TRENDS OF URBANIZATION IN GWALIOR METRO-CITY (INDIA) AND ITS ENVIRONS

Vishwambhar Prasad Sati and I. K. Mansoori

1. Department of Geography, Government PG College, Shivpuri (INDIA)
2. Jiwaji University, Gwalior (INDIA).

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ABSTRACT

Gwalior metropolitan city (India) comprises of three sub parts i.e. Murar, Lashkar and Gwalior itself. Owing to its central location and one of the biggest railway junctions of India, the spatial expansion and population growth of this agglomeration needs systematic and relevant study for environmentally sound and economically viable society. The paper deals with a trend of urbanization in Gwalior metropolitan city and its environs after independence based on the growth of urban population. Major characterization of the urbanization process in this city came after industrial restructuring and the undergoing transformation of the industrial society towards a full service and information society in terms of employment structure. Also, the construction of many new towns surrounding the Gwalior metropolitan city as the industrial towns, immigration and the rapid growth rate in the urban population contributed to post independent urbanization. The rapid economic development through an industrial oriented economy and the city’s high urban growth rate has had a significant impact on the quality of the environment. This paper also reviews waste management, air, water and greenbelt environmental issues, transport network and discusses the major issues and actions that have been taken to address these problems.

Key Words: Urbanization, Metro-city, Environmental Issues, Industrializations, Population growth.

INTRODUCTION

Urbanization represents a revolutionary change in the whole pattern of social life. Itself a product of basic economy and technological developments intends intern, once it comes into being to affect every aspect of existence. Urbanization is concerned with the growth of urban centers. These two factors are considered as in basis for the growth of urban population. In terms of developing countries like ours where urban centers originate as growth center to provide job opportunities, social amenities and better life to the residents of particular urban center. G. T. Trewartha emphasized the urbanization in relation to population in such a way “that the level of urbanization is defined as the proportion of urban population residing in urban places”1. On the other hand Griffith Taylor believed that the “urbanization is a shift of people from village to city”2. An outstanding feature of most large modern cities is the growth of extensive residential suburbs. This expansion is partly a result of the increasing population of those cities, which have dynamic economics allow them to attract migrants and to retain the natural increase of their own population. J H. Johnson explained this short of idea in analysis of expansion of urban centers in suburb area, which evolve the
process of urbanization. Accelerating urbanization is fast becoming a general trend in developing countries. It result from a combination of rapid natural increase caused by declining mortality, growth of industries in towns and rural-urban migration in search of new openings. Urbanization as defined by Jay Moor is a growth of the urban portion of a country’s population; the diffusion of urban values and standards throughout a society; and the increase of concentrations of land covered by houses and roads.\(^4\)

The social and economic future of countries is increasingly being determined in their urban areas. Globally, the process of decentralization is shifting power and resources to cities and their citizens, raising the importance of how well cities are managed, and how well city economies are performing. Two alternative scenarios are emerging: one of cities characterized by increasing poverty, social exclusion and decline; the other of inclusive cities characterized by equitable and sustainable growth. It is often the quality of urban governance that divides declining cities from prosperous cities.\(^5\)

Gwalior was the capital of the princely state until 1948 and the summer capital of Madhya Bharat State from 1948 to 1956, when Madhya Bharat became part of Madhya Pradesh. After independence, Gwalior became the major urban center particularly of Gwalior-Chambal Division. The growth of this city as a major urban center was mostly due to immigration from the other part of its surroundings for search of new opening especially due to its industrial expansion. Its central location and educationally leading nature has put the city into a highly growing urban center of India.

