also be conserved through rainwater harvesting.

The topography in general gently slopes (0% to 5%) towards the west. The highest contour level is 320 m above the sea level. The site does not have a widespread forest cover except for some protected forests near Tilda, Mohrenga, Kendri and around the confluence of Mahanadi and Sukha river. In general the region is characterized by dry and warm climate. Summers (March-June) are very hot and winter is between October-February. Monsoon commences in the 2nd week of June and lasts until end of September. The predominant wind flow is from the southwest direction, except during the post-monsoon and winter months, when it comes mostly from the northeast. The wind speed in general ranges between 2.9 km. per hr. to 8.69 km. per hr. considering that the mining and industrial areas are mostly located to the north and west, the wind pattern potentially makes Naya Raipur a non-polluting zone.

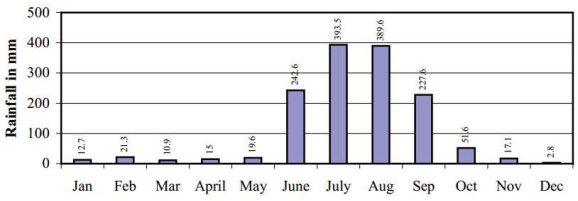



Figure 73 - Average monthly rainfall in Raipur
Source: NRDA, 2008

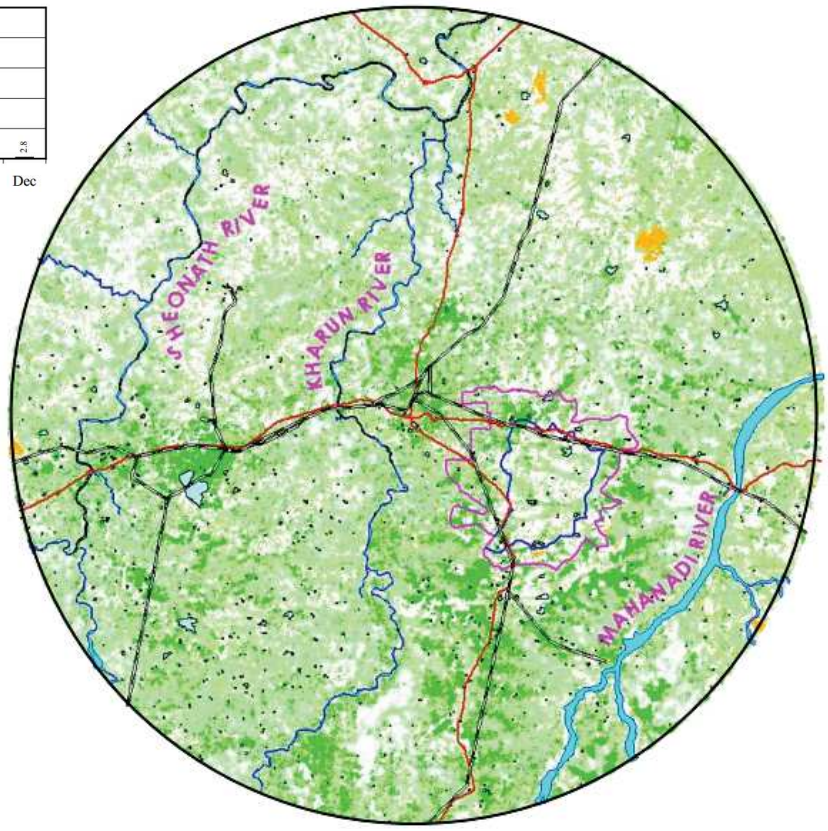



Figure 74 - The rivers within the site selection region
Source: NRDA, 2008

## Concept

The pursued image of Naya Raipur could be described as of a new modern city to be a focus of socio-economic and cultural life of Chhattisgarh and set in a natural surroundings conserving its existing landscape and accessed by an eight-lane expressway, equipped with modern mass transit system and a wide pedestrian corridor linking all major urban activities. It should be lively and vibrant with intensive urban activities and recreational areas and a visually pleasing cityscape. It should be equipped with state of the art physical, social and economic infrastructure providing the intelligent city with high degree of urban convenience and an investor friendly environment.

The central zone of proposed development becomes the heart of the city and is framed by green belts that serve as an interface between the city centre and the planning units. Government buildings are concentrated in a complex, also centrally located. The distribution of social facilities throughout the city takes into account three levels of urban life: city, community and neighborhood levels. The physical form of the transport network system, which can also help to describe the city form itself, is a blend of three forms: linear, cruciform and grid.

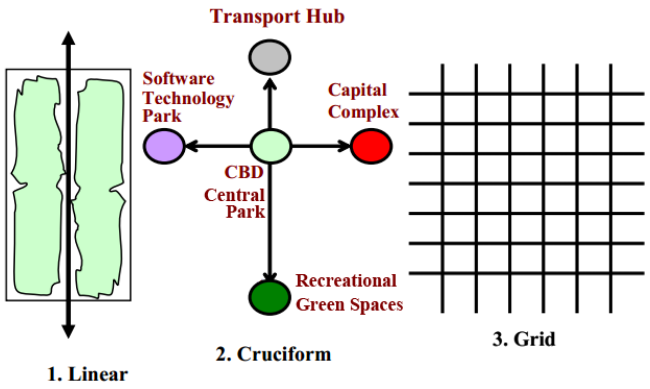



Figure 75 - Blend of 3 forms defines the physical configuration
Source: NRDA, 2008

## The Master Plan

The Master Plan defines 9 different land use zones, which classify all areas inside Layer-I.

The Composite Use Zone includes residential, commercial, and industrial uses. The city level physical infrastructure facilities are located outside the city and the area is reserved under utility zone in the peripheral area. Besides the basic 9 land use zones, two additional special zones are defined to cover Layers II (Rural Zone) and III (Airport Zone). No urban development in Layer II will be permitted before Phase 3 (2031), except for those provided for the rural use as requirements for its facilities.

It has to be kept in mind that the Master plan, irrespective of being published, is in a process of change. NRDA is attempting to adapt different ideas to fulfill the vision for Naya Raipur.

Table 6 - Broad Land Use Distribution in Naya Raipur
Source: NRDA, 2008

| Land use | Area (ha) | % |
|---|---|---|
| Residential | 2113.39 | 26.37 |
| Commercial - Retail | 144.67 | 1.81 |
| Commercial - Wholesale | 130.67 | 1.63 |
| Industrial | 194.13 | 2.42 |
| Special Industry | 263.05 | 3.28 |
| Public & Semi Public | 1846.38 | 23.04 |
| Recreational | 2137.44 | 26.67 |
| Transport | 1005.77 | 12.55 |
| Composite Use | 177.60 | 2.22 |
| Total | 8013.10 | 100 |

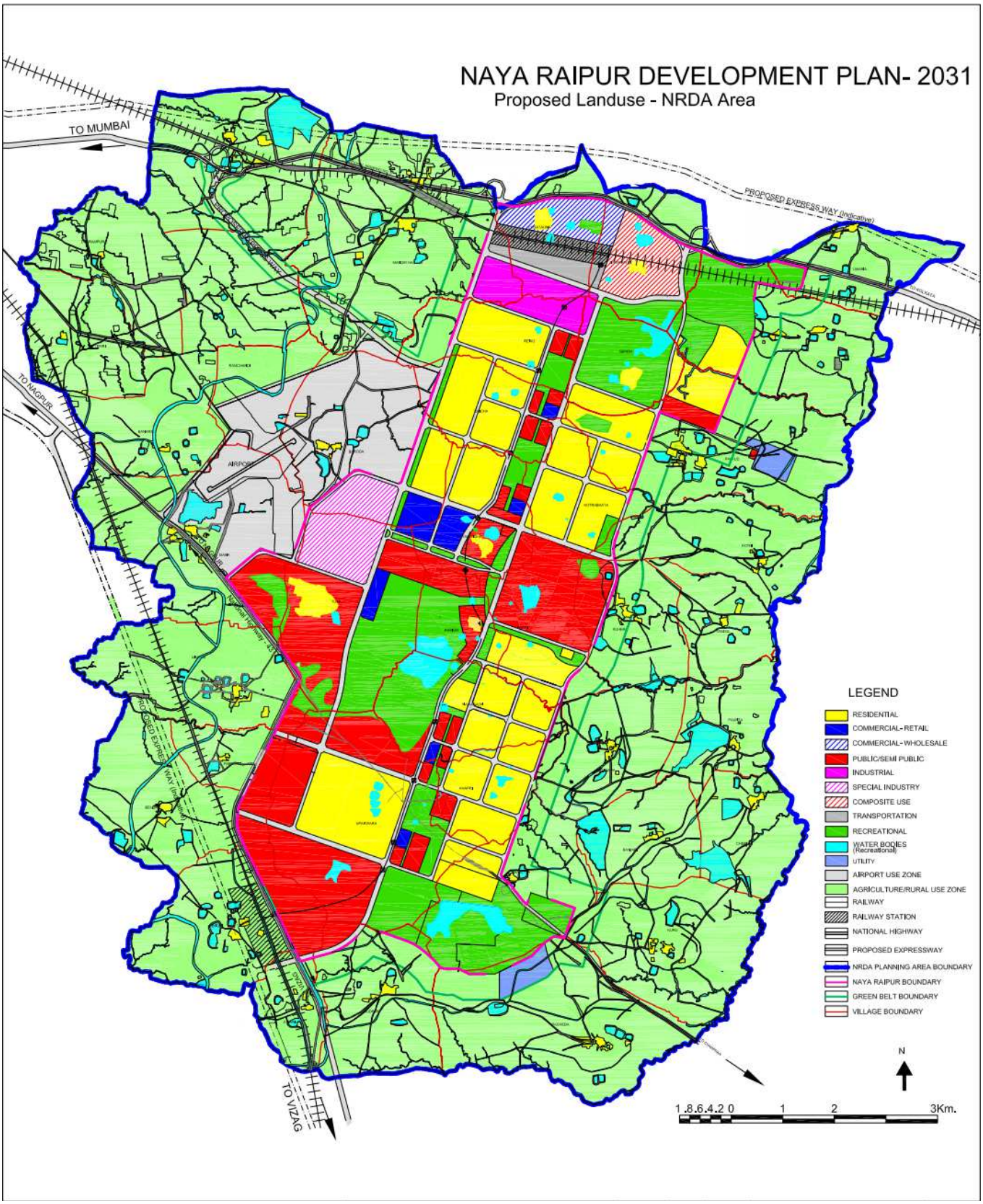



Figure 76 - Proposed Landuse for Naya Raipur
Source: NRDA, 2008

## The Transportation System

The Transport plan seeks high mobility for all. The city level system is integrated with the regional infrastructure: rail (one main station in the north and a local station in the south), highways (NH-6 and NH-43) and airport. Two expressways are being planned near the city boundaries and can improve regional connectivity in the future: Bhilai-Durg-Raipur-Mahasamund and Dhamtari-Raipur-Bilaspur Expressways.

The public mass transport of Naya Raipur would include a bus system and a rail based LRT System, while leaving space for the operation of informal public transport (IPT) modes. The bus would be the most important component of the inter-modal system. The use of minibuses is recommended and an inter-city bus terminal is proposed at the 'Transport Hub' area, while 5 nodal intra-city terminals follow the scheme:

Two BRT lines are being planned to operate along some of the major road corridors. One of the lines will run basically along the central north-south spine. This line, together with a rail based system being planned in the same direction, will bring essential elements for the desired Transit Oriented Development (TOD). Other BRT line will also provide connectivity to Raipur, via connecting nodes (one in NH-6, the other in NH-43) located in the boundary of the two cities.

The road network system inside Naya Raipur was planned and designed to enable efficient movement of motorized traffic. A hierarchy of wide roads was defined and the major roads do not provide service lanes so that no abutting property gets a direct access from the main road. The access to the activities is made via the internal road system, linked to the main roads.

The major pedestrian corridor, combined with cycle tracks, passes through the central park, the cultural complex and the CBD. It runs primarily along the green strips, however crossing the major roads at a few locations.

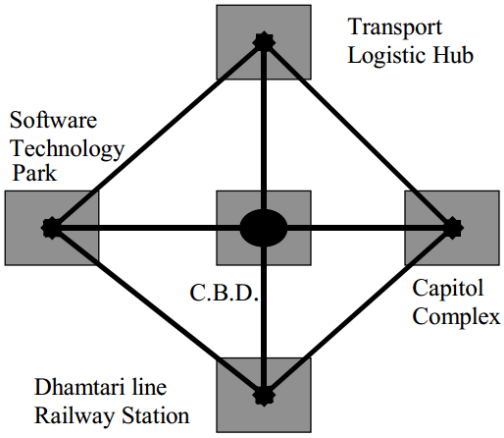



Figure 77 - Schematic location of intra-city bus terminals
Source: NRDA, 2008

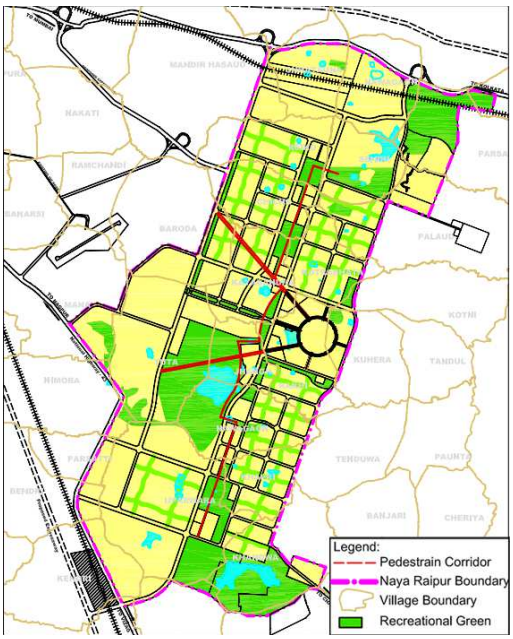



Figure 78 - Main pedestrian corridor
Source: NRDA, 2008

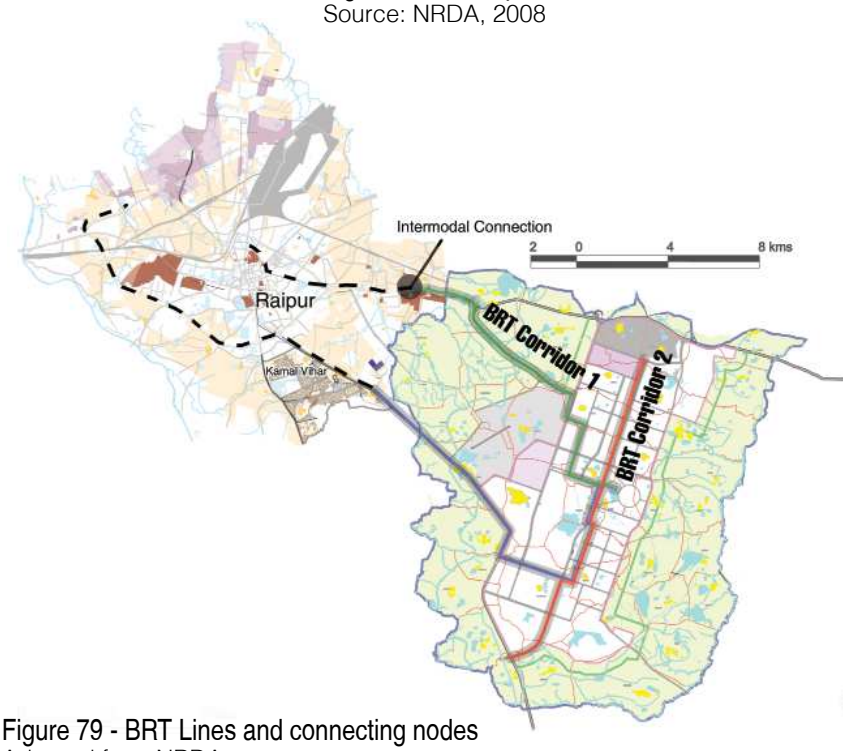



Figure 79 - BRT Lines and connecting nodes
Adapted from NRDA

# Urban design guidelines

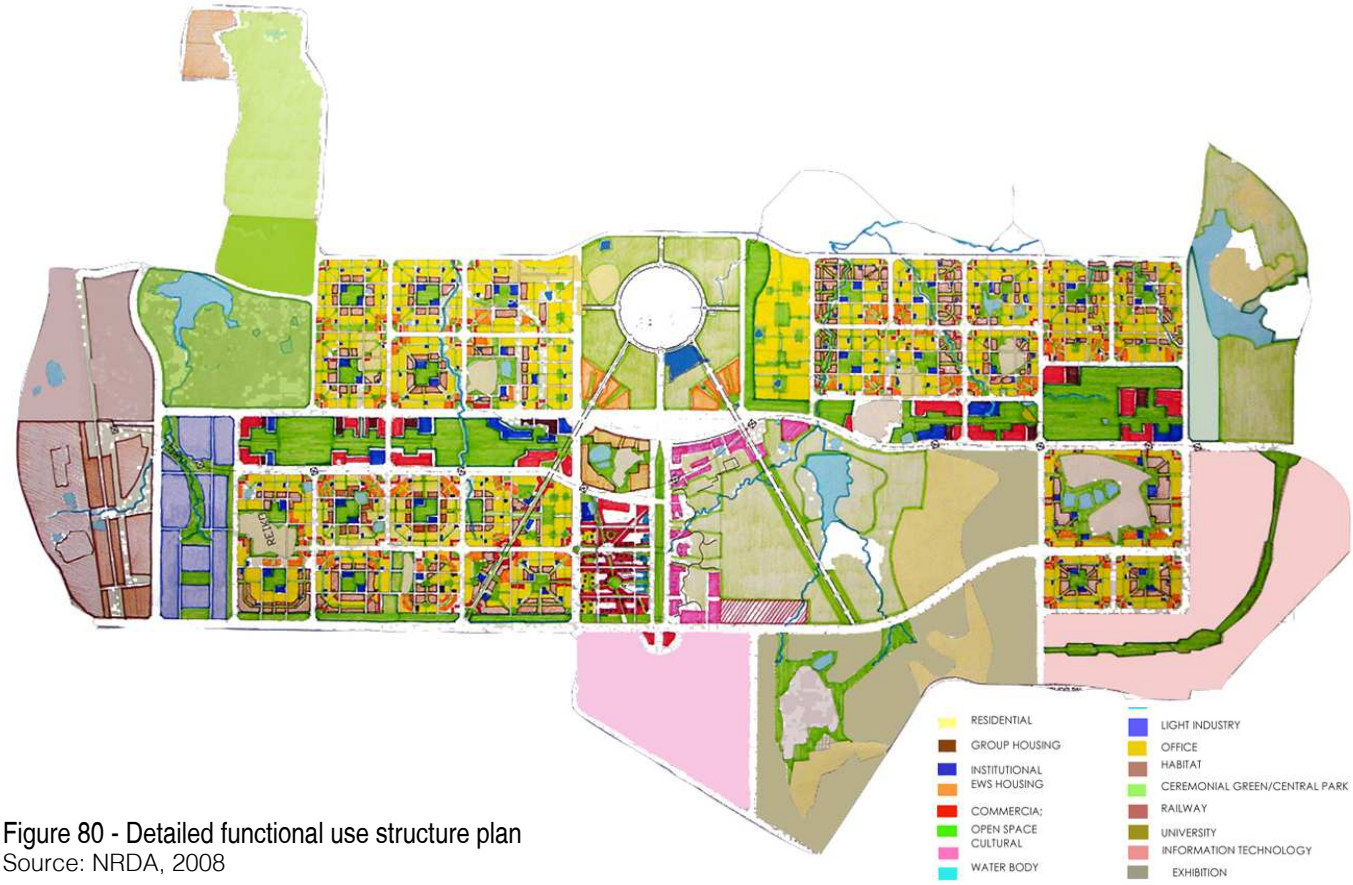



Figure 80 - Detailed functional use structure plan
Source: NRDA, 2008

The Urban Design Guidelines aim at the creation of integrated and diverse communities containing all essential activities within easy walking distance of each other and of transit stops as well as a variety of housing types and job opportunities to attract different social groups. The city should also contain an ample supply of specialized open space and encourage the attention and presence of people at all hours of the day and night.

Formally, Naya Raipur is conceived as a linear city with a grid pattern of roads, a band of green running through the city interlaced with lakes, intertwined in a central spine carrying the social facilities and utilities for each level of urban community life. The green band is reflected through sizeable area allocated for open spaces. Following the strong axial planning legacy of capital cities, a monumental axis emanates from the capital complex and runs across the width of the city (west-east), and a residential axis intersects it, running north to south. The monumental axis houses functional uses such as cultural district, central business district and other government offices along it and ends in a software technology park as a major workplace for the city and its local area. The residential areas are allocated along the N-S axis and follow a grid system of vehicular network.

One of the topics covered by the guidelines is the Environmental Protection. It intends to preserve and highlight the importance of some of the natural components present in the area, such as the water features. While a rigid grid pattern was superimposed over the existing “blue network” in the city-level, within the sector the layout is suggested to be realigned to integrate the features within the community structure. An open space landscape system is proposed thus, with the formation of recreational green corridors within the neighborhood along drainage channels.

