

International Multidisciplinary  
Research Journal

*Indian Streams  
Research Journal*

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## ISSUES AND CHALLENGES IN SUSTAINABLE GROWTH: A CASE STUDY OF RANCHI CITY

**Usha K. Pathak**

Assistant Professor , BhimRaoAmbedkar College  
(Guest Faculty)University of Delhi.

### ABSTRACT

**S**ustainable urban growth means attaining a balance between environmental protection and present-future needs; in social and economic context it sketches out possible resolutions to the potential conflicts between environmental and economic goals. It is not a product. It identifies and discusses widely applicable policies and practices that would make cities more environmentally sustainable and provide healthier, more equitable and livable environments for city dwellers. It refers to attaining social equity and environmental protection in urbanization while the costs of urbanization are being minimized in developing counties. As far as sustainable urban growth of Ranchi city is concerned - its geomorphic aspect is in its favor. Rivers, dams, hills, trees, fertile & stable land are ingredients of smart and sustainable urbanization. In fact, Ranchi city bears immense possibilities for balanced urbanization, but it is also a fact that there are a lot of problems here – unplanned land-use, unplanned constructions, lack of proper drainage, water supply, sewerage and solid waste disposal facilities, visionless flow of development, lack of research-based directions, haphazard settlements and above all absence of environmental and geomorphic consciousness for sustainable urban growth.

With a population of 13,34,058 persons Ranchi city has emerged as the largest and only class-I city of Jharkhand. services urban squalor and poverty and democratization of decision making process etc. This paper deals with the important issues relating to sustainable urban form that would lead to sustainable urban development with possible references to futuristic vision. The paper is based on available literature, primary and secondary data.

Ranchi needs urban renovation and renewal for sustainable growth. This paper aims at an attempt to assess the urban challenges of Ranchi City and suggests some measures to overcome these challenges. It will help in the solution of multiple urban problems which fall in the domain of comprehensive urban development, infrastructure, access to basic

**KEYWORDS:** Environmental protection, Geomorphic Consciousness, democratization, Urban Challenges, Stragglings,



*Sustainable.*

#### **ACRONYMS:**

CDP City Development Programme  
DTO District Transport Officer  
JSPCB Jharkhand State Pollution Control Board  
MSL Mean Sea Level  
NGO Non-Governmental Organization  
RMC Ranchi Municipal Corporation  
SCP Smart City Proposal

#### **INTRODUCTION:**

Urbanization as well as urban growth has been the dominant demographic trend worldwide during the last half century; and due to the rapid pace of urbanization natural ecosystems are increasingly replaced by cities (Attwell, 2000; United Nations Population Fund, 2007). In fact, urbanization leads to many problems, such as air and water pollution, depletion of cultivated land due to urban sprawl, global climate change, and others (Li, Liu, Hu, et al., 2009; Yigitcanlar, 2009). These problems present barriers to achieving sustainable development. That is why sustainable urbanization has become an important aspect in promoting sustainable development. The problems created by urbanization have attracted efforts to find solutions from various sectors, including academics. As far as Ranchi City is concerned it is also facing a lot of issues and challenges in its sustainable growth. Above all very high rate of population growth, low budget for development and improper planning are the main hindrances to its sustainability.

Ranchi is the capital of Jharkhand which is not only one of youngest states of India but also the richest in accordance to its natural wealth in the country. Ranchi city enjoys good communication links of roads, railways and aviation. A small village of the reign of king Ashoka, 273-232 B.C., is now a big city, and is beautifying the Ranchi Plateau with its colors of significance. The time of the foundation of Ranchi city goes to about 180 years back. The character of the town and its immediate environs were safe up to the sixties of 19th century, but for 50-60 years the heavy burden of population has been altering its urban profile. Geologically, Ranchi is underlain by Pre-Cambrian metamorphic rocks e.g. Chotanagpur Granite, Gneiss and Schist. The region has a variety of soils, such as red, yellow, and sandy soils, while red gravelly ad older alluvium occurs occasionally. The climate of Ranchi is quite healthy and comfortable. The annual average temperature is about 24<sup>o</sup> C. The annual average rainfall varies from 1,400 mm to 1,600 mm. Ranchi Plateau (23<sup>o</sup>27' North and 85<sup>o</sup>20' East) is at an elevation of 600-700 meters above M.S.L. This city is situated almost in the center of the Ranchi Plateau. The landscape of Ranchi is characterized by undulating surface with several hills and irregular pattern of roads, lanes and unplanned areas. The average slope of Ranchi city is 10 to 20 meters over kilometers.