**Location and Extension**

The Greater lies at 26° 14’ N and 78° 10’ E. Gwalior, Murar and Lashkar comprise it. Gwalior is oldest part of city and the fort of Sindhia dynasty is located in this part. Britons established Murar as a cantonment area in 1884. Presently a big mandi is there. The king Dhaulat Rao Sindhia as a camp established Lashkar. It is just like a valley surrounded by three small hills from its three direction. The hills are made of hard Palezoic rocks represented by Vindhyan system. Gwalior, city lies in the central India, in Madhya Pradesh State, near Agra. Since 8th century, Gwalior has been a city of immense historical importance. Many mighty Indian rulers patronized its strategic location, each leaving its own indelible mark on the city. It lies at the foot of Gwalior fort, a stronghold on the Rock of Gwalior, a plateau 2 miles (3.2 km) long and 300 ft (91 m) high, which contains a noted white sandstone mosque, palaces, rock temples, and statues of archaeological and architectural interest. The rock is said to have been a stronghold for more than ten centuries. The Fort was described by the Mogul Emperor Babar as “the pearl among the fortress of Hind”. Within the battlemented walls of the fort are elaborately carved palaces and temples. Huge Jain reliefs are carved in the cliffs of the Rock of Gwalior. Presently it is a major railway junction of India. It is well connected with all the major cities of India by Road, Train and also by Air. The Gwalior is blessed with Classical Music Maestro Miya Tansen. In memory of him, three days Tansen Samaroh program take place every year and the Classical music stars participate in this programme and entertain the people of Gwalior with their outstanding performance. Also the Gwalior Trade Fair takes place every year in the month of December-January.

**Trends of urbanization**

Gwalior as a historic city, as well as major urban center in Chambal region, should be in position to higher order urban center facilities to its hinterland. Yet the city has been depicting rate of growth 28.56% (1981-91), and compared to other cities of similar population class is growing at a slower rate, e.g. Jabalpur 65.1%, Raipur 37%, Baraebilly 37.6% and Gorakpur 64.3%. The all India
growth rate of urban population has also declined from 45% to 37% in the decade 1981-91. Therefore, certain decline in the rate of growth of urban population is to be anticipated. But the dramatic fall from close to national rate of urbanization (35.32% in 1961-71), to 25.33% (1991-2001) is unusual, particularly because certain major investments in the industrial sector had taken place in Gwalior and its surrounding region. Building up a future scenario on the basis of trends alone may not serve the city well.

**METHODOLOGY**

Most of the research work was carried out through getting primary data. Sites were visited personally and observed sequentially. Although some secondary database work was also performed.

**RESULTS AND DISCUSSION**

Needless to say, the root cause of rapid urbanization in Gwalior was the concentration of population. Its population in 1901 was 138612, which soared to 182492 in 1941 registering an increase of as many as 55543 people (43.75%). This explains the promotion of Gwalior to the status of a biggest city among three others in MP state and subsequently enlargement of its geographical jurisdiction. The downward trend shown for the period 1911 to 1921 reflects the similar trends like in the whole country, since then, however, the population of Gwalior has steadily increased by 31.7% per decade on average. In 1951, after independence, when Gwalior princely state emerged into Central India, the population exceeded the 32.38% mark. The figure rose to 241557 by 1951 then to 182492 by 1941, showing an explosive growth in a short span of time as rarely experienced elsewhere in the other cities of the state.

The Concentration of Population decreases from CBD to the outer parts. The ward No. 19, 1 and 24, which are located at the outer part of the city are sparsely populated. There are nine wards around the CBD having 26.79% population out of total population. The highest population is found in ward No. 2 (13.31% of the total population). And lowest in ward No. 6 (1.18%) The highest concentration of population is found in Gargaj ward, Mental Hospital, Central Jail, Bahadapur, JC Mills, Kalyanpur, Govingpura, Mohammadpur, Akbarpur, Swijhfarm, Kanwarpura, Thatipur, Gandhi Road, University, Stadium, MITS, Mela Ground, Maharani Laxmi Bai Physical College, Krishi University, Industrial Area, Milk Dairy, Jaderuwa, Kal Jadrawa Khurd, Maharajpur Dang, Maharajpur Gird, Phoolbag, Samadhi Laxmi Bai, Museum Moti Mahal, Jai Vilas Mahal, and Hanuman Hills.

<table>
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<td>—</td>
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<tr>
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<tr>
<td>2001</td>
<td>865800</td>
<td>+175035</td>
<td>+25.33</td>
<td>861</td>
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</tbody>
</table>

Source of Data: Municipal Corporation of Gwalior
In 1991 total population of Gwalior Metropolitan was 690765, which was 4.50 percent of the total urban population of the state. In 2001, the population was 865800, which was about 25.33 percent much more than the previous one. Gwalior is forth-big cities of Madhya Pradesh after Indore, Bhopal, and Jabalpur respectively.

