



Emergence of Bidadi Township in the Suburbs of the Bengaluru Urban Agglomeration – a geographical analysis

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Abstract

Urban planners describe the city neighbourhood as suburbs which they plan will have vibrancy or experiential richness because, without even trying, their design promotes activity, foot traffic, commerce and socialising. Then came World War II followed by take off stage, and the subsequent housing shortage. The widespread adoption of the car by the middle class untethered developers from the constraints of public transportation and they began to push further out geographically. Meanwhile, single-use zoning laws that carved land into buckets for residential, commercial and industrial use instead of having a single downtown core altered the look, feel and overall physical structure of our modern suburbs. From then on, residential communities were built around a different model entirely, one that abandoned the urban grid pattern in favour of a circular, asymmetrical system made of curving subdivisions, looping streets and cul-de-sacs. Suburbs became the easy alternative for urban decongestion, as adopted by the planners of Bengaluru Urban Agglomeration. Bidadi a small village along the rural locations has been viewed as a Satellite Township where decentralisation of many urban and industrial and of course residential activities of the city proper can be aspired for.

"As long as the railroad stop and walking distances controlled suburban growth, the suburb had form." (Mumford L., Date unknown)

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Introduction

The boundary of suburbs should be such where one could reach within one hour walk from the town. A. E. Smails (1953) studied the Suburbs which he called Umland of different cities in England. He started investigation right from grocery shop to retain business of different items and knowing their influence around the surrounding area of a town. As the city and its umland are culturally, economically and politically interrelated, the use of Umland as planning regions would be of great importance.

The hierarchy of Umland has the potentialities of being independent units of planning for city renewal. Garnier and Chabot (1963) once remarked that suburbs begin where the continuous build up area ends...first there is a built up area of houses with small gardens, forming dormitory communities from which more than half the active population work in the town. It is quite apparent that rural-urban fringe is a transitional zone between urban and rural areas and is helpful in the preparation of Master Plan for different Metropolitan cities. In India suburbs are the locations for the New

Towns which are also named satellite towns; which are usually with 30-35 kilometres from the main city and at the same time not being subjected to congestion, traffic bottlenecks and clumsy landuse. The availability of good communications system between the new town and the Metropolitan City and other communities supported by a quick and efficient transport system amongst them substantially ensures the success of these satellite Towns. Increase in population and manifestation of economic change in urban agglomerations has greater impacts on spatial aspects. Densification of existing core areas, mushrooming population in outgrowths on the periphery of municipal limits in unplanned and unauthorised colonies have become the characteristics of Metropolitan Cities. These signals stress the importance of balanced regional development to be proposed by regional plans. Such plans provide a policy/ programme to relieve the Core City or the Metropolis from additional presence of economic growth and population increase and guide directions for balanced development of the region; for both core and the periphery.

The Growing Bengaluru

The rapid growth of Bengaluru over the past few decades has resulted in growth beyond the erstwhile Bangalore Municipal Area and well into Bengaluru urban and Bengaluru rural districts. With an increasing population, stress on the urban services has mounted and with an objective to spread the growth around the city rationally, planners proposed to put forward the concept of Satellite Towns. They were conceived with the thoughtful aim and consideration of optimum use of resources like land and water with balanced distribution of communication and technical facilities. However, the problems associated to the growing population in Bengaluru are—

1. In a city where single use zoning plan has not been undertaken it becomes obvious that the dwellers face cross-commutation within zones.
2. Densification of various commercial and industrial zones has put excessive stress on the need for parking space for motorised vehicles.
3. Regular water supply and distribution of the same get challenged in such dense urban settlement.
4. Overall, it poses negative environment impact in relation to air, water, health etc.
5. A peculiar yet quite common problem arises due to excessive growth of population in any city.

As the rural population aspires for better economic prospects, working in the city may lead to the formation of ghettos or slums. These come with the obvious outcome of poor housing, presence of criminal activities and substandard living clumsily adhering to the well maintained living apartments belonging to the high income groups in the same city.