Rapid growth of Ranchi has emerged as the nucleus of several economic- political-administrative activities. It is a leading Centre of Socio-Cultural activity. It has appeared as the Class-I City in Jharkhand in the census of 2011, but this is a straggling unplanned urban Centre. The layout of roads, streets and buildings and style of dwellings, government offices are the result of continuous addition from the pre-urban nucleus of Purana Ranchi near the foot hill of Ranchi to present vast urban areas. Ranchi city has undergone through the several evolutionary phases. According to study made by accreditation of Smart City, by the ministry of Urban Development Govt. of India, Ranchi is among the fastest growing cities. This plateau city is taking incredible strides to transform itself into a livable, healthy, and sustainable city with focus on improving the quality of life for its citizens. Ranchi is embracing people-centric planning practices including strengthening public transport services, implementing a progressive parking management system and adopting transit-oriented development principles for urban planning. Ranchi city's Smart City Proposal (SCP) is reflecting in its efforts. Ranchi city is selected in the fast-tracked second round of India's Smart City Mission in May 2016. However, the city at present needs to short out its multidimensional issues facing the urban challenges which are hampering its prospects. Ranchi city requires fast solutions for sustainable growth.

**OBJECTIVES :****The Specific objectives of the present study are as follows:**

- 1.To find out the main roots of problems towards the sustainability of Ranchi city.
- 2.To evaluate the urban issues and challenges of Ranchi city.
- 3.To analyze the undergoing government policies to rejuvenate the city.
- 4.To point out as well as suggest the path of solution for the sustainability of Ranchi city.

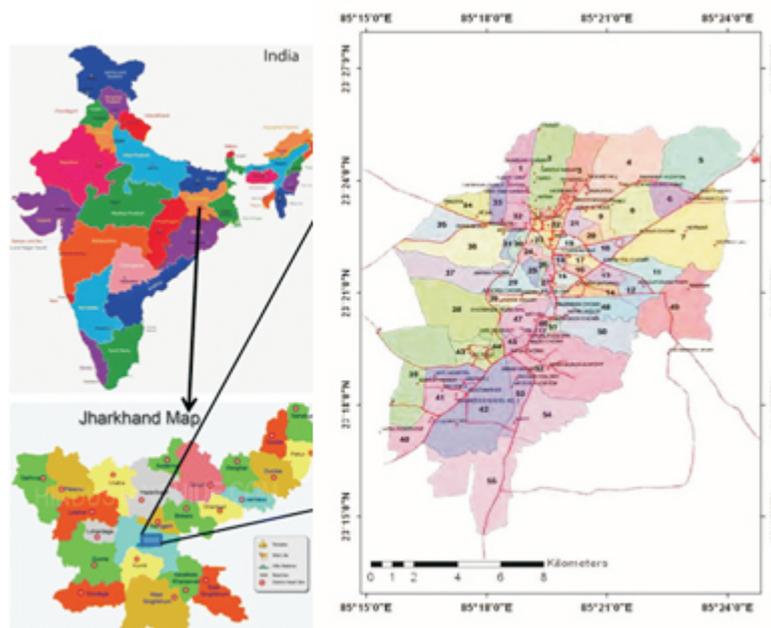
**METHODOLOGY:**

A large number of studies have been done in different corners regarding the urban aspect of Ranchi city. The present paper is based on empirical observations and detailed micro level survey conducted by the author with the help of questionnaire filled by individual respondents. A total of 500 persons were interviewed following the principle of random sampling. Some of the findings of the survey are in the form of figures. Secondary data and relevant information have also been obtained from RRDA, RMC, Ministry of Urban Development and Government of Jharkhand.