The fundamental concern of urban form is that of urban land use. All urban area have a variety of different uses (housing area, work places and shopping streets for example and we need to consider what uses there are and how their distribution is changing. Here the planner has had a major impact in rationalizing the chaotic victorian land use plan and separating out the assortment of conflicting uses a process, which as we shall see is not without its cities. The housing situation in the greater Gwalior has been a cause of concern and it is due to overcrowding, unsanitary conditions and poverty. But still no planning measurement has been initiated. The magnet city concept in the southwest part of city will help to reduce the burden of built up area. The reformers’ idea of well-built dwellings in a setting of air, space and sunlight seen at Bournville in 1890’s was translated into various garden suburbs and later into both private and local authority estates⁶,⁷.

The problem of slums along the small streams and some other patches in the city is burning problem to be checked in time. Housing board of MP state has started to construct residential colony between Old Gwalior and Lashkar and thereafter Police Colony was developed along Agra-Bombay Highway. At the down of sixties, the Housing Board has started to prepare a residential planning as a form of Darpan Colony owing to mounting pressure of population around the old city of Gwalior. The Urban Development of Gwalior Metropolitan is uneven and it is concentrated only on the National Highways towards Agra, Bhind and Jhansi.

**Functional land use**

Residential area occupies 43.9% of the total land, which is highest among all land use pattern of the city. The main residential areas are Gandhi Nagar, Darpan colony, Ashok Colony, Premnagar, Seva Nagar, Defense Colony, Vikas Nagar, Ghorapati Colony, Dwarikapuri, Kushal Nagar, Basant Vihar, Hari Shankar Puram, Vinay Nagar, Deen Dayal Nagar, and C. P. Colony, among them most of the colonies have recently been constructed.

Commercial area obtains only 3.4% land, which is lowest in comparison of other land use. The main commercial areas are Bada or Jiwaji Chock, Daulat Ganj, Madho Ganj, Naya Bazar, Patankar, Lohiya Bazar, kasera Aoli, Darji Aoli, Das Bazar, Janakganj, Topi Bazar, Najar Bagh (Ready made), Dahi Mandi, More Bazar, Gandhi Market, Ganesh Bazar, Lohiya Bazar, Hemraj Bazar, Station Road and City Centre.

About 7.8% area comes under the industries. The main industries Kanch Mill, Industrial Area, Balaghat Industrial Area

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Land Use</th>
<th>Area in ha</th>
<th>Area in %</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Residential</td>
<td>4558.5</td>
<td>43.9</td>
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<tr>
<td>2</td>
<td>Commercial</td>
<td>353.1</td>
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<tr>
<td>3</td>
<td>Industrial</td>
<td>810.0</td>
<td>7.8</td>
</tr>
<tr>
<td>4</td>
<td>Public and Semi Public</td>
<td>1121.5</td>
<td>10.8</td>
</tr>
<tr>
<td>5</td>
<td>Transport</td>
<td>2336.4</td>
<td>22.5</td>
</tr>
<tr>
<td>6</td>
<td>Recreation</td>
<td>1204.5</td>
<td>11.6</td>
</tr>
<tr>
<td>7</td>
<td>Total</td>
<td>10384.0</td>
<td>100.0</td>
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</tbody>
</table>

Recreational area has about 11.6% land. The main recreational spots are Delight, Tansen, Yadav, Kajal, Rouxi, Kelash, Manmandir, Harinirmal, Bharat, Alpana, Shri, Basant and Baj Cinema halls, Foolbagh, Jal Bihar, Children Park, and Water Park.

The other areas of industrial and economic functions

The new section of the city, called Lashkar, a few miles south of the old city, is the site of factories producing cotton, yarn, paint, ceramics, chemicals, and leather products. Among the city’s manufactures are textiles, carpets, glass, matches, rayon, cigarettes, porcelain ware, leather and plastic goods, and processed food. There are several colleges, a zoological garden, and an industrial-research laboratory. It is the site of factories producing cotton, yarn, paint, ceramics, chemicals, and leather products.

