Satellite Cities: the only Hope of Megacities
A case of Indian scenario

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Abstract: Urban Sprawl, a never ending process has been a major challenge while dealing with development plans of these megacities. The major thrust of action is how to deal with sprawling urban areas along with dormitory towns simultaneously. The labyrinth structure of these towns together brings the need of another Big Bang Theory for the Urbanists and Planners dealing in finding the solutions. The need of the hour is not only concentrated or confined to single Master plan but series of them put together and forming a single aim of Regional goal. The planning approach will now be not only uni-directional but multi-faceted that too with Top-to-Bottom as well as Bottom-to-Top while dealing with agglomerations like Delhi National Capital Region and Mumbai Metropolitan Region etc. The remarkable growth of India’s population in urban areas over last two decades is alarming or perhaps giving the glimpse of WHAT the Future of Indian towns and cities will be. The emerging new towns developed from the suburbs have been seen as a new hope for the cities which are already saturated and facing the dearth of every resource possible in their kit. The planning approach for buffet cities is though bold but a pragmatic one to think upon to be ready for time to come instead of waiting the bubble burst in new towns also. The paper aims to analyze the different models executed in order to streamline the urban sprawl in Indian megacities. It also emphasize upon the pros and cons of the approaches used and will perhaps try to convey how an urban agglomeration need a distinctive approach of planning.

Keywords: Urban Sprawl, Urbanists, Regional Goal, Delhi National Capital Region, Mumbai Metropolitan Region and Urban Agglomeration.

Introduction:
A satellite town or satellite city is a concept of many satellite cities and towns appeared spontaneously near many metropolises. Satellite towns are smaller municipalities that are adjacent to a metropolitan area and enroute of major transportation links of regions. It can be defined as:
‘A city designed to house the overspill population of any major city, but located well beyond the limits of that city, and operating as a discrete, self-contained entity’.
Conceptually, satellite cities could be self-sufficient communities outside of their larger metropolitan areas. However, functioning as part of a metropolis, a satellite city experiences the cross-commuting (i.e. residents commuting out of and employees commuting into the city). It may involve consciously planned cities to act as dormitory towns.

Some examples of Indian satellite cities are:
• Delhi: Gurgaon, Noida, Faridabad, Ghaziabad;
• Mumbai: Navi Mumbai; Kalyani, Thane;
• Kolkata: Kalyani, Rajpur-Sonarpur, Uluberia.

All the satellite cities listed above though successful ventures in the vicinity of large Mega cities of India but their domain is limited to accommodate the over urbanization of mega cities and open new portals for investments for individuals to Real Estate developers to Medium and Large Scale Corporate houses etc. Had the Mega city was equipped enough to handle more pressure these satellite towns would have never been a reality.

Objectives of Satellite cities:
Decongestion:
Urban Congestion in metro cities has been a major problem due to population explosion because natural growth and contribution from migration from neighboring cities and states further puts more pressure on these powerful urban centers. Urban congestion may be tackled in majorly three ways:

1st Vertical: That generally makes matters worse because it increases congestion, escalates land prices and hurts the poor more and more.
Eg: Mumbai, Bangalore, Gurgaon etc.

2nd Horizontal: That increases commuting distances, worsens the congestion at the centre, and is no better than vertical expansion.
Eg: Delhi, London etc.
3rd Satellite towns: It leads to lowest land prices, and hence offers the poor the best chance for proper housing. In every way — financial, ecological, ethical, and social — satellite towns are the best cure for the major cities. Eg: Gurgaon, Noida, Navi Mumbai and Kalyani etc.

The huge amount of migration & natural growth in metropolis of India has boosted the concept and has been quite successful in tackling the urban congestion. The introduction of satellite towns has come up as a solution to counteract the population explosion in major cities like metropolis.

Affordable Housing
To own a Shelter is one fundamental right of every human in the city. Unlike the idealistic scenario where every family owns a dwelling unit in their city but the reality is just contrary. The affordable housing just remains a distant dream when the demand is extensive and supply is limited which makes the housing market primarily driven by profit making private developers. The volatility in land prices makes large metropolitan cities so unaffordable which force the housing sector to go to neighboring cities with low prices for land and labor. The dynamism in land rates is major push factor to make Satellite towns lucrative for Real Estate development.

