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Planning Strategy for Nodal Centre in Surat District: A Case Study of Tena village

Bhavik Panchal[1], Sejal S. Bhagat[2]

[1]Bhavik Panchal is currently pursuing Master of Town and Country Planning at Sarvajanik college of Engineering and Technology
[2]Sejal S. Bhagat is currently pursing Ph.D. in urban planning from Sardar Vallabhbhai National Institute of Technology and working as assistant professor at Sarvajanik College of engineering college in civil engineering Department.

Abstract - *Surat Has been experiencing rapid growth of population 42.76 lakhs in 2001 to 60.81 lakhs in 2011. (CENSUS OF INDIA, 2011)Lakh. This lead to wide gap between demand and supply of employment, housing and other basic infrastructure facilities and urgent need is felt to distribute urban population and other basic infrastructure facilities. There is emerging need to develop self-dependent growth node which provide service and facilities to its own hinterland as well as its surrounding hinterland.an attempt has been made to make proposed nodal Centre as integral part of Surat city. Existing situation is of proposed nodal Centre has been analyzed based on population growth, density and, employment and basic facilities, availability of basic infrastructure, and availability of vacant land. A land-use map is proposed for zone having potential for future development and planning proposal for physical infrastructure is allocated.*

Key Words: Nodal development, Urbanization, infrastructure development

1. INTRODUCTION

The concentration of economic and social activities in one m ajor metropolitan center causes difficulties for the harmonio us growth of an entire metropolitan area. Decentralization ef forts should be made in order to improve the equal distributi on of economic development with respect to the people, loca tions and resources of the area. Decentralization does not au tomatically entail the development of new rural area but it implies concentrating new developments on established ar eas, with the highest growth potential in future.

One of such approaches for micro level strategy in the develo pment of the area is the nodal or rural growth centre. Nodal center can be described as a center where people can play an d live with mixed use community. It is a hub that offers facilit ies both to its own residents and to the residents around it. T he layout of the Nodal center is focused on Perroux theory, v on thunen the principle of concentric ring patten and the cen tral location theory of Christaller. The nodal center acts as sti mulus for regional balanced growth. This center is the develo pment node or rural settlement in the region where connecti vity with urban life is relatively high.

As per urban and regional development plan formulation and implementation guideline, India 2014"The growth nodes around which the flows are active and intense shall be the Nodal centre"

Nodal Center's concept is to incorporate rural development a nd recognize possible linkages along major transportation h ubs and find locations where investment can be done. Nodal center creation would serve as the cornerstone of the region' s potential economic growth and base of specialist services. I n Mumbai Nodal growth is mainly around the Transportatio n center accessible through different modes of transportatio n and interlinking with other nodes and city region via the tr ansportation corridor.

2. Objectives of Study

1. To study existing scenario of selected node and its surrounding village and identify issues related to infrastructure services.
2. To Prepare strategic planning proposals for most critical services with considering short, medium and long term development.

3. Major Economic key drivers and Locational features of Nodal Centre

- Well Connected through all modes of transport i.e. Rail, road and airports.
- Industrial Establishment in the proposed area of Nodal Centre.
- Proposed Industrial Corridor is passing through the proposed site of Nodal Centre
- Availability of open land for Development.

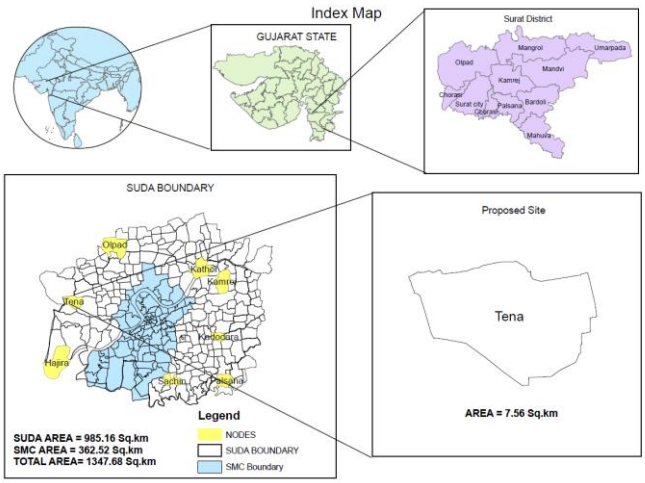
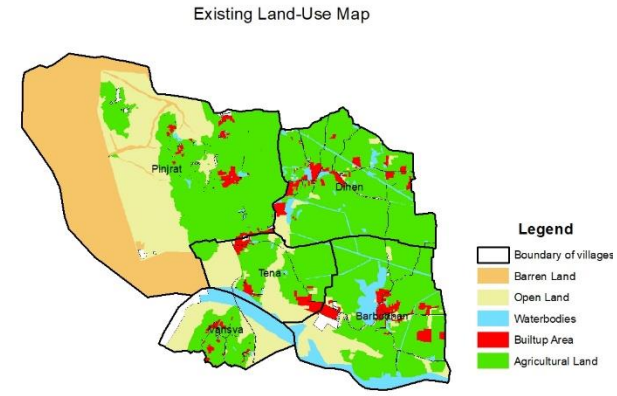


