

## **GEOSPATIAL DYNAMICS OF INFORMAL SETTLEMENTS: A STUDY OF SLUMS AND SQUATTER SETTLEMENTS CHALLENGES IN INDIA**

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### **Abstract**

The Informal Settlements are considered as an unorganised sector of the economy. There are found a large number of persons involved in different kind of economic activities in this sector. The Informal Settlements contribute to about 7.53 per cent of the urban gross domestic product (GDP). Whereas, the urban GDP contribute to about 60.00 per cent of the total GDP of the country, India. The Slums and Squatter Settlements usually develop informally without following guidelines of the urban planning and comprises to form the informal settlements. The Slums have been earmarked in all the statutory towns irrespective of their population size. So, there are three types of slums which have been defined in the census, namely, the notified slums, the recognized slums and the identified slums. There is found wide gaps in terms of slum reported towns and their population size among the states of the country, India. Besides this, the urban population projection point out that by 2030 the India's urban population will be about 575 million persons which is constituting over 40 per cent of the total population. In lieu of this, most of the cities experience a steady decline in the quality of physical environment. In this context, there are number of challenges of the slums and squatter settlements, for instance, there is found lots of stress on the physical infrastructure, inadequate delivery of basic services, air and water pollution, uncollected wastes, etc. So, such challenges are to be efficiently tackled under the various development plans and policies for the sustainable urban life style in the country, India.

**Key Words:** Informal Settlements, Globalisation, Sustainable Development, Urban Plans and Policies.

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## 1. Introduction

In the recent past, there is experienced a significant increase in the pace of urbanisation in the country, India. The urbanization commence with an increase in the percentage of population living in urban areas. In other words, the urbanization takes place when urban population increases more rapidly than population, as a whole. Besides this, it is noteworthy to mentioned that the most probable reasons for upcoming slums and squatter settlements are as firstly, the process of increasing pace of urbanisation; secondly, the economic development due to industrialisation; thirdly, the higher productivity in the secondary as well as in the tertiary sectors against primary sector of the economy. By virtue of this, the cities and towns resulted into the economic growth and more jobs opportunities to the peoples. Fourthly, the cities act as fascination for the rural population. Because, the cities provides the higher standard of living and offer large prospects to the rural peoples. In lieu of this, a large scale migration takes place from rural to urban areas. And, fifthly, the negative consequences of urban pull results in upcoming of slums and squatter settlements. Such kinds of settlements are characterized by housing shortage and critical inadequacies in public utilities, overcrowding, unhygienic conditions, etc. (CoI, 2011). However, the informal settlements are an integral part of an unorganised sector of the economy in which a large number of persons are involved in different kind of economic activities. The informal settlements contribute to about 7.53 per cent of the urban gross domestic product (GDP). Whereas, the urban GDP contributes to about 60.00 per cent of the total GDP of the country, India. There are multiplier effects of urban informal settlements on the economy which are higher than both the other urban households and the rural households. Besides this, in several studies, it is propounded that the employment growth has largely been due to the informal sector, in the country. So, the contribution of the informal settlements cannot be overlooked in the economy of the country, India. Whereas, the slums and squatter settlements informally develop without following guidelines of the urban planning which together comprises to form the informal settlements. Such settlements are typically having no formal street grids, numbered or named streets etc. information. Even though these settlements are lacking all basic public amenities such as sewage network, electricity, safe drinking tape water, rain water drainage, garbage collection and removal, easy public transport accessibility, health care control services etc. These settlements are usually found developing on the periphery of cities, public parks, near railroad tracks, river banks, lagoons or city trash dump sites (UN-Habitat, 2003). In

this context, the presence of slums and squatter settlements have regional and global implications, and the impacting areas are as the education, health and child mortality, and political and social exclusion, among several other effecting areas of great concerns. So, the informal settlements are important concerning phenomena which is mostly found in developing countries; but also found existed in some parts of developed countries of the world.

The Slum is an urban phenomena. According to the 2011 Census, the slum is treated as well as marked “Under Section-3 of the Slum Area Improvement and Clearance Act, 1956” (CoI, 2011). The Slums and squatter settlements have been defined as mainly those residential areas where dwellings are in any respect unfit for human habitation. Because of several reasons as the dilapidation, overcrowding, unreliable design buildings, narrow linkage of streets, lack of ventilation, no light or electricity, sanitation facilities and so on. All these factors are unfavourable to security, well-being and ethics to the people. Besides this, as per the UN-Habitat, the unauthorised settlements which comes-up in urban area and is marked as “a slum is characterized by lack of durable housing, insufficient living area, lack of access to clean water, inadequate sanitation and insecure tenure” (UN-Habitat, 2003). Whereas, the “squatter settlements as opposed to slums, despite their unattractive building materials, may also be places of hope, scenes of a counterculture, with an encouraging potential for change and a strong upward impetus” (Gerster, 1978). Besides this, the “squatter cities are Green. These are having maximum density for instance, a million people per square mile or so as found in the Mumbai City (Dharavi Slums) along with the minimum energy and material use by these peoples. Most of the population get around by foot, bicycle, rickshaw, or the universal shared taxi” in order to minimise their economic expenses in their daily life (Brand, 2010). Thus, it is noteworthy to mention that for first time in the country, Census of India 2001, enumerated the slum areas and earmarked across the country, particularly, in cities and towns having population of 50,000 or above in 1991 Census. Subsequently, the slum data was discarded for towns with 20,000 to 49,999 population in 2001 and statutory towns having population less than 50,000 in 1991. Whereas, the towns reported more than 50,000 population in 2001 were not considered for statutory slum as it was dealt in the earlier censuses. Besides this, in 2011 Census, there was a deliberation which took into account for consideration that the slums have been earmarked in all statutory towns irrespective of their population size based on the same definition as in 2001.

