

# PLANNING FOR NELAMANGALA BLOCK IN THE PERIPHERIES OF BENGALURU, KARNATAKA- AN ATTEMPT TOWARDS DECONGESTION AND RENEWAL

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*'Claiming what is sufficiently justifiable on behalf of Cities, that they are also the fertile lands for the dreams and aspirations of people to seed, build and get fulfilled'*  
(Tak P., 2015)

## Abstract

The Indian National Development Council in its meeting, held in the year 1968 decided to study the regional imbalance at its depth. Thus, it was important to identify a fairly homogeneous economic structure in a newly proposed area to address a comprehensive regional issue. Nelamangala situated in the fringe area of the software capital of India, Bengaluru has been generally known for its raw silk, silk sarees, coconut, vegetables, beedi, bricks and kerosene. But presently it has gained immense potentialities as a region of development which would not only carry some loads of overly populated Bengaluru region and at the same time its existing population and the economy would surely gain from such measures. It has been marked as a part of the major cluster zones located in the north-west part of Bengaluru Metropolitan Region which has been analysed statistically for demographic components, literacy, working status and land use components to gauge its suitability (and feasibility) for consideration as a growth region in future.

**Keywords: cluster, urbanization, fringe areas, gentrification, households, Sustainable Development Goals**

## 1. INTRODUCTION

It is often challenging to involve the criteria for selecting regions for balanced development especially in countries like India where growth remains unequal for quite a few years of time (Rodwin L., 1969). Often it has been argued that local and regional planning authorities have already undertaken the challenges of leveraging the realization of global agendas like Sustainable Development Goals, New Urban Agendas along with the Paris Agreement on Climate Change and more concerning disaster management and resilience attempts (Varga O.D.L., 2019). Integrated City making was once an attempt to integrate transport and land use planning in already existing Metropolitan areas of Mumbai, Kolkata, Delhi and Bengaluru. (Vaidya C., 2009) In this context, one of the most favourable and sought-after method can be

implementing sustainable land use planning for fringe areas or rural country-side (Mishra R.P, 1983). Nelamangala is situated in the outskirts of Bengaluru city in the Bengaluru Rural District which may be viewed as a good alternative for a well thought land use plan and maintenance of the same through zonal regulations. It has been mentioned 'good' and not the most appropriate (because it has its own urban area) adjacent to Bengaluru City. Urbanization is considered as one of the most powerful and irreversible forces for population change in the world as far as their ways of living and places of settling are concerned. It is estimated that nearly 93 percent of the future urban population growth would happen in the cities and urban areas of Asia and Africa, and to a lesser extent, in Latin America and the Caribbean islands. (Joan Clos, UN,2012) But it has to be remembered that development, to be good should be meant for all (Mishra R.P.,1969).

### **Literature Review**

By 2030 UN-Habitat estimated that globally, a population of 3 billion (nearly 40 percent of the world population) will need access to housing that would require spaces for providing housing and other infrastructural facilities. According to Mishra A.K., (2017) both research and practice of planning suggest inclusion planning for zones for any area that may guarantee affordable housing, work opportunities for the poor and sustainable land use with thoughtful capturing of available resources. It will work, he says, if designed well. As a corollary to the growth and expansion of cities, many unprecedented socio-spatial conditions arise (Dupont V., 2005). The formation of mixed spaces, rural to urban overlaps, unplanned land use alterations, environmental hazards, demographic interfaces, cultural coherences and gentrifications come one after another as not so good experiences. Generally, the Asian and especially the South-east Asian cities have quite a few well-developed networks of colonial cities that had polarised the growth impetus and hence inequality persists (Burdett M., 2018). What remains challenging is to redevelop the same that may be termed as urban renewal with the building of new urban centres and smaller towns into areas of great potentials (Nuissl, H., Siedentop, S. 2021). This becomes inclusive of the economic development and employ creations of newest ideologies to generate scope for justified and convincing future goals (Nel E, 2015).