In terms of accessibility, some basic standards are defined to promote a safe and continuous pedestrian and bicycle network and minimize the conflict with the automobile movement, while connecting neighborhoods and accessing the public transportation network. The Design code also defines standards for the characterization of public spaces and buildings.

# Proposed projects

The Development Plan is in a continuous process of evolution and NRDA is coordinating with different consultants for projects such as the Development of Regional Mobility Plan (RMP) for the Greater Raipur Area, Transit Oriented Development Study, Project for the Development of Cycle tracks and Walk ways in Naya Raipur, Detailed Design for the CBD (Central Business District), The Lake conservation projects, Landscaping projects, The Village Development Plan etc. Some of these projects are finalized and few are yet to commence. A few of them are mentioned in this section.

## The Regional Mobility Plan

The Regional Mobility Plan is intended as a long-term strategic plan focused on mobility of people as a basis for developing cost-effective, sustainable and equitable urban transport measures with an appropriate and consistent methodology in line with the National Urban Transport Policy (NUTP). The studies are scheduled to start in December 2012.

The objectives of Greater Raipur Area Regional Mobility Plan are as follows:

- To provide a transport strategy addressing the movement of people and goods within, into and out of the delineated region, in accordance with the National Urban Transport Policy (NUTP).
- To understand the current economic, social, environmental, land use and transport development situation and trends for Bhilai, Durg and the Greater Raipur region
- To identify and analyze factors driving current and future travel
- To promote sustainable transport – by reducing dependence on private transport through improved land use-transport integration and creation of a more non-motorized and public transport friendly development;
- To identify the impact of development of Naya Raipur on regional mobility;
- To identify appropriate interventions & an implementation framework for them, including changes in the current organization framework, timing/, phasing plan, required funding and sources of funding.

## Transit Oriented Development Study

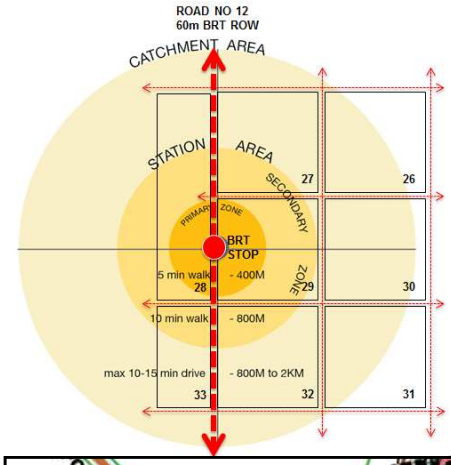
IBI Group has been commissioned by the World Bank and NRDA to develop a Transit Oriented Development Strategy to better integrate land development, transportation and infrastructure investment within the overall city development plan. The project is being funded as a project under the Global Environmental Facility (GEF) / World Bank assisted Sustainable Urban Transport Project (SU TP) being implemented by Government of India.

The objective of the assignment is to conduct a Study on ensuring that the new city of Naya Raipur is a pedestrian and transit friendly city by identifying policy, planning and design changes to promote sustainable living among the citizens of Naya Raipur.

Overarching objectives of Transit-Supportive Planning form the basis of this project, and include the following:

- Providing guidelines for vision, goals, and policy development for future growth in Naya Raipur;
- Planning for the development capacity of land through appropriate land use and density analysis;
- Identifying all appropriate modes of transport to support such density with appropriate multimodal Level of Service (LOS);
- Developing measures to reduce vehicle miles traveled;
- Prioritizing sustainability principles in transport and land development; and
- Outlining a detailed implementation plan to integrate land use and transport.


Figure 81 - Conceptual BRT shelter
Source: IBI Group, 2012





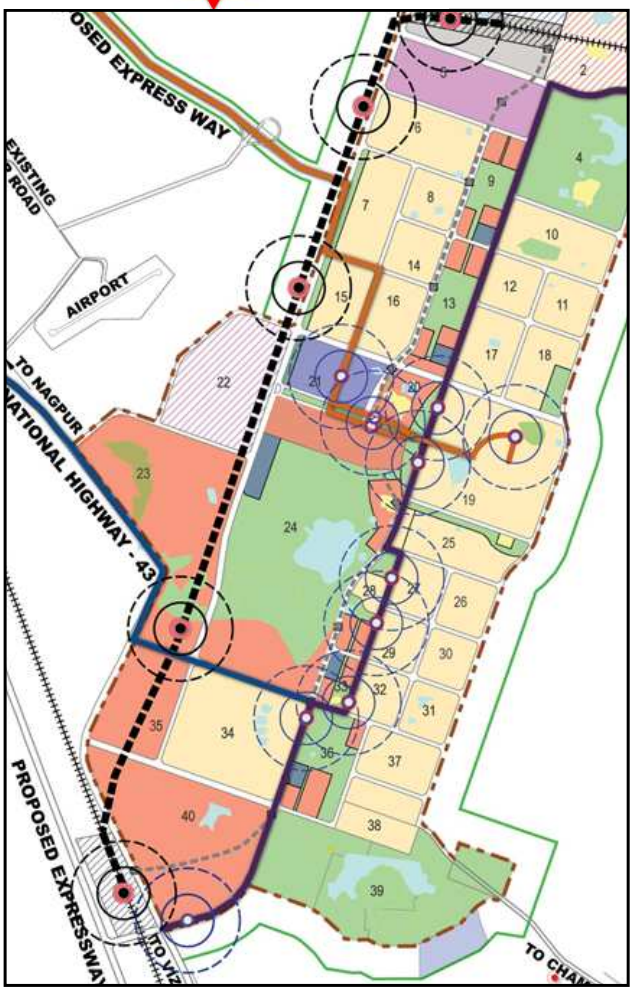



Figure 82 - TOD influence nodes
Source: IBI Group, 2012

Figure 83 - Sector 32 (according to Development Plan rules)
Source: IBI Group, 2012

Figure 84 - Sector 32 (TOD conceptual adaptation)
Source: IBI Group, 2012

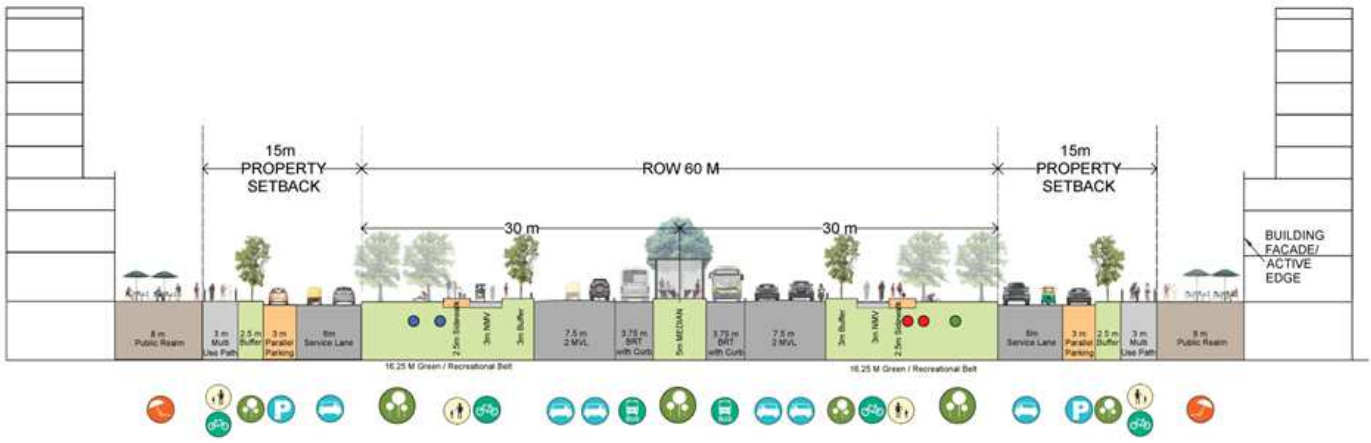



Figure 85 - Proposed Transit-Supportive 60m ROW (with BRT & NTM Infrastructure and active edges)
Source: IBI Group, 2012

## Project for the Development of Cycle tracks and Walkways in Naya Raipur

The Project was initiated in September 2011 and the NMT (Non Motorized Transit system) vision is:

- Public Transport is an attractive option to commute from Raipur to Naya Raipur because access needs of the commuters, once they enter the city, are taken care of.
- A family choosing to buy a house in Naya Raipur has the option of not buying a car or 2-wheeler.
- Even if the family has a car, they may never need to use it to access markets, educational services, health care and other amenities within the city.
- Walking and cycling in the city contributes to good health not to injuries, respiratory diseases and depression.
- Women and children move safely on the streets of Naya Raipur.


Figure 87 - Proposed cross section for 60m ROW road
Source: Development of Cycle Tracks and Walkways in Naya Raipur - Option Analysis

Figure 88 - Pedestrian preferential areas inside the sector
Source: Development of Cycle Tracks and Walkways in Naya Raipur - Option Analysis

## Other Detailed Projects

The main economic base of Naya Raipur would be the governmental functions. However diversification of activities would be attained by providing some other facilities, such as a software technology park, gems & jewellery related activities, business offices, education and research services and regional recreational activities. The capital complex and CBD would be the two busiest areas in the city.

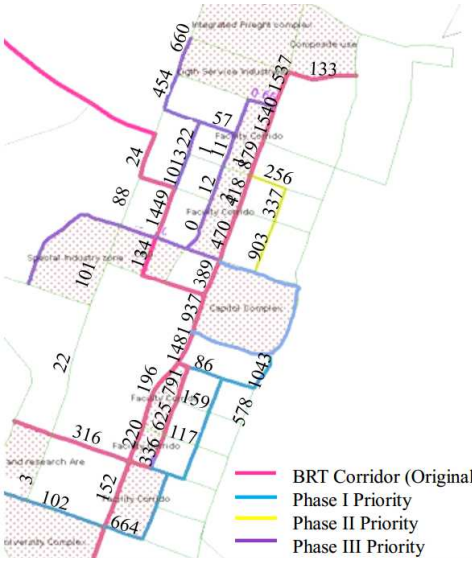



Figure 86 - Volumes of NMV trips based on Need Assesment Modeling
Source: Development of Cycle Tracks and Walkways in Naya Raipur - Option Analysis

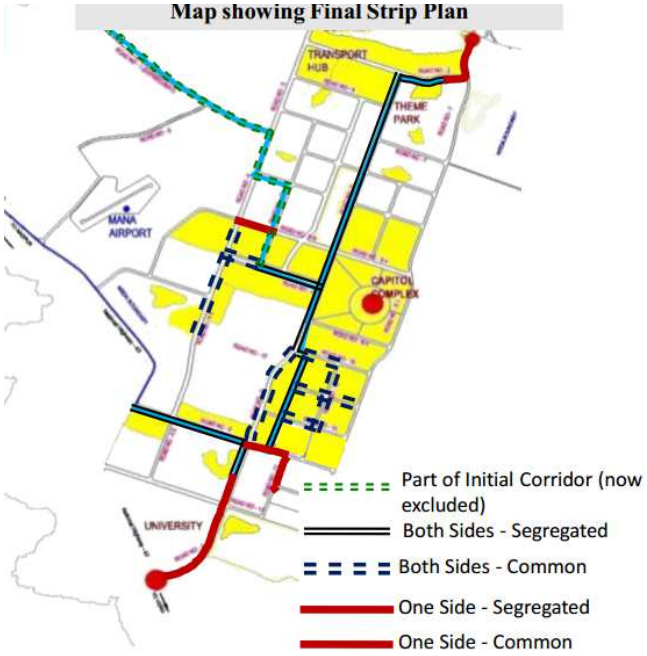



Figure 89 - Final strip plan for NMT
Source: Development of Cycle Tracks and Walkways in Naya Raipur - Option Analysis

## Capitol Complex

The capitol complex and its adjoining precincts constitute the monumental core of Naya Raipur. Structured most prominently by the bi-axial symmetry of a monumental axis that emanates from the capitol complex, and a residential axis that bounds the precinct in the western side, the grand boulevards and monumental buildings convey the centrality of the democratically elected government. Two additional diagonal axes emanate from the Complex, providing pedestrian corridors with strong vistas passing along the adjoining CBD and cultural area.

Figure 90 - Capitol Complex - 3D views and photos
Source: www.nayaraipur.com

## Central Business District (CBD)

The Central Business District happens along the central avenue and is being planned to be one of the most densely occupied areas of the city, with a variety of landuses.

The curved central spine will have retail uses, from both the formal and informal sectors, in a pedestrian friendly environment with wide sidewalks. The stretch towards the ceremonial axis has a mix of institutional, cultural functions and hotels, the central zone will constitute high density offices, banks and retail, while the area towards north houses residential blocks with retail uses on the ground floor.

Figure 92 - CDB - Central Spine
Source: Meinhardt

Figure 91 - CDB - Residential blocks (left)
Source: Meinhardt

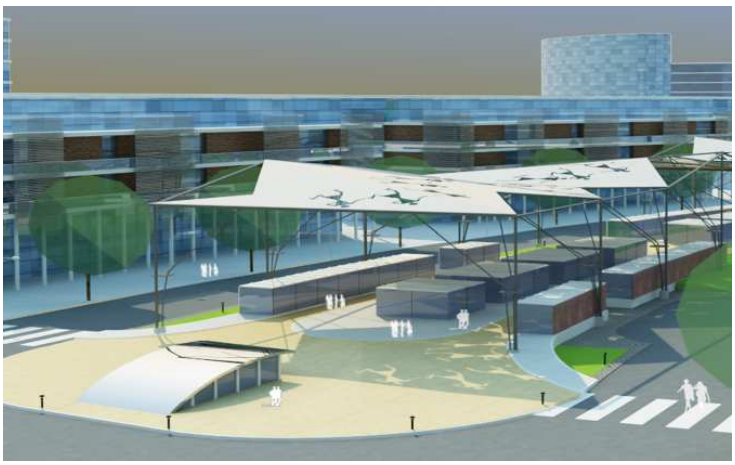


Figure 93 - CDB - Informal retail units along the Central Spine
Source: Meinhardt

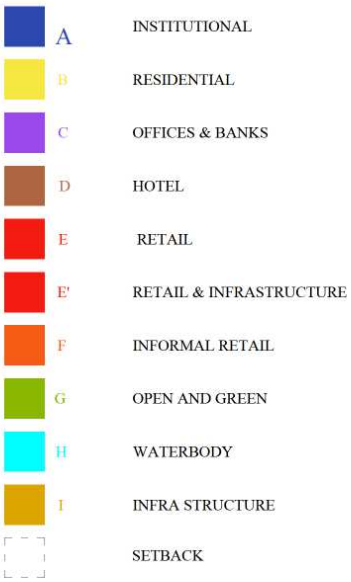
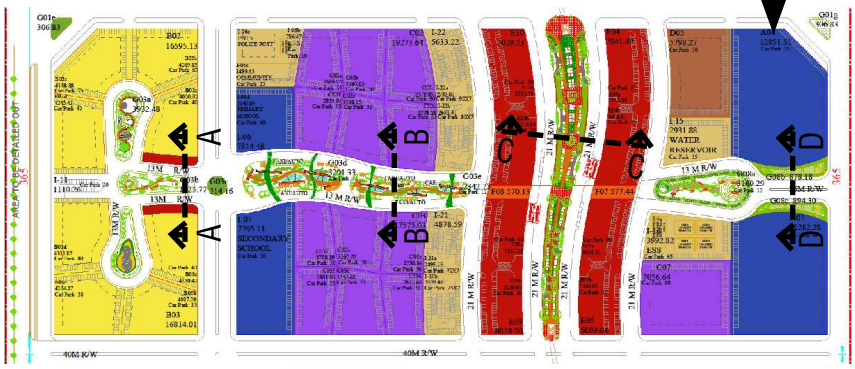
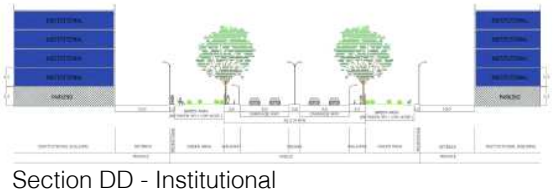




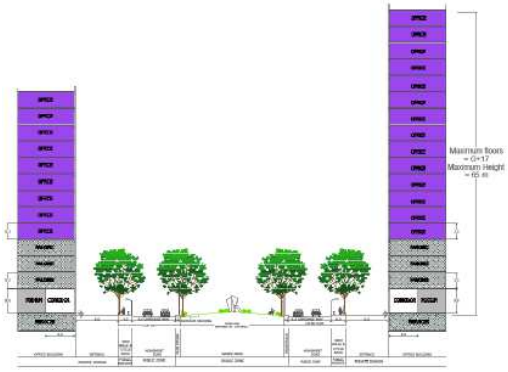
Figure 94 - CBD plan
Source: Meinhardt

Section AA - Residential



Section DD - Institutional



Section BB - Offices / Banks

Section CC - Retail (formal and informal)

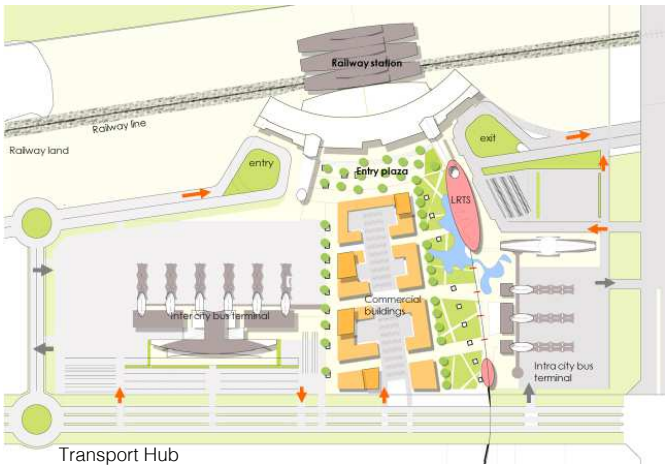
## Other projects

Other projects (either built, unbuilt or in construction phase) include the Central Park, the new airport, The Vedanta Foundation Cancer hospital, Office Complex, universities and the Transportation hub. Their designs, prioritizing the contemporary over the traditional forms of local architecture, give an idea about the role the buildings will render in the construction of the image of the new city.


Vedanta Cancer Hospital


Forest Department


Water resources Department



Transport Hub

Environment Department


Purkhuti Muktangan


Law University


Botanical Garden

Knowledge Park


Airport



Cricket Stadium

Figure 95 - Projects in Naya Raipur
Sources: NRDA and Vedanta

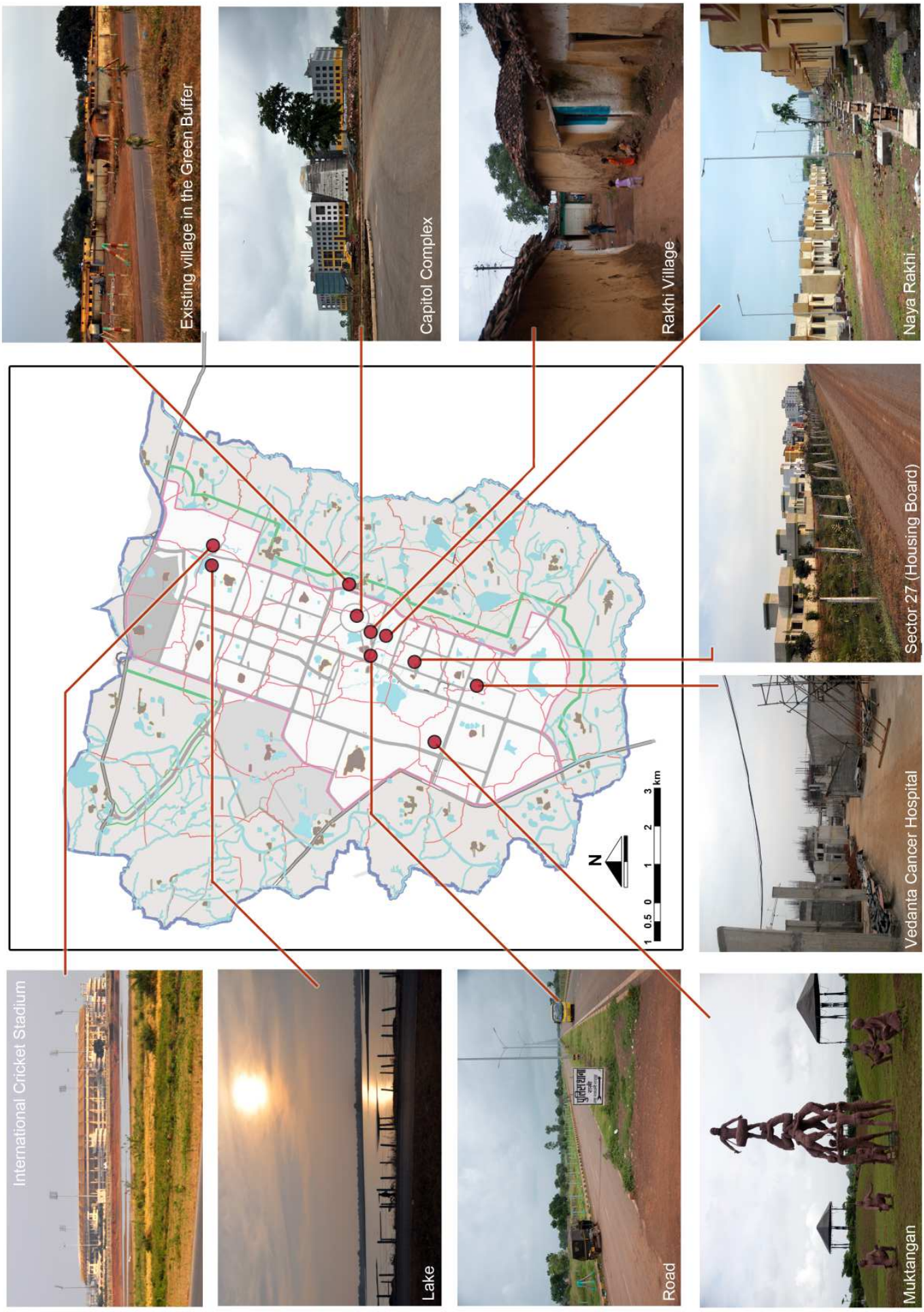



Figure 96 - Current situation of some areas in Naya Raipur

# The current status

The Plan breaks the city development into 3 phases for the next 25 years. The current phase (Phase I) includes the development of the Capitol Complex & the Government offices along with housing for Government employees as an initial impetus to growth, as well as some revenue generating recreational activities, transport logistic hub, the composite use area in the North and a part of the Software Technology Park.