Emergence of Satellite Towns

The functioning of Satellite Towns can be ensured by a system of fair governance and inter-play among all urban local bodies involved in planning and its implementation. To improve the quality of life for the citizens within the Bangalore Metropolitan Area (BMA) and at the same time to cater to needs of the rapidly increasing population, it is felt necessary to take up development of new integrated urban settlements in Bangalore Metropolitan Region (BMR) that would relieve the pressure on BMA and facilitate balanced urban growth towards the suburbs. In this context, the Bangalore Metropolitan Region Development Authority (BMRDA) has proposed the following set of major activities to solve these problems in a planned manner—

1. Development of a series of “integrated townships” focused on one or more economic activity, providing for complete work-home relationship.

2. Development of Satellite Towns Ring Road (STRR), Intermediate Ring Road (IRR) and the Radial Roads.

3. Preparation of Interim Master Plans for the various urbanisable blocks in the Metropolitan Region.

For the development of the “new integrated townships”, the BMRDA conducted an inter-departmental survey of the Bangalore Metropolitan Region involving the Departments of Revenue, Industries & Commerce, Ecology & Environment, Public Works Department, Karnataka State Pollution Control Board and the concerned Local Planning Authorities. This led to identification of following five potential locations around the city which are tabulated below (Table 1). The locations and areas for the proposed townships were identified based on the following considerations—

1. Least displacement to human habitations.
2. Least disturbance to forested land and water bodies.
3. Least acquisition of valuable agricultural lands.
4. Lower cost for lands.
5. Far from existing developed locations.
6. Good connectivity particularly in the wake of the proposed BMR-Satellite Towns Ring Road, BMR - Intermediate Ring Road and Radial Roads.

The Proposed Townships Projects around the city have been planned to be independent, self-contained and eco- friendly human settlements. They would be based on integrated land use concepts, centering around one or more specific economic activity with concomitant residential components aimed at promoting work-home relationship. Further, it is planned to have connectivity between the townships and the proposed Ring Roads as also access to the National Highways, State Highways, Railway Stations and the new International Airport would be ensured. The townships will be developed with proper infrastructure facilities and amenities based on modern technology and environmentally friendly concepts. The focus had been towards making them self contained for all activities. The townships were proposed in the limits of 85 villages having population of about 79,000. In the course of developing the township, it has been proposed to integrate these villages in a manner that would ensure conservation of local heritage and also in a manner that would be economically and socially viable for the inhabitants. First of its kind has been the Bidadi Integrated Township that has already been declared as “Local Planning Area (LPA)” and the BMRDA being the “Planning Authority” of it had prescribed zonal planning guidelines and frame the required regulations keeping in view the broad guidelines indicated by the urban planners.

Influence of Bengaluru on its Periphery

There is always a general practice to reduce the pressure of population of the Primate City, by decentralising its activities towards its fringes. Beyond the already grown urban area of Bengaluru, the urban planners earmarked areas for Satellite Towns. Namely, they are Nandaguddi, Sathanur, Bidadi, Ramanagaram and Solur; and Bengaluru exerts its influence on them. As the zone of influence has been demarcated, it has been revealed that Ramangaram towards Mysore has been 'highly' influenced by the city, followed by Solur, Nandaguddi, Bidadi and Sathanur. The criteria being population of the villages collectively covered under the newly formed Townships (2011) and distance between the growth centre and the Satellite Towns. Now here lies the dilemma. Urban planners argue that an already high influence of Bengaluru on some Satellite Towns would mean once again a densely populated area where there would be limited scope of decentralization. Bidadi and Sathanur though remain 'low' with respect to its (Bengaluru's) influence and hence may be suitable for depolarisation. Figure 1 represents Bengaluru's zone of influence based on Gravity Model, computed as below—

$$\text{Radius of Influence} = D_{ij} / 1 + \sqrt{P_i/P_j}$$

Where,

D_{ij} = distance between the primate city and the other urban centre / growth centre,

P_i = population of the primate city,

P_j = population of the other urban centre / growth centre.

A high influence means an already sprawling area where planned development would carry least effect.

Bidadi as a Rural Fringe

Bidadi is a curious case, despite being near to the Bengaluru City, latter's influence upon it is limited and even population growth is moderate. It exemplifies well as far as planners discuss upon the need of restoration of Urban Village amidst a city and its periurban area. Bidadi is historically a part of rural fringe area of Bengaluru city, located at the south west part of the city periphery between the proposed townships of Ramanagaram and Sathanur. Figure 2 represents distribution of male and female population in different villages falling under Bidadi. Byramangala and Hosur rank high in population concentration, followed by Bannigiri, Aralasandra and the rest. This gives an idea of disparity of population and highly populated villages pose a great challenge for the urban planners when the formulation of rehabilitation programmes has been tabled. Besides there have been few villages here where population distribution remain low to very low which may act alternative opportunities to provide low cost houses for the evacuated residents otherwise (like Kempaiyyanapalya, K .G. Gollarapalya and Kanchugaranahalli Kaval.