Table 1: Property Rates in Metro & Satellite cities

<table>
<thead>
<tr>
<th>Cities</th>
<th>Circle Rate Rs/sq.m</th>
<th>Reality Rate Rs/sq.m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delhi</td>
<td>20K-2L</td>
<td>1L-25L</td>
</tr>
<tr>
<td>Gurgaon</td>
<td>10K-60K</td>
<td>50K-15L</td>
</tr>
<tr>
<td>Mumbai</td>
<td>26K-10L</td>
<td>2L-40L</td>
</tr>
<tr>
<td>Navi Mumbai</td>
<td>35K-1.5L</td>
<td>50K-15L</td>
</tr>
</tbody>
</table>

‘K’ denotes Rs 1000, ‘L’ denotes Rs 1 lakh. (Source: TERI Environmental Survey 2013)

The affordable housing is also contributed by Government/PSU but these schemes just act as a mockery as they never do justice with the demand of the city and leave many stranded harassed as soon as the result of the allotment are disclosed.

Economic Sub-centre
The metro cities have been the magnets of investment since independence but over a period of time they have attained the stage of saturation. The growth in the investment sector has undergone a major boost after 1991 which opened doors for international organization in terms of Foreign Direct Investment. With more and more Multinational companies are heading to India with emerging small and medium scale enterprises it is imperative to come out with new economic growth centers which may act as sub-center for major metropolises.

Opportunities for the Sprawl:
The sprawl is never ending process and it can never be stopped. The challenge lies in How to absorb the positive effects and tackle the negative ones. The sprawl is a major boost for small towns placed near to large metropolitan cities as it gives them to be the second best option of investment in the influence zone of metro. All the metros by and large face the crunch of limited resources with ever increasing demand.

Resources Optimization Land
The most important resource as far as development is concerned. The availability of Land resource is limited or rather scarce and in order to fulfill the aspirations of city the strategy has to an OUT OF THE BOX solution by going beyond the administrative boundaries of states. It not only gives equal opportunity to the neighboring cities but also optimally use of regional resources and physical upliftment of region.

The major example has been Delhi National Capital Region which makes it almost 23 times of area of the parent city i.e. Delhi National Capital Territory.

Table 2: NCR Area Division

<table>
<thead>
<tr>
<th>Division</th>
<th>Area (sq.km)</th>
<th>%age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delhi NCT</td>
<td>1,483</td>
<td>4.3</td>
</tr>
<tr>
<td>Haryana</td>
<td>13,428</td>
<td>39.3</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>8,380</td>
<td>24.5</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>10,853</td>
<td>31.8</td>
</tr>
<tr>
<td>Delhi NCR</td>
<td>34,144</td>
<td>100</td>
</tr>
</tbody>
</table>

(Source: ncrup.up.nic.in)

Map 1: Delhi National Capital Region Map
(Source: ncrup.up.nic.in)

National Capital Region (NCR) is a unique example of inter-state regional development planning for a region with NCT-Delhi as its core.

Ecology and Environment
Urbanization comes with great inflow of capital but also brings degradation of its ecological resources.
like fresh air and water. The faster a city grows the more is the deterioration of its air quality and green cover due to channelization of agriculture into urban jungle.

NCR is characterized by extension of Aravalli ridge, Forests, wild life and bird sanctuaries, rivers Ganga, Yamuna and Hindon, fertile cultivated land. Despite such a dynamic rural-urban region of green and built environment the air quality f the region is going from bad to worse as experienced by its citizens.

![Figure 2: Changes in the State of the Air Quality in the Past Five Years in Delhi for Different Localities](Source: TERI Environmental Survey 2013)

Though the air quality is dipping in the city but the government has done a remarkably good job in enhancement of forest cover/ green area in the city over the last 2 decades which is prominent.

![Figure 3: Forest & Tree cover area (%age) of Delhi 1993-2009](Source: Economic Survey of Delhi 2012-13)

Although the forest area and green over s increasing in the city but the quality of air quality is getting worse as transport sector being the major source of air pollution (45%) followed by industries in and around the city (31 %).