The main government buildings are already operational since the shift of the capital from Raipur to Naya Raipur on November 1st and some of the residential sectors are inhabited or under construction. Other facilities already operational are the International Cricket Stadium, the Hidayatullah National Law University, Rawatpura Sarkar Institute, the open-air Purkhuti Muktangan museum and the State Administrative Academy. Most of the major roads have been already executed, which clearly defines the Layer-I boundary and its final scale.

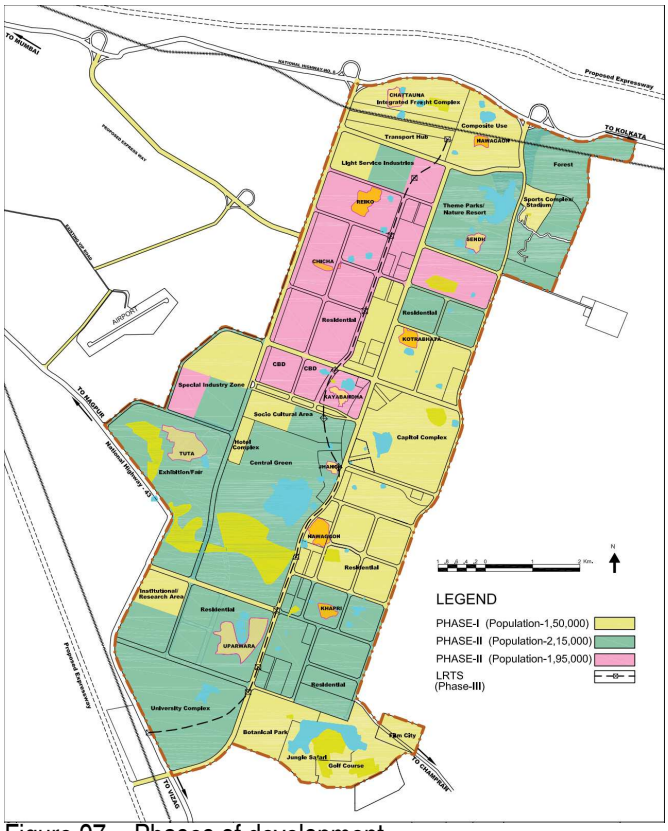



Figure 97 - Phases of development
Source: NRDA, 2008

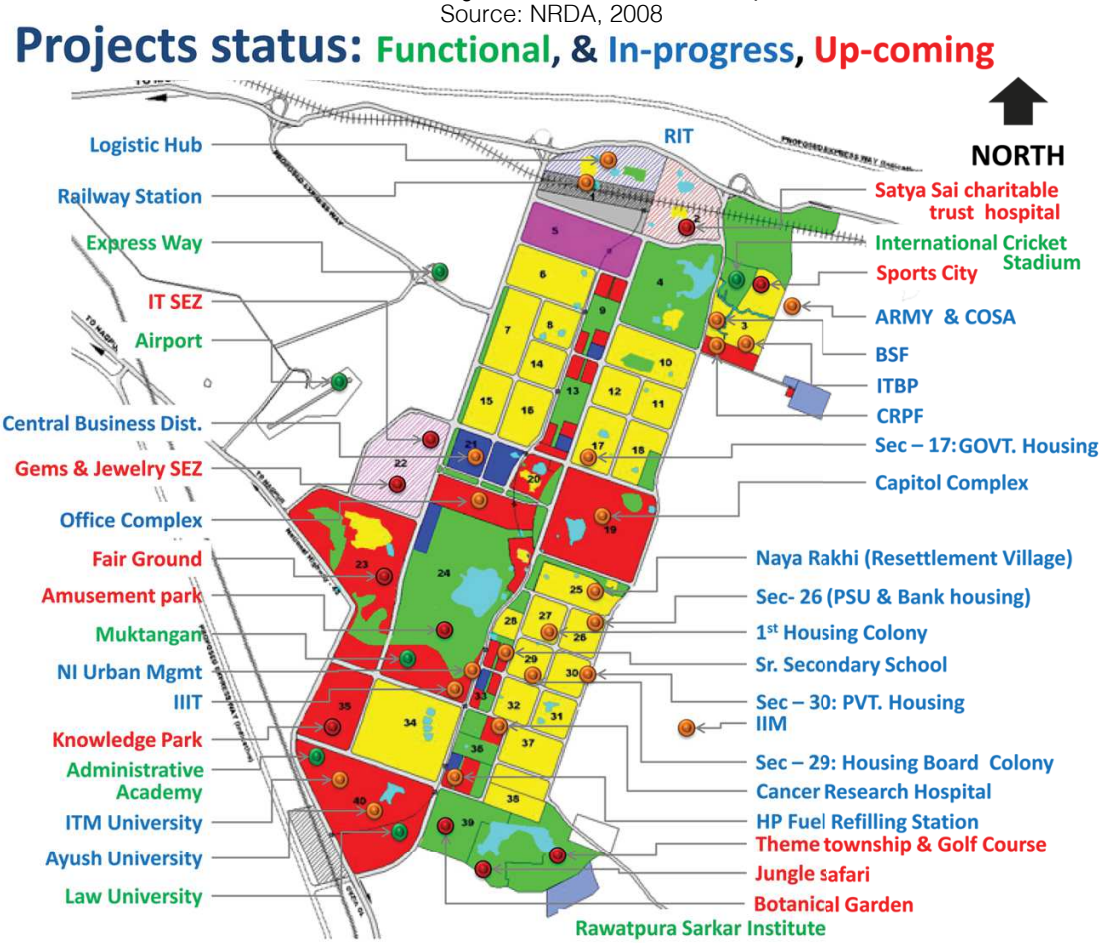



Figure 98 - Projects status in Naya Raipur
Source: NRDA

# Inside residential sectors

Naya Raipur has been divided into 21 sectors to accommodate the resident population. The residential sectors have been phased out to adapt to each stage of development of the city. They are planned as the building blocks of the city, each one consisting of three housing areas with a population of about 5,000 each and a shared facility core at the sector/ neighborhood level in addition to the area level facilities. These housing areas are developed on the concept of graded mixing based on number of rooms.

15% of the total number of dwelling units is reserved for EWS housing. The typology of these buildings are clustered low-rise houses on plots around central open spaces and shared services, suitable for the smallest of building types.

To follow the general principles of the Urban Design guidelines and keep the neighborhood compact and diverse in terms of activities, about 10% of the area inside a typical Residential Sector is suggested to be allocated to facilities cores, while the residential use itself would remain around 55-65% and 1% of net residential area is reserved for essential activities such as dhobi (clothes washer), cobbler and vegetable vendor.

Inside all the residential sectors, large and geometrically irregular central open spaces are proposed to serve the neighborhood and connect them to the main entry points of the corresponding sector in 4 directions. The 4 corners of the sector are reserved for 3 convenient and one local shopping center, which can be designed to form gateways to the sector. Low-rise apartments are dispersed along the inter-sectorial roads to create a strong edge along them and mid-rise apartment blocks dispersed along the central green space of the sector. Plotted housing are two to three stories tall and are located along the 16m wide streets, with wide landscaped sidewalks. Civic amenities and visual landmarks are placed in the termination of street vistas or at locations well connected by pedestrian and cycle network, contributing to bring life and visual reference to the open space inside the sector.

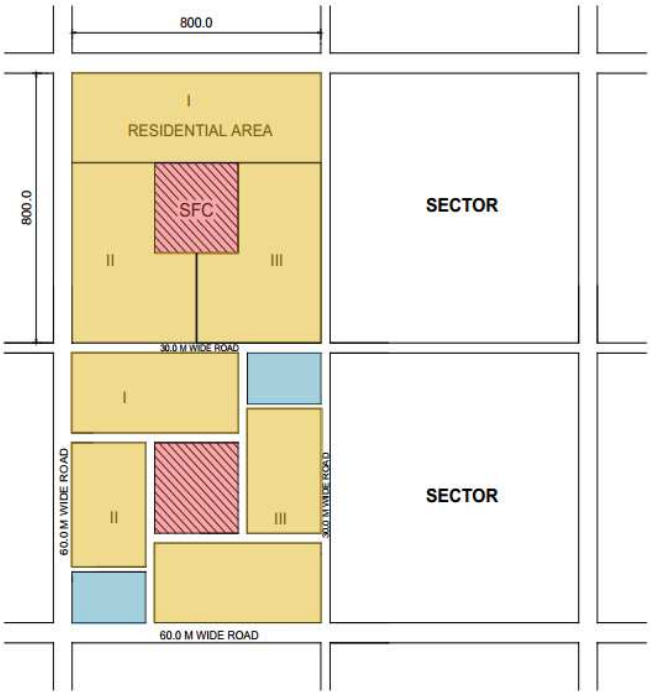



Figure 99 - Conceptual plan of a typical sector
Source: NRDA, 2008

Table 7 - Distribution of Plotted and Apartment Housing
Source: NRDA, 2008

| Number of habitable rooms | Suggested percentage | Type of development | |
|---|---|---|---|
| Saleable component | | Plotted | Apartment |
| 1-2 rooms | 41% | - | 100% |
| 3-4 rooms | 38% | 50% | 50% |
| 5-6 rooms | 11% | 100% | - |
| Incremental housing | 10% | 100% | - |

The five bigger sectors just south of the Capitol Complex (25, 26, 27, 29 and 30) are the first residential ones to be planned and built in the initial phase.


Figure 100 - Typical residential sector
Adapted from NRDA

## Sector 30 – Private developers

Sector 30 is given to different private developers and confirms the main directives of the typical sector. The green buffer along the water stream passing through the sector acts as central green zone. Developments are already being planned by two real-estate companies based in Raipur, targeting middle to high income families.

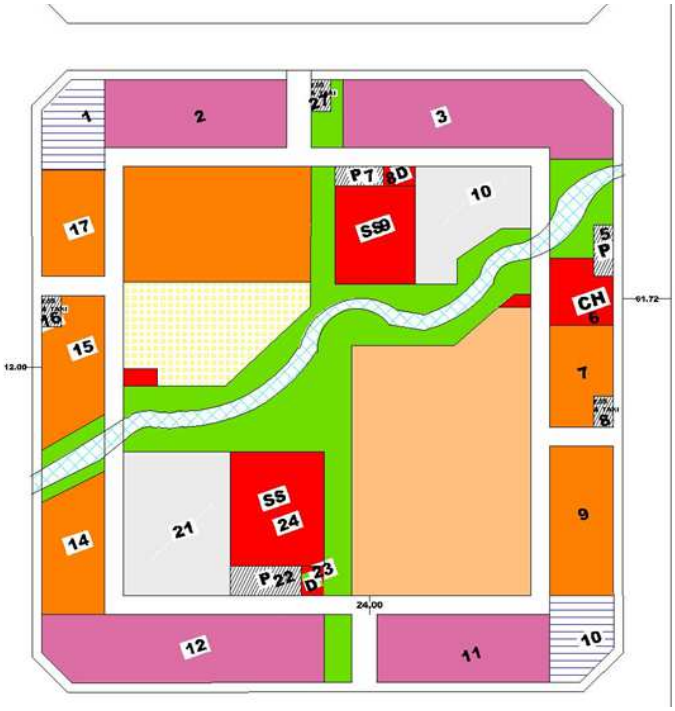




Figure 101 - Plan for Sector 30
Source: NRDA


Figure 102 - Private developments in Sector 30
Sources: GT Homes and Avinash Group

## Sector 29 – Developed by Chhattisgarh Housing Board

The adjoining sector 29 is being developed by the government, through Chhattisgarh Housing Board. Most of the units have already been booked, half of them by government employees and the other half by the general public, and offer a high diversity in terms of unit sizes and social profiles of the dwellers. The units range from 27 to 234 sq.m in an attempt to bring EWS to HIG (Higher Income Group) to the same sector. Taller building are concentrated along the edges nearer to the main transportation lines, as well as in the central part of the sector, which facilitates orientation, creates a stronger local centrality and brings more importance to the internal green corridor. The presence of a water stream running near one of the corners finally defines a smaller strip with High Premium dwellings, partially disconnected from the rest of the sector.





Figure 103 - Chhattisgarh Housing Board projects for Sector 29
Source: Chhattisgarh Housing Board

## Sector 25 – Rehabilitation Colony (Naya Rakhi)

The central portion of Sector 25 forms Naya Rakhi, a Rehabilitation Colony for the residents of Rakhi, the only village which had to be totally relocated during the construction of the new capital. The sector is adjacent to the Capitol Complex, where part of the old village existed, and the access to the boundary road is made through a green belt and a school. All plots have the same area (2000 sq.ft., aprox. 185 sq.m.), but there are 4 types of one-storey houses to accommodate different family structures and to provide a range of compensation possibilities compatible to the previous dwelling situations of each family. Almost all the dwellings are already finished and the families relocated.

The old settlement was characterized by the organic form of villages, which created an urban pattern full of intermediary open spaces. The new settlement follows a typology with common attached walls and every house has private open spaces which are at the rear end of the plot.

Figure 104 - Naya Rakhi

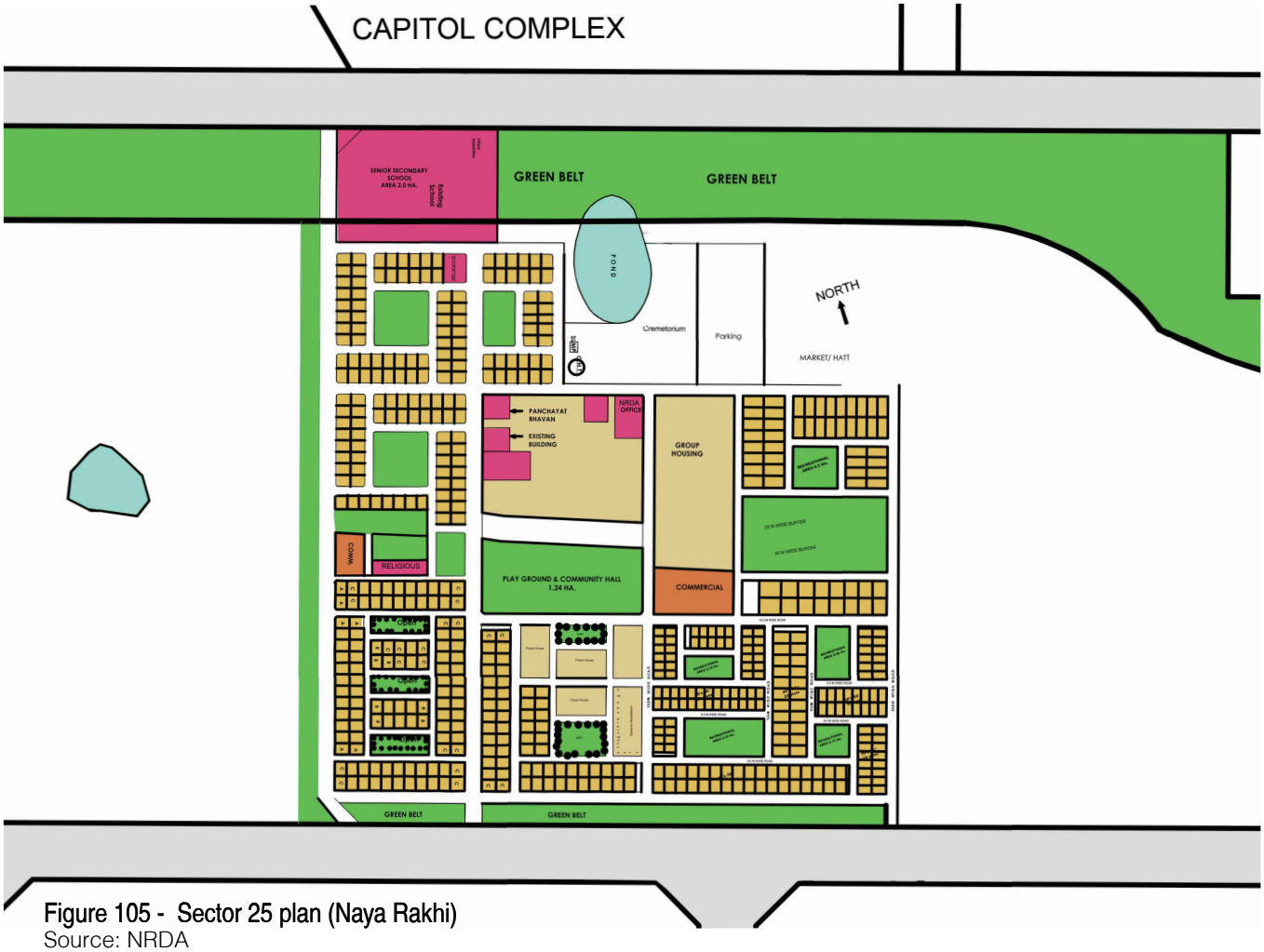



Figure 105 - Sector 25 plan (Naya Rakhi)
Source: NRDA

## Sector 20 – One of the preserved villages (Kayabandha)

All the other villages existing inside Layer-I are planned to be preserved and included inside the sectors, most of them residential, such as sector 20 (Kayabandha). For such goal, Village Development Plans are being developed by NRDA. The abadi area (built environment of the village) is kept in its physical structure and ownership. The Masterplan provides local amenities and space for a planned future expansion of the village, which will happen through a regular plotted area.

