

## DEMOGRAPHIC SUSTAINABILITY OF PUNE CITY, MAHARASHTRA, INDIA

 Dr. Asaram S. Jadhav\*

### ABSTRACT

*The term “Sustainable Development” is more elaborated and was established in the Nineties of the last century. Reflecting the growing global importance of its impact, the English term “Sustainable Development” has gained recognition internationally. The idea behind the concept has not been perceived unanimously and goes back to the report “Our Common Future” (1987) of the World Commission on Environment and Development (“Brundtland-Commission”) and can be interpreted as the result of the debate of growth following the first Report of the Club of Rome (“The Limits of Growth, 1972). The original concept of “Sustainable Development” has been extended since the UN conference on Environment and Development in Rio de Janeiro (UNCED) in 1992 towards developmental and environmental policy but still excluding ecological aspects. The characteristic feature of the basic concept of SD is the universality of the claims of life i. e. the global improvement of basic living conditions while maintaining equal opportunities for living: The aim is a development to satisfy global demands of the present generation and at the same time secure needs and living conditions for future generations. Within this concept e. g. the institutional and political factor for implementing global justice is valued equally to a Sustainable, fair distribution of resources.*

**Keywords:** Sustainable Development, sustainability, morphological development, slum, demography etc.

### INTRODUCTION:

Pune was experiencing 50 percent growth rate between 1991 and 2001, among the Indian cities (Census of India, 2001). Pune Municipal Corporation’s (PMC) jurisdiction extends up to an area of 243.84 sq. k.m., housing 2.54 million populace within 144 electoral wards in the year 2007 (Pune Municipal Corporation report, 2008). The city has experienced a long standing urban tradition first as a historical centre of pre-colonial urbanism, then as an important military centre

during British rule, after Independence as a rapidly growing contemporary industrial centre, and today identified as a global metropolis (Khairkar, 2007).

The city is located at the confluence of Mula and Mutha rivers ( plains of Bhima and Nira river basin) at a height of 560 meters above mean sea level (MSL) and characterized by vast stretches of undulating plains inter spread by low and medium ranges of hills. Pune city is located on the right bank of Mutha River since the

\*Head, Department of Geography, Tuljaram Chaturchand College, Baramati, Pune. (Maharashtra state) Pin- 413 102.

Muslim period in the 13<sup>th</sup> century. In that period Pune was a small garrison town named as Kasbapeth (Gazetteer Bombay Presidency, 1885). It has developed over the period and now Pune is the main city of western Maharashtra.

Growth of population goes hand-in-hand with migration, and expectations that rural development will decrease out-migration may be unjustified (Oguz, 2011). In the Punjab, the green revolution occurred simultaneously with both high rates of out-migration as well as in-migration from Bihar and other poorer Indian states (Oberai and Singh, 1983). In China the development of rural enterprises appears to increase rates of out-migration (Zheng et al., 2010).