**STUDY AREA:**

Ranchi city lies at  $23^{\circ}22'N$ ,  $85^{\circ}20'E$  near to the 'Tropic of Cancer'. Its Municipal area is  $175.12 \text{ Km}^2$  (Fig. 1) and its average elevation is 651 above sea level. Ranchi has a hilly topography. Its dense tropical forests surround it and contribute to produce usually pleasant climate for which this city is known. As per 2011 India census, Ranchi Municipal Corporation has a population of 1,120,374 making the 6th largest urban city in India. Males constitute 51.3 percent of the population and females 48.7 percent. Ranchi City has an average literacy rate of 87.68 percent.

**Figure:1 Map of India, Map of Jharkhand and Map of Ranchi City (55 wards)**



SOURCE: RMC & Secondary Sources

### Urban Challenges of Ranchi :

**Rapid Population Growth:** Growth of Urban Population of the Ranchi city area has been marked significant fluctuations because the allocation facilities of the study area have resulted into the growth of this city. Growth of population is very important aspect of demographic features of Ranchi city. The human population of this urban region is growing very fast rather much more rapidly than the civic amenities of the town population growth and decline can well be marked through the table-1 which is prepared on the basis of available data. The analysis of the trends of growth of the population of Ranchi City is very essential as to formulate planning of this fast growing Urban Centre both in area and number of human heads. For this purpose a threadbare analysis of the growth of the population of Ranchi urban area has been done.

**Table: 1. Ranchi City – Population Growth (1871-2001)**

Census	Total Population	Increase in Population	Decadal Growth Rate (%)
1871	12,086	6,357	(+) 52.06
1881	18,443	1,863	(+) 10.01
1891	20,306	5,664	(+) 27.05
1901	25,970	7,024	(+) 27.05
1911	32,994	6,634	(+) 20.11
1921	39,628	10,889	(+) 27.48
1931	50,517	12,045	(+) 23.84
1941	62,562	44,287	(+) 70.79
1951	1,06,849	33,404	(+) 31.26
1961	1,40,253	1,15,294	(+) 82.21
1971	2,55,551	2,34,075	(+) 91.60
1981	4,89,626	1,09,680	(+) 22.40
1991	5,99,306	2,64,148	(+) 41.24
2001	8,63,180	2,57,194	(+) 51.34
2011	11,20,374		

Source:Records of the Directorate of Census operations, Jharkhand.

The total population of study area has been grown 12,086 in 1871 to 11, 20,374 in 2011. The rate of increase of Urban population has not been always uniform rather it has been very fluctuating (Figure 2 and Figure 3). An analysis of the table 1 and, figure 3 reveal three stages of urban and population growth of Ranchi city area viz. pre independence period, post-independence period and after statehood and capital as well. Figure 2 shows six stages of urban growth. These phases indicate the occurrence of significant political events together with the introduction of new economic factors having a marked influence on the growth, forms and functions of Ranchi. Figure 3 too presents three stages of significant growth of the city.

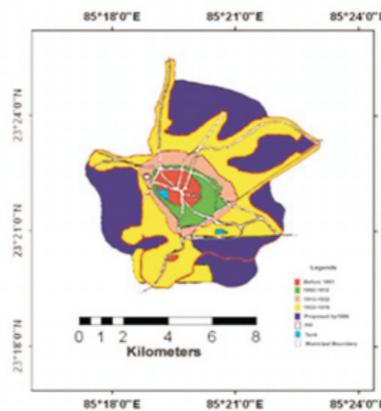
**(i)The Pre-Independence Period:** Ranchi city in 1871 was very small. It has grown with a small village viz Purana Ranchi located south of Ranchi Hill. The area was full of forest with small tribal villages prior to 1871; and the data on any part of India's Population was simply a guess work. It cannot, therefore be taken seriously, though they indicate certain approximation. A proper census could be done in 1871 for the first time in India, but it was not scientific. Actual figure of Indian Population are only available from the year 1881 from when a subsequent decennial census began (Singh and Singh, 1987, P.P. 33-38). A systematic Study of demographic features of Ranchi City is, therefore, possible only from 1881 (table no. 1). It is portrayed from the table that during the pre-independence period, there was very erratic growth of population (1871-1950). High fluctuation may be seen in the growth of population. A negative population decline was recorded in 1981 and 1911. Again during the periods of 1921 and 1931 the rate of population growth was recorded declining. It was due to the outbreak of epidemics and famines which were responsible for the large number of mortalities. The impact of these negative factors was so strong that it had neutralized rather negated the favorable condition provided by the fact that Ranchi City became the headquarters of South Bihar Summer Capital and Centre of missionaries educational

hub. In this way during the period between the years of the census 1871-1950, Ranchi City witnessed an erratic trend of population growth.