### **Objectives**

Objectives of this study are many which revolves around the profound task of understanding the given conditions of the study area based on demographic characteristics of Nelamangala and its future land use prospects. Firstly, this study would easily bring out the gap within wards and villages based on the demographic criteria like population and its gender distribution along with literacy and employment profiles, with the caste structures relevant as far as the regional imbalances are concerned. Secondly the study highlights geographical parameters like soil, land, ground water availability to gauge the suitability of Nelamangala under the newer planning proposals.

## **2. METHODOLOGY**

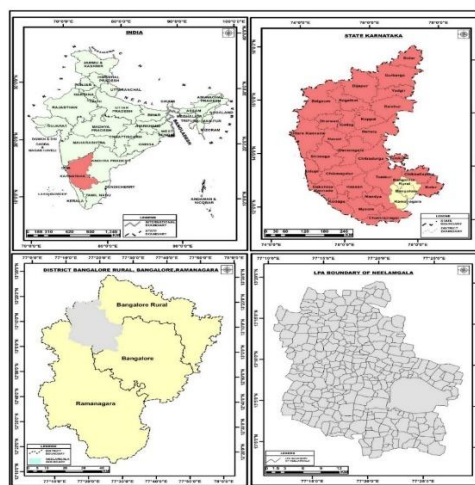
The methodology carried on to complete this paper may be categorized into three phases; the first phase comprised of the pre-study which included a thorough literature review on urban-fringe studies (especially on Asian cities). Their ways of tackling of excess urban population and planning for the same were studied.

Nelamangala was chosen as a case study which had been chosen for decentralizing urban population of Bengaluru while maintaining its rural indigeneity. In the middle phases statistical data were accumulated and analysed (mostly demographic and land use). The concluding phase, included the interpretation of the data to understand the case of Nelamangala within the challenges of urban planning.

### 3. STUDY AREA

Bengaluru rural district is one of the thirty districts of Karnataka, that was further demarcated into two parts way back in the year 1986, namely Bengaluru Urban district and Bengaluru Rural district. At present Bengaluru Rural district comprises of four taluks or blocks, named, Nelamangala, Doddaballapur, Devanahalli and Hosakote. It has an area of 2,298 Sq.km and ranked second smallest district of the smallest (after Bengaluru). Nevertheless, one of the major significances of the district remains with the fact that it forms the fringe area of Bengaluru Metropolitan region. Thus, it comes under the direct influence of the city and forms an alternative towards potential urban expansion. Bengaluru Rural that is located in the south eastern part of Karnataka extending between 12° 15' N and 13° 31' N latitudes and 77° 04' E and 77° 59' E longitudes covering particularly the toposheets numbered 57G and H of the Survey of India (SOI) (Figure 1). The region exhibits the characteristics of Agro-climatic zone V, termed Eastern Dry Zone however face the challenges of non-arability of land. Debate however may arise that if the region is brought under the process of urban planning, then how does its arability have a role to play. It should be noted that Nelamangala forms the western most block or tehsil where the Nelamangala Local Planning Area encompasses 243 villages of the entire Nelamangala block, 42 villages of Bengaluru North and 60 villages of Magadi blocks. Comprising of total 345 villages in its jurisdiction, Nelamangala Planning Area has been curved exclusively for catering to the needs of growing spillage of urban population in Bengaluru. The block Nelamangala is unique for its natural environment and rich heritage of marvellous temples showing enough potentialities for silk, incense stick and varieties of handicrafts.