According to the 2011 Census, there were the three types of slums which classified as namely, the notified, the recognized and the identified slums for which information is available at the States level for the entire country, India.

## **2. Research Objectives**

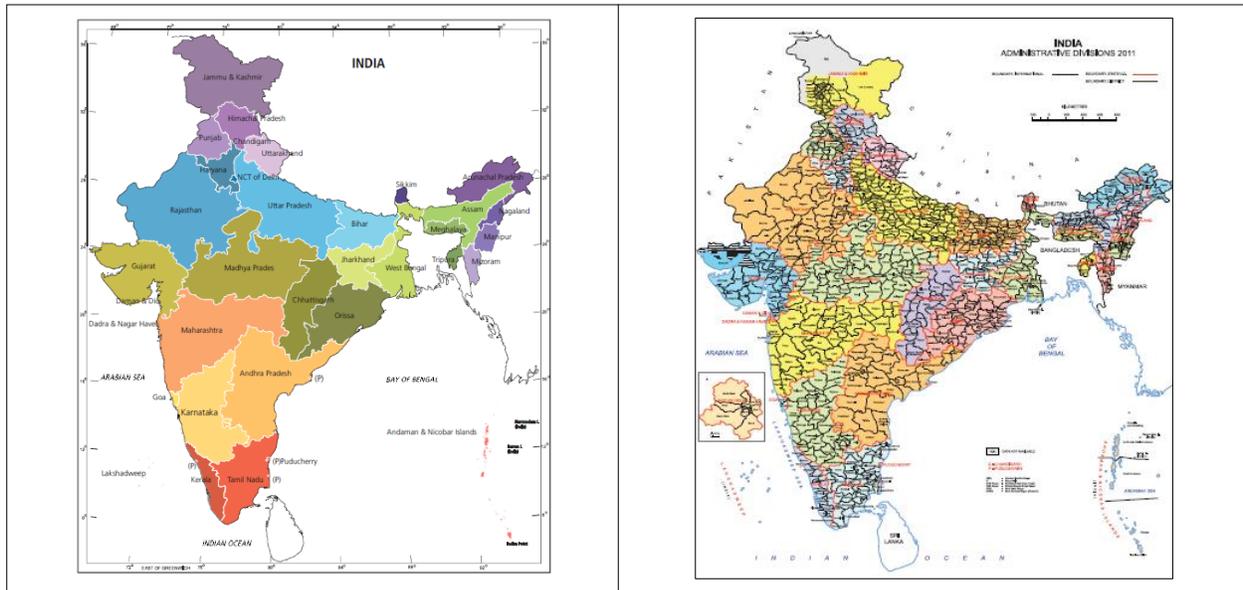
The present study takes into account the detailed scenario of informal settlements with special reference to the slums and squatter settlements in context to their geographical distribution in different parts of the country, India. In addition to this, the present study also seeks to scrutinise various concerns dealing with development of the slums and squatter settlements in context to the various plans and policies from the developmental perspectives for the country, India. So, the main objectives of the present study are mentioned as follows:

- i. to study geospatial process of informal settlements development over periods;
- ii. to analyse geospatial trends and patterns of slums and squatter settlements;
- iii. to identify major challenges of the slums and squatter settlements; and
- iv. to suggest suitable development strategies for informal settlements.

In view of this, the present research additionally attempts to analyse and identify major challenges coming in the way of sustainable development of the informal settlements particularly to the slums and squatter settlements in the country, India.

## **3. Study Area**

India is situated in the north of equator between the geographical extent of 08° 04' and 37°06' north latitudes and 68°07' and 97°25' east longitudes. The States level as well as the districts level latest available administrative divisions based on the Census of India, 2011 are presented in the Figures 1 and 2. For instance, there were 28 States and 7 Union Territories based on the administrative divisions of the country, India in 2011. In addition to this, there were about 640 districts and about 5,924 sub-districts in 2011. In comparison to this, there were 593 districts and 5,463 sub-district in 2001. So, there was an increase of 47 district from 2001 to 2011. So, the districts level information for the country, India is presented in the Figure 2.



Source: CoI (2011) *Census of India 2011, Primary Census Abstract*, Office of the Registrar General & Census Commissioner, Ministry of Home Affairs, Government of India, New Delhi.

Figures 1 & 2: States and Districts Levels Administrative Divisions of India, 2011.