**(ii) The period of continuous and rapid growth:** (1951-2000): The Ranchi City had witnessed a continuous and rapid growth in human number. The rate of increase was (+) 70.79 percent in 1951. In all the census year up to 2001, the trend of population growth may be observed continuous increase in urban population. This trend of population increase was owing to the combined effect of several factors. The important among them was a large scale immigration of people in the city of Ranchi which was a hub Centre of South Bihar.

**(iii) The period of very rapid growth:** The period of very rapid growth was observed after the formation of Ranchi City as the capital Jharkhand state.. After 2001 Ranchi city experienced a very high degree of population growth i.e. 51.34 percent. Thus during the span of 100 years, Ranchi City witnessed its population size leading to over congestion and heavy pressure on the civic amenities.

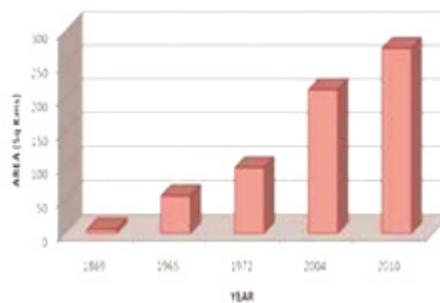
**Figure:2 Growth of Settlement in Ranchi**



Source: Based on RMC & Ranchi Improvements Trust Records

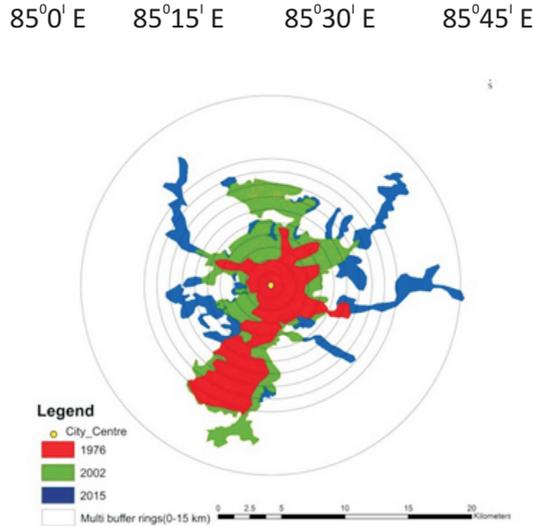
1. First Phase before 1891,
2. Second Phase (1891 to 1912),
3. Third Phase (1913 to 1950),
4. Fourth Phase 1951 to 1980,
5. Fifth Phase (1980 to 2001),
6. Sixth Phase (Present Phase/After 2001....).

**Figure:3 Physical Expansion of Ranchi City**



**Figure: Urban Growth of Ranchi City**

**Figure: 4 Growth of Ranchi City (1972-2015)**



Source: ResearchGate,2016 &Survey of India toposheet 73E/6, E/7, E/10 and E/11

**URBAN LAND-USE AND ITS CHALLENGES:-**

Ranchi is a straggling unplanned urban Centre. It is important in terms of administrative, industrial and commercial functions. The layout of roads, streets and buildings and style of dwellings, Government Offices are the result of continuous addition from the pre-urban nucleus of Purana Ranchi near the foot hill of Ranchi Hill to the present vast urban area.

