

Development of Model by Using New Approach of Town Planning : A Case Study

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Abstract- In the past century the development of new towns has been practiced india, most recently on the pune. The planning method and approach used for the new town developments have progressed for each new development. However the new methods were not ratified in a legal formal policy for new town planning. The Indian planning methods has been researched and reflected whether there is a need of revising its method and for a new and different approach in planning for new town developments concept of what new towns stand for, brings my attention to whether past methods of new town planning is still suitable for future new towns.

Keywords- Past, Approach, planning, town, method, legal future, development

I. INTRODUCTION

Town planning is the process of managing land resources. It involves the control of existing and new developments, as well as strategy preparation to ensure manage future requirements.

Concept of Planning means pre-thinking and pre-arranging things before an event takes place so as to achieve good results in health, convenience, comfort and happiness of all living beings. By careful planning, we can eradicate the mistakes of the past and be wiser in the future.

1.1 Need for study

The rapid migration of population from rural areas to urban cities are increasing in search of employment and better lifestyle. This process leads to lack of living amenities cause of previous unplanned urbanization. Case study of existing towns is needed as pre-planning Strategy.

1.2 Objective

1. To Study of different modes of new town Development.
2. to studyTo Study in depth the existing city model as case study.

3. To Propose modified model by using new approach of Town Planning

2.1 Study area

Figure 1. shows, Location of Ahmednagar District, which is geographically the largest district of Maharashtra State having area of 17418 km., which is 5.66% of area of whole state [14]. Out of the total area, 391.5 sq. km. is urban area and remaining 16,656.5 sq. k. m. is characterized as under developed or rural.

2.2 Demographics

As per Ahmednagar city census data, population was 45,43,159 in 2011; of which 195,467 are males and 184,378 are females [15]. There are basically four types of soils in Ahmednagar, which are – medium black, coarse shallow, deep black and reddish soil. Annual rainfall is 470 to 680 mm. Almost 13,594 km. of road length is available for transportation. Out of that, 43.24% roads are village roads, 0.45% are National highways, 12.55% are State highways, 19.34% are Major District roads and 24.42% are other District roads [16]. Figure shows, it lies in Seismic Zone III, which is of Moderate risk zone.

[1] Location

North Latitude (degrees) 18.2 to 19.9 East Longitude (degrees) 73.9 to 75.5

[2] Area

Total area (Hector)	1741271
Forest (Hector)	151571
Under irrigation (Hector)	425100
Under Non cultivation (Hector)	133356

[3] Boundaries

To the north of the Ahmednagar district lie the districts Nashik and Aurangabad. To the east are districts of Beed and Osmanabad. To

the south lie Solapur and Pune. To the west lie the districts of Thane and Pune.

Figure 1.

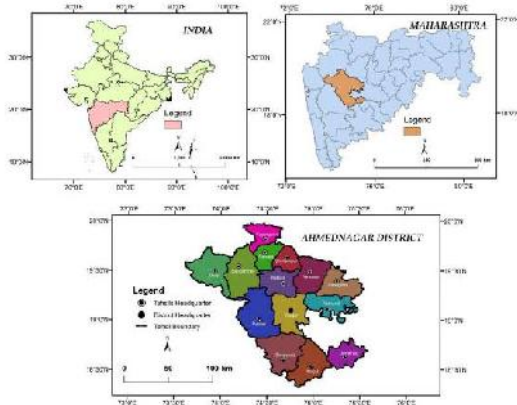


Figure 2. shows, The district is divided into 14 talukas, namely - Ahmednagar, Rahuri, Shrirampur, Nevasa, Shevgaon, Pathardi, Jamkhed, Karjat, Srigonda, Parner, Akole, Sangamner, Kopargaon and Rahata. 9 out of 14 Talukas – Sangamner, Kopargaon, Shrirampur, Pathardi, Nagar, Rahuri, Shrigonda, Jamkhed and Rahata are characterized urban in nature and rest 5 Talukas – Akole, Nevasa, Shevgaon, Parner, Karjat, are totally classified as rural

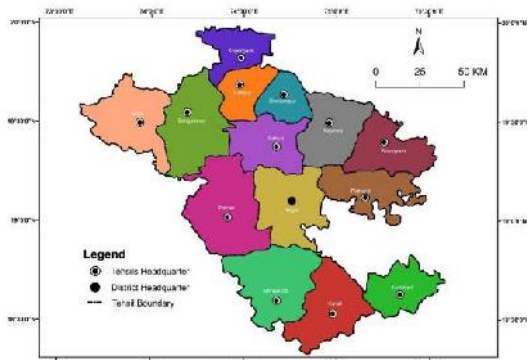


Figure 2.