Bidadi Urban Area

The Bidadi area has seen dramatic changes in the past three decades, with large industrial and residential developments in the past three decades, coming up amidst its otherwise agrarian landscape of millet and mango fields. Over a period of time, i.e. when the township gets fully developed, these would be treated as "Urban Area" under the provisions of the Karnataka Municipalities Act, 1964. However, in the initial stages of development and for a specified period, it is proposed to assign to the BMRDA and its officers adequate powers to perform the civic functions of the local bodies during the transition period up to the full development of the new townships.

Bidadi Township provides for the various types of land uses such as residential, commercial, educational, civic amenity spaces, health care facilities, parks, gardens and play grounds, public utilities, economic infrastructure in manufacturing / service / trade and commerce etc. The broad land use pattern of it remains as follows—

Economic activities:	25%
Residential:	25%
Park and open spaces:	15%
Civic Amenity spaces:	10%
Others (Roads, Utilities etc.):	25%.

The Township Project promises to protect and nurture the bodies and structures like forests and water bodies, historical and archeological monuments, heritage precincts and places declared to be protected and preserved by statutory authorities. Bidadi, strategically located on the Bengaluru-Mysore Expressway, 32 km away from Bengaluru has been of interest to builders and buyers for a while. Also, with the speedy completion of the gas power plant in Bidadi, the town had gained a momentum as one of the city's most flourishing industrial areas. Moreover, the NICE Ring Road which is expected to be completed by 2015 will impact the overall growth of Bidadi. Before the power plant came into news, Bidadi had come into focus for another reason. The township was supposed to be developed on a public-private partnership model and was tentatively named as Bidadi Knowledge Park. Marred by land acquisition issues and the withdrawal of DLF from the project, it got delayed. However the State Planning Authority took up the project and its growth resumed once again. The increased employment opportunities due to industrial development in Bidadi are expected to spur the residential market.

Infrastructural Facilities

The entire Township had been declared an integrated one with all facilities within the boundaries of declared townships. All the on-site infrastructure, such as but not limited to roads, power supply including street lights, water supply, solid waste and sewerage management and surface and underground drainage system shall be provided and maintained by the developer till a statutory

urban local body is constituted for such area.

Water Supply

The Development Plan had identified adequate and suitable source for drinking water in the region and remains committed to meet the daily potable water requirement of minimum 70 litres per capita per day (lpcd), exclusive of requirement of water for industrial/commercial uses, fire fighting, gardening and other miscellaneous uses. The overall requirement has been estimated in the range of 180 – 235 lpcd inclusive of both residential and non-residential demands. The storage capacity of the same should be at least 1.50 times of the actual required quantity as determined by expected population (both resident and floating) in the future. The developer would be required to develop proper internal distribution and maintenance systems with special emphasis upon rain water harvesting, ground water recharging and waste water recycling projects within the Township.

Drainage and Garbage Disposal

The Development Plan provides for suitable and environment friendly arrangements for the treatment and disposal of sewage and solid waste as per norms of the Karnataka State Pollution Control Board (KSPCB). It emphasises upon the supply of recycled / treated sewage for non-potable uses such as gardening and an efficient and eco-friendly solid and liquid waste disposal system has been already adopted.

Power Supply

The region ensures continuous and quality power supply to the township area. It has so far sourced the power from the city's existing supply system and has plans to draw power from the local electricity supply company.

Storm Water Drainage Network

The drainage system has been designed based on the soil conditions such as the water absorption capacity of the soil, area of open spaces and the various types of land uses. The storm water drainage system has provision to hold and pass 1.2 to 2.5 cm of rainwater per hour.

Environmental Protection

The development contemplated in townships is with the pre understanding that it would not cause damage to ecology and existing environment and in no case it would involve topographical changes, changes in alignment and cross section of existing water sources, if any. The Township provides at least 15% of the total area as park / garden / playground with proper landscaping. In addition, the region is provided with a greenbelt of 15 metres on either side of the main roads and of suitable width in respect to other roads. In the Economic infrastructure Zone or Residential Zone and

even in No Development Zone, enough trees (150 - 400 per hectare) had been already planted and maintained by the developer.