#### 4. Database and Research Methodology

The present study is based on secondary data available from the different sources. The Census of India publications as the Primary Census Abstract 2001 and 2011, obtained from the Office of the Registrar General & Census Commissioner, Ministry of Home Affairs, Government of India, New Delhi. In addition to this, the Primary Census Abstract for Slum2011, was also obtained from the Office of the Registrar General & Census Commissioner, India, New Delhi. So, the present research is based on the compilation, computation and interpretation of the available digital data in form of the tables, graphs and maps. The statistical techniques as the ratios composite index have been computed for the States, districts, towns and cities and so on, at different levels of digital information for the country, India. The GIS spatial analysis technique, the geovisualisation of non-spatial data have been performed by the presentation of the geospatial distribution patterns of the slums and squatter settlements and so on. So, the chorochromatic and choropleth maps have been generated based on different attributes for the different periods.

It is noteworthy to mention that the methodology has been devised which is adopted for defining of urban areas which found varies from country to country in the world. Besides this, the periodic reclassification of urban also vary within one country over time, making direct comparisons difficult for the different periods. The urban area can be defined by one or more criteria as followed during different censuses. In case of the Census of India 2011, the demarcation of urban area is based on the specified criteria which are as firstly, “all places with a municipality, corporation, cantonment board or notified town area committee, etc.(known as statutory town); secondly, all other places which satisfied the following criteria(known as census town) as: (a) a minimum population of 5,000; (b) at least 75 per cent of the male main working population engaged in non-agricultural pursuits; and (c) a density of population of at least 400 persons per sq. km.” (CoI, 2011). Besides this, the increase in proportion of urban population over time, calculated as the rate of growth of urban population minus that of the total population. It is a fact that the positive rate of urbanization result when the urban population grows at a faster rate than the total population. Whereas, there is found an increasing concentration of the number of people who live in towns and cities. The pace of urban population growth depends on the natural increase of the urban population and the population gained by urban areas through both the net rural-urban migration and the reclassification of rural settlements into towns and cities.

In lieu of this, the types of slums have been defined and categorised in the 2011 census for the country, India, on the basis of the number of criteria as firstly, “all notified areas in a town or city notified as ‘slum’ by state, union territories administration or local government under any act including a ‘slum act’ may be considered as the notified slums; secondly, all areas recognised as ‘slum’ by state, union territories administration or local government, housing and slum boards, which may have not been formally notified as slum under any act may be considered as the recognized slums; and thirdly, a compact area of at least 300 persons or about 60–70 households of poorly built congested tenements, in unhygienic environment usually with inadequate infrastructure and lacking in proper sanitary and drinking water facilities. Such areas should be identified personally by the charge officer and also inspected by an officer nominated by Directorate of Census Operations. This fact must be duly recorded in the charge register. Such areas may be considered as the identified slums” (CoI, 2011). The Slums settlements demarcation and designation as described above are based on the criteria adopted and followed

by the 2011 Census. Whereas, the UN-Habitat defines “a slum is a contiguous settlement where the inhabitants are characterised as having inadequate housing and basic services. A slum is often not recognised and addressed by the authorities as an integral or equal part of the city”. Slum households as group of individuals living under the same roof that lack one or more of the conditions listed are as (a) insecure residential status; (b) inadequate access of safe water; (c) inadequate access to sanitation and other infrastructure; (d) poor structural quality of housing; (e) overcrowding by the peoples (UN-Habitat, 2003). However, the abovementioned criteria were taken into consideration for demarcation and designation of the slums settlements. All these criteria are described and defined in greater detail in the Primary Census Abstract for Slum, 2011, which was published by the office of the Registrar General and Census Commissioner, India, New Delhi. In this context, it is certainly a challenging task for the policy makers and planners to formulate and appropriately implement the developmental plans for up-liftment of slums and squatter settlements in the country, India.

## **5. RESULTS AND DISCUSSIONS**

### **5.1 Geospatial Growth Trends of Slums**

The population of slums is accounted for about 18.30 per cent in 2001 which slightly declined to about 17.37 per cent in 2011. Whereas, the actual slums population was increased in the country over the periods from 2001 to 2011, of which comparable figures are given in the Table 5. The decadal growth of slums population was about 25.06 per cent during 2001-2011. The slum female population growth was 28.09 per cent which was comparatively higher than the male population growth during 2001-11. Apart from this, the urban population growth was about 31.80 per cent in 2001-2011. During this period, the urban male population growth was higher than the female population growth which is clearly evidenced by the Table 5.

It is interesting to point out that the slums sex ratio was about 887 as recorded in 2001 which was further increased to about 928 in 2011. Similarly, the sex ratio was found increased from about 900 to 929 from 2001 to 2011, respectively, for the urban areas. Besides this, the Slum reported towns were accounted for about 2,613 in 2001 Census. Whereas, in the 2011 Census the total number of slum reported towns were accounted for about 1,816 in the country, India.

Indicator	Absolute		Absolute change 2001-11	Decadal Growth 2001-11	Slum Percentage	
	2001	2011			2001	2011
Slums						
Persons	5,23,71,589	6,54,94,604	1,31,23,015	25.06	18.30	17.37
Males	2,77,59,224	3,39,68,203	62,08,979	22.23	18.40	17.38
Females	2,46,12,365	3,15,26,401	69,14,036	28.09	18.20	17.36
Sex ratio	887	928	41			
Urban (all towns)						
Persons	28,61,19,689	37,71,06,125	9,09,86,436	31.80	–	–
Males	15,05,54,098	19,54,89,200	4,49,35,102	29.85	–	–
Females	13,55,65,591	18,16,16,925	4,60,51,334	33.97	–	–
Sex ratio	900	929	29		–	–

Source: CoI (2011) *Census of India 2011, Primary Census Abstract for Slum, 2011*, Office of the Registrar General & Census Commissioner, Ministry of Home Affairs, Government of India, New Delhi.

