

# Availability of Household Amenities in Rural Scheduled Tribe Population in India: A Regional Analysis

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**Abstract**— India has recorded the quickened rate of economic growth over the recent decades, but despite of that, full coverage of the population in terms of access to safe water supply, toilet facilities, sewage and electricity remains a major challenge in India. A lack of basic amenities has important implications for the quality of life of ordinary people and their health. It also has implications for achievement in other capabilities, for example, education. The certain group of society such as scheduled tribe population which has been historically impoverished and marginalized in terms of socio-economic development is still suffering from the deprivation of these basic amenities and facilities. The more specific issue of concern is the uneven accessibility of these facilities to these segments of India specifically among those belonging to rural areas where the bad connectivity of road, Having concerned to these points, the present study has been carried out to assess the regional variations in availability of amenities like drinking water, electricity, latrine facility, bathroom and kitchen to the scheduled tribe households particularly living in rural areas of India. The study is based on secondary sources of data obtained from census of India, publication, New Delhi 2011. To assess the regional variations in the distribution of accessibility of amenities, the techniques like z-score and composite standard score have been applied. The overall analysis of the distribution of the accessibility of amenities to ST household in India reveals that the availability of amenities is not evenly distributed among the scheduled tribe population rather it varies significantly one region to another. **Keywords:** Amenities, Rural, Scheduled tribe population, Regional disparity, India

## I. INTRODUCTION

This is a glorious phase of India where it is going ahead accomplishing its objectives in the direction of advancement in science, technology and more remarkably in economic growth. It also exhibited remarkable progress in social development but the pace of development has not been even all-round the country which is reflected in different level of development among territories/regions as well among the various groups of society such as scheduled caste and scheduled tribe population which are still facing the backwardness and indifferent development, more importantly, in social aspect possessing the inadequate social infrastructure such as education, health, drinking water, and sanitation, housing etc. Therefore, the need of the day is inclusive g development which is viewed in terms of economic and social inclusion reflected in poverty reduction, better health outcomes, increased access to education and improved access to basic amenities such as electricity, drinking water, sanitation, clean fuel, transport, banking facilities, etc. The amenities and facilities are the critical

determinants of living conditions and health of the people (Kundu et al, 1999) which should be enriched to each segment of the country covering all aspects of development such as education, health, infrastructure, agriculture, skill development and development opportunities moreover, which are considered as the major fundamentals determining the quality of life.

Clean Drinking water and hygienic sanitation are the key component of healthy population. They are also important for other socio-economic issues and thus closely linked to the overall development of a nation. Adequate sanitation in a nation contributes greatly to its progress while the inadequate sanitation directly contributes to high rate of morbidity and increase the rate of mortality which ultimately creates an obstacle in its development ahead.

Electrification for rural areas can't be considered less important than the urban areas. Electricity for socio-economic development of rural areas is as essential as other components like, sanitation, drinking water, good conditioned housing, etc. The good supply of electricity serves to speedy growth of rural economy such as agriculture, and agro based and cottage industries. Thus it considerably helps the rural population enhance the productivity, savings, and income and so on which ultimately leads to the improvement of better health, increased attendance education, access to communication, etc. It is also significant for ensuring the 'ease of life', bringing comfort and convenience.

Moreover, most of the scheduled tribe population lives in rural areas. In rural areas, much of cooking is done with poorly ventilated and crowded house, with the help of traditional 'CHULHAS' (traditional stove), which produces a high concentration of air pollutants. High levels of biomass smoke adversely affect the health of the people in general and that of women and children in particular (TERI, 1995).

Access to water, toilet, electricity and other amenities such as kitchen and bathroom, the quality of these services in our country is strongly influenced by identities of caste, class and gender. Some UNICEF reports indicate that it is the poorest quintile of the population which has the least access to sanitation. Likewise, significant variations persist in the access of Scheduled Caste (SC) and Scheduled Tribe (ST) households to toilets. Data from Census 2011 reveals that while 35 per cent of the total rural population has access to water within the premises, the corresponding figures for SC and ST households in rural areas are 28 per cent and 14 per cent respectively. It is also estimated that nearly 68 per cent of women headed households in rural areas do not have toilets within the premises. As far concerned of developed communities of India, then the scheduled Tribes population such as population is the least developed in all aspects of development such as education, employment, and infrastructure and more importantly in sanitation.. It is not

that their societies are static, but the pace of social change in tribal society is very slow. Since they are materially and economically backward, several initiatives have been taken by the Government to develop them. Today, the governments in all countries are paying special attention to development of the tribes (Nithya, 2014).