**Labor force**
The human resource is the backbone of every economy. The availability of different classes of labor force is necessary to provide equal opportunities for all. The agriculture labor which is majorly marginal workers in the surrounding areas of metros can be vital in various construction and manufacturing industries which provides them employment throughout the year.

**Economy**
The capital investment is essential for the growth of humankind to city to building a nation. The dependency of suburbs of metros on it is shifting from Interdependency to independency. The major types of resources boost any regional economy are:
- Natural: Water, Land, Minerals etc.
- Financial: Capital investment fro public and private sector.
- Manpower: Human resource educated, skilled and unskilled.

The Satellite towns in the periphery of the major metros bring new options for the financial investment. The introduction of these satellites as sub-centers will contribute towards holistic development of a region and counteract polarization in the parent city. The potential of satellite cities is much more for regional growth optimum resource utilization.

**Density Optimization**
This is one of the primary objectives off satellite towns to decongest the main parent city and in house the overspill population in the surrounding areas.
Kolkata via National Highway 2 and Mumbai via National Highway 8.

Studying the density pattern of Indian metropolises, it is quite evident that the satellite towns can contribute effectively towards decongestion in the core city.

![Density Pattern of City and Region](image)

**Figure 4: Density Pattern of City and Region**
(Source: Census of India, 2011)

**SCO-LIM Analysis**

**SCOPE**
- Integration of Landuse and infrastructure amenities.
- Transformation of Economy from Interdependency to independency.
- Optimisation of resource utilisation.
- Deviation from Centralization to Decentralization.
- Extracting private investment.

**LIMITATIONS**
- Decline in Agriculture area to new urban areas.
- Success is based on accessibility to parent city.
- Initial investment is too high for govt to handle.
- Dependency on private developer for real estate.
- Increase in commuting distance.
- Need an efficient public transportation system which is very expensive.

**Figure 5: Scope and Limitations of Satellite towns**

**Satellite Towns: Indian Context**

In India, satellite towns will take off when three conditions are satisfied:
- **One**, when they offer superior employment options, education, health care and other social infrastructure amenities.
- **Two**, the low cost high accessibility from different zones of parent city to the satellite city.
- **Affordable Housing** provided with adequate basic amenities for human habitat.
- These satellite towns fulfill the requirement of land or urban extension for the parent city provided they have the same class of infrastructure facilities and connectivity to parent city.

- The case studies of Indian Satellite towns are imperative to understand their growth pattern and various push pull factors that contributed towards their success and failure.

**Gurgaon**

Gurgaon, The Millennium City is a leading financial and industrial centre of North India in National Capital region in state of Haryana. Once a small dusty agricultural village, Gurgaon has now emerged to become the city with the third highest per capita income in India. With an area of 732 sq.km and population of 1.2 million the city has taken big strides in growing has emerged as one of the most important off shoring centers in the world.

**Pillars of Millennium City**
- Retail Sector: Presence of 26 shopping malls.
- Real estate: Nation’s most valuable real estate.
- MNCs Business Hub: More than 50% Fortune 500 companies of manufacturing, software, IT, service and sales, call centers construction have their operations.

**Objectives of Gurgaon:**
- To overspill the population of Delhi and it has responded really well.
- To make a self sufficient city along the neighboring states of Delhi.
- Major role of Gurgaon was to adopt Delhi’s fast and rapid investment in housing, industrial and commercial sector.
- To develop the influence region of Delhi so as to optimize resources utilization.
- The response of Gurgaon has been overwhelmed in accommodating the overspill population. The government has purely obliged the city by providing facilities like Delhi-Gurgaon expressway with separate connectivity to airport.

**Positive Outputs:**
- Urban congestion in the national capital is reduced.
- MNC’s are settled in Gurgaon.
- The extension of Gurgaon with Manesar and along the Delhi-Jaipur highway is on rise.
- Has come up with its own satellite town Manesar another industrial hub.