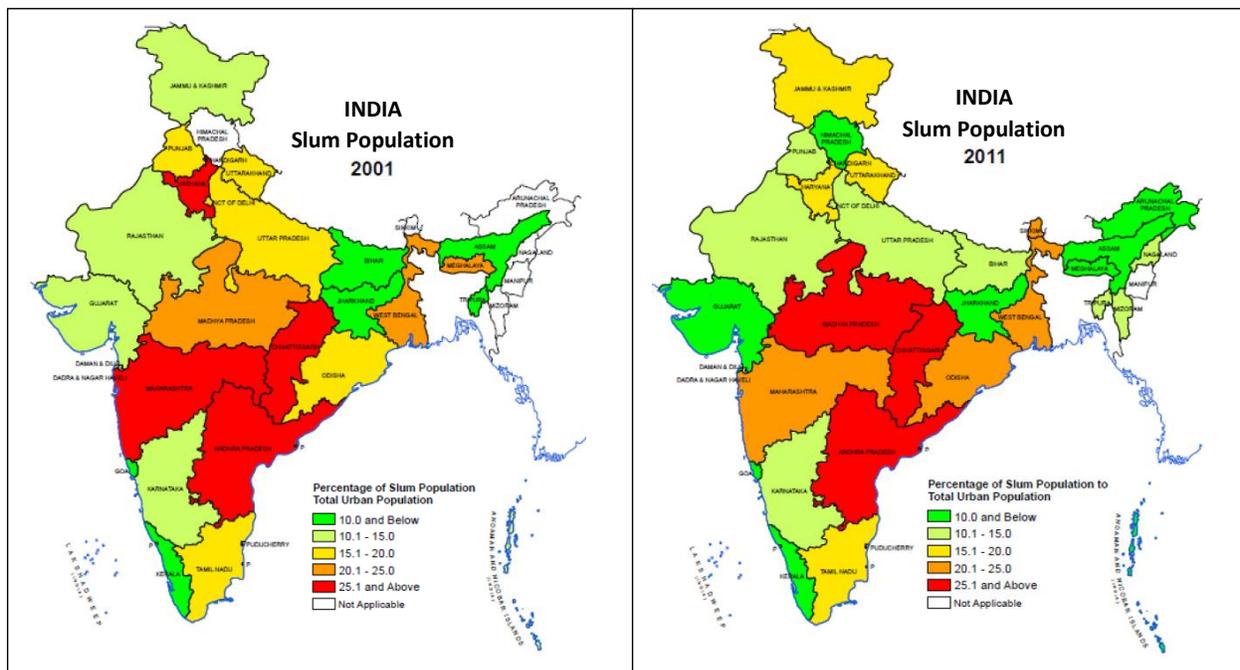
Table 5: Slums and Urban Population in India: 2001 and 2011.

So, the slums and the urban population actual figures and their proportions for the country, India for the periods 2001 and 2011 are presented in the above Table 5. In addition to this, the number of statutory towns and slum reported towns along with the types of slum and their population distribution for the States and Union territories of the country, India for the periods 2001 and 2011 are presented in the Tables 6 and 7.

## 5.2 Geospatial Patterns of Slums

There is found wide variation in the geospatial distribution patterns of slum population among the States of the country, India during 2001 and 2011. The large proportion of slum population in

term of the percentage of slum population to total urban population is found in the number of States as the Maharashtra, Chhattisgarh, Andhra Pradesh and Punjab with a proportion of more than 25.00 per cent in 2001. Over the periods, some of these States were retained their position, except the Maharashtra and Punjab States with the addition of the Madhya Pradesh State in 2011 as evidenced by comparison of the Figures 5 and 6. On the other hand, the small proportion of slum ranging below 10 per cent was found in the number of States as the Goa, Kerala, Bihar, Jharkhand and Assam in 2001. Likewise, there were number of States with small proportion of slum population as the Himachal Pradesh, Gujarat, Goa, Kerala, Jharkhand and most of the north-eastern States as Meghalaya, Assam and Arunachal Pradesh in 2011. Such comparative levels of the geospatial distribution patterns of the slum population at the States level for the country, India for the periods of 2001 and 2011 are presented in the Figures 5 and 6.



Source: CoI (2011) *Census of India 2011, Primary Census Abstract for Slum, 2011*, Office of the Registrar General & Census Commissioner, Ministry of Home Affairs, Government of India, New Delhi.

Figures 5 & 6: Geospatial Patterns of Slum Population in India: 2001 and 2011.

In 2011 Census, the slums have been earmarked in all the statutory towns irrespective of their population size based on the same definition as in 2001. There are three types of slums which

have been classified and defined in the Census of India, namely, the notified slums, the recognized slums and the identified slums. It is concluded that there found a wide gap in terms of slum reported towns and their population size among the States of the country, India. The number of statutory and slum reported towns with type wise slum population for the different States and Union territories for the periods 2001 and 2011 are presented in the Tables 6 and 7.