During recent years Ranchi has become the seat of immense Industrial activities with concomitant development, commercial and cultural activities and has started losing its previous landscape of open and cultivated fields and Advasis’ huts interspersed between the Pucca house. One of the largest Industrial concern is the Heavy Engineering Corporation which is nearly 10 Km South to Ranchi. A large colony has developed in the area. Besides, there are marked concentrations of industrial enterprises near the Railway Crossing on the Main Road, the lower Bazar South of Church Road, the Upper Bazar near Ranchi Lake and Old and New Hazaribagh Road. Most of the units situated on the Main Road and in the Lower Bazaar are auto repair workshops. During recent years several residential colonies and quarters have developed. The upgradation of this city as the State Capital and related administrative functions are likely to add new feathers to the morphology and functions. Several challenges to land use are plaguing the city. Through the micro level survey by the author herself and through the information obtained by respondents through questionnaire some of the urban challenges have been analyzed which have presented in table no. 2.

**TABLE No. 2. : Scenario of Urban Challenge of Ranchi**

Features of Urban Morphology of Ranchi	
01.	There rapid increase in the high rise buildings in the old part of the city.
02.	Commercial activities have been increased manifold in the city.
03.	Accelerated encroachment of commercial land use in residential area.
04.	There is haphazard growth of city in all around.

<b>Problems of Land use and Misuse</b>	
01.	Haphazard growth of the city without considering the planning prospect.
02.	The growth of city is more towards north-east and south-east.
03.	There are rapid deterioration in the surface and underground water resources.
04.	The rapid and high increase in the high rise buildings growth.
05.	Lack of urban renewal programmers.
06.	Rise in slums.
07.	Heavy traffic due to narrow roads as well as encroachment along arterial roads by petty shopkeepers
08.	Violation of urban building norms with constructing apartments.
<b>Trends of recent expansion of Ranchi City</b>	
01.	There are trends of both horizontal and vertical expansion of the town.
02.	Trends of expanding in almost all around.
03.	Rapid deterioration of agricultural land-use.
04.	Misuse of land due to CNT Act.

### State of Public Utility Services / Amenities

		<b>State of Services</b>					
	Services	Poor		Average		Good	
		Absolute	percentage	Absolute	percentage	Absolute	percentage
01.	Health Services	158	31.60	76	15.20	266	53.20
02.	Educational Facilities	43	8.60	77	15.04	380	76.00
03.	Water Supply	346	69.20	78	15.60	76	15.20
04.	Power Supply	280	56.00	137	27.40	83	16.60
05.	Sewerage	380	76.00	26	5.20	94	18.80
06.	Drainage	370	74.00	29	5.80	101	20.20
07.	Sanitation	325	65.00	122	24.40	53	10.60
08.	Solid Water Management and Disposal	443	88.60	28	5.60	29	5.80
09.	Traffic System and Management	352	70.40	82	16.40	66	13.20
10.	Maintenance of Road	369	73.80	87	17.40	44	8.80
11.	Recreation of facilities	388	77.60	54	10.80	58	11.60

### Environmental Problems of Ranchi

	Category	Level of Problems					
		Low		Medium		High	
		Absolute	percentage	Absolute	percentage	Absolute	percentage
01.	Air Pollution	4	2.68	43	28.86	102	60.46
02.	Water Pollution	26	14.28	46	25.27	110	60.43
03.	Land Degradation	145	56.20	45	17.44	68	26.35
04.	Noise Pollution	75	28.85	95	36.53	90	34.61

Source – JSPCB, Dhurwa, Ranchi

	Category	Level of Problems					
		Poor		Satisfactory		Good	
		Absolute	percentage	Absolute	percentage	Absolute	percentage
01.	Green Cover	19	11.73	58	35.80	85	52.47
02.	Open Space	45	27.77	75	46.29	42	25.92