Though our national leaders and constitutional makers are committed to uplift the tribal people, a desired level of development has not been achieved yet. It has been assumed that in all communities, the scheduled tribe population is more likely to have poor and inadequate basic amenities as compared to scheduled caste and the total population of country. An analysis of census 2011 regarding availability of basic amenities and modern assets among the scheduled tribe population reveals that only 18 percent tribal population households have the drinking water facility within their houses, nearly 21 percent have the accessibility of latrine facility within their houses, 29 percent about 7 percent household are able to have the accessibility of bathroom and LPG as clean fuel respectively. The tribal population household having the facility of electricity constitutes only fifty percent. It clearly indicates that 82 percent, 79 percent, 71 percent, 93 percent and 50 percent scheduled tribe population households in India are still deprived of facility of drinking water, latrine, bathroom, clean fuel as LPG, and electricity respectively within their household. A comparative assessment of scheduled tribes, and scheduled caste regarding their availability of basic amenities discloses the wide disparity as Scheduled caste population households having the accessibility of drinking water, latrine, clean fuel and electricity in which they constitute 35.4 percent, 33.9 percent, 16.9 percent, 59 percent respectively are much better in living condition than the scheduled tribe population. The comparison of scheduled tribe with the total population in respect of availability of the amenities shows much wider gap as percentage share of total population of India having the accessibility of drinking water, latrine, clean fuel and electricity where they correspondingly account for 46.57 percent, 46.91 percent, 25.11 percent and 67.28 is increasingly higher than the both scheduled caste and scheduled tribe population but the disparity between the scheduled tribe and total population in is much greater than scheduled caste population.

The study mainly focuses on making spatial analysis of amenities available within households of ST population at state/UT level. Though, reviews addressing the issues of sanitation have been documented widely, the literature pointing out the regional disparity in accessibility of amenities seems to be poorly detailed and inadequately unexplored. Nonetheless, variations in access to amenities may be associated to topography, literacy, urbanization, awareness, communication, transport infrastructure, state policies etc. Ghosh and Cairncross, using 2001 and 2011 Census data, suggest that the regional variation in toilet access at the state and district scales is influenced by female literacy rates and urbanization (2013).

The government of India has been concerned regarding the gigantic problem of sanitation and its consequences on its population's health and too about the socio-economic development affected adversely by poor and inadequate amenities since very beginning. Therefore, in

order to eliminate this massive problem, a number of nationwide programmes have been formulated by governmental and non-governmental organizations such as Central Rural Sanitation Programme (CRSP) in 1986, millennium development goals in 2000, Water and sanitation programmes in 2011, more recently Swachh Bharat Abhiyan, Mahatma Gandhi Clean India Programme etc. Undoubtedly, they have played a significant role in increasing the coverage of household amenities but despite of that, all of them collectively have been failure to meet the needed goals because of ineffective implementation in maintaining, sustaining, and regulating the adequate amenities which is indicated from the fact that one-fourth of the global population without access to adequate sanitation resides in India; and over 600 million people in India defecate in the open (UNICEF, 2012).

So, first of all the efforts should be made to remove the obstacles in equal distribution of facilities by providing good connectivity of road, generation of awareness, adequate and rapid transport infrastructure, good educational facilities in rural areas, then the focus should be made on regular monitoring and effective implementation on schemes and programmes launched by government of India for providing good housing amenities to scheduled tribe population.

#### A. Aims & Objective

The study aims to assess the spatial variations across the states/union territories of India in availability of amenities like drinking water, electricity, latrine facility, bathroom facility, and kitchen facility within the households of scheduled tribe population particularly living in rural areas.

#### B. Data Base and Methodology:

The study is entirely based on secondary sources of data obtained from the census of India, publication, 2011, New Delhi. To assess the level of development in respect of accessibility of scheduled tribe population in household amenities, the five indicators of modern household amenities have been taken into considerations

The indicators of amenities like drinking water, electricity, cooking fuel, kitchen and bathroom facility, and modern assets have been selected for the present study. At first, the raw data of each selected indicator have been added state wise. In the second step, the raw data for each variable which determines the areal variegations of modern household amenities have been computed into standard score. It is generally known as Z value or Z-score. The score quantifies the departure of individual observations, expressed in a comparable form. This means it becomes a linear transformation of the original data (Smith, 1973). It may be expressed as:

$$Z_{ij} = \frac{X_{ij} - \bar{X}_i}{\sigma_i}$$

Where:  $Z_{ij}$  = Standardized value of the variable i in district j,

$X_{ij}$  = Actual value of variable i in district j,

$\bar{X}_i$  = Mean value of variable i in all districts,

$\sigma_i$  = Standard deviation of variable i in all districts.

In the second step, the Z-scores of all variables have been added state wise and the average has taken out for these

variables which may be called as composite score (CS) for each district and may be algebraically expressed as:

$$CS = \frac{\sum Z_{ij}}{N}$$

Where: CS stands composite score,  
 $\sum Z_{ij}$  indicates Z-scores of all variables i in district j,  
 N refers to the number of variables.

The positive values relating to the Z-score of a district explain high level of development in respect of housing and modern household amenities and negative values show the low level of development in these aspects. The regional analysis of the amenities has been based on administrative division of India as per 2011. To compute the statistical data by applying the advanced statistical techniques, the SPSS Software (Version 16.0) and R Software (Version 2.12.2) have been used. Besides, advanced statistical techniques, GIS-Arc view program (Version 3.2 a) has been applied to show the spatial patterns of availability of total housing and modern household amenities and facilities among the districts of Uttarakhand state through maps.