Name of State/ Union Territory	Towns		Total Population	Type wise Slum Population		
	Statutory Towns	Slum Reported Towns		Notified Slums	Recognised Slums	Identified Slums
INDIA	4041	2,613	6,54,94,604	2,25,35,13 34.41	2,01,31,336 30.74	2,28,28,135 34.85
Arunachal Pradesh	26	5	15,562	0 00.00	0 00.00	15,562 100.00
Bihar	139	88	12,37,682	0 0.00	0 00.00	12,37,682 100.00
Chandigarh	1	1	95,135	95,135 100.00	0 00.00	0 00.00
Haryana	80	75	16,62,305	14,912 00.90	0 00.00	16,47,393 99.10
Himachal Pradesh	56	22	61,312	60,201 98.19	0 00.00	1,111 01.81
Jammu & Kashmir	86	40	6,62,062	1,62,909 24.61	1,36,649 20.64	3,62,504 54.75
Manipur	28	0	0	0 00.00	0 00.00	0 00.00
Meghalaya	10	6	57,418	34,699 60.43	8,006 13.94	14,713 25.62
Mizoram	23	1	78,561	0 00.00	78,561 100.00	0 00.00
Nagaland	19	11	82,324	0 00.00	48,249 58.61	34,075 41.39
NCT Delhi*	3	22	17,85,390	7,38,915 41.39	0 00.00	10,46,475 58.61
Punjab	143	73	14,60,518	7,87,696 53.93	1,93,305 13.24	4,79,517 32.83
Rajasthan	185	107	20,68,000	0 00.00	0 00.00	20,68,000 100.00
Sikkim	8	7	31,378	31,378 100.00	0 00.00	0 00.00
Tripura	16	15	1,39,780	0 00.00	1,24,036 88.74	15,744 11.26

Uttar Pradesh*	648	293	62,39,965	5,62,548 9.02	46,78,326 74.97	9,99,091 16.01
Uttarakhand	74	31	4,87,741	1,85,832 38.10	52,278 10.72	2,49,631 51.18

*Notes:* \* NCT Delhi and Uttar Pradesh includes 19 and 1 Census Town.

*Source:* CoI (2011) *Census of India 2011, Primary Census Abstract for Slum, 2011*, Office of the Registrar General & Census Commissioner, Ministry of Home Affairs, Government of India, New Delhi.

Table 6: Number of Statutory and Slum Reported Towns with Type wise Slum Population in 2001.

The statutory towns and slum reported towns were accounted for about 4,041 and 2,613, respectively, for the country as a whole in 2001. Such towns distribution was found highly variable among the States. The largest number of the statutory towns and slum reported towns which were accounted for about 648 and 293 respectively, in the Uttar Pradesh State in 2001 as also evidenced by the above Table 6. Whereas, the types of slums and their population distribution which were classified as the notified, the recognised and the identified slums population and ratios were also presented in the Table 6. Each one of these slum categories were recorded the population proportion of about 34.41 per cent, 30.74 per cent and 34.85 per cent, respectively for the country as a whole in 2001. Besides this, such types of slum population distribution is found varying among the different States of the country, India in 2001 as clearly evidenced by the Table 6.

Name of State/Union Territory	Towns		Type-wise Slum Population			
	Statutory Town	Slum Reported Town	Total Population	Notified Slums	Recognised Slums	Identified Slums
INDIA	2,496	1,816	4,93,29,471	1,98,60,908 40.26	1,48,11,926 30.03	1,46,56,637 29.71
Andaman & Nicobar Islands	1	1	14,172	0 00.00	0 00.00	14,172 100.00
Andhra Pradesh	125	125	1,01,86,934	83,38,154 81.85	8,77,172 08.61	9,71,608 09.54
Assam	88	31	1,97,266	9,163 04.64	70,979 35.98	1,17,124 59.37
Chhattisgarh	168	94	18,98,931	7,13,654 37.58	7,64,851 40.28	4,20,426 22.14
Dadra & Nagar Haveli	1	0	0	0 00.00	0 00.00	0 00.00

Daman & Diu	2	0	0	0 00.00	0 00.00	0 00.00
Goa	14	3	26,247	6,107 23.27	0 00.00	20,140 76.73
Gujarat	195	103	16,80,095	0 00.00	0 00.00	16,80,095 100.00
Jharkhand	40	31	3,72,999	64,399 17.27	59,432 15.93	2,49,168 66.80
Karnataka	220	206	32,91,434	22,71,990 69.03	4,45,899 13.55	5,73,545 17.43
Kerala	59	19	2,02,048	1,86,835 92.47	8,215 04.07	6,998 03.46
Lakshadweep	0	0	0	0 00.00	0 00.00	0 00.00
Madhya Pradesh	364	303	56,88,993	19,00,942 33.41	25,30,637 44.48	12,57,414 21.10
Maharashtra	256	189	1,18,48,423	37,09,309 31.31	34,85,783 29.42	46,53,331 39.27
Odisha	107	76	15,60,303	0 00.00	8,12,737 52.09	7,47,566 47.91
Pondicherry	6	6	1,44,573	70,092 48.48	73,928 51.14	553 0.38
Tamil Nadu	721	507	57,98,459	25,41,345 43.83	19,78,441 34.12	12,78,673 22.05
West Bengal	129	122	64,18,594	48,918 00.76	37,03,852 57.71	26,65,824 41.53

Source: CoI (2011) *Census of India 2011, Primary Census Abstract for Slum, 2011*, Office of the Registrar General & Census Commissioner, Ministry of Home Affairs, Government of India, New Delhi.