Future of this historic city needs to be ensured by a coordinated inter-sectoral development strategy. Multiple authorities are involved in the affairs of the city, in which the casualty has been ordered development. Examination of the administrative structure is crucial for effective management. The present organization is explained so that it provides guidelines for improvement.

The National Commission on Urbanization has identified Gwalior as one of the GEM towns (Generator of Economic Momentum). The future development scenario of Gwalior needs to be formulated keeping this in mind, so that it can provide a momentum for economic growth.

Impact of urbanization

Town planner has always claimed the physical appearance of towns and cities, and the way they are organized physically, as very much his own concern. Embracing the civic design movement and stimulated by pressing need to tackle a whole range of housing problems at the turn of the century, he was keen to develop his analytical and prescriptive skills and to press for legislation to give greater control over the urban environment. When Abercombie (1959) wrote of town planning being matter of beauty, health and convenience he had in mind the planner’s self imposed obligation to create cities worthy of a technologically advance society.

Due to paucity of water, high water consuming industries may not be encouraged. Forests around the city are also ecologically sensitive, particularly to air pollution. Majority of industries, therefore, are likely to belong to small and medium scale, none of which may have the capacity to install pollution abatement equipment. Industrial estates, with the environmentally conscious choice of typology and locational criteria, may provide the necessary impetus. MPSIDC needs to collaborate with the Gwalior Urban Development Authority for choosing the industrial estate sites, which should also have complement of housing and other social and physical infrastructure.

City Development Strategies (CDS) are action plans for equitable growth in cities, developed and sustained through participation, to improve the quality of life for all citizens. The goals of a City Development Strategy include a collective city vision and action plan aimed at improving urban governance and management, increasing investment to expand employment and services, and systematic and sustained reductions in urban poverty. Achieving this overall goal will occur through a wide variety of approaches in different cities around the world, with local and national conditions determining both the chosen approach and the final outcomes. Notwithstanding local differences, the Cities Alliance places great emphasis on the lead
being taken by the city itself, with the urban poor and local business leaders actively involved within an wider participatory process – in short, local ownership of the process is vital.

Gwalior like all other Indian towns of similar population class and levels of Government intervention has four areas of distinct character. The Cantonment area of Murar, which is a posh, railway colony, is drab, monotonous and lived in by people on transferable jobs, the old city around the fort whose spatial limits cannot adequately provide for the demand and the unimaginative new aerial expansions where new housing is coming up, with or without necessary infrastructure support. The civil lines and the railway colony have self-imposed restriction against growth, the old city is bursting at its seams, therefore the only solution is in identifying new areas. New areas can only prosper where there are sufficient economic incentives for people to come to Gwalior, and the city provides adequate social and physical infrastructure to attract the class of migrants, which makes the city attractive to others. Gwalior thus needs to build up an image.

The image building opportunity is provided by the historicity of the city, the large number of monuments in the city, and major centers of tourist attraction, easily accessible to the tourist of Gwalior. Unfortunately, Gwalior does not figure prominently in the tourist map of India. Considering its easy accessibility from Delhi, and nearness to Gwalior, it could develop into an attractive center.

However, it is beyond the capacity of the city authority to create this image. It needs concerted action in the promotion by the state and the central government to create a national and institutional destination for the tourists to India. In order to cash on the tourism potential, these complementary actions are necessary:

1. Conserve the historic monuments and traditional urban fabric.
2. Provide adequate number of hotels, transport facilities, communication etc.

Improve the quality of urban basic services so that it does not repulse the tourists.