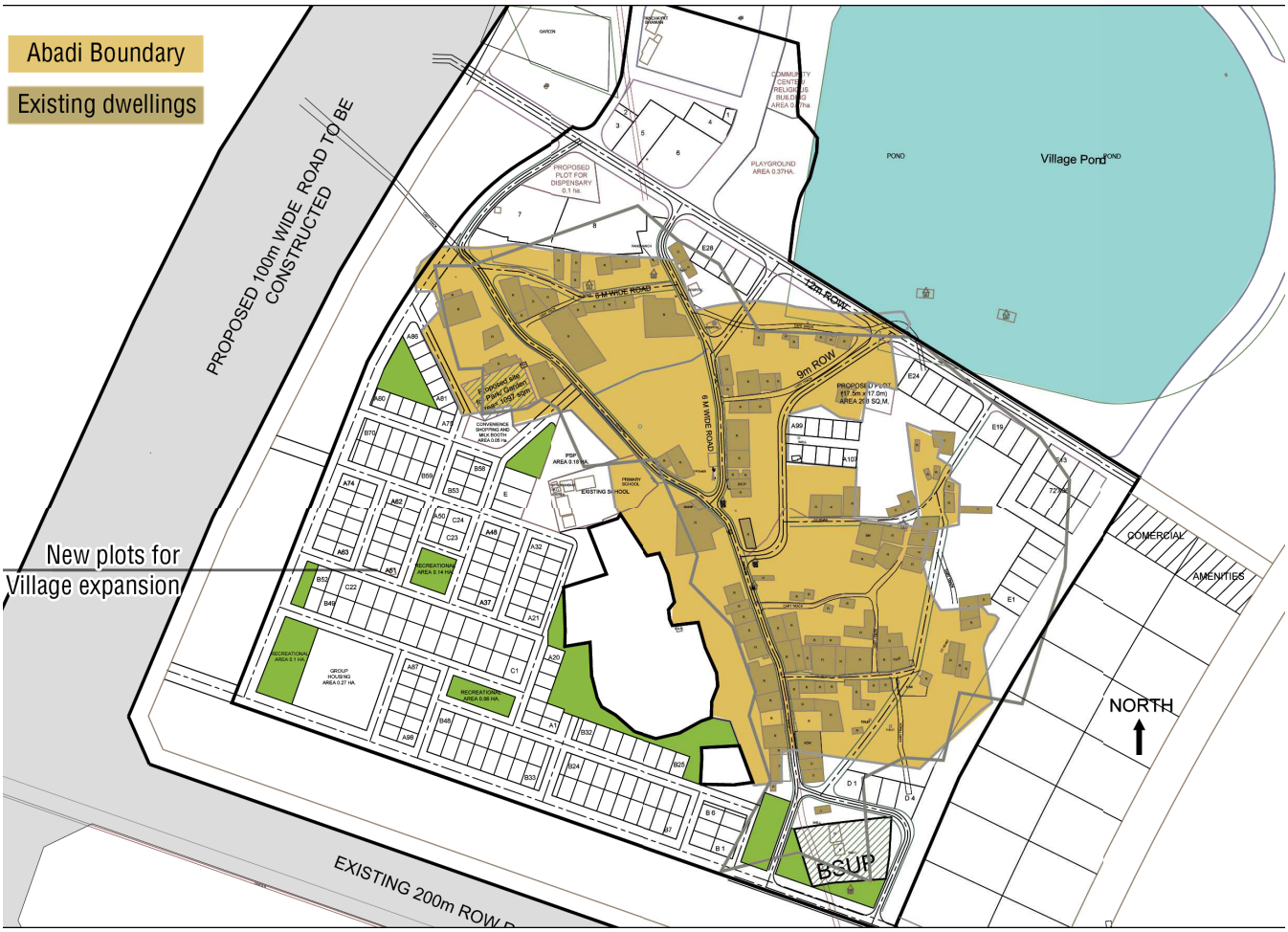



Figure 106 - Part of plan for Sector 20, showing the integration of Kayabandha village and the plots for its expansion
Adapted from NRDA

# Institutional mechanism

Traditionally, the state departments i.e. Public Work Department (PWD), Electricity Boards, Water Supply Boards have been responsible for providing trunk infrastructure inputs in cities. The detailing and distribution has been the domain of development authorities and/or Municipal Corporation.

Post-independence three capital cities came into existence in India. Chandigarh, the capital of Punjab & Haryana, is managed by the central government thorough the Union Territory Administration. Bhubaneswar, the capital of Odisha was planned and developed under a Notified Area Committee under the state government's urban development department until a municipal corporation took over in 1994. Similarly Gandhinagar, was planned & implemented and is being managed under the state urban development department.

However, in late seventies the initial organizational set up for new towns was essentially planning / implementation / maintenance agency rolled into one, which was either a development authority under the concerned state regulation (eg. New Okhla Industrial Development Authority, Noida) or a company under the Companies Act (City and Industrial Development Authority, Ltd. Maharashtra CIDCO)

In case of CIDCO, the Maharashtra Regional and Town Planning Act, 1966 provided for the constitution of a mandate-specific government company managed by a board of directors.

This trend continued up to the late nineties. In West Bengal, Salt Lake, a planned new town near Calcutta was completely planned, developed, owned and leased out by a state government department in the early seventies. However, in the late nineties when the same government decided to develop another new town, Rajarhat, it opted for the CIDCO model i.e. a company under the Companies Act.

The projections on global urbanization suggest that nowhere is the demand for New Towns going to be more than the developing world, and in particular Asia.

While most of the New Towns activity in India has centered around the extension and renewal of existing urban centres, there has been a substantial body of work concerning independently located New Towns, built with the hope of creating an ideal urban India. These were built to the scales unprecedented in previous centuries - witness Chandigarh, Bhubaneshwar, Gandhinagar and the numerous industrial towns that have proliferated the urban landscape.

# CHAPTER 6

## indian urbanism - lessons from the past

THE FORMATION OF NEW TOWNS IN INDIA: LESSONS FROM THE PAST

Case 1 – Chandigarh

Case 2 – Gandhinagar

Case 3 – Navi Mumbai

UNDERSTANDING OF 'INDIAN URBANISM'

# The formation of new towns in India

(source: The idea of new towns - Navi Mumbai, Urban Design Research Institute 2006)

With rapid urbanization and the looming projection that over 80% of the world's population will live in urban centres, the creation of New Towns is an inevitable phenomenon. *The projections on global urbanization suggest that nowhere is the demand for New Towns going to be more than the developing world, and in particular Asia.*

*Unfortunately, the New Towns experience in the developing world has not produced ideal results. Visions of New Towns hailed in the 50's and 60's as manifestations of a brave new global vision have shown themselves to be inadequate as long-term human settlements. Invariably New Towns, originally founded on the ideals of the creation of a new society, have slipped into a seemingly profane but real role of absorbing migration and accommodating an increasing number of people in the limited space that is available to these urban centres.* This has generated unpredictable use patterns and transformations, which have caused planners of New Towns to review their approaches and methodology. *Perhaps, in no other country is this phenomenon more pronounced than in India.*

*While most of the New Towns activity in India has centered around the extension and renewal of existing urban centres, there has been a substantial body of work concerning independently located New Towns, built with the hope of creating an ideal urban India. These were built to the scales unprecedented in previous centuries - witness Chandigarh, Bhubaneshwar, Gandhinagar and the numerous industrial/company towns that have proliferated the urban landscape.*

*In design,* these New Towns emulated the low rises, low density patterns of the Colonial Cantonment *(the ideal townscape for the average contemporary Indian urban dweller) and attempted to create self sufficiency in terms of job locations and opportunities within a matrix of adequate infrastructural provisions. At the outset these were epitomes of a new vision and of a preferred reality - symbolizing the idealism and belief of being able to structure society through the design of the built environment. However,* over the last two or three decades, most New Towns in India have been unable to cope with accelerating urbanization and the rapidly growing world of the urban poor - reducing their role to that of attempting to absorb more and more people while using diminishing resources. *In addition, the spatial patterns necessary to accommodate the world of distress migrants and the urban poor together with the activities of working, living, ritual and celebrations that are integral to their existence, failed to find a place in the design of New Towns in India. This coupled with the lack of political will to effect change on the urban landscape saw the decline of investment in a number of New Towns at their infancy - thus jeopardizing their healthy growth.*

*The questions that come to the fore today are fundamental in nature viz: the relevance of the Idea of New Towns and the ability for contemporary society to 'make' a New Town.* Are traditional principles worth recovering for the design of New Towns in the contemporary context? Should New Towns be extensions of existing cities and towns or should they be self-propelled entities, tree standing in their own landscape? How could the (urban) poor be made part of the evolutionary process of a New Town? Could New Towns be financially viable and self-sustaining entities? What should determine the urban form of a New Town? What eventually gives it the bright lights of the city? Is the idea of New Towns capable of generating, in contemporary India, the idealism and hope that propelled its creation historically?

## Nature of new towns in India

Administrative capitals:

- Promoting national image by making a governmental center.
- Meeting housing needs and promoting social and cultural identity.
- Rational dispersion of population and of socioeconomic activity.
- ex. Chandigarh, Ghandhinag, Naya Raipur

Satellites/refugee camps:

- Coping with over urbanized growth, migration, or special problems.
- Meeting urban housing needs.
- Reducing traffic congestion.
- ex. Navi Mumbai

Industrial/educational settlements:

- Exploiting natural resources.
- Exploiting physical resources: land, water, landscape.
- To house industrial labor force. (The need for better living condition for their workers)
- ex. Jamshedpur, Bhillai, Nangal

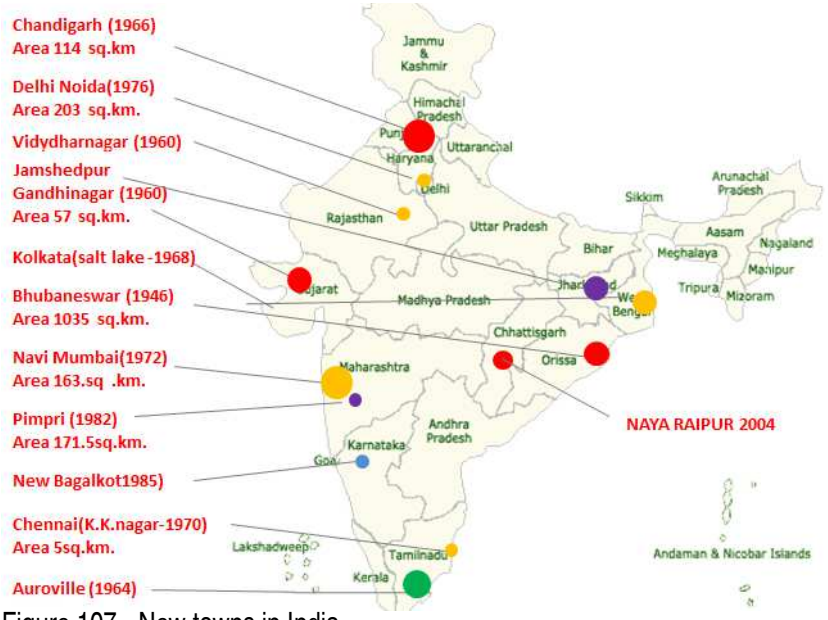



Figure 107 - New towns in India
Source: Adapted from the presentation made by Yogesh Agashe and Radika Mathur

# Case 1 - Chandigarh

Chandigarh was created as an act of will. It started from zero and it places itself in the line of modernist utopian city planning projects. The idea of the city, a capital for the newly formed Indian state of Punjab was conceived in 1947 immediately after the independence and partition of India. Besides creating a centre for governance and rehabilitating refugees from West Pakistan the new capital was also intended to recreate the rich cultural legacy of Lahore, Punjab's historic capital now awarded to Pakistan. As expressed by President Nehru in 1950, Chandigarh was to establish a vision of the future "unaffected by traditions of the past". The vision was a capital that would serve as a model in city planning for the new nation. It would be the first Indian city where water, drainage and electricity would be available to even" the poorest poor".

Table 8 - Chandigarh Fact File

| | |
|---|---|
| Dates | 1953, Established to be built<br>1950-1965, Construction and development<br>1966, Constituted as union territory |
| Area | 114 sq. km. |
| Population | 1,054,686 |
| Density | 9,252 p. / sq. km |
| Planning Team | Le Corbusier, Pierre Jeanneret, Matthew Nowicki and Alberto Mayer |

## The Concept

The city was conceived as a rectangular grid based on the metaphor of a human body, probably divorced from ideas about complex, vibrant Indian cities.

- Capitol Complex at the top resembling the head, the intellectual base, reflecting Le Corbusier's (and Nehru's) conviction that government should rule a city as the head rules the body.
- The industrial and educational belts on either side of the city symbolized the limbs.
- The city center with commercial buildings, shopping, and offices represented the heart with green leisure valley as the lungs.

Divided city into onward-looking sectors of 2600 by 4000 feet (800 by 1200 meters), dimensions taken from Paris, each considered to be a self-sufficient neighborhood. A hierarchy of roads separated pedestrian and vehicular traffic into seven different road types, from V1 for the fast-moving inter-city traffic to V7 for pedestrians within the sectors. Thoughts based on his designs for the "Radiant City" — the ideal city of an omnipotent Western machine-age civilization promising a decongested city center, filled with sun, space, and greenery.

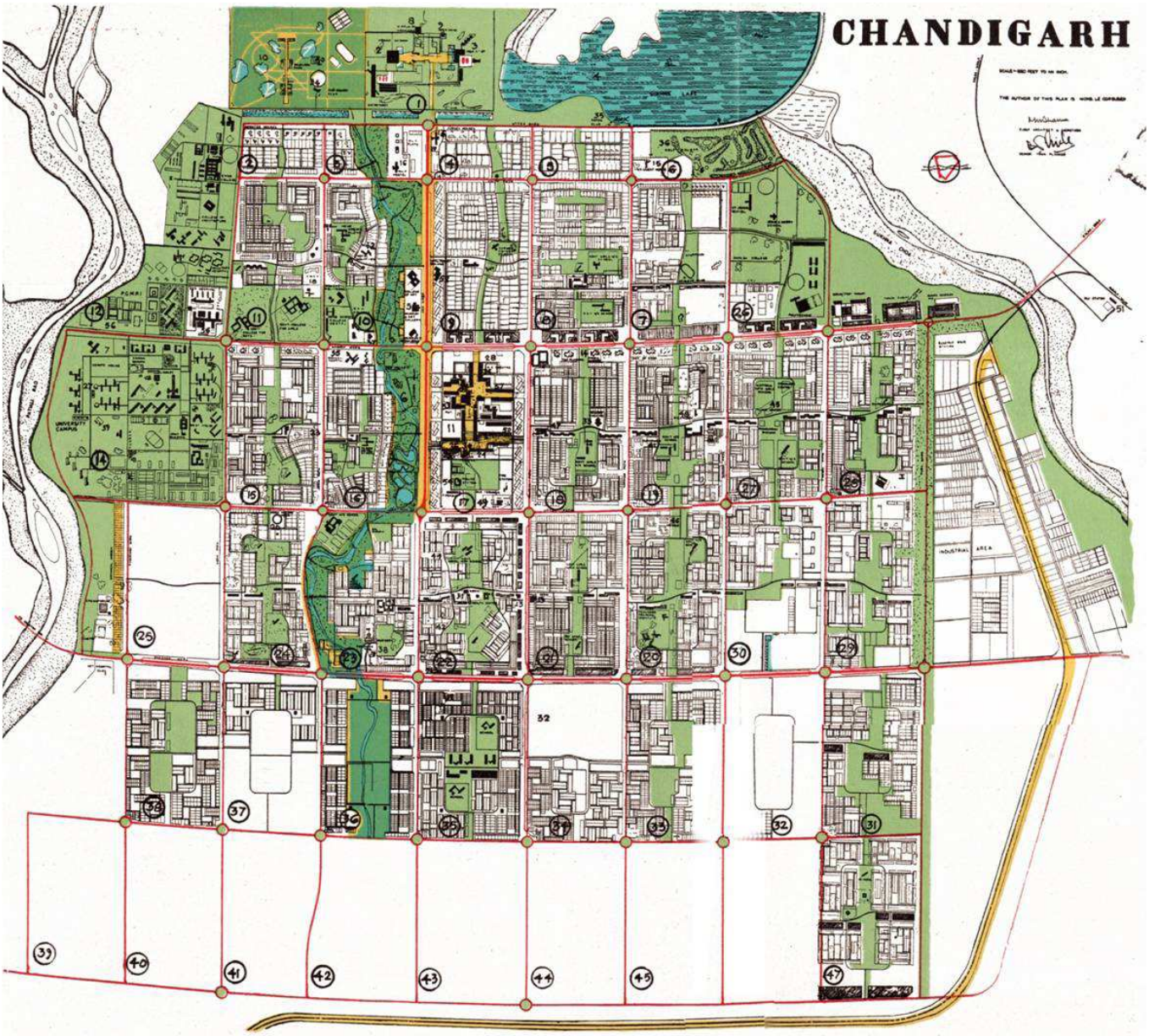



Figure 108 - Chandigarh Masterplan
Source: Google Images

Figure 109 - Model displayed at the City Museum in Chandigarh

## The Sector

In its first phase Chandigarh was organized in 30 sectors. The sector was conceived as an autonomous unit including housing as well as all service needed for everyday life: schools, artisans, shops, leisure. This concept of the neighborhood unit is originally Anglosaxian but was adopted in many early modernist city projects. An example is the superquadra of Brasilia, Brazil (1956-59) where the neighborhood unit was used as the structuring urban element.

The inhabitants were organized in the sectors according to existing social structures with the highest paid official and the largest houses near the capitol. The greater the distance of a sector from the capitol, the higher its density was. Densities came to vary between 7 persons/acre to 100 persons/acre. Critics such as Kevin Lynch and Christopher Alexander have criticized the concept of the neighborhood unit to be isolationist and segregating. They point at the aspect of self-sufficiency as an element of exclusion.

## The Criticism

Chandigarh lacks the vitality, noise and charisma of most Indian towns and cities, where the streets and bazaars are dynamic places of public gathering, filled with mystique, color, and allure. Also Chandigarh by comparison is sterile and lacking in "soul". The biggest city planning faux-pas appears to be the complete lack of shelter for the economically weak and the informal sector of Indian society. According to Sarin (1982), "what is lacking in the preoccupations of all these 'great' planners is any direct consideration of the material reality of the people for whom they were designing these splendid creations."

The main problem for the city today is however how it should grow in relation to maintaining its low-density characteristic. The city has at the present 750,000 inhabitants within its bound area, with another 3,5 million persons inhabiting various pockets in the areas immediately surrounding the city. With the present growth trends, it is estimated that by the year 2020, the population of the urban complex will be more than 20 million. The 1000 acres of urban land currently available for development just about meet the current shortage of housing notwithstanding the need to rehabilitate the informal settlements.

Figure 110 - Layout plan of a sector
Source: Google Images

Figure 111 - Buffer separating a residential area from the main road

Figure 112 - Main commercial area inside a sector

Figure 113 - High Court in Chandigarh

Figure 114 - CBD (Sector 17) in Chandigarh

Figure 115 - A residential block with semi-private transition space between the building and the road

Figure 116 - Street edge of a Housing Sector

Figure 117 - Semi-public space within a Housing Sector

Figure 118 - Fenced median in an intersector road

Figure 119 - Bus shelter with limited accessibility for the pedestrian

Figure 120 - The backside of a commercial area in Mohali: lack of connection with the street

Figure 121 - Residential area


Figure 122 - Burali Village

Figure 123 - Rehabilitation colony

Figure 124 - Wall separating Burali Village and the adjoining areas of the sector

Figure 125 - Clear separation between Burali Village and the adjoining areas of the sector

Figure 126 - The open hand, a symbol of Chandigarh

# Case 2 - Gandhinagarh

The Bifurcation of Maharashtra and Gujarat emerged the demand of new capital town for shifting administrative setup from Bombay. Ahmedabad was already functioning as capital town but administrative infrastructure being segregated, lack of space and difficulty to accommodate new administrative functions in existing fabric led to the idea of creating a new town.

- 1960 Maharashtra and Gujarat bifurcated
- 1960 Gandhinagar envisioned
- 1964 Site finalized and approved for construction of city
- 1966 Chief town planner H.K. Mewada and senior town planner P.M.apte got approval of master plan from govt.

The new town was proposed north of Ahmedabad on the banks of river Sabarmati across NH-8 connecting Bombay and Delhi. The total area of the site is about 5,738 hectares (14,180 acres) including and divided by the river. The area under river is about 800 hectares.

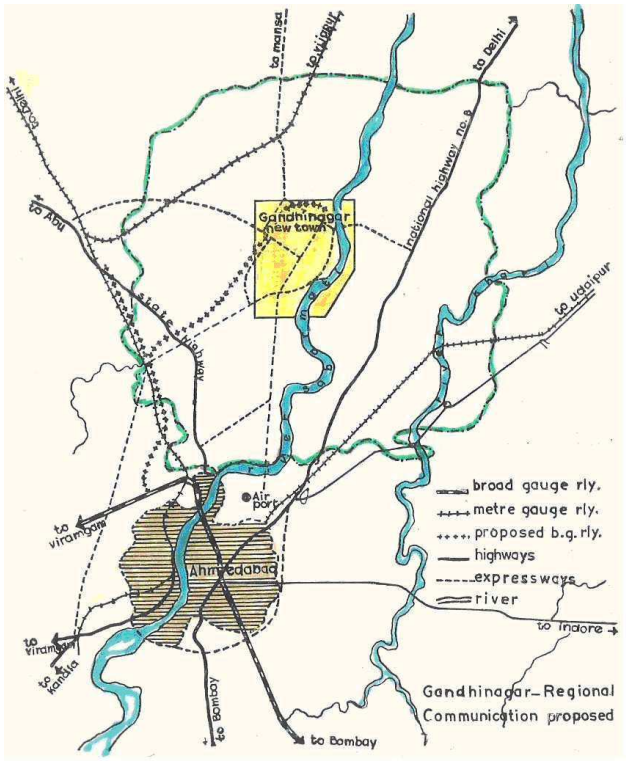



Figure 127 - Location of Gandhinagar in relation to Ahmedabad
Source: Wikimedia Commons

## The Concept

The main work areas in the city are Capitol Complex and Government Offices, Light Industries Areas, City Centre, Public Institutions Area and Shopping, Commercial and Warehousing area. Thirty sectors, into which the city has been divided, stretch around the central Government complex. Each sector has its own shopping and community center, primary school, health center, government and private housing. Apart from which there is a generous provision for wide open green parks, extensive planting and a large recreational area along the river giving the city lush green garden-city atmosphere.