Table 7: Number of Statutory and Slum Reported Towns with Type Wise Slum Population in 2011.

Likewise, for the country as a whole, the statutory towns and slum reported towns were accounted for about 2,496 and 1,816, respectively in 2011. Such kind of slum towns distribution were found highly variable among the States and Union territories. The largest number of the statutory towns and slum reported towns were accounted for about 721 and 507, respectively in the Tamil Naidu State in 2011 as also evidenced by the above Table 7. So, the statutory towns and slum reported towns distribution were found highly variable among the States and Union territories in the country, India. The largest number of the statutory towns and slum reported towns were accounted for about 364 and 303 respectively, in the Madhya Pradesh State in 2011 as also evidenced by the above Table 7. Whereas, in terms of types of slums and their population

distribution which were classified as the notified, the recognised and the identified slums ratios are also presented in the above Table 7. Each one of these slum categories were recorded the population proportion of about 40.26 per cent, 30.03 per cent and 29.71 per cent, respectively for the country as a whole in 2011. Besides this, such types of slum population distribution is found varying among the different States of the country, India in 2011 as also clearly evidenced by the Table 7.

### 5.3 Geospatial Trends of Slum Workers

There is found an absolute increase in the number of workers in slum during 2001-2011. The slum work participation rate was about 33.10 per cent in 2001. This ratio of slum workers was slightly increased to about 36.40 per cent in 2011. So, it is significant to point out that there was a decadal growth of slum workers to about 37.72 per cent during 2001-2011 as evidenced by the Table 8. Whereas, the urban slum reported towns work participation rate was about 35.50 per cent in 2001 which increased to about 46.60 per cent in 2011. There was recorded a high decadal growth of the urban slum workers of about 44.75 per cent during 2001-11. The Urban work participation rate was about 32.30 per cent in 2001 which also increased to about 35.30 per cent in 2011. There was also recorded a high decadal growth of the work participation rate in urban including all towns of about 44.29 per cent during 2001-11. Such types work participation of males and females for slum, urban slum and urban areas can also be comparatively worked out for India based on the below given Table 8.

Indicator	Absolute		Absolute Change	Decadal Growth	Work Participation Rate	
	2001	2011	2001-11	2001-11	2001	2011
Slum						
Persons	1,73,10,568	2,38,39,259	65,28,691	37.72	33.10	36.40
Males	1,41,72,030	1,84,53,228	42,81,198	30.21	51.10	54.30
Females	31,38,538	53,86,031	22,47,493	71.61	12.80	17.10
Urban (slum reported towns)						
Persons	7,15,65,430	10,35,90,630	3,20,25,200	44.75	35.50	46.60

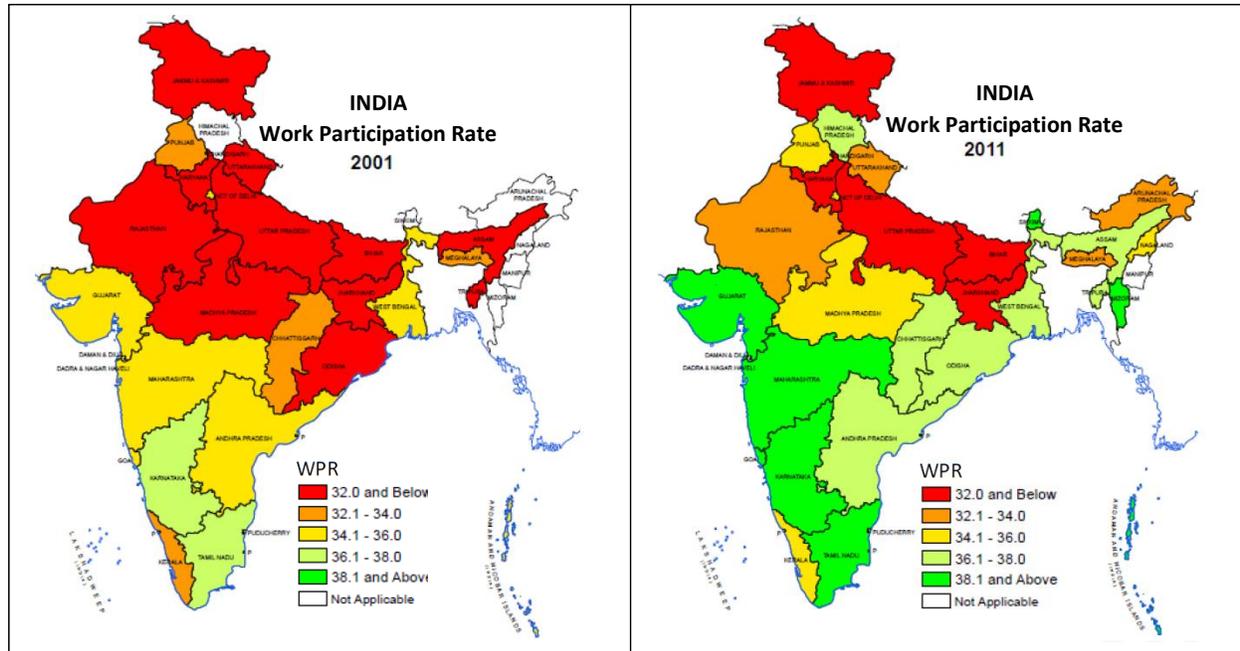
Males	5,96,62,525	8,20,68,288	2,24,05,763	37.55	54.10	65.80
Females	1,19,02,905	2,15,22,342	96,19,437	80.82	15.40	27.70
Urban (all towns)						
Persons	9,22,78,654	13,31,45,776	4,08,67,122	44.29	32.30	35.30
Males	7,61,75,323	10,51,02,862	2,89,27,539	37.93	50.60	53.80
Females	1,61,03,331	2,80,42,914	1,19,39,583	74.14	11.90	15.40