**Figure 1: Location of Nelamangala Block, Bengaluru Rural, Karnataka, INDIA**

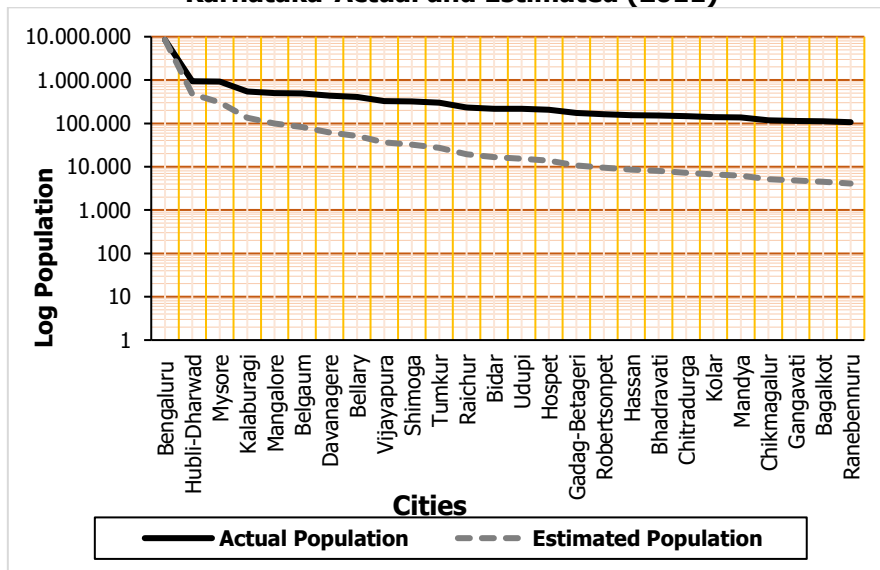


Source: Census of India, 2011

#### 4. RESULTS

In the state of Karnataka, the urban population of major cities have been marked graphically and treated for the estimated sizes of urban population, where it has been seen that Bengaluru is more than overspilled with urban population (2011) and the remaining towns in the neighborhood show estimated population sizes which are located well below what have been the actual size. This highlights the typical characteristics of Asian cities and towns marked by over-the-capacity of population, that brings with it untamed disparities and non-applicability of growth -pole mechanisms.

**Figure 2: Distribution of Population in major Urban settlements of Karnataka-Actual and Estimated (2011)**



Source: District Census Handbook: Directorate of Census Operations, Karnataka, 2011 and as computed by the author

Physiographically speaking, Nelamangala is underlain by fine clayey soil dotted with clayey skeletal at places which support the growth of deciduous vegetation. The region, however is generally dry and the supply of ground water is also limited. This region is known for production of a unique variety of onion named, Bengaluru Rose Onion with deep scarlet red colour and strong pungency. The study region encompasses 231 villages of which only 78 villages have more than the mean distribution of population (Table 1). The villages counting 153 have population well below the mean distribution. This indicate that majority of villages in Nelamangala are scantily populated which may be advantageous as far as urban planning is concerned. Most families have a family size of 4 while few show 5.

Z Scores	Frequencies of Villages	Population Distribution Levels
(-0.4) -(-0.8)	80	Very Low
0.0- (-0.4)	73	Low
0.0-4.0	75	High
4.0-8.0	3	Very High

$$Z \text{ Score} = (X_i - \text{Mean of } X_i) / \text{Standard Deviation of } X_i$$

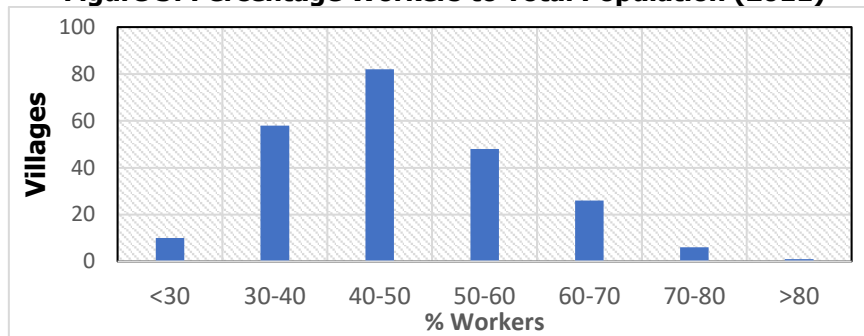
Source: District Census Handbook: Directorate of Census Operations, Karnataka, 2011 and as computed by the author

Focussing gender wise distribution of male and female literacies, Nelamangala show quite a varied picture. Of the total 231 villages, most villages (numbering 144) show medium disparity between male and female literacy rates. There are 27 villages, categorised as High to Very High disparity indices in the distribution of male and female literates, which enhances the matter of concerns for urban planning measures (Table 2). It is alarming to note a village named Dasanapura, has 100 percent male literates but zero percent female literates. On the other hand, the Narasipalya village shows 100 percent literates for both male and females and thus shows zero disparity.