## The Residential Areas

The Regular pattern of main roads divides the city into rectangular sectors measuring one kilometer by 0.75 kilometers with an area of 75 hectares (190 acres). Each of these sectors will accommodate, on an average, a residential community of about 7000 persons with the necessary facilities like schools, shopping, playgrounds, parks, etc. Though the families of the government employees may constitute almost 50 per cent of the envisaged

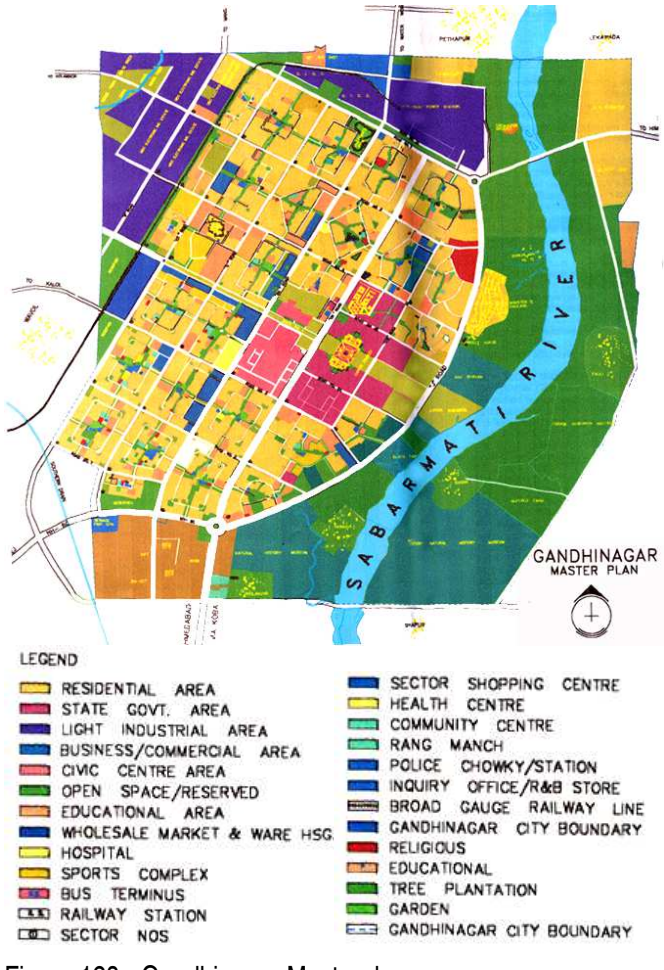



Figure 128 - Gandhinagar Masterplan

population of the city, most of the residential communities are proposed to have population dependent on government service as well as other occupations. This is considered desirable so as not to create isolated Government Colonies.

In order to achieve economy in development costs and facilitate maximum benefit from social integration the residential units are planned in a compact form. Consequently, larger open spaces and playgrounds are available and accessible to the people within walking distance. Major facilities like primary and secondary schools, shopping centre, health and community centre, etc. are grouped along this cycle-pedestrian way, making them easily accessible to all without having to cross main vehicular roads.

## The Intentional Strategy

The city was planned for a population of 150,000 but can accommodate double that population with increase in the Floor Space Ratio from 1:2 in the areas reserved for private development in all residential sectors. The river being the border on the east, and the industrial area to the north, the most logical future physical expansion of the city was envisaged towards the northwest. To retain the identity of the city as a new town and the capital, the planners provided for its growth away from the city of Ahmedabad which is to the south. Hence as a rational extension of the grid, to the northwest the planners had envisaged 30 additional residential sectors that could accommodate a population of 450,000. Thus, the growth potential of the city by densification and area expansion to the northwest is for a population of 750,000.

## Criticism

Gandhinagar was criticized for the modern concept of sector planning with loosely held open spaces between buildings. The sectors are conceived as low density to merge with the idea of a green city. As in the case of Chandigarh, the movement corridor here is merely roads for commutation than 'streets' as public spaces. As the city majorly contributes to the government sector, there is a need to create more diverse economic activity to become inclusive.

Figure 129 - Roundabout in Gandhinagar
Source: Google Images

Figure 130 - Roundabout in Gandhinagar
Source: Google Images

# Case 3 - Navi Mumbai

Navi Mumbai (New Bombay), India, established in 1972, is a new planned city across the harbor from Bombay. This planned decentralization was the outcome of efforts by the government to make Bombay more "sustainable" (Bombay Metropolitan Regional Planning Board, 1973). The city was designed to provide a better quality of life, especially to the middle and lower class of people.

## The Creation of Navi Mumbai

The prominent authors of the 'twin city concept' were Charles Correa, Pravina Mehta and Shirish Patel who presented to the government a proposal in 1964 for constructing new growth centers across Bombay harbor on the mainland. The site that was finally chosen was across the harbor from Bombay Island. It is a narrow piece of land bounded by the Western Ghat mountain ranges on the north, south and east, and the Arabian Sea on the west (CIDCO, 1973). Navi Mumbai covers an area of 344 sq. km.

## Development Potential of the Site

The new town, comprising of a number of nodes (townships), was designed to accommodate new industrial and commercial activity as well as for secure and affordable housing to workers. The plan hoped to reduce homelessness in Bombay and provide slum dwellers a better life as well as absorb migration from the countryside.

The development plan took into account the provision of 750,000 jobs for a population of 2 million. The employment base of Navi Mumbai was planned to encompass manufacturing (industry), trade and commerce (wholesale and warehousing), as well as service sector (office) jobs.

## Concept of City structure as in the Draft Development Plan

The form of the City structure is influenced by :

- Intercity Transport links between Greater Mumbai and Navi Mumbai.
- Location of major industrial work centers, to minimize home to work distance.
- Intra city transportation in the form of a closed loop
- Strategic central location of Business center to take advantage of the damming of the Panvel Creek.

Table 9 - Navi Mumbai Fact File

| | |
|---|---|
| Dates | 1959, Suggestion to create a new city, Barve Group<br>1966, MRTP passed, Gadgil commitee<br>1971, CIDCO formed<br>1972, Established to be built as twin city to Mumbai |
| Area | 163 sq. km. |
| Population | 703,947 |
| Density | 4,332 p. / sq. km |
| Planning Team | CIDCO, Arch. Charles Correa designed one of the 14 nodes, Ulwe |

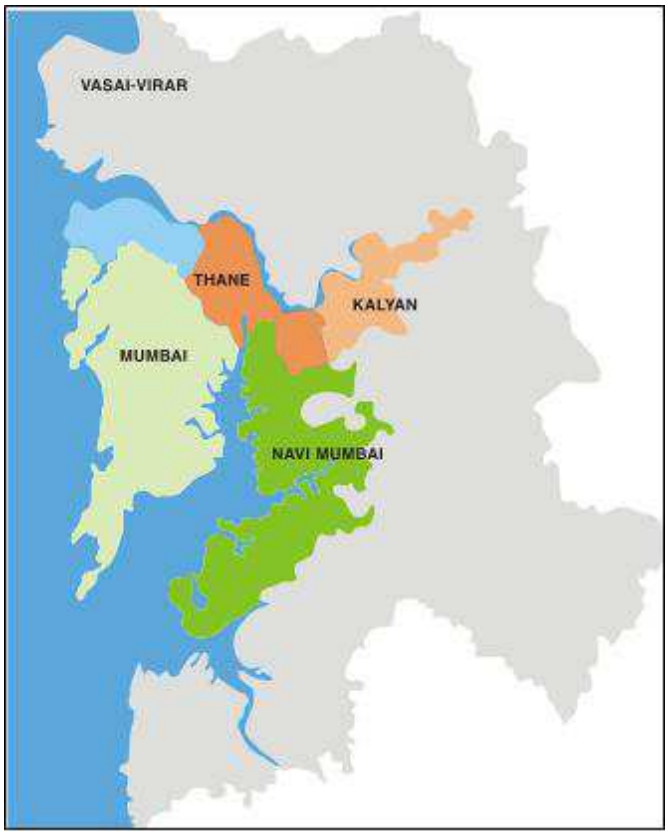



Figure 131 - Location of Navi Mumbai
Source: Google Images

Nodal Development is to enable easy intra public transport facilities:

- Nodes should not be closer than 1 km.
- Recreation areas and playgrounds on the periphery of the concentration.
- Nodes and job concentration.
- Nodes along the transit system, for traffic economy.

Principle elements of city structure are:

- Jawaharlal Nehru port
- Industrial estate of Taloja
- Central business district (C.B.D)
- Green belts located along the hills
- Nodes serving as residential & commercial magnets

## Design Principles of Navi Mumbai

Many of these principles of Modernism were used in the planning of Navi Mumbai. These were:

- decentralization by the design of self-sufficient townships(nodes),
- residential neighborhoods (sector),
- single-use zoning as opposed to the traditional multiple-use zoning

The result was a single-use zoning pattern with distinct areas for industrial, commercial, residential and institutional activity. The total land of Navi Mumbai was divided into thirteen townships. Each township had several sectors. Many of the sectors were residential in character. The neighborhoods were self-sufficient and had their grocery store and primary school. A sector centrally located within each node took on commercial activities.

At a larger scale, nodes share some common facilities such as water reservoirs and transport facilities. Some of the nodes have special features. Vashi is the center of Navi Mumbai's wholesale market. Airoli and Kopar-Khairane have industrial estates, while Nhava-Sheva houses the new container port. Each node was planned to accommodate a range of income groups. There would be no rich or poor nodes (CIDCO, 1973). The size of the node depends on walking distances to the mass transit stop.

## Shortcomings

- Proximity to Greater Mumbai has created greater concentration in the metropolitan area and perpetuated dependency, forcing the new center to act as a dormitory town.
- Urbanization in the Vasi Virar (Bassein) area in the north intensifies during early 1980. Therefore investment of infrastructure in the Northern direction, instead of giving impetus to the New Bombay.
- Fundings for other schemes like the Nariman point scheme and the Bandra- Kurla scheme.
- The economic success of Mumbai has meant enormous growth in the slum areas, which have become an essential part of the city economy, but they create a 'two-tier' society.

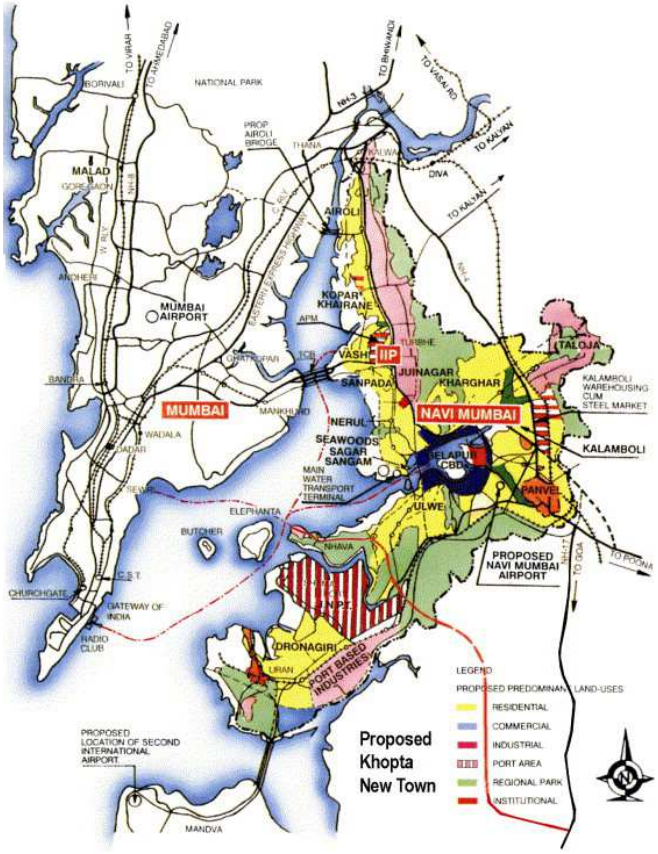



Figure 132 - Proposed land uses in Navi Mumbai
Source: Google Images

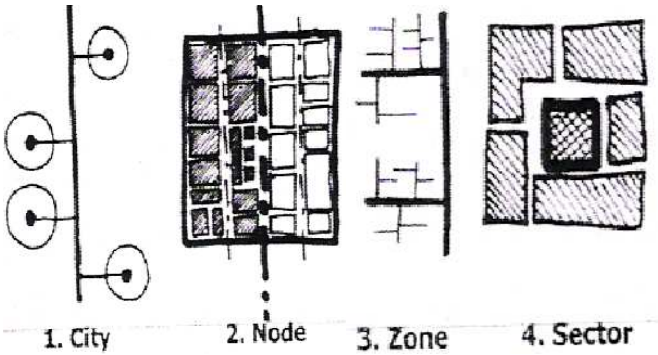



Figure 133 - Conceptual structure of Navi Mumbai
Source: Faculty of Urban Design, CEPT - 2007

Figure 134 - Aerial view of Navi Mumbai
Source: Wikimedia Commons

Figure 135 - Navi Mumbai Skyline
Source: Wikimedia Commons (Photo: Anurupa Chowdhury)

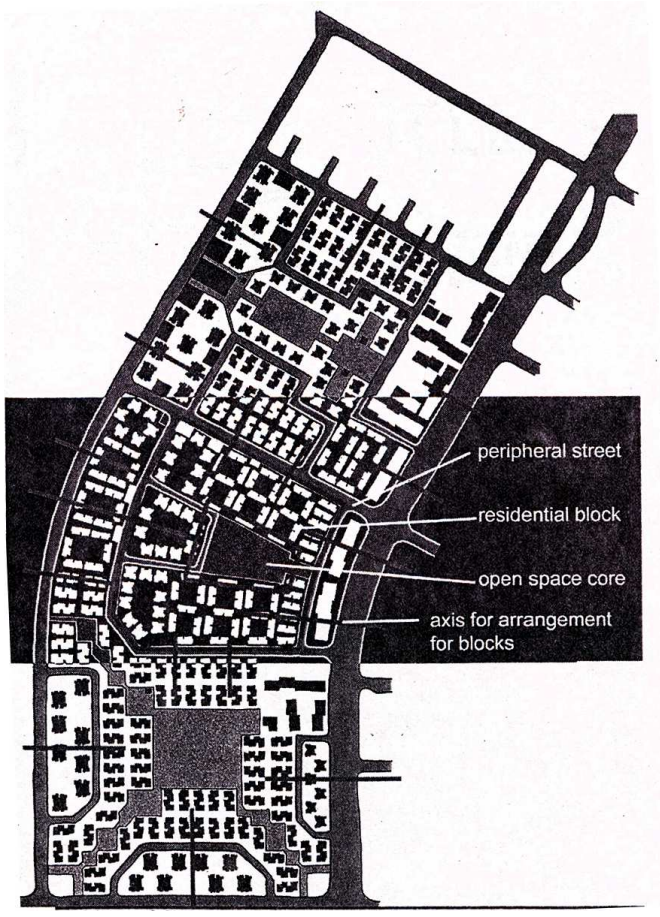



Figure 136 - A sector in Navi Mumbai
Source: Faculty of Urban Design, CEPT - 2007

# Understanding of 'Indian urbanism'

Every human settlement consists of certain elements. Interactions of these elements form a pattern - the urban pattern. The urban pattern is a result of the relationships between people and their social, economic and physical environments. Buildings and spaces are created by people and quite often characterize them (Kostof, 1991). If the residents build the buildings themselves, then they reflect their lifestyles.

## Factors Influencing the Urban Form

Many factors influence the form of cities. Traditional settlements were shaped by (Lozano, 1990): the way in which nature and man-made features satisfy needs for protection and defense, the way in which physical and economic landscape allows for communication with other regions, the way in which the topography of a site suggests the construction of a human settlement, the way in which climate leads to building solutions.

These factors influence the cultural and spiritual form of the cities as well. Traditional cities have used physical forms to interpret cultural and religious beliefs (Lozano, 1990).

## The Evolution of the Urban Form of Indian Cities

For thousands of years, cities were very simple although they rarely served single purposes.

Instead, they supported a range of activities. Housing, commercial buildings, government offices and warehouses formed the built environment of the city. Pedestrian movement limited the size of the city. Clear differentiation between urban and rural existed, often because of a city wall. However, within, a city contained social distinctions in terms of class, race and religion. Urbanization took place at different chronological periods. The factors influencing urbanization were also different. The variation in influencing factors and historical circumstance gave rise to different urban forms in different parts of the world. The evolution of the urban pattern of Indian cities is divided into the social pattern and the built form.

Traditionally, people who belong to a particular caste or occupation lived in communities. Each community was secluded by some transitional elements like gateways or narrow streets. As the streets where primarily for pedestrians, they were narrow hence the interaction with the streets increased.

The climatology and region also has an influence on the typology of the buildings. For example, the availability of a building material necessarily restricted the width of the household. Also in the region where the climate is extreme, the houses shared walls and were compact to control the temperature. The public spaces were for congregation and also for religious activities. These spaces usually had a mosque or a temple/shrine to establish the community. The more prosperous the community, the more number of temples it had.

The city structure emphasized a transition from public to private. In a typical scenario, the main streets are majorly dominated by major religious institutions, palaces and market (bazaar) streets which would fall in an axial pattern. The secondary streets would have commercial in the ground floor and residential in the first floor. The tertiary streets would comprise the neighborhoods with community spaces. This transition from public to semi-public and to private is predominant in an Indian city. At a household level also, this transition is quite dominant in the form of verandahs or otlas (in the case of Ahmedabad). The verandahs are a raised platform with ornate pillars. The more decorated such facade elements are, the wealthier the family is. The verandah acts as a semi-public space were the street level interaction occurs.

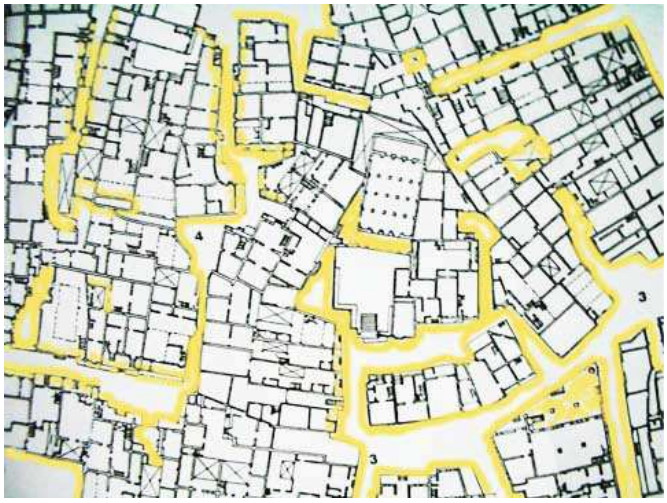


Figure 137 - Plan of the residential area in the old city of Ahmedabad
Source: Dep. of Urban Design, CEPT University, Ahmedabad

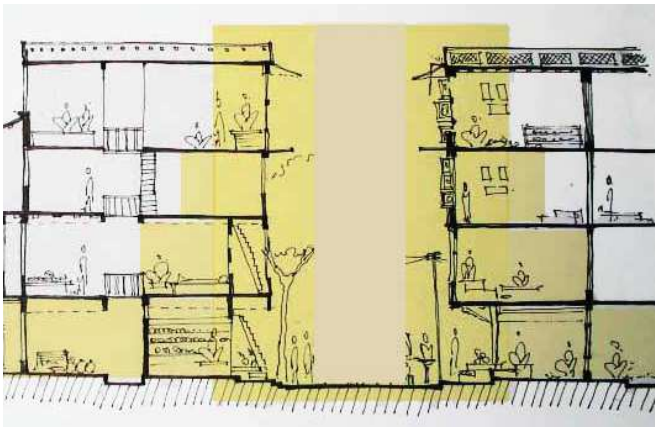


Figure 138 - Typical street section in Ahmedabad
Source: Dep. of Urban Design, CEPT University, Ahmedabad

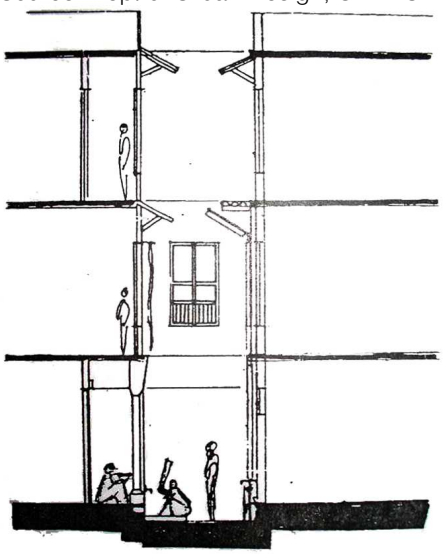


Figure 139 - Street section in Ahmedabad
Source: Dep. of Urban Design, CEPT University, Ahmedabad

Hence such elements contribute to the life of an Indian street.

The typology and morphology of each settlement is characteristic to the culture of the region. In Raipur, for example, a typical traditional house has open-to-sky courtyards which keep the interiors cooler.

## The Old City of Ahmedabad – A Lesson to learn

The historic city of Ahmedabad is constituted out of residential settlements - 'Pol' - and has a specific scale of its community based settlement grouping. Several of such settlements combined together form a 'Pur' neighborhood and the historic city has several 'Pur' neighborhoods forming the entire fortified historic city. These various 'Pur' have their own urban structure which is self sufficient for the communities, where each 'Pol' once again is a self sufficient unit. In as much as the individual 'Pol' is an entity by itself, the 'Pur' also is an entity at a larger scale and so the progression goes further and makes the city comprising of such entities giving it a homogeneous urban form which is characterized by the 'Pur', the 'Pol' and by a house. This intrinsically emergent character is the key to the identity and associations that play an important role in a socially defined urban form which is a living historic cultural heritage.