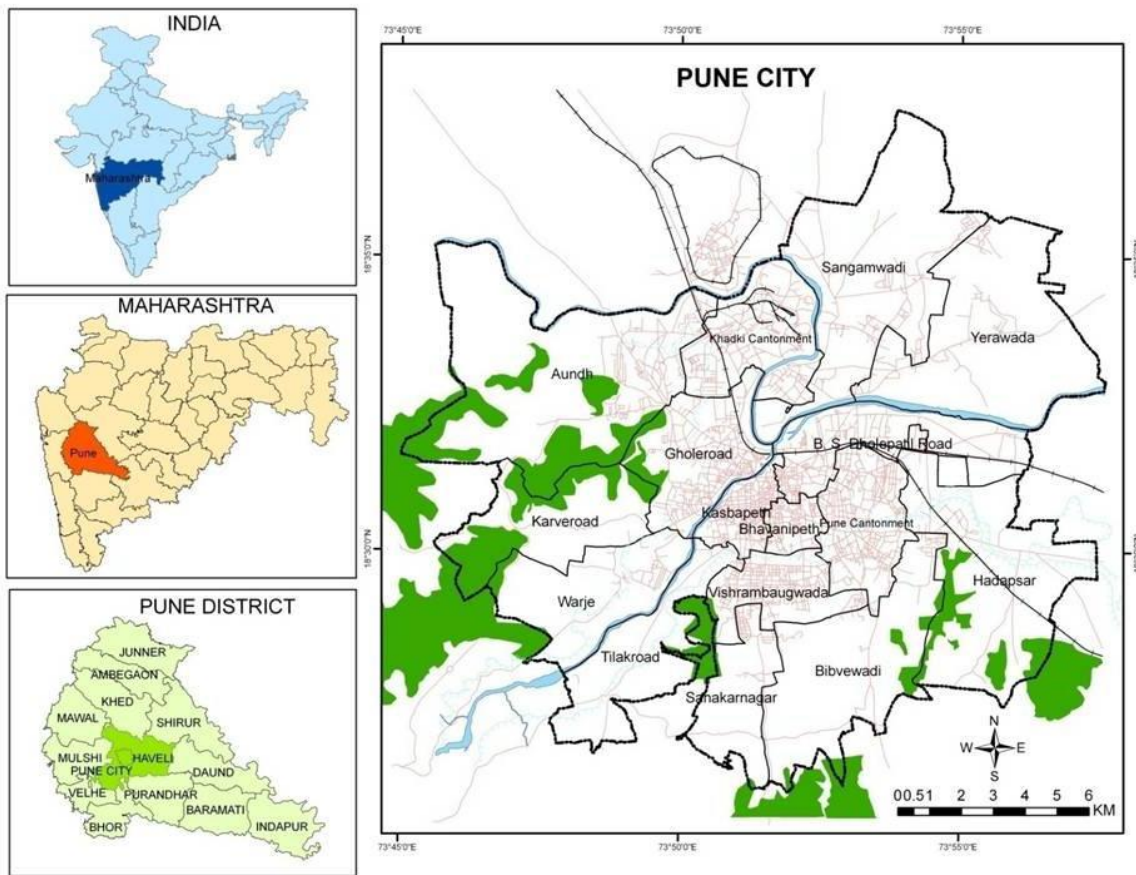
Pune city is one of the centers which attract high number of migrants. Pune city is

prominent for strong civic infrastructure, implementation of strong law and order, better international connectivity, a deep rooted and sustained culture, excellent educational facilities, proper medical care with modern facilities, conducive business environment, comparatively slower pace of life, defense activities, automobile industries, software parks, center of education. It leads higher migration towards city. Therefore, an attempt has been made to study of population growth and migration in the city of Pune.

**Source of data:**

Secondary data is important for find out urban sprawl, temporal and spatial changes of population. This data have collected from Pune Municipal Corporation, various censuses of India and Road Transport Office (RTO).

**Study Area:**



**AIMS AND OBJECTIVES:**

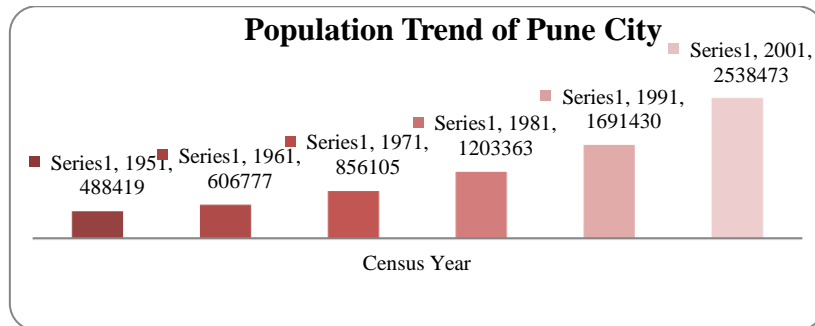
To study temporal and spatial trends of population of Pune city.

**METHODOLOGY:**

Methods for calculate sustainability of population and water, postulated by Kalantari in the year 2002. For demographic sustainability use 70 percent weight and 30 percent weight for slum proportion (Kalantari, 2002). Both are negative factors for calculating development index of demography.

**4) Population of Pune city**

Census Year	Total Population	Decadal Change	Growth rate	Density
1951	488419	---	---	3515
1961	606777	118358	24.23	5204
1971	856105	249328	41.09	7154
1981	1203363	347258	40.56	9346
1991	1691430	488067	40.56	10445
2001	2538473	847043	50.08	11846



The population of Pune city as per census 2001 is more than 25 lakhs. In the last 50 years, the city's population has grown by more than five times. The population growth is increasing due to economic activity, education and attraction of Pune city.