#### REMARKS AND SUGGESTIONS:

1. Roads, lanes should be widened
  2. Bridges, flyovers, subways must be constructed
  3. Arrangement and management of regular supply of water and power.
  4. Proper drainage and sewerage are required.
  5. Parks and playgrounds should be developed.
  6. Urban building norms be followed
  7. Urban development (growth and sprawls) be made through the proper land use planning.
  8. Public transport system should be developed
  9. Solid waste disposal facilities should be made regular
  10. Slum area and old tribal villages be improved
  11. Haphazard urban growth be checked
- Rapid and extensive urban sprawl has covered in slum. Various new slum pockets have developed in the different part of the city. The city presents a wide range of activities; possibilities of absorption in various sectors have attracted a number of poor of the city resulting in the formation of slum. There are more than 215 slums in the City (Ranchi Municipal Corporation Report 2015) Development of Slum dwellers is the burning challenge of the City.
  - Ranchi city is unplanned. First land use planning was held in 1981. Further, in 2011; a new land-use planning has been prepared. Even though many part of the city have haphazard urban growth.
  - The previously developed areas of the city are in need of urban renewal.
  - Urban redevelopment and high rise building is the fastest growing culture in the city. However, while making the apartments the basic urban norms are often ignored or deliberately violated.
  - Reduction in open spaces is the remarkable consequences in the Ranchi city. Due to remarkable expansion in the commercial and residential area city has undergone throw significant problems.
  - In almost all part of the city, encroachment problem is very severe. There are encroachments in the both side of the roads.

#### CHALLENGES RELATED TO UTILITY SERVICES:

- **Medical facilities:** After the formation of Ranchi as statehood, many fold population has been grown. The Ranchi city has 55 wards. Out of the 500 respondents 266 (53.20 percent) stated the health facilities as good, 76(15.20 percent) opined it average and 158 (31.60 percent) considers it poor. Ranchi city has both Govt. and private hospitals. Rajendra Institute and Medical College and Sadar Hospital are located in the city premises. These are established about 50 years ago. Among the private hospitals Modi Seva Sadan, Municipality Hospital

and several new hospitals with State of the Art facilities have also been established in the city.

- **Water Supply:** Proper water supply for the city dwellers is prime necessary. Out of 500 respondents only 76 (15.20 percent) accepts water supply as good, while 346 (69.20 percent) say it poor and remaining 78 (15.6 percent) admit it as average. According to local respondents the distribution network coverage and house services coverage of water supply, both are inadequate. Being located in the plateau and hard granitic region the whole city area has meager water resources. The problem of water scarcity reaches its peak during the Summer Season. People have to depend upon tube wells, but they too become dry in summer due to lowering down of the water table. Water supply in the city is a big problem for the water reservoirs. Rukka Dam is shrinking continuously and depth is also filling up by the siltation process.

- **Power Supply:** Being a capital city and availability of the coal and thermal power station city have better potential for power even then power cuts are frequent and the situation becomes worse during summer season when load shedding for several hours is a common phenomenon.

- **Sewerage, Sanitation and Drainage:** The city does not have a proper sewerage system. Septic tank is major mode of disposal. People in slums either go for community toilets or for open defecation. The whole city area suffering with poor drainage system. There is absence of underground drainage system. Silting and uncontrolled solid waste dumping cause blockage and stagnation of waste water. Natural drainage system like Harmu Nala, Doranda Nala, Pandra Nala, Potpoto and Jumar Nala carry the waste water from the city and disposes it into Subarnarekha River. Encroachment in the Nala course is the serious problem. Drain desalting and sweeping of streets is seldom done.

- **Solid Waste Management:** Most of the respondents, 443 (88.60 percent), opined that except the main commercial areas in major part of the city there are no adequate dustbins and solid waste lies for days without being picked. Currently no scientific method of solid waste disposal is practiced rather the waste is simply dumped on the low-lying areas in the city and its outskirts (Jhiri). The waste is transported in the open vehicles to the disposal sites. The spillage of waste all along the route and odor from the waste is common problem associated with it.

**TABLE No. 3. : Ranchi City: Registered Vehicles (2010-2015)**

Types of Vehicles	2010-11	2011-12	2012-13	2013-14	2014-15
Trucks	416	312	277	317	412
Bus	65	72	25	70	86
Private Taxis/ Cars	1284	1975	1681	2015	2172
Taxi	172	108	175	198	212
Jeep	472	178	285	318	514
3 Wheeler	972	4375	4542	5272	6382
2 Wheeler	10372	11282	10978	18384	25372
Tractors	342	448	572	384	678
<b>TOTAL</b>	<b>14096</b>	<b>19950</b>	<b>18545</b>	<b>26961</b>	<b>35828</b>