*Source:* CoI (2011) *Census of India 2011, Primary Census Abstract for Slum 2011*, Office of the Registrar General & Census Commissioner, Ministry of Home Affairs, Government of India, New Delhi.

Table 8: Work Participation Rate in Slum and Urban India: 2001 and 2011.

#### 5.4 Geospatial Patterns of Slum Workers

There was found variation in the geospatial distribution patterns of slum workers over the periods in India as evidenced by the Figures 7 and 8. The work participation rate ranges between below 32 per cent was recorded among the States as the Jammu and Kashmir, Himachal Pradesh, Uttaranchal, Haryana, Punjab, Uttar Pradesh, Madhya Pradesh, Bihar, Jharkhand and Orissa in 2001. Whereas, in 2011 the work participation rate scenario was different as compared to the 2001 as evidenced by the Figure 7 and 8. For instance, work participation rate ranges between below 32 per cent was recorded in the northern States as the Jammu and Kashmir, Haryana, Uttar Pradesh, Bihar and Jharkhand in 2011. Besides this, the high work participation rate ranges between 36 per cent and above was found in the States of Karnataka and Tamil Nadu in 2001. Similarly, there were many States as the Gujarat, Maharashtra, Goa, Karnataka, Tamil Nadu, Sikkim and Mizoram where the work participation rate was ranges between 36 per cent and above in 2011. So, the Geospatial pattern of participation rate of slums was found varying in different States of the country, India during the periods 2001 and 2011 as also evidenced by the Figures 7 and 8.



Source: CoI (2011) *Census of India 2011, Primary Census Abstract for Slum, 2011*, Office of the Registrar General & Census Commissioner, Ministry of Home Affairs, Government of India, New Delhi.

Figures 7 & 8: Geospatial Patterns of Slum Workers in India: 2001 and 2011.

## 6. Challenges of Informal Settlements

In terms of the economic development, there were developed two parallel sectors of economy as the social sector, on the one hand, and the informal sector, on the other hand. The social sector is managed by the government. Whereas, the informal sector lies outside the purview of the government. This sector is primarily serves to the low-income groups population. So, it is noteworthy of mention that defining the informal settlements has been one of the major challenges, as no formal definition of informal settlements is available. Because, the informal settlements are generally symbolized with slums which are settlements of urban poor population. Hence, among the major challenges which comes forward for informal settlements are as the slums and the squatter settlements development under the different plans and policies in order to provide sustainable life style to the people in the country, India. Apart from this, the squatter settlements have been in existence for over the periods. The squatter settlements are concerning with the individual other than the land owner. The Poor people usually settle down and built houses with or without consent of the land owner in urban areas. So, these are not illegal

settlements as defined and categorized, at present. The term squatter settlement in fact a more recent western originated development which was pointed out in the literature by the number of scholars (Turner, 1969). In other words, it came into existence particularly after the Habitat Conference of 1976 in Vancouver, Canada. Such explanation of the informal settlements as “squatter” settlements now characterised a growing change in approach in order to provide support and protection to the poor peoples.

The person as a squatter usually settles on new place especially public land without legal possession of the land. In other words, a person unauthorized possession of unoccupied premises is known as “squatter”. So, a residential area occupied by squatters becomes a squatter settlements. For instance, everything from a brick and concrete used in construction of the multi-storeyed house to an “occupied” cardboard carton usually become “squatter settlements”. There is an urgent need to understand such settlements so that a concerted action can be taken. The definition of a squatter settlement varies widely from country to country. It also depends on a variety of defining parameters. In general, it is considered as a residential area in an urban locality inhabited by the very poor people. These people have no access to tenured land of their own, and hence “squat” on vacant land, either private or public in the urban areas (UN-Habitat, 2003). So, a squatter settlement therefore, can be defined as a residential area which has developed without legal claims to the land. In other words, no permission is given from the concerned authorities to build settlements to the squatter. By virtue of this, no question arises for the illegal or semi-legal status, infrastructure and services provision to the people of squatter settlements. There are essentially three defining characteristics that helps to understand squatter settlement as the Physical, the Social and the legal which are interrelated to each other.