Disparity Index	Levels of Disparity	Village Numbers
0-0.3	Low	59
0.3-0.6	Medium	144
0.6-0.9	High	24
0.9-1.2	Very High	3

Source: District Census Handbook: Directorate of Census Operations, Karnataka, 2011 and as computed by the author

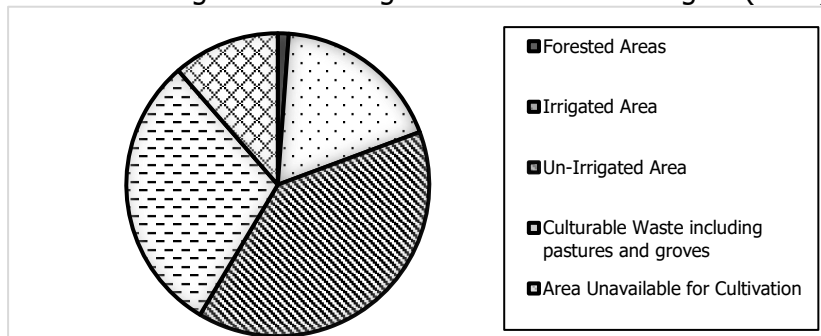
The working force of the villages is far from satisfactory; the percentage villages are highest in 40-50% work force category; that means number of villages have 40 to 50 % workers and rest are the dependents. The workers are least in over 60% workers category (figure 3). This aspect should be taken care of as the urban planners take care of employment situations too. If industries are relocating in Nelamangala it should not only generate jobs for the skilled ones migrating from outside but also should consider local inhabitants as well.

**Figure 3: Percentage Workers to Total Population (2011)****Land Use: Existing Scenario**

According to Malgavkar P.D. and Ghiara B.M., geographically a region drawn for planning purpose should have socio-cultural cohesiveness, and an economic existence. The outskirts of Bengaluru exhibit primary and secondary sector-based fringes, where the utmost challenge remains to maintain the rural components amidst rapid urbanization. There are few agro-based industries like textiles and wood in Nelamangala.

Nelamangala has been planned to be included within two cluster zones of urban development. Nelamangala Local Planning Area and its suitability as a growth centre catering to the needs of decentralizing urban activities (and population) seeks to minimize regional disparities and pockets of disagreements. Disagreements, here refers to the already existing components of underdevelopment as far as literacies and employment status. Although the process of urbanization in Nelamangala comes with the challenges of changing land use mostly the agricultural fields but as the planning proceeded, care was taken to maintain the land under cultivation and forest covers. Gentrification may follow a given transformation of neighborhood where the inflow of the residents belonging to higher income groups is inevitable and marginalizing of the original inhabitants, who had resided there since earlier. The death of the fringe, or the typical overlaps of urban to rural country-side however is not always pleasant and planners have this task of maintaining the already existing land components. Here the land is mostly irrigated, followed by culturable wastes including pastures and groves and then the unirrigated land areas. A portion of the land area of Nelamangala is not suitable for cultivation followed by very meagre portion as forested areas. The main activities here, in addition to agriculture, are silk cloth manufacturing by power loom, agarbathi manufacturing and handicrafts along with beedi making, bricks and food grains. As far as irrigated areas are concerned, the major field areas are irrigated by tap water, followed by tube well and then tank water. There are few other sourced like wells and few ponds to irrigate the land (Figure 4).

Figure 4: Existing Land Use of Nelamangala (2011)



Source:  
District  
Census  
Handbook:  
Directorate  
of Census

Operations, Karnataka, 2011

### Land Use: Planned Scenario

Urban land use majorly encompasses two components, firstly the nature of land use typical to the area and secondly a matrix of economic, social, or cultural activities implying functions like production, consumption, and distribution (Rodrigue J.P., 2020). At present, the major industrial locations are concentrated on the North-West part of Nelamangala, starting from the core (Peenya) and extending towards Nelamangala and Beyond. The rest of the region is dominated by textile and agro-based industries found in and around existing towns. The IT- sector is mostly concentrated towards the East and South-East part of Nelamangala. However, an analysis of the proposed investments (including both industries and townships) indicates the emergence of a two-cone pattern in the region defined by major existing and proposed roads. As planned, Nelamangala is divided into four zones:

- Zone 1: It includes the entire Tippagondanahalli Reservoir catchment area of the region that remains strictly prohibited from exploitation of ground water. Also, it should avoid any activities of mining, quarrying and those related to stone crushing. Furthermore, activities like liquid waste disposals would not be allowed though rain water harvesting and organic farming have been appreciated in this zone.
- Zone 2: This zone surrounds immediate zone within two kilometres around Tippagondana halli reservoir boundary where agricultural activities would be encouraged.
- Zone 3: It includes an area surrounding one to two kilometres of the river basin of Arkavathy up to Hesaraghatta tank and Kumudvathi. This region would only support agricultural activities.
- Zone 4: This zone covers an area within one to two kilometres distance of the river Arkavathy up till Hesaraghatta and Kumudhvathi excluding those regions already included in zone 3. This region is categorized 'green' and thus adopts mandatory measures for rain water harvesting and waste water treatments.

For the purpose of zonal regulations, the planning area of Nelamangala should be divided into land use like below (Table 3):

- Residential uses
- Commercial purpose
- Industrial uses
- Public and Semi-Public utilities

- Public Utilities
- Provision of Parks and Open Spaces
- Land reserved for Transportation & Communication
- Agricultural and farming activities
- Areas of Special Control and confinements

The table (3) below shows the future land use planning for Nelamangala with clear indications that this urban planning initiative would be a sustainable one. It has clear demarcation for each zone mentioned above and takes every possible environmental threat highly condemnable. *Akkayamma Betta Hill*, is one of the famous tourist spots (mostly for orange flowers during spring and views of sunrise and sunset) situated in Nelamangala would be preserved additionally besides the Hindu deity temple as heritage sites.

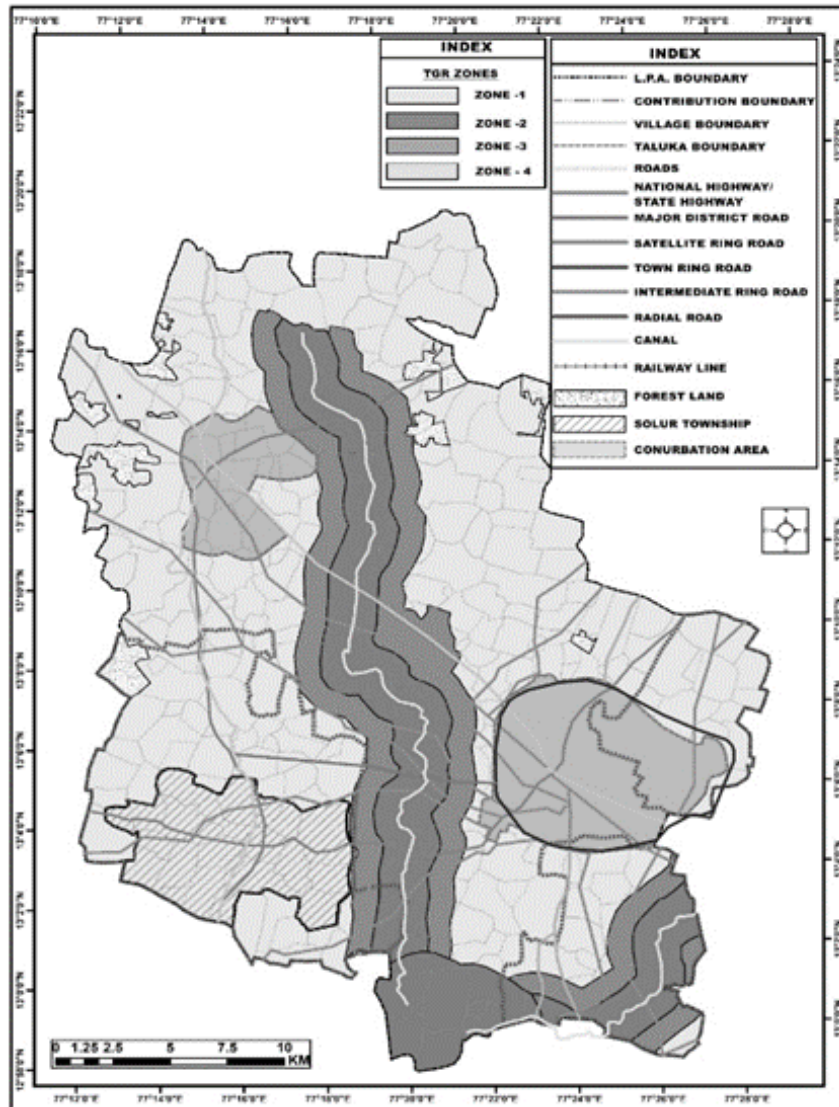
Land Use Types	Components	Special Permissions
Residential Areas	This would include plots, villas, semi-detached houses, multi-dwelling housing, service apartments, group housing, hostels, homes for the elderlies, orphanages, religious places, schools and colleges	Power looms if any, should not generate noise above a permissible limit
Commercial purpose	This would include retail shops, departmental Shops, groceries, laundries, salon, restaurants, tea stalls, bakeries and meat shops, banks and business houses	Automobile Workshops and sell of inflammable goods are not permissible
Industrial uses	Information and Technology Industries, bus and truck terminals, warehouses, garbage disposal and treatment areas, warehouses, municipal and government houses, canteens and recreational facilities	To encourage work from home, provisions have been made to turn 40 % of the available areas into quarters for employees' accommodation
Public and Semi-Public utilities	Community halls, water supply units, electric power plants, high- and low-tension transmission lines, auditoriums, police stations, opera houses, cultural complexes, public toilets would come up	Parks, playgrounds, cemeteries, libraries, Planetariums may be built with prior permissions
Public Utilities	Shops, canteens, offices, bank counters, land-fill sites, energy pumping stations, fire stations would be facilitated here	It has 'Buffer Zones' for utilities like supply of electricity, and those with high voltage power supplies
Provision of Parks and Open Spaces	This would include parks and playgrounds, boulevards, sewage treatment plants, water storage etc.	5 % of the total area has been demarcated for ancillary industries
Land reserved for Transportation and Communication	Railway lines, railway yards and workshops, airport roads, Metro stations, truck terminals, helipads, gas stations, television and radio broadcasting stations, cargo terminals would be built	25 % of the developable area may be used for building restaurants, banks, canteens, shops and go-downs