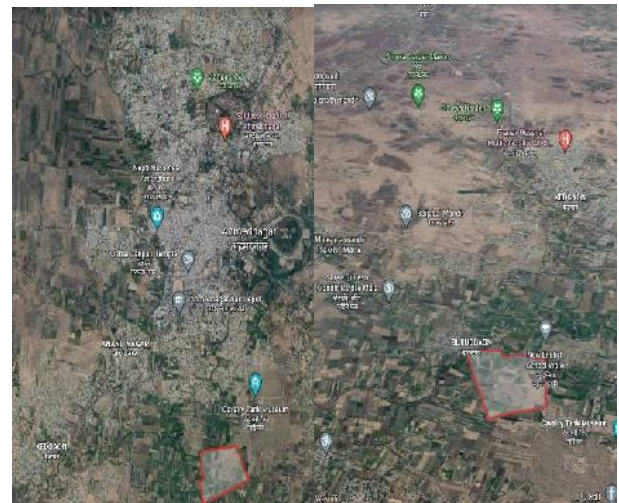
III. METHODOLOGY

3.0 View analysis

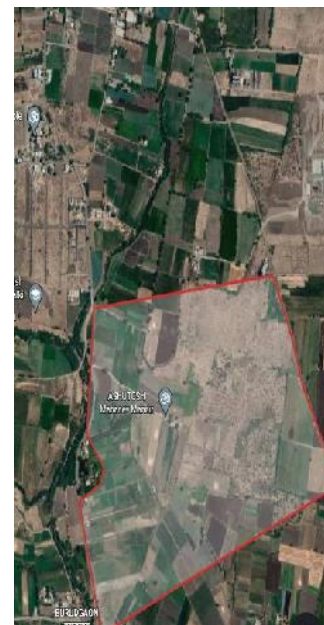
The study focuses on the identifying and building vacant spaces for which, satellite image of area has been taken from an elevation of IMAGE A 25.0 km , IMAGE B 5.5 km , IMAGE C 6.0 km. from Google earth ArcGIS, as seen in Figure 3.

Satellite images of area of interest (AOI) were procured, showing required details and accurate topography for preparation of Town Planning Scheme (TPS) and land-use

allocation. All the important physical features on the ground like - existing structures, agricultural areas, plot boundaries, various plants and stations, water bodies, etc., were recorded and entire satellite image was divided into four parts namely – A, B, C and D, for ease in identifying area boundary. Separate images to a higher resolution were extracted for each of them from Google Earth and ArcGIS



A B



C

Figure 3. Satellite Image of Area

Location

North Latitude (degrees) 19

East Longitude (degrees) 74

Area

Total area (sq m) 465140

Total cultivated area (sq m) 432425

Total non cultivated area (m sq) 23497

3.1 Mix use zoning

The principle adopted for planning is – Mixed use development which gives a combination of all above discussed zones and in better connectivity. This indicates integrated land-use zoning, that provides benefits for commuting, sense of security, community acquaintance, integration in all classes of people and better quality of life.

3.2 Maharashtra Regional and Town Planning Act, 1966 Guidelines

From clause no. 22, “Contents of Development plan the act were considered to prepare Development Plan”, following zones were derived and used for preparing master plan:

3.2.1 Residential zone -

It consists of apartments, row houses and townships for low, medium and high-income group of people. Ideally it should be planned within 20-65% of total area. Factors considered for locating residential zones are – cost of land, distance from work place, access to open spaces, ease of drainage and access to institutional and public spaces.

3.2.2 Commercial zone –

It consists of banks, go downs, shops, offices and other commerce related structures. Ideally it should be planned within 2-10% of total area. Factors considered for locating commercial zones are – proximity to traffic, at the heart of cities and at the sides of main roads.

3.2.3 Industrial zone –

It consists of light, medium and heavy weight industries. Ideally it should be planned within 1- 25% of total area. Factors considered for locating industrial zones are – cheap land, facilities for waste disposal, proximity to markets, supply of raw materials and labours and public utilities.

3.2.4 Public and semi-public facilities -

It consists of business centres, shopping centres, institutional buildings, civic centres, etc. Ideally it should be planned within 2-20% of total area. Factors considered it, are

– parking space, proximity to residential areas and transportation facilities.