Considering the land price, which is quite high than comparable land prices of lesser metropolises of India, Gwalior is attractive for investment in real estate and hospitality industry. The thrust of development in this direction may create employment opportunities, which is stagnant for more than a decade. One of the most serious impediments to attractiveness is the poor basic infrastructure. At present, the deficit in water supply is 22750 cubic metre/day. In order to overcome the deficit as well as meet the future requirement (assuming a population of 0.75 m by 2016 on the basis of the trend over the last 50 years) is likely to be 72000 cubic metre/day, which can only be met by increasing the withdrawal from Pahuj reservoir by five times, which may adversely affect the capacity as well as its irrigation potential. Obviously several other schemes of water harvesting, as well as its irrigation potential. Obviously several other schemes of water harvesting, as well as recycling need to be considered. Already the poor quality of water causes majority of the diseases. Attractiveness of a city cannot be ensured in such a condition.

Level of sanitation, particularly disposal of night soil, needs immediate attention. The fact that 5% of the population defecates in the open, and another 35% depends on service latrines, still needing scavengers is a disgrace in urban management and administration. The sewerage system of the city serves only 12% of the population, and that is disposed into several oxidation ponds. Several appropriate technologies are available, which are both efficient and cost effective. The entire system of sewerage of the present urban area and future urban expansion needs to be considered for decentralization so that it is efficient and cost effective. The present foul open drains cannot attract investments. Similarly, the disposal of solid waste can be made much more effective through decentralized system, which
are amenable to appropriate technical options, and effective management.

Any city approaching a metropolitan (million plus) status needs an effective transport policy and a public transport system. Most Indian metropolises, except the megopolises lack efficient mass rapid transit systems encouraging pollution of air due to use of personalised modes of transport, majority of whom happen to operate two stroke highly polluting engines. In order to provide an efficient system, the structure of the city and distribution of land use needs to respond to the needs of maintaining a mass rapid transit corridor. In Gwalior, both the cantonment area and railway colony have their work centres within easy accessibility. The walled city is too congested to allow larger vehicles. Therefore, the only option lies in ordering the future growth along rapid transit corridors.

The objective of the future strategy, for development would be to allocate land for (i) trade and commercial activities, so that alternate growth nodes develop to encourage decongestion of old city, and also provide adequate employment opportunities to become the first order urban center in Gwalior region; (ii) industrial activities, along the axis for mass transportation and regional linkages. Considering the constraints to physical growth placed by the railway colony and the cantonment, it appears that the direction of growth may be towards north east, and also towards south, although that is less preferable; iii) housing, in the direction of growth, in modules of population base which can be self sufficient in terms of harvesting and recycling water, manage the sewage and garbage within the module through appropriate technology and social infrastructure. This self sufficiency in terms of infrastructure by adoption of alternate technologies should be considered as a prerequisite, and the development pattern should modulate along these objectives, (iv) transport infrastructure by providing a bypass for inter-regional through traffic and providing long distance bus terminals at the appropriate locations. The postulated direction of growth along northeast direction does provide ample opportunity for designating this land uses.

CONCLUSION

Environmental issues may be concluded in the following 3 points:

1. Gwalior has had one of the fastest growing cities of MP. With an increase in economic development and affluence, industry, institutions, business, construction, and consumers are creating more waste material. This waste material consists mostly of paper, glass, metal, plastic, food waste, rubber, textile, and wood. Households, restaurants, and small businesses generate one third of the waste and tow thirds is generated by industry.

2. Built up areas has removed the natural land cover and replace it with concrete, steel, and asphalt. The population density results in increase use of vehicles, and a concentration of industrial facilities, businesses, and housing. All of these factors impact the air quality of the city. Concentration of buildings and highways results in greater heat retention.

3. There are a number of issues related to water quality in the city. First, is access to a quality supply of water from wells or surface? Second, is the treatment of water that has been used by domestic, commercial, or industrial sources, so that it can be returned to the environment with minimum detrimental impacts? Urbanization, greatly concentrates the demand for water and the need for the treatment of water.

Measures

1. Construction of greenbelts and treatment plants
2. Waste reduction in the production process
3. Reuse and recycling of waste production
4. Energy resource recovery, incineration and landfill
5. Prevention of Pollution at the source
6. Pursue the harmonization of development and conservation
7. Built conditions for implementing the polluter pays-principal
8. Use economic incentives to induce enterprises to make voluntary efforts to protect the environment
9. Ensure the transparency and reliability of environmental policies by providing citizen with easier access to information and promoting their participation.

REFERENCES