Landuse Components

The overall planning of the integrated township had been such that the project would adequately meet the detailed norms and specifications indicated in the following —

- a. Residential: The residential areas remain well defined in clusters or neighbourhoods and in a plotted development with proper road grid. Out of the total area of the township, not more than 25% of the area may be used for purely residential development; this has been done to provide spaces for industrial activities.
- b. Commercial: The commercial area is suitably distributed within the township area, providing for ease of trade / commerce / shopping / community utilities / centres.
- c. Educational: Comprehensive infrastructure to support multi level educational systems right from pre-schooling to higher and professional courses in diverse segments had been planned and provided for the township population.
- d. Civic Amenity Spaces: The area allocation for providing spaces for market, essential shopping area, recreation centres, cultural / community centres, town hall, library, etc., had been a must do with not less than 10% of gross planned area.
- e. Health Facilities: Adequate area allocation for housing comprehensive health facilities had been earmarked and provided.
- f. Parks, Gardens and Play Grounds: At least 15% of the total area is once again provided for parks / gardens / play grounds. This is exclusive of the statutory open spaces, to be kept in small internal layouts and distributed evenly in all residential clusters.
- g. Public Utilities: Appropriate areas have been allocated for power receiving station / substation, water supply system, sewerage and garbage disposal system, police station, public parking, cemetery or cremation grounds, bus station, fire station, telecommunication utilities, social and cultural centres and other public utilities, as per requirements.
- h. Transport and Communication: The entire area of township includes well knitted proper road pattern with bus bays at appropriate places, taking into consideration the linkages with existing roads within the Township and outside area as well. All such roads are built with proper width specifications like —
 - (i) internal roads (width ≥ 12 m), main roads (width ≥ 18 to 24 m), ring roads and major access roads (4 Lane with a minimum width of 33 m and a median for road safety), foot paths (minimum of 5 m on either side of the major road space for avenue trees - minimum of 3 m on either side), designated cycle path (minimum of 3 m on either side).

The footpaths would not house any amenities

or public facilities. All the footpaths would be free from any structure or growth including trees and plants which should be available for unhindered use by the pedestrians.

i. Economic Infrastructure: In the integrated township area, lands required for commercial and industrial or service activities had been earmarked. Such earmarked space upon development had been allotted by the developer in favour of projects approved by the State level Single Window Clearance Committee or the State High Level Clearance Committee etc. as the case may be, with the sole aim of balanced allocation of land use.

j. Parking facilities: Parking of vehicles on the public roads should be totally avoided. Adequate parking would be provided as per the prevailing standards in all public buildings and complexes such as the commercial buildings, hotels, restaurants, educational institution, health related institutions, town halls, marriage halls, clubs, bus stands, Metro Railway Transit Stations etc. For buildings having mixed uses, adequate space shall be provided for visitors' parking, within the premises.

And...Evils of Development

Around 20,000 acres of land in 30 villages of Ramanagaram taluk including Byramangala had been already turned into sewage and effluent dumps from the industrial plants located at the vicinity of Bidadi. Even the reservoir of Byramangala is long threatened by these effluents. According to a horticulture department official, the crops grown in Bidadi village had lost their productivity to a long extent, while the entire coconut growing area of 4,000 acres had been badly affected due to contamination of soil. (Deccan Herald, Jan 2013). Also, reports reveal that due to rapid urbanisation and flow of untreated water in to the Byramangala reservoir has been causing fatal threat to the rare species of water fowl and fish of freshwater lake.

Ways Ahead

With the Bengaluru-Mysore corridor witnessing a high population growth and city expansion in this direction, the State government is contemplating merging the Urban Local Bodies of Ramanagaram, Channarayana and Bidadi to form a composite city corporation apart from Bengaluru Municipal Corporation to ease out nothing but the growing administrative functions.