Sources: DTO, Ranchi

Protection from Solid Waste Pollution: Urbanization has brought forth several maladies and sufferings to human kind, besides bringing economic and cultural development in its fold. Due to increasing industrialization and population large quantities of wastes are being generated different forms such as solid, liquid, sludge and gases. Ranchi city produces tones of solid wastes daily from households, hospitals, industry offices, market centers etc. Some of these biodegradable, some are non-biodegradable and hazardous waste. Wastes are often directly thrown away on the street roads or at the city garbage collecting places. Out of which most of it still remain there, which later pile up and clog cities drainage lines. Earlier waste disposal did not pose problem due to less population and lack of public awareness. But due to rapid urbanization, proportionate increase in domestic and industrial solid waste generation was observed in large cities. The collection, handling and disposal

of this large waste with conventional methods have become increasingly difficult. The efficacy of solid waste disposal depends upon selection of proper site and there are several issues that have impact for site selection; broadly they are divided into three categories i.e. Economic, Social and Environmental. The Geological, Geotechnical and Hydrogeological parameters fall within the environmental category. The ultimate aim is to select a site where the greatest protection of the environment is provided. Site selection is a part of environmental planning, where the principal part of problem is to select landscape that is functional and safe.

#### **INCREASED EXPENDITURE ON HEALTH HAZARD PREVENTION:**

The increased and irregular urban spread has led to the development of unhealthy and hazardous condition for living in several localities, especially along the slums or the low class residential areas. The bad environmental condition of these localities leads to the higher expenditure on epidemic control of dengue, malaria, diarrhea, and other water-borne diseases and so on. According to the study, the increased population and increased spatial growth of city has led to an increased municipal expenditure of approx. 25 percent on these issues especially over the last two decades; which can otherwise be spent on other city welfare and beautification issues.

#### **ROADS, TRANSPORT AND TRAFFIC MANAGEMENT:-**

With a Municipal area of 175.12 Km<sup>2</sup> Ranchi city lacks in proper traffic system. Congestion is on rise as volume of traffic has increased over the year but the width of roads has remained the same. All roads in the city vary in width. The main link roads are comparatively wide and the other is very narrow. In the old unplanned areas of the city width of roads decreases to 15 feet to 20 feet and the bye lanes are even narrower. Encroachment by petty shopkeepers along the roads further reduces their width. The Local administration complains the lack of public co-operation is anti-encroachment drive. Mixed traffic along the roads also adds to traffic congestion. Most of the roads lacks proper traffic light, signals, zebra crossing and foot paths, People often don't abide by traffic rules. Intra urban transport due to their cheap rates, Ratu Road, Birsha Chowk to New market, Raj Bhawan to Buti More, Nagababa Khatal to Kanta Toli and Railway Station and even in the narrow bye lanes are very congested with heavy traffic. Traffic Jam is the common feature on these roads. These roads are heavily congested. The absence of bye-roads to lessen the burden of heavy vehicle traffic is a serious problem in the city.

#### **RECREATION FACILITIES:-**

Recreational facilities are very poor in Ranchi city. Parks, playground, open spaces are not in the ratio of the population.. The existing clubs are beyond the reach of common people due to the high membership fee. More than 77.60 percent respondents said that recreational facilities are lacking in the city. Some isolated hills located amidst of the city are the recreational cum religious cum open spaces in the city. These hills are Tagore Hill, Bariatu Hill, Ranchi Hill, Kamre Hill, Jagarnath Hill, Tupudana Hills and Bajra Hill..

#### **ENVIRONMENT CHALLENGES:-**

**Water Pollution:** The city is facing high level of water pollution. Most of the water reservoirs are polluted. There is frequent pouring of sewerage water in this river through the nala and tributary streams of the main river. As it is reported during the field visit, the whole city has not proper sewerage system. Surface run off carries the dust particles and drainage to surface water bodies and pollutes them. Solid waste is dumped near the water bodies aggravating the problem.

**Air Pollution:** Increasing vehicles of all modes, smokes of industries, domestic fuel combustion and vehicular traffic have also increased the amount of gases in the air. In the main commercial areas the level air pollution is very high. In purely residential area severity is comparatively less.