3.2.5 Green space –

It consists of sanctuaries, agricultural land, forest, botanical garden, theme parks. Ideally it should be planned up to 20% of total area. Factors considered it, are – proximity to residential, commercial and industrial zones, transitions zones and at boundaries of city

3.2.6 Traffic and transportation facilities –

It consists of – roads, highways, railways, bridges, signal, sign boards, milestones. Ideally it should be planned up to 15% of total area. Factors considered it, are – connectivity to important places, minimize travel time, use of public transport and traffic management devices.

3.2.7 Water bodies and irrigation department-

It consists of – Irrigation projects, natural water bodies, artificial reservoirs. Ideally it should be planned up to 15% of total area. Factors considered it, are – proximity to catchment area, availability of groundwater and area to be served at downstream.

3.2.8 Public utility –

It consists of – Water distribution network, drainage lines, telephone lines and towers, electricity towers and treatment plants. Ideally it should be planned within 2-25% of total area. Factors considered it, are – connection to important areas, connection to plants, topography of the region

3.2.9 Recreational zone –

It consists of – parks, playgrounds, cinemas, theatres, town hall, clubs, libraries, restaurants, etc. Ideally it should be planned within 10-40% of total area. Factors considered it, are – proximity to catchment area, availability of groundwater and area to be served at downstream.

3.3 Plots providing the amenities discussed in above zones, were marked on the base map to along with the roads, considering following legends for zoning as shown in Table 1.









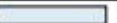



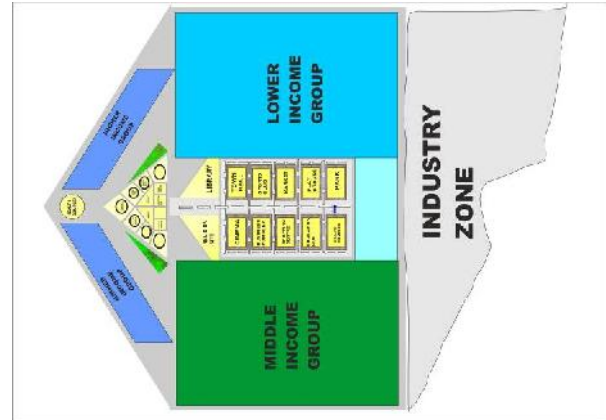
Sr NO.	ZONE	Symbol
1	Residential zone	
	LIG	
	MIG	
	HIG	
2	Commercial zone	
	Industrial zone	
		Manufacturing industries
3	Miscellaneous industries	
	Public & semi-public facilities	
4	Green spaces	
5	Recreational zone	
6	Reserved	
7	Water bodies / Irrigation Projects	

Table No.1



3.4 Floor Spacing Index / Floor Area Ratio

Floor Spacing Index (FSI) / Floor Area Ratio (FAR) considered for planning for the area inside and outside notified civil area, within cantonment limits was restricted to 1.0 and 0.5 as per building bye laws.

3.5 Following guidelines of Urban Development Plans Formulation and Implementation (UDPFI) were followed while designing of plan for residential as well as non-residential premises:

- 1) Preparation of landscape plan
- 2) The permissible and floor area needed for different categories of plot are not less than specified limits.
- 3) Minimum setback is provided for various plots as per UDPFI guidelines.

3.6 Land acquisition method

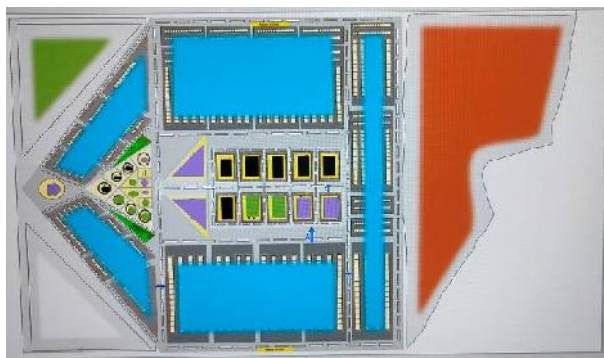
Land acquisition method can be adopted for ease implementation of the project. According to this method, planning authorities procure patches of land from farmers or land owners as per the Land Acquisition Act of 1894. Fair amount is paid to them against the land, sometimes even higher than actual land prices to eliminate the possibility of opposition from them. Later, the plans are developed, executed and built properties sold at higher rates than rate at which they are purchased [19].