**5) Demographic sustainability:**

i) Calculation of population density index =  $\frac{\text{Maximum}-\text{Actual}}{\text{Maximum}} \times 70$

(Max. Limit = 100000 & Min. limit = 4000: Maximum limit is taken from round figure of highest population density ward in the Pune city, which is Bhavanipeth. Minimum limit is taken from round figure of lowest population density ward in the Pune city, which is Aundh ward)

$$= \frac{100000-4030.61}{100000} \times 70 \text{ (Density of Aundh ward= 4030.61 sq.km.)}$$

$$= 67.17$$

$$\text{ii) Slum development index} = \frac{(100 - \text{Ratio})}{100} \times 30 \quad (\text{Max} = 100; \text{Min} = 0)$$

$$\text{Ratio} = \frac{\text{Slum population}}{\text{Total population}} \times 100$$

$$= \frac{48570}{179886} \times 100 \quad (\text{Aundh total population} = 179886; \text{slum population} = 48570)$$

$$= 27.0004$$

$$\text{Slum development index} = \frac{100 - 27.0004}{100} \times 30$$

$$= 21.89 \text{ (22)}$$

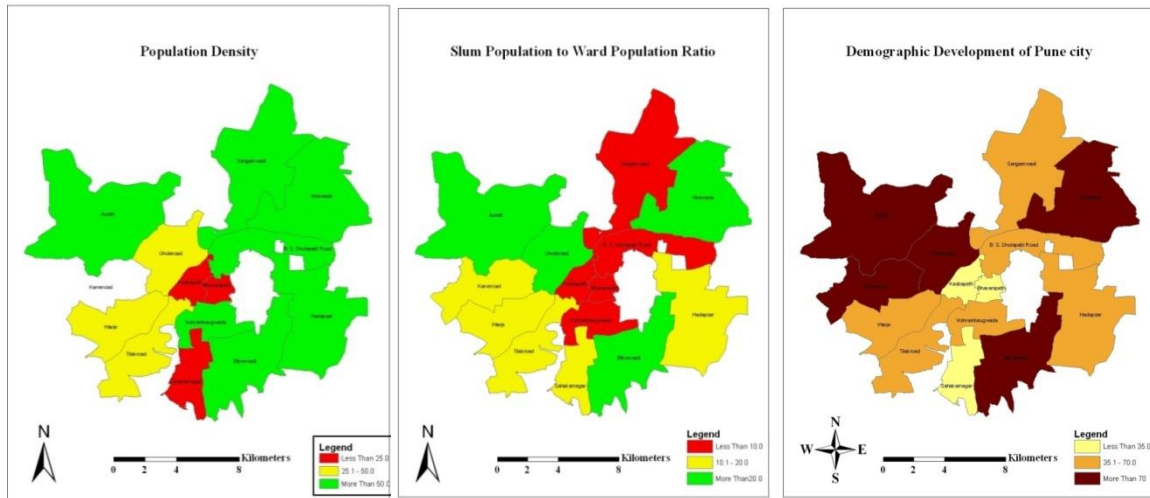
$$\text{iii) Demography Index} = \text{Total population density} + \text{Slum development index}$$

$$= 67 + 22$$

$$= 89$$

Administrative Wards	Total Population Density Index	Slum Development Index	Demography Index
Max. Limit $\Rightarrow$	70	30	100
Aundh	67	22	89
Karveroad	56	19	75
Gholeroad	59	24	83
Warje Karvenagar	63	12	75
B. S. Dholepatil Rd.	62	3	65
Hadpsar	65	16	81
Yerwada	66	24	90
Sangamwadi	63	5	68
Bhavanipeth	4	8	12
Kasbapeth	10	7	17
Vishrambaugwada	21	10	31
Tilakroad	62	12	74
Bibvewadi	63	23	86
Sahakarnagar	14	14	28

## Demographic sustainability



Population density and slum proportion are the negative indicators to city development. There is a limit of density to develop a city. After cross threshold, there is a negative impact of density, on the city development (Kalantari, 2002). The table (table. 6.2) reflects maximum value of density which denotes that suitability to live and area per person is sufficient, while minimum value indicates, that higher population live in a smaller area. There is a high man-land ratio. This method was proposed by Kalantari in the year 2002.