The Squatter settlements are an inevitable phenomena in urban areas. The urban areas offer economies of scale and agglomeration economies. The large towns and cities will always continue to grow by attracting migrants from rural as well as smaller urban areas. It will be leading to more squatting settlements in urban areas. There is no universal quick fix solution which can resolve problems of squatter settlements particularly in the developing world (Sanyal, 1988). There is prerequisite for a change in attitude towards squatter settlements. There has been considerable attention from various government and public authorities for creation an

environment for unique local solutions for their housing and shelter problems. In this context, it is noteworthy to mention that informal settlements has been one of the major challenges, because there is no formal definition of informal settlements. The informal settlements are largely symbolized with slums which provides settlements to the urban poor. Furthermore, the Census of India 2011 results shows the reflection that in States as the Andhra Pradesh, Delhi and Maharashtra, the portion of slum households to total urban poor households is high as compared to States as the Bihar, Jharkhand, Assam, Kerala etc. (CoI, 2011). So, this is not because there are less proportion of urban poor in these states, but due to the fact that their status may be underestimated.

In addition to this, there is a need for the comparative analysis of urban schemes and services accessible to the people, on the one hand and the no accessibility to various schemes and services to the people in the informal settlements, on the other hand. Such kinds of examination will definitely convey greater incite in the understandings of the various issues and challenges for socio-economic development of the informal settlements. So, it involve to review the government allocations and utilization of resources on the urban growth planning as well as on the infrastructure development policies. The government development and planning agencies should also incorporate suggestions and inputs from the academia and other such organisations for improvement in the conditions of the informal settlements in the country, India. Thus, there are number of challenges encountered and comes forward for the slums and squatter settlements which are as firstly, to integrate slum settlements into the urban area as a whole; secondly, to strengthen legal and policy agenda to expedite the process of slum development and improvement on sustainable basis; and thirdly, to institute stakeholders for the well-organized implementation of various development plans and policies for betterment of slums and squatter settlements. So, such challenges are to be efficiently tackled under the various development plans and policies for the sustainable urban development in the country, India.

## **7. Conclusions and Suggestions**

The Informal Settlements are considered as an unorganised sector of the economy. It is an integral part of an unorganised sector of the economy in which a large number of persons are involved in different kind of economic activities. The informal settlements contribute to about

7.53 per cent to the urban gross domestic product (GDP). While the urban GDP is contributing to about 60.00 per cent of the total GDP of the country, India. Besides this, there are three types of slums which have been defined in the census, namely, the notified slums, the recognized slums and the identified slums, each one of these accounted a proportion of about 40.26 per cent, 30.03 per cent and 29.71 per cent respectively, in 2011. The presence of slums and squatter settlements have regional and global implications, and the impacting areas are as the education, health and child mortality, and political and social exclusion, among several other effecting areas of great concerns. These settlements are usually found developing on the periphery of cities, public parks, near railroad tracks, river banks, and city trash dump sites. So, the informal settlements are important concerning phenomena which is mostly found in developing countries; but also found existed in some parts of developed countries of the world.

The Geospaital growth trends of slums population was about 25.10 per cent during 2001-2011. Whereas, the urban population growth was about 31.80 per cent in 2001-2011. The large proportion of slum population in term of the percentage of slum population to total urban population is found in the number of States as the Maharashtra, Chhattisgarh, Andhra Pradesh and Punjab with a proportion of more than 25.00 per cent in 2001 as well as in 2011. Apart from this, the geospatial trends of slum workers shows that the slum work participation rate was about 33.10 per cent in 2001. This ratio of slum workers was slightly increased to about 36.40 per cent in 2011. Besides this, the urban slum reported towns work participation rate was about 35.50 per cent in 2001 which increased to about 46.60 per cent in 2011. In addition to this, the geospatial patterns of slum workers shows that the high work participation rate ranges between 36 per cent and above was found in the States of Karnataka and Tamil Naidu in 2001. Similarly, there were many States as the Gujarat, Maharashtra, Goa, Karnataka, Tamil Naidu, Sikkim and Mizoram where the work participation rate was ranges between 36 per cent and above in 2011.

In this context, there are number of challenges of the slums and squatter settlements, for instance, there is found lots of stress on the physical infrastructure, inadequate delivery of basic services, air and water pollution, uncollected wastes, etc. So, such challenges are to be efficiently tackled under the various development plans and policies for the sustainable urban life style in the country, India. So, the government development and planning agencies should also incorporate

suggestions and inputs from the academia and other such organisations for improvement in the conditions of the informal settlements in the country, India. Thus, there are number of challenges encountered and comes forward for the slums and squatter settlements which are as firstly, to integrate slum settlements into the urban area as a whole; secondly, to strengthen legal and policy agenda to expedite the process of slum development and improvement on sustainable basis; and thirdly, to institute stakeholders for the well-organized implementation of various development plans and policies for betterment of slums and squatter settlements. So, all these challenges are to be efficiently tackled under the various development plans and policies for the sustainable urban development in the country, India.

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