**Land Degradation:** Urban sprawl is very high in the city as the city is growing very fast all around. There are several bricks and granite bricks industries in the Peripheral area of the city. Vacant lands are commonly used for solid waste dumping. Jhiri, the north western of the city is severely polluted through dumping of solid waste.

**Noise Pollution:** Noise Pollution levels increase in all the residential and commercial day time mostly in commercial zones viz Upper Bazar, Main Road, Ratu Road, Kantatoli and Patna Road.

**Depletion of Green Cover:** Rapid increase in the residential and commercial areas in the city has led to fast depletion in the green cover area. Continues encroachment in the green field has shrunk the open spaces and the greeneries in the city area.

### SUGGESTIONS:

Depletion in the urban environmental scenario is a very serious problem in the city. The following suggestions may meet the urban challenges of Ranchi:-

- In-migration in the city particularly after the formation of state and Ranchi as capital has led fast in-migration. There is need to control the fast in-migration. In-migration of labour and low income group creates slum problem and various environmental issues.
- Urban renewal of the old planned areas of the town should be done.
- Urban renewal of the old planned areas of the town should be done. For this, awareness should be created among the people. So that their co-operation may be obtained.
- Proper land-use planning is needed and it should be strictly followed.
- Proper building byelaws should be strictly followed.
- Regarding the slum development programme imparting of vocational training, self-group formation and building of employment of new low-cost houses should be started.
- Strict administrative vigilance can improve the situation of health facilities. For provision of regular water and power supply help of private sector may be undertaken.
- An underground sewerage system should be developed and public toilets should be constructed across various locations in the city. Drains should be made pucca and covered.
- The internal roads should be widened. Bridges and flyovers should be constructed at the junction of roads. Parking lots should be developed in the commercial areas, Pedestrian subways and crossings should be constructed to manage the traffic congestion. The newly made Ring Road is a significant step towards the sustainability of Ranchi city, but some bypass roads must be constructed immediately. Proper monitoring is a must to done by the police and Transport Department. Awareness regarding this is also a need among the people so that they may abide by traffic rules and regulations. Public transportation system is to be developed. Unauthorized auto rickshaw and other vehicles must be banned.
- The Ranchi Corporation is not equipped with State of the Art infrastructure. It should be increased so that it may act with greater efficiency in collection of solid waste from different point of the city. For this proper number of dustbins be placed in different part of the city. Solid waste should be properly segregated before its disposal. Adequate number of recycling plants, incinerators and composting sites can be established.
- Help of NGOs, private agencies, private sectors can be taken to develop recreational facilities on build, operate and transfer basis.
- Regular cleanliness of streets, roads and waste dumping sites is required.

### CONCLUSION:-

In fact, Ranchi city is getting growth managing it is becoming increasingly complex. This city is facing with a lot of urban challenges. Economic activities, coupled with infrastructure development to meet the requirements of unprecedented population growth and migration into urban centers. The greatest concern is surely the massive increase in the numbers of the urban poor. Available data suggest that in a large number of Ranchi's urban poor is increasing faster than the overall rate of urban population growth. The spatial patterns of urban expansion over different time have led to severe urban challenges like deforestation, loss of cropped area, convention of agricultural area into build up area for industrial, commercial and residential uses. The landscape, land use and land cover have markedly changes overtime in the city. There has been an overall decrease in the areas of water bodies as many of them reduced in size due to land use transformation siltation and pollution. Airpollutionis completelyman-made. urbanization needs transportationand transportation needsvehicles

but its solution is need of pollution free vehicles, use of CNG, forestation along the roads, metro rail, battery vehicles, removal of old vehicles. As far as solid waste composition is concerned it requires facility of wastes disposal at far distance from the city and proper recycling of wastes is also a must.

Ranchi city is in the list of the making of smart cities but to begin to deal with these challenges require accurate projections of future urban growth, which in turn must be based on both a solid foundation of research-based statistics and a good understanding of the likely patterns and trends of urban change. It is highly difficult but easily possible for Ranchi city which is richly favored by the Nature for its sustainability. This type of study will contribute to a great extent for the sustainability of the growth of the city.

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**Usha K. Pathak**

**Assistant Professor, Bhim Rao Ambedkar College (Guest Faculty) University of Delhi.**

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