### CONCLUSION:

A large population resides in a smaller area in Pune city. This leads to congestion which indirectly hampers growth. There is a 40 percent population of Pune city live in slums and it represents a major section of society, in addition to poverty. It also can be related to major environmental concerns. With regard to demography, many indicators are available, such as population density, access to education, slum population density, access to municipal services, literacy rates, male-female ratio, poor households, unemployment, etc. However, these parameters are difficult to be assessed at ward level and hence simple indicators such as

population density and slum to wards population ratio have been used. Being the only two parameters of assessment, the ranking for these parameters are based on their significance with not much difficulty, considering population density as more significant having 70 percent of the total ranking. The analysis of ward wise demographic sustainability is represented.

Most of the population densities across Pune city seem to be almost uniform. However, in the case of Bhavanipeth (94097 people per sq.km.), Kasbapeth (85489 people per sq.km.) and Vishrambaugwada (69557 people per sq.km.) population density seems to be extremely high compared to the overall average of the city (11846 people per sq.km.) (Census of India, 2001). While, the ratio of the population residing in slums is uneven in every ward, Vishrambaugwada, Dolepatil road, Sangamwadi, Bhavanipeth, and Kasbapeth have highest (more than 60 percent) slum population. Ghole road, Yerwada and Bibvewadi have below 20 percent of slum population. Thus, envisaging the problems of Bhavanipeth and Kasbapeth as of much more concern. This tool of analysis helps identify Bhavanipeth and Kasbapeth wards, requiring immediate attention for management.

Yerwada, Bibvewadi, Warje, Aundh and B. S. Dholepatil road wards are better in demography and proportion of slum population. But situation of Sahakarnagar, Bhavanipeth and Kasbapeth are very poor, in that these wards need to rehabilitate slum population. They also need some land on the outer side of the city or good conditioning houses in that area. There is a high density among slum, for example, Sahakarnagar having high density average of 16297 people per sq. k.m.

Pune city needs more area for its population growth. There is a high in-migration volume to Pune city and Pune is not able to give shelter to every people. Therefore, there is need of some laws to control immigrants and expanding slums.

#### REFERENCE:

- Abdullah, J., Ahmad, Z., Shah, R. and Anor, N. (2012): “Port City Development and Quality of Life in Pasir Gudang Port, Johor, Malaysia”, Journal of Social and Behavioral Sciences, Volume 35, Pages 556-563.
- Baburajan, K. B. and Stalin, M. (1996) “Geographic Information System for Planning Rural Development Programmes”, Indian cartographer, journal of Indian National Cartographic Association, volume 16, Pages 148-155.
- Banerjee-Guha, S. (2011): “Status of Rural Migrant Workers in Chinese Cities”, Economic & Political Weekly, Volume 56, Pages 34- 37.
- Desai, A. V. (2006): "Information and other Technology Development", Encyclopedia of India (vol. 2) edited by Stanley Wolpert, Pages 269–273, Thomson Gale, ISBN 0-684-31351-0
- R.Alam ., M.A.I. Chowdhury., G.M.J. Hasan., B. Karanjit ., L.R. Shresthain., 2006.Generation, storage, collection and transportation of municipal solid waste – A case study in the city of Kathmandu, capital of Nepal.” Journal of the science direct waste management.
- Rushbrook, Philip, 2001, paper on Guidance on Minimum Approaches for Improvements to Existing Municipal Waste Dumpsites
- Sachdeva Anshu,2002 Evaluation of Private Sector Participation in Municipal Solid Waste Management, School of Planning Dissertation, CEPT, Ahmedabad
- Shah Deepal 2003, Feasibility Study for Waste-To-Energy Plant, Case study: Ahmedabad, School of Planning, Dissertation, CEPT, Ahmedabad
- Suchitra M, 2007. Outside: Burnt or buried, garbage needs land. Down To Earth, 15 March, pp. 22–24.
- Truitt, M., Liebman, J., Kruse, C., 1969. Simulation model of urban refuse collection. Journal of the Sanitary Engineering Division, 289–298.
- Walker, W.E., 1976. A heuristic adjacent extreme point algorithm for the fixed charge problem. Management Science 22.5, 587–596.