**Reasons for Success:**

**Accessibility:**
- 3 side connectivity with Delhi.
- Proximity to Indira Gandhi International Airport.
- Intermediate point between Delhi-Jaipur highway.
- Introduction of new expressway.
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Real-Estate Boom:
- Large no of Skyscrapers and modern shopping malls as the identity of this suburb.
- Large scale development of housing by real estate giants like DLF, Ansal, Emaar MGF etc.
- Versatility in residential properties with apartment or villa, condominium or penthouse.

Employment:
- Employment opportunities are immense with the operation setup of more than 50% Fortune 500 companies and other organizations.
- Outsourcing hub of more than 200 major MNCs such as Accenture, IBM, Microsoft, Google, Oracle, ITC, Ranbaxy, Adidas, Nokia, Pepsi etc.
- Operational Plant of major industrial giants like Maruti Udyog & Hero Honda.

Navi Mumbai:
Established in 1972, Largest planned new city in the world, with a total area of 344 km². One of the fastest growing satellite city in India with a population of three million and is attracting billions of dollars in investments. It is one of the successful attempts as satellite town to decongest the parent city.

Objectives of Navi Mumbai:
Navi Mumbai is well-planned, balanced and beautifully landscaped city conceived as 14 self-contained nodal settlements with the Central Business District (CBD) in Belapur at the heart of the metropolis. Its objectives are:
- To develop a project to ease the congestion caused by Mumbai's rising population.
- To develop an affordable housing for its citizens.
- To in-house the investment in Mumbai Metropolitan Region for the base of reputed Indian and multinational corporates.
- To generate employment opportunities and help the next generation of Mumbai residents to relocate.

Positive Outputs:
- Till 2006, 43 percent of the families currently settled in Navi Mumbai migrated from Mumbai.
- Employment opportunities have grown in manifolds for industrial, commercial sector & informal sector.
- According to the TISS survey found the literacy rate in the city was 96%, that 32% of the total population was working, that 67% own their houses and that 46% own vehicles.
- Capacity of absorption has made Navi Mumbai a prime land for property investment in India.
- Only non pollutant industry from Mumbai making Navi Mumbai one of the greenest and healthiest places to live in the world.
- Considering the aspects above Navi Mumbai is a successful new town which reacted what they designed for.

Reasons for Success:
- Saturation of Greater Mumbai in terms of Housing, Industries, commercialization etc.
- Unaffordable property rates in greater Mumbai have pushed the investment to Navi Mumbai.
- Connection to Greater Mumbai via the lifeline of Mumbai suburban rail.
- Migration from Greater Mumbai to Navi Mumbai in need of affordable housing.

Manesar:
Manesar often name as New Gurgaon is fast growing industrial hub in belt of National Highway-8. It has really transformed from a sleepy village to one of the fastest growing townships in India.

Objectives of Manesar:
- To bring a new Industrial township in Gurgaon region to accommodate manufacturing industries.
- To utilize the potential of abutting areas of NH-8 with more investment in industrial sector.
- To come up with new city in Delhi NCR in line of Gurgaon for Real estate sector.

Positive Outputs:
- The setting up 1750-acre (7.1 km²) Industrial Model Township has made it a growing industrial suburb.
- Employment generation to neighboring villages has been a boon in enhancement of per capita income.
- The integration of Gurgaon-Manesar Master Plan 2021 has lift up the future prospects of Manesar.
- Though a satellite town of Gurgaon but it has also come up with its satellite town Bhiwadi in close proximity and next hub for real estate investment.
- India’s second and only World Trade Centre of Delhi NCR is setup in IMT Manesar.

Reasons for Success:
- Extension of Delhi-Gurgaon expressway till Manesar.
- Integration of Gurgaon-Manesar Master Plan 2021.
- Selected as major FDI hub of industries from Japan.

Conclusion:
Satellite towns are the successful initiatives taken to counteract the magnetic force of metropolitan cities. The need is to develop counter magnets to stop migration to mega city and become part of population explosion. The satellite towns have been
come up as the only solution to decongest the mega urban areas as they are properly facilitated with all the amenities. Proper planning of these cities is also important and also affiliation with the parent city for sounds functioning of these emerging towns. The concept of satellite towns is getting carried forward in potential regions with mobility of public and private transport.

References:
[10] www.ncrup.up.nic.in