Agricultural and farming activities	Agricultural fields, horticulture, amusement parks, eco-tourisms, dairy farms, cold storage, dairy and poultry farms, farm houses would be encouraged here	Guest rooms, parks, grave yards, places of worship, driving testing tracks etc. may be permitted only with 15% coverage of ground area
Areas of Special Control and confinements	Areas demarcated for the disposal of solid wastes, have been further subdivided into:	These areas have special considerations of land uses
	1. This is an area within a distance of about 50 metres from the premises is termed as Buffer Zone	Constructional work is strictly prohibited but tree plantations are encouraged
	2. This Area is within a distance of about 200 metres from the premises is termed as Sensitive Zone	Constructional work is permitted only after strict review
	3. This includes the Heritage Sites, to be preserved for proper conservation methods	Buildings may be constructed only with the prior permission of Special Heritage Committee but they would not be beyond the height of monument structures

Source: Nelamangala Local Planning Area, Plan for 2031

Moreover, efforts have been made for promoting education, health and other infrastructural facilities to come in the study area over the years with more schools nursery to high, police stations to cater to an additional population of 1,50,000 have been planned for 2031.

Figure (5) Land Use for Nelamangala -Proposed Plan (2031)



Source: Nelamangala Local Planning Area, Plan for 2031

The above figure (5) shows the plan for Nelamangala in future to become a great alternative for decentralizing the urban population and functions of Bengaluru city in its north-western fringe areas.

## 5. CONCLUSION

The urban edge has always existed (Thomas D, 1990) but what remains challenging is making it capable enough to carry the load of already built-up urban areas conserving what has been already there for good. The sustainable land use as planned for Nelamangala, should be more real than conceptual. The study therefore adheres to the sustainable needs for decongestion of Bengaluru while conserving the existing land use like few agricultural lands, forest areas, heritage sites and places for incense sticks, local cigarettes making factories and silk making activities.

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