Chart -1: Index Map of Proposed site



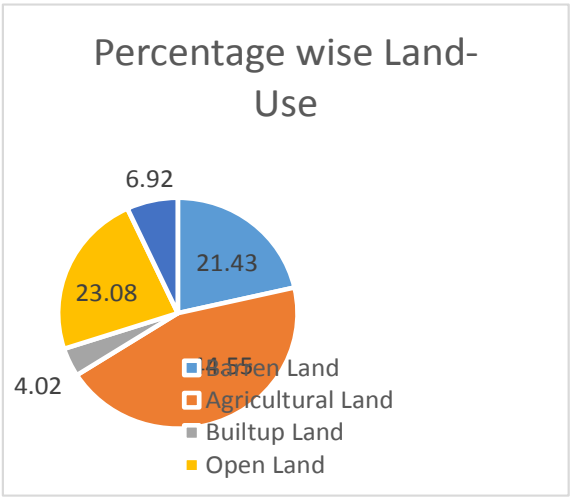


Fig -1: Existing Land-Use Map

4. Physical Infrastructure Study

4.1 Water Supply

Proposed Nodal centre is provided with adequate water supply. The source of water is from variaav water plant which is 20 km Away from proposed nodal centre. Filtration plant in each village is provided for purification of water in study area. The water supply scheme is under control and management of Surat Municipal Corporation. Water supply scheme is sustainable for proposed site as it is designed for the population projection up to 30,000 population. The source of water would be available in quantity sufficient for next 2 decades as per the today's growth rate. The water supply line network extension to cover the newly developed areas is under progress.

Table -1: Analysis of Existing Water Supply

Water Supply			
Indicator	SLB	Analysis from Survey	GAP
Coverage of Water Supply	100%	84%	16%
Per Capita Availability of water at consumer end	135 LPCD	135 LPCD	0
Continuity of Water Supply	24 X 7	0%	100%
Number house hold having Tap Water Connection	100%	79%	21%
Quality of Water Supply	100%	100%	0%

4.2 Sewerage treatment and Disposal

There is no underground drainage scheme in the study area for systematic arrangements of drainage and sewerage disposal. The local development authority has constructed open drains by the sides of roads. However, along with some main roads Pacca covered drains are provided. The Houses in the town have latrines with septic tank.
The individual house in proposed study area observes septic tanks for the Sewage collection and the evacuation of the tanks is carried by the village representatives.

Table -1: Analysis of Sewage Treatment and Disposal

Sewage Treatment and Disposal			
Gap Assessment	Demand	Existing	Gap
Sewerage network	100%	22%	78%
HH covered under sewerage system	100%	32.3	67.7
STP (MLD)	3.4	0	3.4

4.3 Solid waste Management

The Solid Waste is collected through vehicle from house to house from different places in the village. By means of tractor trolley it is being carried and dumped into nearby open land. There is no specific site is allocated for dumping of solid waste. Dumping of solid waste on open land and nearby water bodies, so natural water bodies are getting polluted.

Table -1: Analysis of Solid Waste Collection, Treatment and Disposal

Solid Waste Collection , Treatment and Disposal			
Gap Assessment Indicator	Required	Existing	Gap
Door to Door coverage	100%	76%	24%
Vehicle and Staff efficiency	100%	80%	20%
Daily collection efficiency	100%	85%	15%
Segregation	100%	0%	100%
Material Recovery & Recycle	100%	0%	100%

5. Proposal and Suggestion

5.1 Water Supply

Water Supply is available in required quantity for the population as water Supply system is design according to future population. To maintain it the conservation measures must be adapted Separate pipelines for Water supply in proposed site.

5.2 Sewerage Treatment and Disposal

For Sewerage collection there layout provision made only gamtal area and in other area every house has its own septic tank. The provision of layout for sewage may reduce the construction area for the separate Septic tanks. In planning proposal layout for sewerage collection and design of sewage treatment plant is given in this research.

5.3 Solid waste Management

The collection of the waste is well done by the separate vehicle and it is disposed of on nearby open water bodies and open land which contaminated water bodies and increase pollution in area due lack of separated disposal site in that area. So the proposal for land fill site has been given in this research. Landfill site is design according to future forecasted population.

6. Conclusion

Local Agencies have been working actively for the Management of the infrastructure with multi fold activities but the problems are continued further. The suggestions to overcome the problems may be as follows:

- **Public Private Participation**: Actively involving the people who are any ways related to the particular infrastructure.
- **Conservation Management of resources**: Using the principles of sustainability of resources Reduce, Reuse and Recycle all the resources viz. land, water, and environment be used.
- **Infrastructure Development**: Development of Infrastructure as per the need of the population. Promote use of alternative resources for the infrastructure.

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