

A Review Study on Smart City and Satellite Town

Mr. Omkar Tate¹ Mr. Said Bargir² Mr. Shivraj Koil³ Mr. kshad ajalekar⁴

^{1,2,3,4}U.G Scholar

^{1,2,3,4}Department of Civil Engineering

^{1,2,3,4}Sharad Institute of Technology, Polytechnic, Ichalkaranji, India

Abstract— The purpose of this dissertation is to study planning, inception and evolution of a Satellite city. The study parameters considered include de-magnetization, inclusive environment and comprehensive development. On Design level, increase in awareness about urbanization issues is important as towns and cities are getting chaotic day by day. People have witnessed deterioration of cities as the time has lapsed. As the quality of life is at stake, there is a dire attention required on the planning aspects of the city that is continuously evolving. Growth of a city is both inevitable and irreversible as any city is meant for the people and shall grow with them. However this growth can certainly be directed and controlled. To holistically extend a city into a satellite, considerations on both the macro and the micro levels need to be addressed. The purpose of satellite cities is to provide a perfect balance between the population and resources, with respect to environment-friendly development.

Keywords: Development, Urbanization, City, Inclusive, Evolution, Satellite

I. INTRODUCTION

Privately built satellite cities are becoming an increasingly common form of urban development in peri-urban areas of Southeast Asian cities. However, while they are beginning to receive academic attention, the majority of studies focus on design and planning issues and have a limited capacity to fully explain how satellite cities are produced.

In this report, we investigate the production of satellite cities in Phnom Penh drawing upon recent theoretical advances that critically consider the relational and territorial geographies of urban development. The satellite cities in Phnom Penh are driven by the mobility of urban development capital, concepts and expertise that are predominately intra-Asian in scope. In examining these intra-Asian connection.

II. HISTORICAL BACKGROUND

A smart city is an urban area that uses different types of electronic methods and sensors to collect data. Insights gained from that data are used to manage assets, resources and services efficiently; in return, that data is used to improve the operations across the city. This includes data collected from citizens, devices, buildings and assets that is then processed and analyzed to monitor and manage traffic and transportation systems, power plants, utilities, water supply networks, waste, crime detection information systems, schools, libraries, hospitals, and other community services.

The smart city concept integrates information and communication technology (ICT), and various physical devices connected to the IoT (Internet of things) network to optimize the

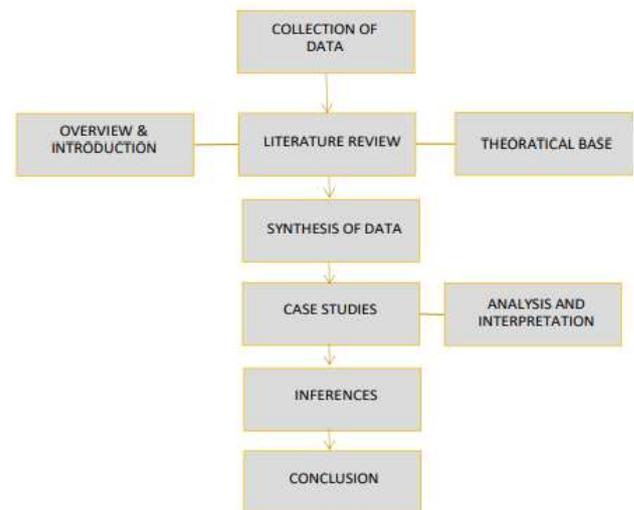
A. AIM:

To Study planning, inception and evolution of a Satellite city

B. Objectives:

- Comprehensive Development
- De-Magnetization
- Inclusive Environment
- Urbanization

III. METHODOLOGY



IV. DEFINING SATELLITE

Satellite is a reference that is derived from astronomy. As a definition, an artificial satellite is an entity that is directed to space which is within the orbit of the earth but is not a part of the earth. Planets in space often have their natural satellites that are within the trajectories path of the planet but not actually part of the planet. The best example of this is the moon which orbits the earth and is a natural satellite of earth but is not part of the earth itself. This concept is used in describing a satellite city. A satellite town or satellite city is a concept in urban planning that refers essentially to smaller metropolitan areas which are located somewhat near to, but are mostly independent of, larger metropolitan areas.

A. Future Suburbs

Suburbs or sub – urban refers to the areas somewhat between urban and rural setting. It is a result of urban sprawl into rural locations. The purpose of satellite cities is to provide a perfect balance between the population and resources, with respect to environment-friendly development. The aim is to create affordable housing for a large section of the society. The planning and designing of such towns and cities become more vital and critical than suburbs because of its self-sustainability.

V. CHARACTERISTICS

There are certain characteristics of a satellite town/City, a few of them can be enlisted as:

- 1) A smaller city near a large metropolitan city which has its own local government and economy which is independent of the neighboring large city.
- 2) There are a lot of influences from the large city nearby on the satellite city. Satellite cities have their own culture, own history, and their own independent economic infrastructure.
- 3) The satellite cities are interconnected with the larger cities but are completely independent of the large city nearby.
- 4) Satellite cities are not an extension of the large city nearby. Geographically there is a clear distinction between a large parent city and a satellite city.
- 5) Satellite cities are not as developed as the larger cities nearby. The population of satellite cities is much smaller than that of the larger cities nearby.

VI. MISCONCEPTIONS

A Satellite City is often confused with other urban planning terminologies, because of incorrect opinion and understanding. A clear difference between these need to be perceived before getting into details of urban arrangements

A. Functions of a City

The functions of a city depend largely upon the occupational structure of its citizens. The larger the scale of a city, the more the number of functions it is likely to perform. Large, Metropolitan and Mega Cities are multi-functional while Small and medium towns are single and/ or bi-functional.