The communities advocated a living in tune with religious practices and sharing as the basis for their welfare and at the level of the house form this was amply expressed by the treatment of the facade and entrance areas which provided a gradual transition space which allowed the occupants to socialize with outside and also create a distinct zone of spaces for the houses to distinguish between the public and private areas of family living. This attitude provided a very important facade expression which resulted into the elaborate wooden architecture of the town.

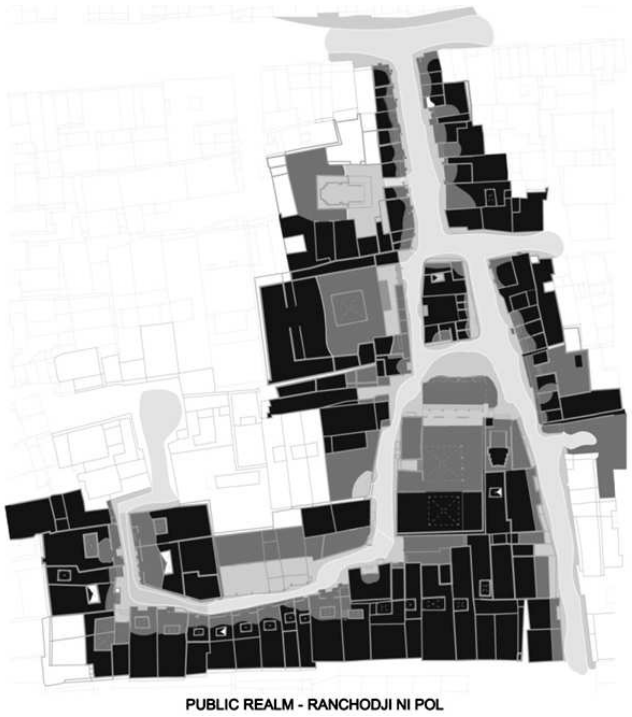



Figure 140 - Ranchodji ni pol
Source: Done by Radhika Mathur, Dep. of Urban Design, CEPT University, Ahmedabad

Figure 141 - Otlas in Ahmedabad
Source: Dep. of Urban Design, CEPT University, Ahmedabad

Figure 142 - Traditional house in Ahmedabad
Source: Dep. of Urban Design, CEPT University, Ahmedabad


Figure 143 - Activities on the street
Source: Dep. of Urban Design, CEPT University, Ahmedabad


Figure 144 - Gateway to the residential community
Source: Dep. of Urban Design, CEPT University, Ahmedabad

Figure 145 - Street furniture
Source: Dep. of Urban Design, CEPT University, Ahmedabad

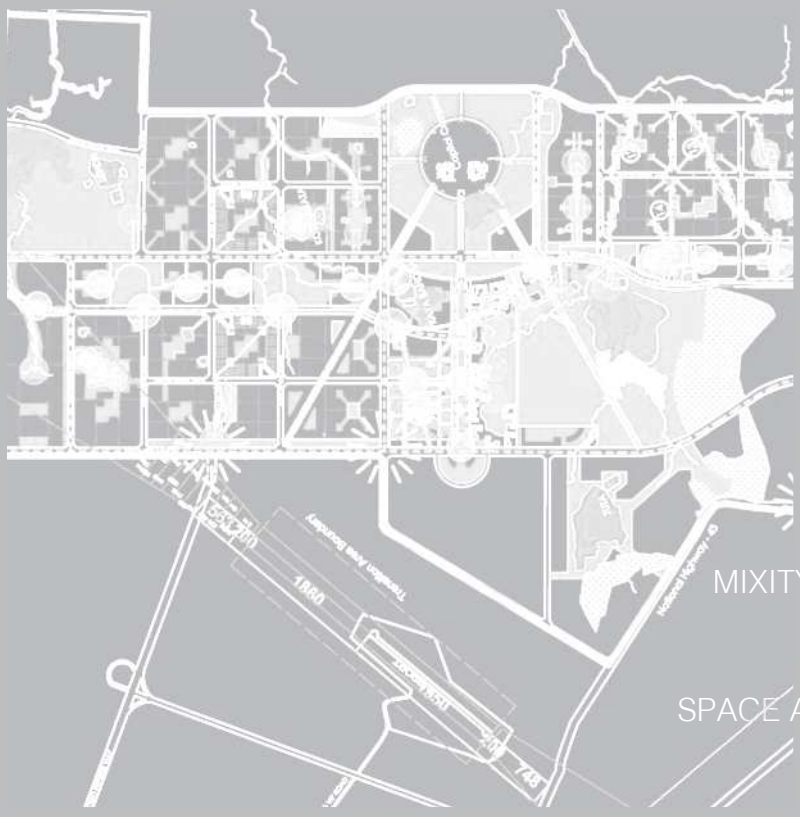

Figure 146 - Mixed land uses
Source: Dep. of Urban Design, CEPT University, Ahmedabad

Figure 147 - Traditional house in Ahmedabad
Source: Dep. of Urban Design, CEPT University, Ahmedabad

Four general topics for the workshop are to be explored: mixity; public transport and urban density; space and water as social resources; “positioning” of the city.

# CHAPTER 7

## cross-cutting themes



MIXITY OF FORM, FUNCTION AND PEOPLE

TRANSPORTATION AND DENSITY

SPACE AND WATER AS A SOCIAL RESOURCE

POSITIONING OF THE CITY

Urbanism is the word used to describe the process that drives people to live in cities. Cities are defined by their size and the existence of a series of complexity traits, including such things as a central administration or government, and the segregation of people by class and/or occupation. Indian Urbanity is the underlying concept that unifies the cultural, social and religious nature of the Indian cities and their coexistence. These aspects are often reflected in the physical manifestation of the urban fabric and depend on the 'life' of an Indian city.

Many traditional cities of India, which were conceived on the basis of relative autonomy of the existing societal structure, have now got transformed into complex, fragmentary patterns of urban development and have been pressure points due to continuous population growth and new trends of urbanization.

In the case of the walled city Shahjahanabad, which is the imperial capital city established in the mid-seventeenth century by the Mughal Emperor Shahjahan, the core of the city was the palace fortress now called the Red Fort with the central ceremonial pathway, Chandni Chowk with Fatehpuri Masjid at its other end. Though the pattern of land use is totally urban, it was still essentially a pedestrian city retaining a human scale. The residential areas are introvert spaces and independent social and environmental entities, while commercial activities are located along the spines, closer to areas of administrative or institutional importance. Mixity of 'Form and function and Activity' were manifested in various scales in the city.

Other characteristic of Indian cities are the wise response to climate - in the hot and humid Indian tropics which gives outdoor spaces more importance than house interior. Compelled to take activity outside, space around the minimal built form is utilized to its utmost limits: sleeping, cooking, washing, studying are all enacted directly under the sky. The 'maidan' (ground), chowk (square), 'barsati' (terrace) and 'kund' (water tank) manifest a palette of places that celebrate being in the breeze and the sun. The second affinity of an Indian urbanism is thus in the 'energizing' of open-to-sky space, in 'possessing' the 'void', more than the 'solid'.

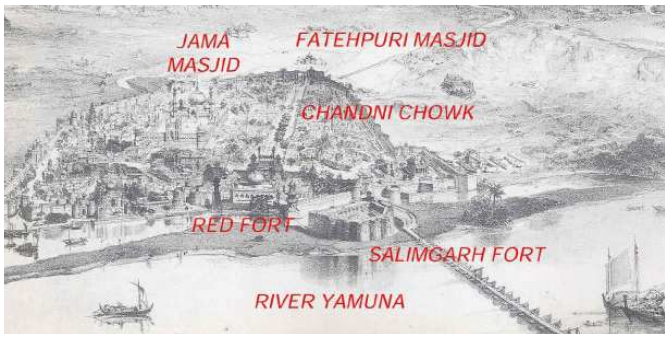



Figure 148 - The walled city of Shahjahanabad
Source: http://www.slideshare.net/ctlachu/planning-of-shahjahanabad

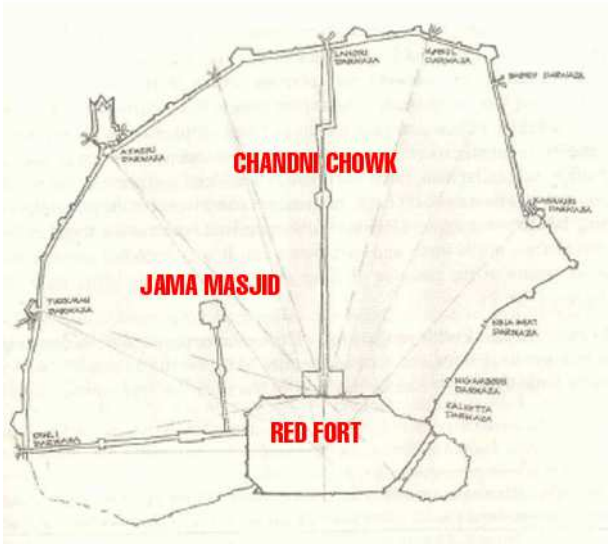



Figure 149 - The walled city of Shahjahanabad
Source: http://www.slideshare.net/ctlachu/planning-of-shahjahanabad

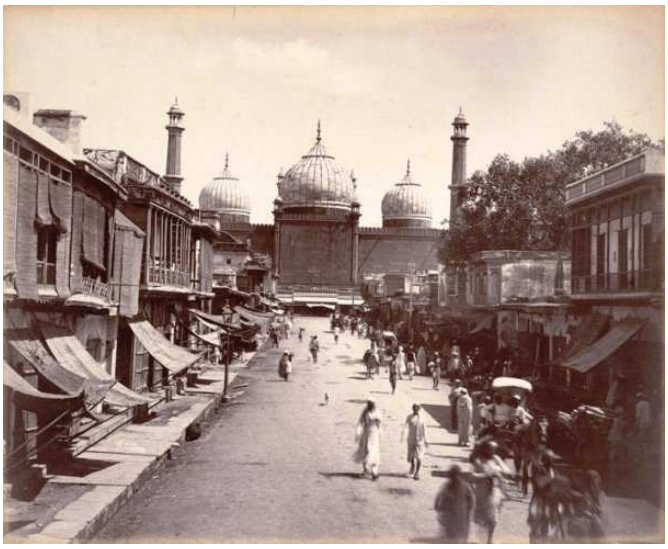


Figure 150 - The street to Jama Masjid
Source: http://www.slideshare.net/ctlachu/planning-of-shahjahanabad

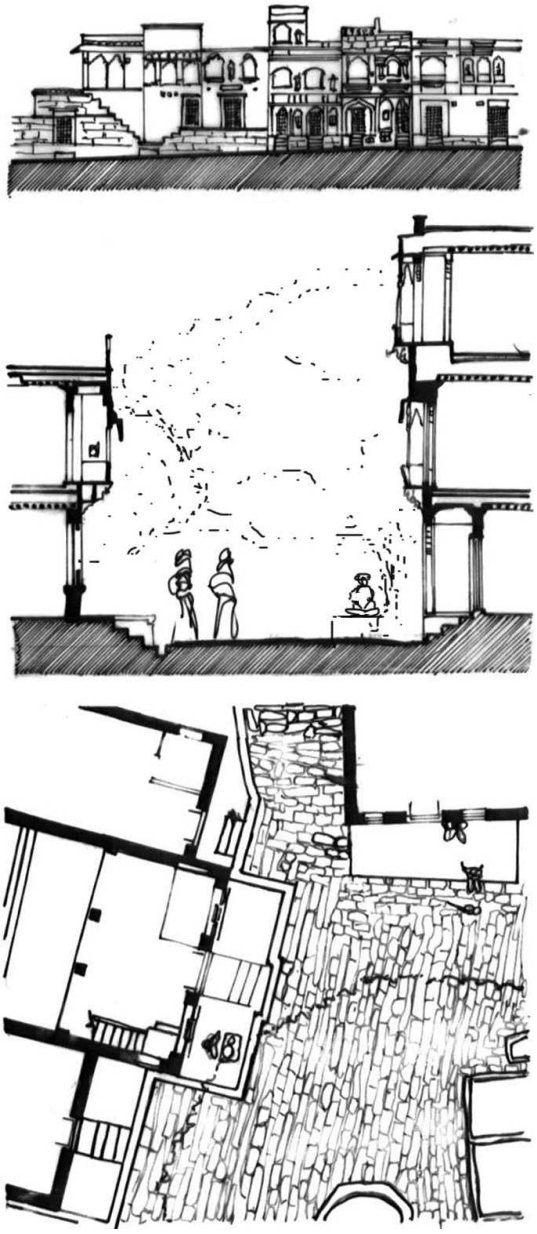


Figure 151 - Typical open spaces in Jailsamer
Source: Students work, Department of Urban Design, CEPT University

Figure 152 - Street in Fort Jaisalmer
Source: Photo by Raj Rewal, The Aga Khan Award for Architecture

This is evident in the city of Jaisalmer where the city is divided into two distinct blocks namely the upper city and the lower city. The lower city form is governed by the local ground condition and individual dwelling form. In the upper city (citadel) the blocks of residential units, temples and the palace constitute the rather contiguous urban block intercepted by four gates or Pols for access. The Urban character is such that the buildings are placed informally in relation to the street pattern; they are always at the focus of the ceremonial axis of each activity. Streets open up into chowks which act as community spaces with either a temple or a well and platforms for interaction. Here streets form an integral part in the hierarchy of spaces going from public to private. The territory of each house is expressed on the street with a raised platform used for lounging by the house inmates as well as the neighbours.

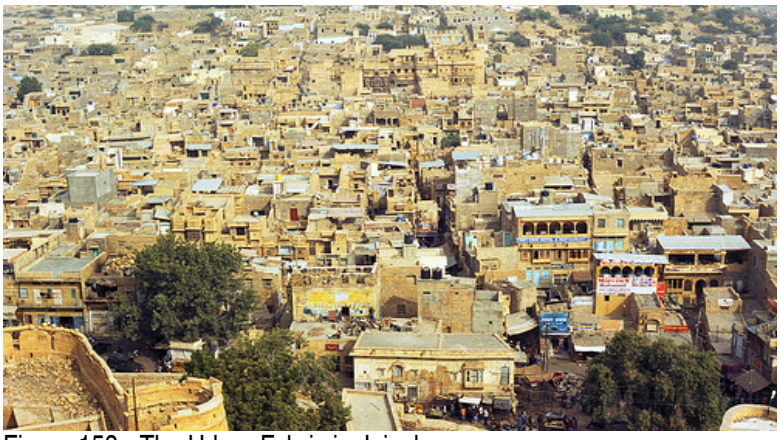


Figure 153 - The Urban Fabric in Jaisalmer
Source: http://inktales.me/tag/rajasthan/

Figure 154 - The Street in Jaisalmer
Source: www.flickr.com

Figure 155 - The Fort seen from the Terrace of a house
Source: http://inktales.me/tag/rajasthan/

The cultural homage to myth - in India where the 'public' and the 'private' are perpetually intersected by the 'sacred', physicality is more supernatural than real. Hence a tree is never just a tree, rather the abode of a sacred spirit that guards its environs; a mountain is not a mountain, but the dwelling place of a God. This deepens the notions of 'genius loci', and hence an ancient tree in a village centre is catalytic enough to incept a shrine under its branches. The shrine may transform into a larger temple, the temple catalyses the making of a campus, and in time, incremental accretions nurture the organic inceptions of entire towns.

Srirangam is one among the best example of a Temple town. In Srirangam, the symbolism of the temple complex as an urban institution makes it a centre having social, physical and economic relationship with the settlement around. Catalytic to the emergence of their surrounding townscapes, they have nurtured a palette of diverse morphologies in the temple to town relationships. Here seven concentric rectangular enclosures or Prakara comprise the entire town. The inner four make the temple complex; the outer three delineate the various precincts of the town fabric. Each enclosure has a gateway or gopuram in each of the four cardinal directions receding in size as it progresses towards the centre, serving as both an urban marker and architectural transition.

Figure 156 - The 'Gopurams' on cardinal point in Srirangam
Source: The Hindu : The Young world, Town within a Temple

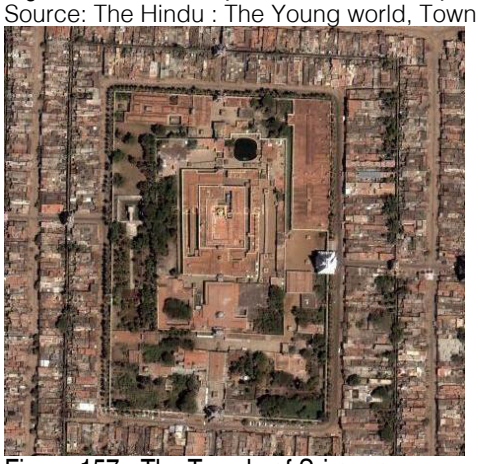


Figure 157 - The Temple of Srirangam
Source: Google Earth

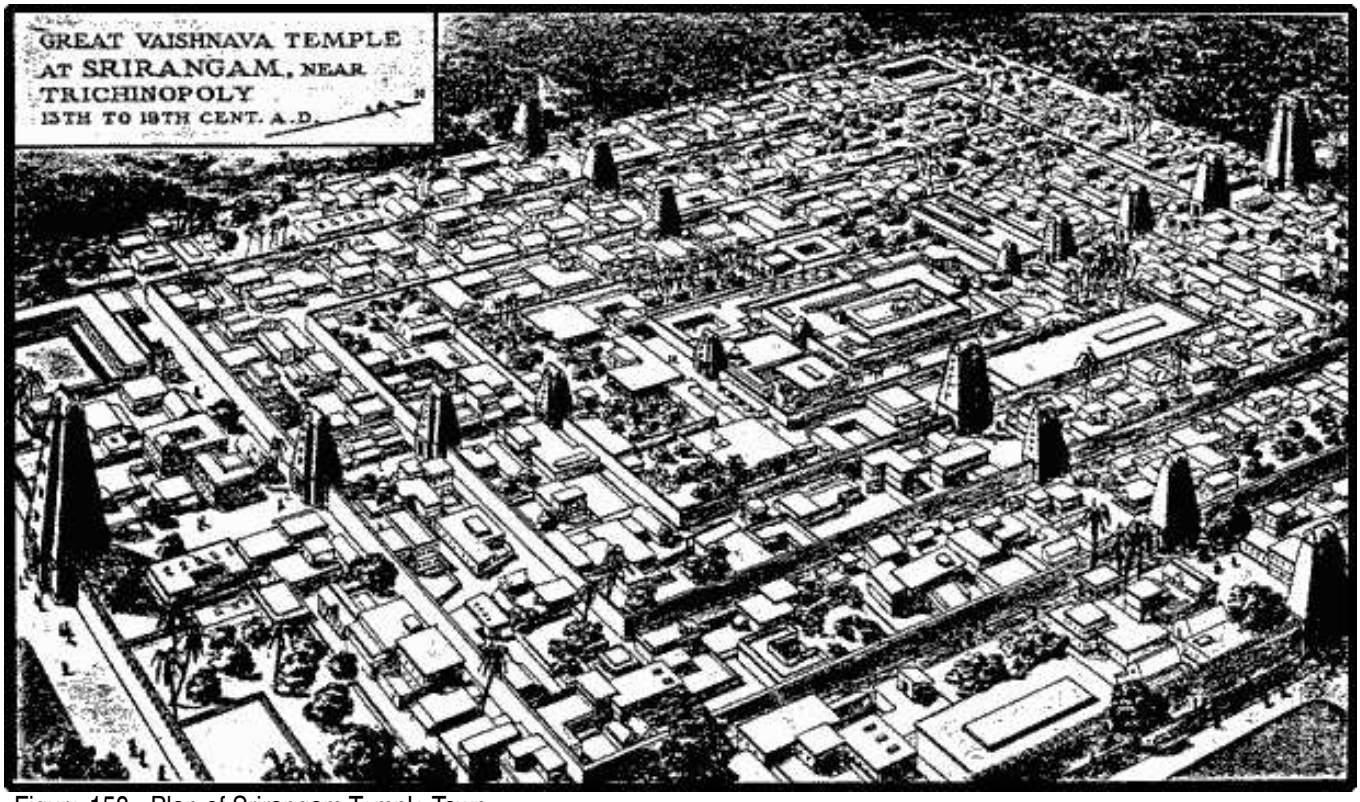



Figure 158 - Plan of Srirangam Temple Town
Source: http://en.wikipedia.org

The chawls of Mumbai offer a unique window into the culture, society and history of an island metropolis in the midst of molding itself in the image of a 'world class city'. In the late 19th century, the textile industry prompted a vast influx of immigrants from the hinterland. Constructed by mill owners and private builders to house the growing community of migrants who gave the city its cosmopolitan flavor, the over-crowded chawl became the quintessential icon of the working-class dwelling. Chawls have been alternately disparaged and romanticized, on one end viewed as jam packed and unsanitary on the other as multicultural enclaves that nurture community life.