Conclusion

In urban regions of greater sprawl, such as Bengaluru, intensification and infill development have matched and partly counterbalanced ongoing expansion. Greater compactness, less irregularity in shape along the urban border, and retention of small rural village centres in the exurban periphery mark the overall Indian patterns of peri-urban development. Also, there remains a dilemma of planning the positioning of the Satellite Towns in the

peripheries of Bengaluru. Bidadi has been located in between Sathanur and Ramanagaram; and thus three new areas develop more than adequately in the south west part; one single in the north east (Nandaguddi) and another in the west (Solar). It is understandable that new areas of development could not be planned in the south east as Karnataka forms a border with Tamilnadu. But more areas should be demarcated towards north at Yelahanka to ease out the pressure on the city. A lop-sided expansion would once again cater towards unbalanced urbanisation otherwise. A hub-and-spoke urban growth would be challenged given the above mentioned scenario. Bidadi is no doubt an option for population dispersal but many of its kind should come up to share Bengaluru's growth related issues.

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Table – 1: Area covered by the newly formed Satellite Townships (2006)

Townships	Taluks or Districts	Area covered in acres
Bidadi	Ramanagaram	9684
Ramanagaram	Ramanagaram	4013
Solur	Magadi	12525
Sathanur	Kanakapura	16232
Nandaguddi	Hosakote	18507

Source: BMRDA (Vision Documents: Bengaluru City Development Plan-2021)

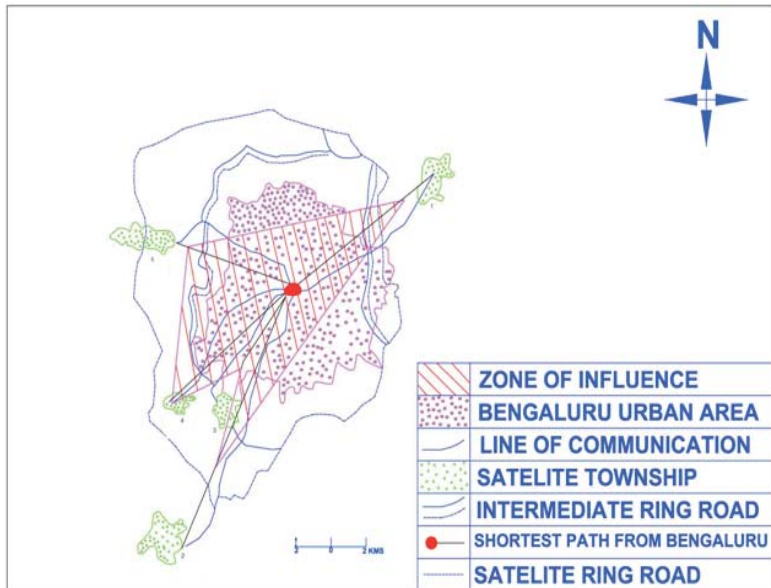


Fig. 1: Bengaluru and its Zone of Influence on its newly formed Satellite Towns (2011)
 Note: 1) Nandaguddi 2) Sathanur 3) Bidadi Integrated 4) Ramanagaram 5) Solur
 Source: BMRDA (Vision documents: Bengaluru City Development Plan-2021) and as computed by the author.

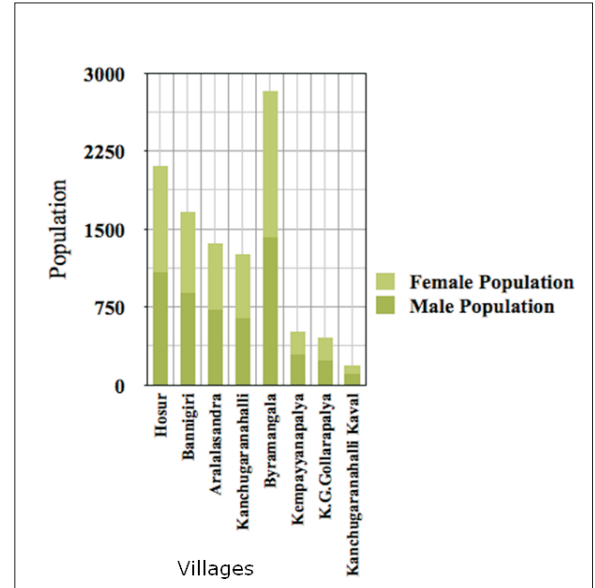


Fig. 2: Distribution of Population in the Villages under BIP, 2011
 Source: Census of India (2011): Provisional Population Totals Paper 1 of 2011: Karnataka



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