3.7 Mental Mapping –

Concept –

A mental map is a person's point of views perception of their area of interaction.

A person's perception of the world is known as mental map, it's an individual own map of their known world.



The image which the user form in his mind, about the architectural and urban components of the city and their places so he can direct his motion through the city after that.

Mental maps of an Individual can be investigated.

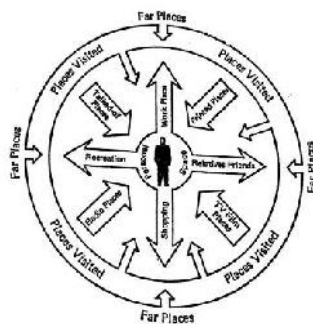
by - Asking for directions to a landmark or other location.

Asking someone to draw a sketch map of area or describe that area.

Asking a person to name as many places as period of many places as possible in short period of time

Mental map Image properties - The overall mental image of an Urban environment will be –

1. Partial: not covering the whole city
2. simplified: Omitting great deal of Information
3. Unique- each individual has his/her own.
4. Distorted - not necessary has real distance or direction



A Simplified mental map

IV. RESULTS AND DISCUSSION

Major volume of roads is planned to be perpendicular to each other to divide the plots into decent sectors. Wherever possible, residential areas are planned and located proximate to work places. Commercial centers, public and semi-public facilities are accessibly and properly allocated throughout the region and industrial zones are planned away from residential areas and institutions.

Land use distribution is represented Table 2. shows the observations and zone had largest geographical area available for development purpose.

Total Area – 465140 sq m

Sr. No.	Land use	Develop area (sq m)	Develop Area %
1	Residential zone	331613.13	54
2	Commercial zone	50662.99	8.26
	Industrial zone (only white category certification industry)	128464.99	20.95
3	Public & semi-public facilities	53026.14	6
4	Recreational zone	24365.91	3.97
	Total -	613737.69 sq m	100 %

The master plan for Ahemadnager is prepared to serve as Urban Sustainable Development model (USDm) by achieving the following:

Socio-economic development by Integrated land-use zoning of Ahemadnager for its transformation into a self-dependent city

Utilize its high growth potential due to proximity to the metropolitan city of Mumbai, Pune and developing cities like – Nashik and Aurangabad

Generating employment opportunities, providing education and arresting migration.

Generating employment opportunities, providing education and arresting migration.

Health - To create and promote healthy conditions and environments for all the people. To make right we of the land for the right purpose by zoning. To ensure orderly development. To avoid encroachment of one zone over the other.

Convenience - Social, economic, cultural and recreational. amenities,etc.

Recreational amenities - open spaces, parks gardens and playgrounds

Town halls stadium community centers, cinema houses and theaters.

Beauty - to preserve the individuality of the town. To preserve the aesthetics in the design of all elements of town, or city plan.

V. CONCLUSIONS

In India, including metro cities, we see people travelling every day to far off places for work and education. Travelling every day is tedious and energy consuming. There is waste of time, fuel and money. Deforestation is increasing and metro cities are becoming concrete jungles. There are many more problems that a common man has to suffer and will suffer in near future. All this is just due to lack of planning the city before construction. Land use zoning and

vacant space optimization allows the areas to be utilized for providing infrastructure services, accommodate new growth and give better quality of life (QoL). Master planning describes the vision for city's future, goals and objectives, land use, urban design, housing, infrastructure, parks, open space, transportation and commerce. The master plan for Ahemadnager ensures that the natural open spaces are protected. Mixed-use type of zoning combines advantages of existing zoning methodologies and provides a common roof for a variety of zones to ensure self-sustainability. Since it comprises of various types of residential units (LIG, MIG and HIG) along with of essential public facilities and infrastructure, it brings socio-economic development along supported by harmony and social cohesion, rather than urban-rural sprawls. Master plan proposed, can hence serve as Urban Sustainable Development Model (USDm) with an amalgamation of mixed housing principles, transportation and infrastructure facilities, public and semi-public facilities, sufficient green and open spaces which are planned and allocated for optimum utilization of available spaces. Pattern adopted for transportation network, ensures controlled traffic distribution and proper segregation. City Development Plans (CDP) of this kind can help in growth of rural areas, bring remote areas in connectivity with metropolitan areas of neighboring regions and reduce stress on them. As analyzed, Optimization of vacant spaces, Integrated land-use planning, and Mixed-use zoning contribute to a large scale in socio-economic development and providing good quality of life (QoL) to the individuals of a region

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