A chawl – roughly translated from Marathi as room fronted by a corridor – is a linear or C-shaped building of one or two room housing units that share a common balcony. Originally derived from the typology of army barracks, chawls are typically two or three-storied with a common toilet and washing area on the ground floor.

The chawl's shared spaces gave rise to a strong sense of community. These mundane typologies are transformed by their inhabitants into active political, social and cultural spaces. They have an open sense of community and nurtured a variety of cultures. The open spaces came alive during public festivals like Moharram, Ganesh Chaturthi and Gokulashtami, and served as a forum for the art forms such as bhajans (prayers), powadas and tamashas (comic shows).

Hence some inherent character of Indian Urbanity that one can understand is the vibrancy of the community open spaces, the concept of 'shared' spaces, the various religious beliefs that shape the urban fabric, the scared role of water and space and its relationship with the settlement, mixity of form, function and activity etc.

Hence the four general topics for the workshop to explore are: mixity; public transport and urban density; space and water as social resources; "positioning" of the city.

Figure 159 - The Chawls in Mumbai
Source: http://en.wikipedia.org/wiki/Chawl

Figure 160 - The Chawls in Mumbai
Source: http://unsettledcity.wordpress.com/2011/07/30/lost-in-transformation/

# Mixity of form, function and people

## The 'Mixity' of Residential Use

The new capital city of Chhattisgarh is envisioned as a medium-density development with a garden city character. A density of 250 persons per Ha has been considered appropriate for the residential areas in 21 sectors, accommodating 16,000 population in a typical sector of 800 x 800 m. The sectors shall be planned as building blocks of the city and consist of three housing areas with a population of about 5,000 each and a shared facility core at the sector/ neighborhood level in addition to the area level facilities. These housing areas shall be developed on the concept of graded mixing based on number of rooms which is going to cater to all classes of the society in an attempt to make the new city inclusive.

The distribution of the residential sectors are such that the houses for EWS, LIG, MIG and HIG, which are provided in a subsidized rate, are accommodated in sectors 29 and 27 while the high end residential sector 30 is being developed by the private developers. In contrast to the rises in demand for the subsidized Housing Board houses, the private apartments have yet not filled up more than 30%. The Housing Board envisages sustaining this rising demand only up to 2015 or so. Hence as the city grows over the time there would be an arising need to consider the growing demand for affordable housing.

## The Rise of slums – the case of Chandigarh

Cities have become centers where vast numbers of people compete for the most basic elements of life: for a room within reach of employment with an affordable rent, or vacant land on which a shelter can be erected without fear of eviction; for places in schools; for medical treatment for health problems or injuries, or a bed in a hospital; for access to clean drinking water; for a place on a bus or train; and for a corner on a pavement or square to sell some goods—quite apart from the enormous competition for jobs. Squatter and slum settlements have formed mainly because of the inability of city to plan and provide affordable housing for the low-income segments of the urban population. Hence, squatter settlement and slums are the housing solution for this low-income urban population.

This is the case with Chandigarh where the city is trapped in the clutches of migrants and slum-dwellers, who grew in numbers over the years — from 8,003 in 1974 to 9,488 in 1980 and 19,185 in 1990. In 2006, there were 23,841 unauthorized settlements in Chandigarh. Now the Chandigarh Housing Board has identified 18 slum colonies and is planning to rehabilitate them.

In Naya Raipur, the Development plan attempts to avoid this situation. The DP makes it mandatory that minimum 10% of dwelling units in each

Figure 161 - The green belt in Chandigarh, occupied by slums
Photo: Roland Karthaus

neighbourhood are reserved for incremental housing. The incremental housing shall be designed to be constructed depending upon the available resources and the increasing family needs and growing affordability. A low height high-density development is suggested for this housing type. The permissible ground coverage shall be 65% and a FAR of 1.3 with the permissible number of 3 floors. In addition to the private backyard and front yard, the common cluster level spaces shall be with proper access to all.

Also it gives provision for night shelters to fulfill the needs of the houseless with basic facilities for sanitation. Designed as per the modified guidelines laid down by the Scheme for Shelter & Sanitation Facilities for Footpath Dwellers, they shall be provided in the Facility Centres along the central corridor.

Hence the question here is how Naya Raipur is going to accommodate the inflow of the service sector population in the future? As the ownership of land eventually belongs to the government, how would the city accomodate them?

## Formal vs. Informal Economy

Figure 162 - Weekly market
Source: Google Images

The Informal Economy is considered to be the backbone of Indian Economy, estimated as comprising 60% of net domestic product, 68% of income, 60% of savings, 31% of agricultural exports and even 41% of manufactured exports.

The reason for the growth of Informal Economy is its capacity to absorb surplus labor, together with increasing numbers of job seekers. In countries with high rates of population growth or urbanization, the informal economy tends to absorb most of the growing labor force in the urban areas when the manufacturing industry and off-farm activities in general do not grow at the same pace. This is quite evident as the wage employment is reducing gradually in India and the self employment rate is on a rise.

There is always a symbiotic relationship between the Formal and Informal sectors. Like in the manufacturing sector in particular, informal enterprises are likely to have linkages with formal firms. This is evident in Indian cities, for example, when the commercial street converts into an informal market on the weekends. There are many weekly traditional markets that happen in most of the cities where people from nearby villages gather to sell their goods. Most traditional cities also grapple with the effects of the uncontrolled vending, in spite of the efforts that the corporation/ municipality takes to regulate it.

In Naya Raipur also a number of essential services such as dhobi, cobbler, vegetable vendor, etc. are provided through the informal sector. The DP envisages offering provision for all these activities on 1% of the net developed land in the CBD, residential sectors and facility corridor. Land of 0.4 Hectare is to be allotted for weekly markets in the Facility Centre.

But will the wider roads and large streetscape of Naya Raipur encourage the informal commerce? If then, what could be the regulatory or controlling mechanism the city would adapt to meet the growing demand on street vending in the future?

## The 'Mixity' of Public Institutions – reduce Urban Rural divide

Institutions ground the multitude of opportunities in a city, providing a structure that enables the inhabitant to live a meaningful life in community. Traditionally, the public institutions have a key role in defining the cultural and social value of a place.

In Naya Raipur, the key institutions that are coming up are focused on Health, Education, Security, Communication, Socio-cultural Facilities, Distributive Services and Other facilities/services. The distribution of social infrastructure happens at different scales.

One of the objectives of Naya Raipur is to be a hub of affordable and high quality medical services and educational facilities and strive to develop as a knowledge base. The proof for this is the upcoming project – Vedanta Cancer Hospital and Research Centre. This is a cancer hospital, with adjoining residential, teaching, wellness center and spa facilities on 50 acres, run on a non-profit basis. The hospital aims to target the rural and urban population in subsidized charges from Chhattisgarh and beyond.

In a long run, would government be able to provide subsidy for the poor?

## The Mixed Land uses

Naya Raipur proposes a good allocation of land use where the residential and recreational uses are given the most emphasis. The Masterplan attempts to create a mixity of land use by providing a Central Facility corridor and consists of commercial, public/ semi-public and recreational.

Mixed land use has been an inherent character of an Indian traditional city, known for its vibrancy and diverse activities. But in the case of Chandigarh, which is a new town, this wasn't taken into consideration. There is a clear segregation between different sectors and the main commercial area is concentrated in the city centre. The residential sectors do have local commerce but they are secluded from the houses. The main streets are designed to cater to only a single function that is circulation. The city lacks a sense of security at night as most of the streets are deserted due to the lack of activities. This is very much in contrast to the traditional buzzing streets in India where the institutions, residential and commercial uses are in coherence to each other and gives 'life' to it.

How could the 'life' of an Indian city be planned in Naya Raipur? How can the city ensure security and safety for everyone?

## Street as a 'Shared Space'

The DP of Naya Raipur emphasizes the Road Network, which is the most important component of the city transport system, providing a basic skeleton around which various activities are dispersed and interlinked.

Figure 163 - A residential area in Chandigarh

Mixed land use has a major contribute to make the street a 'shared space' and in turn makes it alive. This notion of a public space is prevalent in a typical Indian street: it is where all the activities happen. The streets are for pedestrian as well as for a motorist. The street is a space for not just commutation but also for interaction. All these characteristics make the road a 'street'.

Could one interpret the central facility corridor, which is a potential area, as the 'spine' of the city? How could one interpret the city level road as a public street rather than a movement corridor?

## Nature of Transition space – In between Realm

Traditional cities with their dense building-locked open spaces and narrow alleys give a different perception of space than the modern planned outdoor space. These cities and towns were often self evolved, carved over by uses. The external spaces were designed for people to remain outdoors, making social contact on the street or square. The transitional spaces occurred at different scales, at a house level to a city level and also in a regional level.

Due to Town Planning Schemes and plotted development, the buildings are isolated in a plot with a frontage as a setback from the road and compound wall to define to territory. The roads being dominated by car lead to the segregation of spaces and less linkage between the built fabrics, hence the urban spaces are loosely held between buildings without gradual transition. This is the case of newer developments that have occurred in India. Even today, all urban situations have conditions where the buildings create planned or

unplanned in-between spaces which eventually become a part of the civic landscape. The quality of life in these spaces is directly affected by the way it is designed, conceived, constructed and used.

In Naya Raipur, how would these 'in between realms' be treated, whether it is between houses, between residential and commercial, between a water body and the built environment, between the existing villages and the new planned city or in a regional scale, between Naya Raipur and Raipur and along its boundaries?

# Transport and density

## Structuring the city by roads

As discussed before, the roads are important elements in the concept of the new city. This is evident not only in the geometrical grid of the city structure, but the detailed classification of wide ROWs (Right of Way) also reveals that the levels of service for the traffic were important concerns in the pursued high quality infra-structure. The intra-sectorial roads are defined in 3 categories (24m, 18m and 12m) while the city arterial roads are extremely wide with 100 or 60m ROW and consist nearly 85% of the total road network. The studies of the development plan indicate a high ratio of car-ownership expected for the new population (2 cars/household), which emphasizes the roads as the most important component of the transportation system.

The DP defines phases for the development, but as the city structure is already defined by the laying of the roads, how could Naya Raipur ensure the compact development?

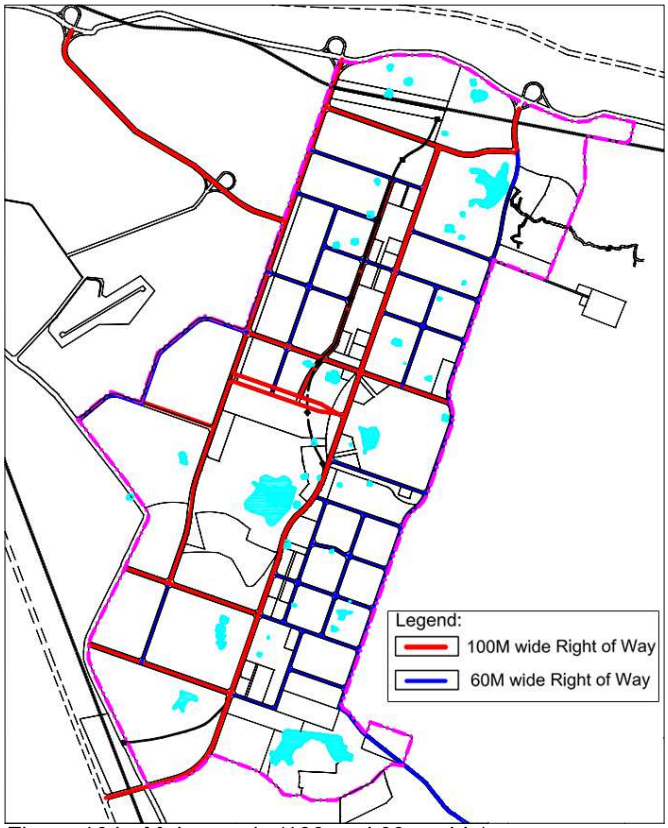



Figure 164 - Major roads (100 and 60m wide)
Source: NRDA, 2008

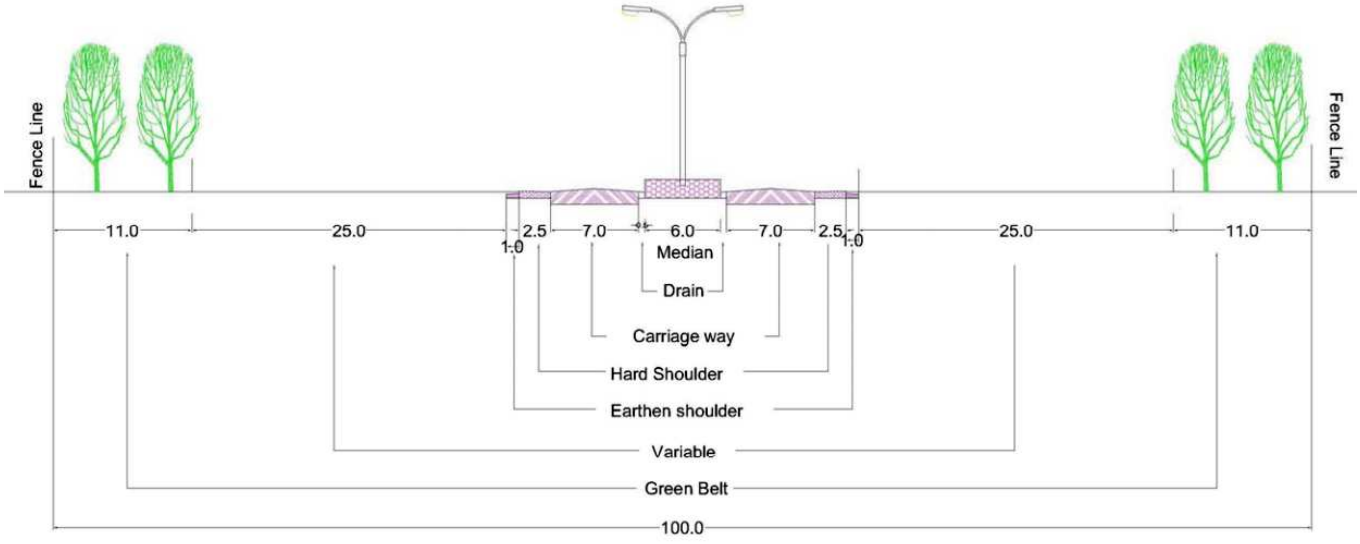



Figure 165 - 100m road section (according to the Development Plan)
Source: NRDA, 2008

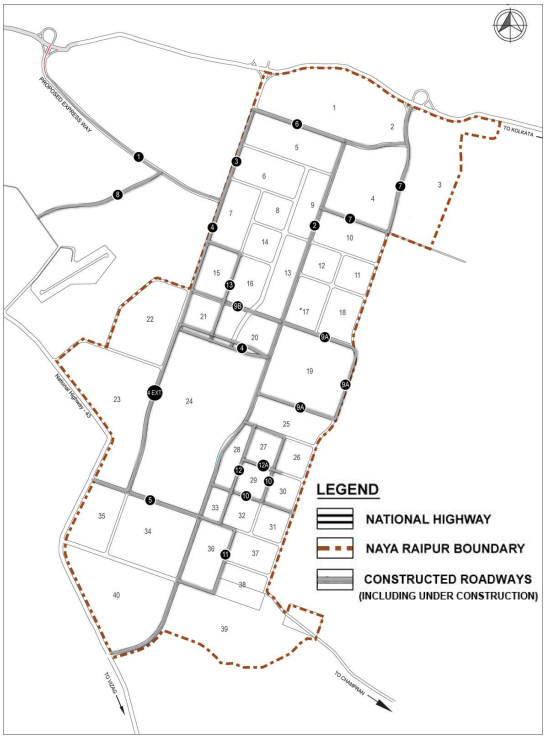



Figure 166 - Major roads (100 and 60m wide)
Source: IBI Group, 2012

Figure 167 - Road in Naya Raipur

## New TOD studies: a possible change of approach

The desire to build a city provided with a good public transportation system is mentioned in the development plan. NRDA is conducting new TOD studies in an attempt to relook into the original concept of the Development Plan. Some general ideas in conceptual terms are proposed and the details are still being discussed. Some studies and workshops are being undertaken to propose alternative ideas.

The TOD studies define the BRT corridors as the main components to help structure the development. Hence, it proposes the public transportation system as the major life line of the city. In this context, how could the Masterplan be adapted to the TOD principles and help to shape a more efficient and inclusive city?

## Urban densities and the main public transport network

The population density expected in Naya Raipur is a favorable point for the success of the TOD approach. The Development Plan considers 250 people/ha as the gross residential density in each sector and limits the maximum FAR to 1.3, extendable to a maximum of 1.8 in suitable locations. The TOD study defines zones of influence near the BRT stops, with estimated gross density varying from 150 to 630 people/ha.

Generally it is found that the TOD approach adds pressure in the real estate value in its area of influence and this leads to rise in the prices in the locality. This case is evident in Ahmedabad,

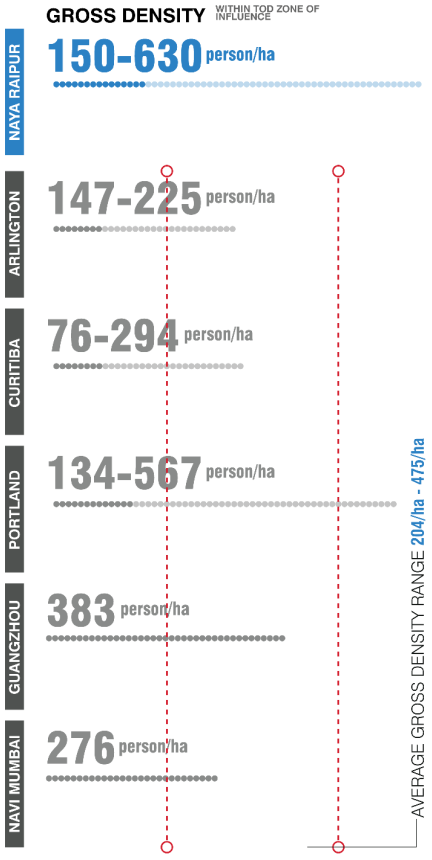



Figure 168 - Gross density comparison in TOD influence zones in different cities
Source: IBI Group, 2012

where there is a rising commercial development along the BRT nodes.

In the case of Naya Raipur, the TOD approach emphasizes public transportation as the life line of the city and this is a key to inclusive development. But the question that is raised is how would the city be able to monitor the probable rise in real estate demand on the BRT nodes in order to make it affordable for all, meanwhile achieving the densities envisioned in the DP?

## Regional connectivity and the bordering stations

The proposed transportation system provides good opportunities for regional and national connectivity when it closes a "loop" with the two railway stations, via the north-south BRT line. The BRT lines are planned to connect the two cities but, given the different competences of the administrative entities acting in the region, the corridors are not connected directly to Raipur's center. Instead, The Inter-modal Transport Node is being planned near the boundary of the two cities and this could create development pressures due to the ease of access to both boundaries and also due to the affordability and flexibility of construction on the pheriphery of Raipur. Hence there is a need for the proper planning of this area.

## Pedestrian network: east-west permeability

The pedestrian network as proposed in the Development plan is emphasized as a main spine running along the facility corridor and passing near the City Park, as well as a secondary network formed by the green spaces crossing the sectors in two orthogonal directions. This network has a strong potential of making the sectors more permeable and pedestrian friendly. It is also crucial to understand how this pedestrian space is integrated with the semi-public open spaces within each sectors.

While the TOD influence zone normally includes 800m from the stations, the distances to be covered by pedestrians should be kept preferably shorter than 500m, as defined by the Development Plan. In a scenario of wide roads and big sectors (800x800m), the distance between the station and the closest entrance to the sector can already consume a big part of these 500m. How can these inter-sectoral connections of the pedestrian paths, as well as their connections to the stations be thought of?