B. Primary, Secondary & Tertiary

The functions of a city depend largely upon the occupational structure of its citizens. The larger the scale of a city, the more the number of functions it is likely to perform. Large, Metropolitan and Mega Cities are multi-functional while Small and medium towns are single and/ or functional.

VII. PLANNING AND DEVELOPMENT

Planners employ various techniques to carry out their work. Planning Techniques are a means of helping to achieve ends; thus, techniques must be carefully appraised before a particular use is undertaken. A planner should focus on the desired end- product by knowing the best means (the most desirable technique) of achieving it. The different techniques that a planner uses are his tools, and like any similar equipment, they should be efficient, labor saving, reliable and fit for their particular purpose.

A. Need for Planning

Techniques it is crucial for a planner to study planning techniques to appreciate what a multi-faceted and open-ended activity city planning is, and to consider how all the various parts of the process relate to each other.

VIII. CITY MANAGEMENT

To provide better operations and essential services and facilities including housing, energy, water, sanitation, health

and education to improve the quality of life of people. Scale of cities are increasing due to significant amount of people migrating from rural areas. The increase in population is accompanied with need for more land along with infrastructure and services to sustain the additional population. The inner-city areas are mostly the high density areas that face issues of low quality of life and very high density. As cities increase in size, they also increase in complexity. As the scale increases, the typology of activities that are in the city. To maintain balance between resource consumption and resource availability. Urban development should be sustainable so that it meets the need of the present population without compromising with the ability of the future population to meet their needs. To improve quality of life and reduce disaster risks and resilient.

IX. PURPOSE OF SATELLITE TOWNS

- To regulate the growth of population in main Metropolitan/ parent city by creating an attractive urban center to absorb the immigrants (i.e. decongestion of the parent city).
- To provide affordable housing to LIG/EWS, working in the parent city.
- To develop new areas of economic growth.
- To achieve a quality of life in new satellite towns as compared degraded environment of the parent city.
- • To utilize the potential of the region and overcome polarization/primacy in the region.

A. Need for Satellite Towns for Chandigarh

A land locked city planned for 5 lakh population could not accommodate increasing population. Two Satellite Towns were planned around Chandigarh Mohali as Industrial Township & Panchkula as Residential Township the Satellite Towns – Panchkula and Mohali have reduced population pressure on Chandigarh city

X. ASSESSMENT OF SATELLITE CITY

Panchkula Does not satisfy the purpose of a satellite town in terms of:

- Economic Base
- Infrastructure Needs
- Recreational Needs the two Satellite Towns planned were dependent on Chandigarh Mohali – Industrial Township (Lacking social & recreational Infrastructure needs) Panchkula – Residential Township (lacking Economic base, social & recreational infrastructure needs) the lack of Economic base, Social- Recreational Infrastructure has led to High % Population commuting to Chandigarh daily. Out of total trips made in a day in Panchkula – 39.7% trips are made to Chandigarh Mohali – 54.8% trips are made to Chandigarh

XI. KEY PARAMETERS

- Economy Balanced land-use pattern Planning and Creation of employment centers JNPT, MIDC Industrial Area, APMC

- Environment More than 30% of land under No development and Regional Park zones to conserve coastal stretches and hills.
- Mobility Centrally located CBD with reduced travel distance Railway Stations with work centers Well inter as well as intra connected townships Mass transport corridors Metro rail (under construction) Poly-centric pattern of development
- Smart Living High literacy ratio & High work force Self-contained nodes (Townships) Excellent Educational, Medical and Social facilities (85% public satisfaction) Treated Water supply, Excellent sewage treatment and other physical Infrastructure 'facilities

Examples of a few Satellite towns emerged out of parent cities

Satellite Town	Parent City
Vikarabad (0.42)	Hyderabad (68.09)
Yalahanka (3.0), Kengeri (0.42)	Bangalore (84.99)
Arakkonam (1.01), Chengalpattu (0.62), Gummidiipoondi (0.32), Kanchipuram (1.64), Mamallapuram (0.15), Ponner (0.31), Sriperambudur (0.24), Tiruvallaur (0.56)	Chennai (86.96)
Panchkula (2.11), Mohali (1.66)	Chandigarh (10.54)
Gurgaon (8.76), Sonapat (2.77), Noida (6.42), Ghaziabad (16.36), Faridabad (14.04)	Delhi (163.14)
Sanand (0.41)	Ahmedabad (63.52)
Navi-Mumbai (11.19), Dombivli (12.46), Thane (18.18)	Mumbai (184.14)
Pimpri – Cjinchwad (17.29)	Pune (50.49)

XII. CONCLUSION

For a populated country like India, scope for new development is limited. The developed countries with vast open spaces and even the developing countries with much less densely populated areas have the scope of experimenting with new township development. Under the present situation the on-going projects are critical for the government. Ruining the opportunity will be an utter and irreversible mistake. Satellite cities, if implemented well are a good solution to control urbanization at city centres.

REFERENCE

- [1] <http://www.tcpo.gov.in/urban-infrastructure-development-scheme-satellite-towns-around-7-megacities%E2%80%93scheme-guidelines>.
- [2] Bruinsma, G. J. (2007). Urbanization and urban crime: Dutch geographical and environmental research. *Crime and Justice*, 35(1), 453-502.
- [3] Banister, D. (2005). *Unsustainable transport: city transport in the new century*. Rutledge.
- [4] Roberts, M. (1974). *An introduction to town planning techniques* (Vol. 91168910). Hutchinson.