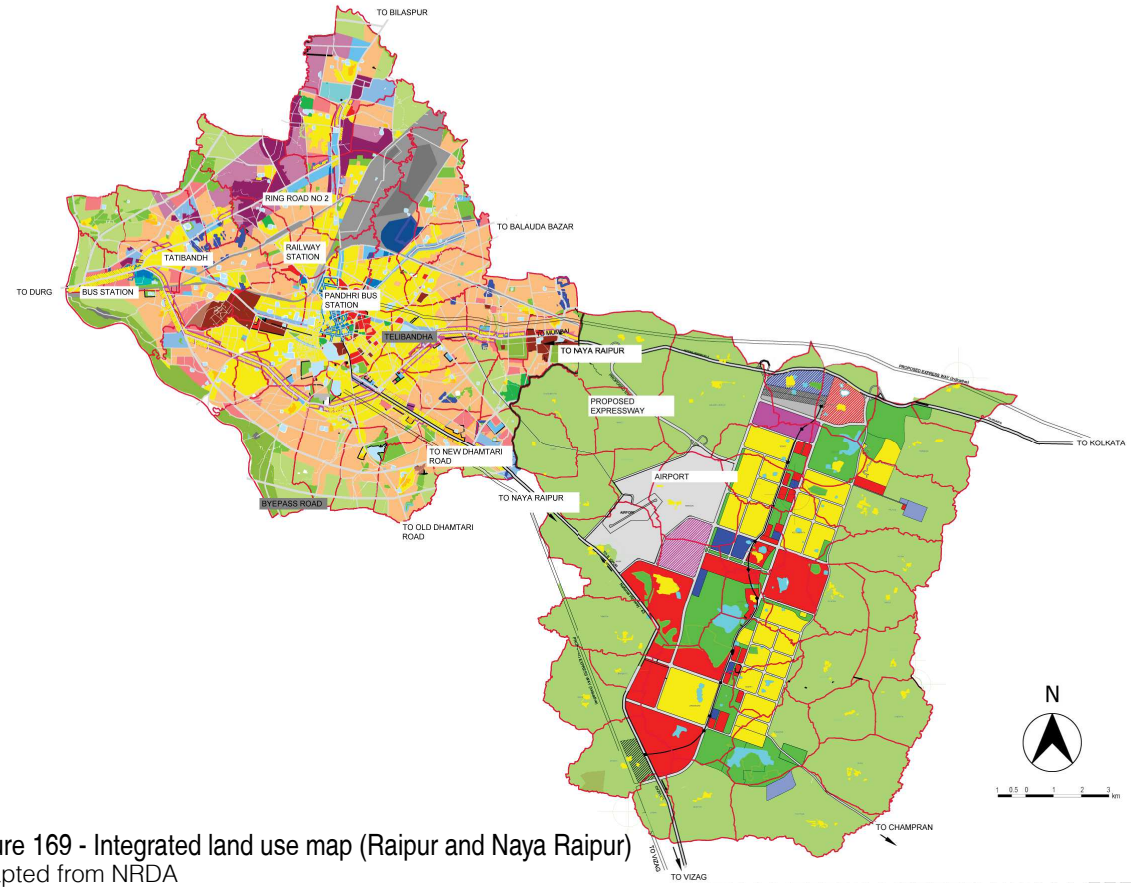



Figure 169 - Integrated land use map (Raipur and Naya Raipur)
Adapted from NRDA

## Multimodality and integration at the local scale

Besides the connection of the BRT system to the pedestrian network, integration with other feeders is also sensitive for the success of the system. The Development Plan recognizes the role of IPT modes when it includes them as part of the public transportation system, which is a good start point. IPT is expected to be responsible for 20% of all trips made in the public transportation system. The design of anchoring areas, such as the main transportation hub in the north and the CBD in the center are taking it into account and offering solutions for smoother integration.

Transfers, though, may reduce attractiveness of public transport. According to IBI Group (2012), for the next 10 years the door-to-door travel times by private modes in Naya Raipur are expected to be less than 30 min, hence any transfer needs through use of feeder system will be detrimental for public transport usage. To minimize this risk, transfers would need to be as efficient as possible.

Transfers along the routes will face a special challenge: segregation, manifesting in two ways. The placement of stations in the median will isolate them from the activities happening in the border of sectors. Also, the segregation of lane, necessary for the good operation of BRT systems, might create some localized hassles for a population accustomed to an environment of shared road space and flexibility of movement. Segregation, on the other hand, demands a more rigid organization of the road space. Can the system be segregated and integrated at the same time? How can the public space of the street be best organized to continue to support this critical connection between the different scales of transport and the mixed urban scales?

# Space and water as social resources

## The Social relevance of Water

From time immemorial, water plays a significance role in India. Either for recreation or for religious and social needs, water bodies have always been a source of relief. Water sensitive urban design is an approach to the planning and design of urban environments that supports healthy ecosystems, lifestyles and livelihoods through its effective management. Traditionally, in India, most cities followed this principle. The water harvesting systems were prevalent in every region of the country as water was scarce and important. The streets were laid along the ridge for the effective catchment of rain water and the water systems were interconnected for distribution of water throughout the settlement. Hence the settlement evolved in a responsible manner to the water systems within it. To ascertain the importance of it, also there were religious institutions built along to strengthen the social value towards it.

Figure 170 - Pond in Naya Raipur area
Photo: Roland Karthaus

Figure 171 - A stream flowing into a pond in Naya Raipur

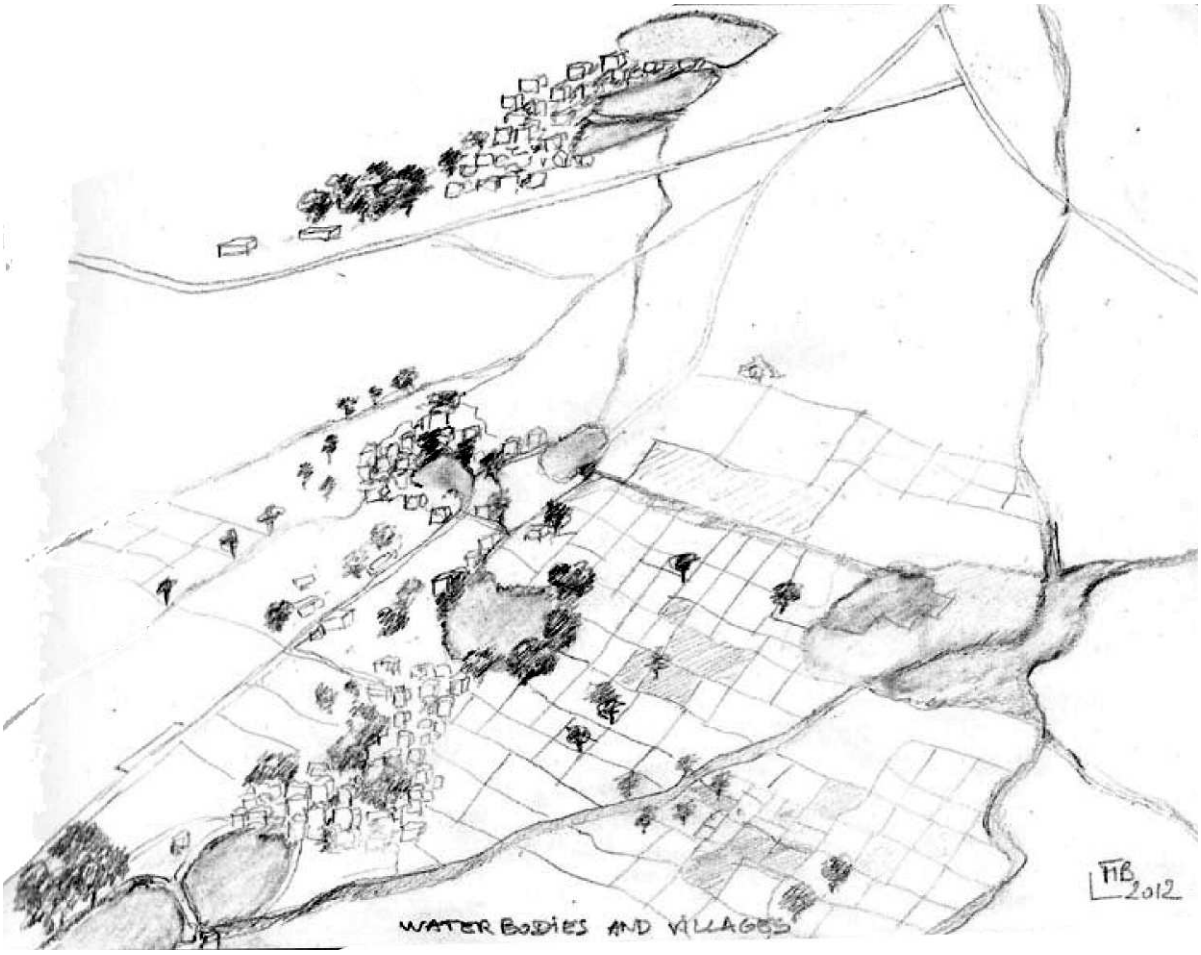



Figure 172 - Water bodies and villages, as seen from the air
Author: Florence Bougnoux

It is very relevant to understand the role of the water systems in the case of Naya Raipur.

## The Existing 'Talab' in the Villages and its relationship

The villages in Naya Raipur are dotted with the water bodies on which, even today, they depend for their day to day activities. How Naya Raipur could ensure that these 'Talab' would be integrated within the future city and retain its religious and cultural value?

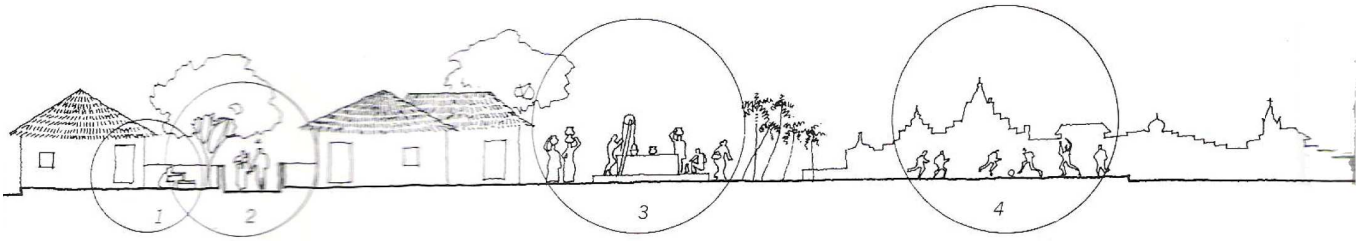
NRDA is currently taking initiation in cleaning and maintain the Talabs but as the city grows there is a threat in the maintenance.

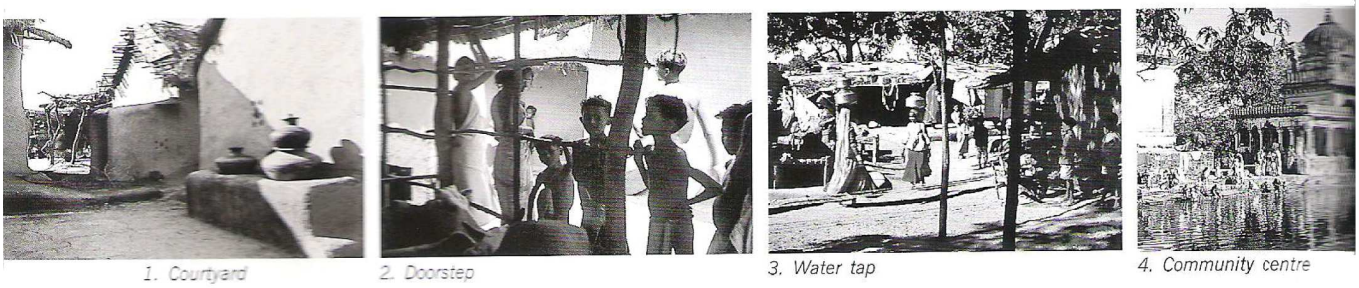
## The Natural systems within Naya Raipur and its approaches

The Development Plan for Naya Raipur highlights that the total area under natural water bodies is 233.71 Ha, with three major water bodies that have been integrated in the city plan. The other smaller water bodies shall be integrated in the sector layout. Apart from these, there are a number of natural drainage channels flowing across the city. As a part of the conservation policy, the major water bodies and other environmentally sensitive areas in the city shall be conserved. Following points are highlighted in the DP and is proposed to be taken care of:

- a minimum buffer of 20 meters on either side of the canals and streams and 50 m around the water bodies shall be a no development zone in order to prevent pollution and conserve the natural water shed of the water body.
- 100 meters area all along the Mahanadi canal shall be reserved as green without allowing any development or construction activity.
- No untreated water should be let out in the water bodies.

In Naya Raipur, as the road structure is defined in a grid pattern in contrast with the topography of the land, how could the future development address the existing water system in the region?



1. Courtyard 2. Doorstep 3. Water tap 4. Community centre

Figure 173 - Social spaces in an Indian rural village
Source: Correa, 1989

## The pluralistic function of Social Space in India – Understanding through Charles Correa

The open space has a pluralistic function in Indian societies. The spaces range from a city level public space to a private courtyard space and at all these varied scales, the space is multifunctional in nature.

Charles Correa in his book 'The New landscape – Urbanization in the third world' has mentioned the varied notion of a social space in rural Indian village. He says that in the village environment there is always space to meet and talk, to cook, to wash clothes. There is always a place for the children to play. He points out that there is no relation between the way our cities have been built and the way people have to use them. In urban living, the room is only one element in a whole system of space that people need.

Under Indian conditions, there appears the need of four major elements: first, space needed by the family to private use, such as cooking, sleeping and storage; second, areas of intimate contact, such as the front doorstep where children play and adults chat with their neighbors; third, neighborhood meeting places, such as the city water tap or village well, where people interact and become part of the community; and fourth, the principal urban area, such as the maidan (ground), used by the whole city.

There are two important facts about the workings of these systems. The first is that each element consists of both covered spaces and open –to sky spaces. According to him, In Bombay, for instance, he estimates that at least 75 % of essential functions of living can occur in an open-to-sky space. Since the monsoon lasts only 3 months, this is true for 70% of the year. Thus open-to-sky has a usability coefficient of about half (ie, 75x70) that of a built-up room.

In using open-to-sky spaces, the territorial privacy of families is of decisive importance, for as the surrounding buildings get taller; these spaces become more and more restricted in function. As ground-floor courtyard can be used by a family for many purposes, including sleeping at night. Two storeys and one can still cook in it. Five storeys and it's only for children to play in; ten storeys, it's a parking lot.

## The emerging typology in Naya Raipur and its relation with the land

The proposed nature of typologies for residential use, discussed in the previous chapters, are low and mid-rise apartment blocks and individual plotted development.

Hence it raises the question: how do we manage the open-to-sky spaces when we build tall buildings? How the nature of hierarchy of social spaces, which is very integral part of Indian society, can be reflected in the new capital? How would the building typology adapt to the needs of the Indian life?

# Positioning of the city

Occupying centre stage in the Indian history of globalization are the metropolitan cities of Delhi, Mumbai, Kolkata, Chennai, Bangalore and Hyderabad. In the context of the IT industry, the southern city of Bangalore has given rise to a new class of global migrants, who come to the city for work and become instrumental in the transformation of existing urban space to suit global requirements. Hence there emerges social inequality as the city becomes polarized between a wealthy professional class and an impoverished low-wage service sector class.

A city dominated by a single function could create imbalance to its economy and functioning. This happens also in Gandhinagar, a city planned to cater majorly to the government and the administrative functions. Hence this could be a critical aspect to be looked into also in Naya Raipur.

## An Inclusive City

An Inclusive City promotes growth with equity. It is a place where everyone, regardless of their economic means, gender, race, ethnicity or religion, is enabled and empowered to fully participate in the social, economic and political opportunities that cities have to offer. Participatory planning and decision-making are at the heart of the Inclusive City.

In India this isn't much effective because the basic problem lies in the perception of planning and project execution process. The ignored section gets embedded into the system by taking support from some politicians and occupies the spaces earmarked for certain projects. The informal settlements, illegally occupied formal spaces, have the characteristics of slums in which the occupants live under sub-human conditions. In the process, the identified projects do not materialize due to these encroachments. As a result, on the one hand the human settlement development process generally does not get completed, and on the other the illegal occupants continue to stay without required infrastructure. This process of exclusion from the development process is generally found all over the country regardless of the size of settlements.

## Social Inclusion

Naya Raipur is being planned as the administrative capital of Chhattisgarh and this does reflect in the way the city has been planned. The Capital complex is at the most prominent location and emphasizes power. The structure of the city emphasizes in views and vistas connecting to the capital complex. The wider roads and streets suggest grandeur aiming to reduce traffic congestion. The streetscape set example for wide, traffic free streets unlike other cities in India where the roads are jammed most of the time with people, vehicles, animals etc.

As the city grows, it involves immigration of large number of people looking for opportunities in the new capital. The city would offer wide range of opportunities from administrative, commercial and Industrial. Most important and the most ignored is the service sector who would migrate to be part of the city. They would be from Auto drivers, Vendors to cleaners who are necessary to any city.

Naya Raipur is envisaged as a city for everyone and hence social inclusion is very important step towards that, unlike Lavasa, a city criticized to be a destination for the well-heeled, upwardly mobile, aspiring for quality life. This new city envisaged as Independent India's first hill city, is a recent example of such a private participation in city building. Strategically located near Mumbai and Pune, Lavasa is taking its form on 25,000 acres of land.

How could Naya Raipur ensure social inclusivity?

## Economic Inclusion

Economic Inclusion and the development of financial capital is a crucial step in the development of an inclusive city. In this context housing and multi-purpose community development co-operatives can play a vital role especially for the provision of cost-effective housing. The Indian cooperative housing movement has constructed/ financed about 2.5 million housing units in various parts of the country, out of which 75 per cent have gone to economically weaker sections and low

Figure 174 - Residential area in Lavasa
Source: www.olacabs.com

income families.

Many Indian cities face issues related to inefficient Infrastructure management like Waste water treatment and energy usage. But now there are initiations from the government in technological advancements for production as well as applications of energy especially by using geothermal, solar pv, solar thermal and wind to reduce the cost of Infrastructure.

Effective use of public spaces can be an important strategy for inclusiveness.Urban exclusion is most acutely felt during leisure time: while the affluent citizens have access to green spaces in their homes and clubs, and to entertainment in restaurants, cinemas and malls; the common man only has public spaces as their leisure options. How could the city of Naya Raipur ensure that the parks and lakes which are the vital recreational spaces in the city, be affordable for all?

One of the evident example of Urban exclusion is the 'Fortification' of Kankaria Lake in Ahmedabad. Kankaria is one of the biggest and oldest lake in Ahmedabad. A recent lakefront development project beautified the park, enclosing it gates and imposed an entry fee for everyone. This instigated lot of protest among the citizens against 'The privatization of a public space'. Now a lot of consideration has been taken by local authorities towards developing Inclusive Public space.

Another important aspect to be thought of is how Naya Raipur could envisages economic viability for all when the Town Planning scheme coming up in the outer periphery of Raipur will make it more attractive to the economic weaker section?

It is a great challenge for Naya Raipur to be a city affordable for all, economically viable, socially inclusive and also give a place for the real estate developers, function as a state capital and continue to be a livable green city.

Cycle rally to protest against Kankaria entry fee

TIMES NEWS NETWORK

Bhadresh Gajjar

**Ahmedabad:** Academicians, lawyers, professionals, students and activists from city joined a bicycle rally on Sunday to protest against government decision to impose of entry fee at Kankaria lake.

The rally, organised by Kankaria Mukti Abhiyan, a citizen's forum, started from Gujarat College to Kankaria Lake. During the rally, students performed street plays at various spots in city. According to agitators, their protest will continue until the fee is withdrawn.

Times of India, 2nd march,2009



Figure 175 - Public Protest against the entry fee charges on Kankaria Lake
Source: www.freekankaria.blogspot.in

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# Glossary and abbreviations

- BRT, BRTS: Bus Rapid Transit System
- BSES: Baseline Economic Surveys
- BSP: Bhilai Steel Plant
- CEPT: Centre for Environmental Planning and Technology University, in Ahmedabad
- CBD: Central Business District
- chowk: town square, marketplace, courtyard, roundabout or intersection. A chowk is often an open area found in the heart of a traditional town used for community gatherings
- CIDCO: City and Industrial Development Corporation of Maharashtra Ltd
- crore: unit in the South Asian numbering system, equal to 10 million
- DP: Development Plan
- DUDA: District Urban Development agencies
- EWS: economically weaker section, according to the Ministry of Urban Development
- FAR: floor-area ratio
- GDP: gross domestic product
- ghat: a series of steps leading down to a water body
- HIG: high income group, according to the Ministry of Urban Development
- IDSMT: Integrated Development Plan of Small and Medium Towns
- IPT: informal public transport modes
- IT: information technology
- JNNURM: Jawaharlal Nehru National Urban Renewal Mission
- lakh: unit in the South Asian numbering system, equal to 100,000
- LIG: low income group, according to the Ministry of Urban Development
- LRT: light rail transit
- MIG: medium income group, according to the Ministry of Urban Development
- mohalla: community, neighbourhood
- nallah: drain
- NH: National Highway
- NMT: Non-Motorized Transit System
- NRDA: Naya Raipur Development Authority
- NUTP: National Urban Transport Policy
- para: local term for community, neighbourhood
- RDA: Raipur Development Authority
- RMC: Raipur Municipal Council
- RMP: regional Mobility Plan
- ROW: right of way
- SH: State Highway
- SUDA: State Development Agency
- talab: pond
- tehsil: unit of government, similar to a county. It usually consists of a town (or more) and the villages around the towns
- TDS: Town Development Scheme
- TOD: Transport Oriented Development
- UIDSSMT: Urban Infrastructure Development Scheme for Small and Medium Towns
- VDP: Village Development Plan
- RPA: Raipur Planning Area
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