## II. STUDY AREA

India, as a whole, has been selected for the present study. India consists of 29 states and seven union territories. So, State/union territory has been taken as the unit of study. India is the seventh largest country in the world in term of geographical area which covers 2.4 percent of world's

### A. Study Area

geographical area with 3287240 square Kilometers. The northern boundary of India is demarcated by Himalaya whereas the southern is bounded by Indian Ocean. It is surrounded by six other countries such as by Pakistan in north-west, China, Nepal and Bhutan in north, by Bangladesh and Myanmar in east. The tropic of cancer passes through the middle of India by crossing eight states namely Rajasthan, Madhya Pradesh, Chhattisgarh, Odisha, West Bengal, Tripura, Mizoram. The north-south extension of the country is 3,214 kilometers and east-west expansion is 2,933 kilometers. The total land frontier is 15,200 kilometers and coastline is 7,516.5 kilometers.

As per census of 2011, the total population of India is 1210 million which ranks second among the most populous countries of the world. The male population constitutes of 623 Million and the females comprise of 587 million. Out of total population, 68.84 percent was recorded to have been residing in rural areas whereas only 31.16 percent was found to have been living in urban areas. There are 382 persons living per square kilometer of area in India. The general sex-ratio which is the number of females per 1000 males is 940 whereas the child sex ratio has been recorded 919 girls per 1000 boys. The literacy rate is 74 percent. The male and female literacy rate is 80.23 percent and 64.12 percent respectively while the corresponding figures for rural and urban literacy has been witnessed 68.95 percent and 85 percent.

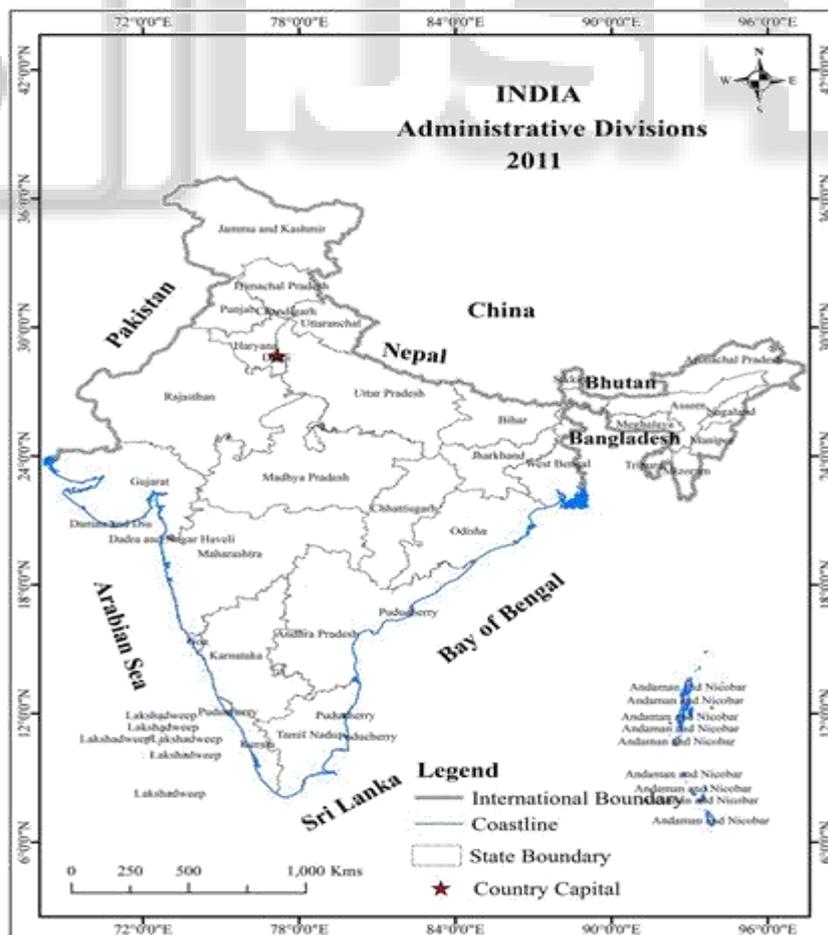


Fig. 1:

According to census 2011, scheduled tribe population in India is 104.44 million which constitute 8.6 percent of its total population. The male and female scheduled tribe population is 52.55 (50.26%) million and 53 million (49.71%) respectively. Out of total ST population 89 % is concentrated in rural areas whereas only 6.1 % has been reported to have been residing in urban areas. The scheduled tribe population has been notified prevailing in all states/union territories of India except the two states namely Punjab and Haryana and three union territories, namely, Chandigarh, NCT of Delhi and Pondicherry. The highest number of scheduled tribe population is registered in state Madhya Pradesh with 15 million scheduled tribe population which constitute 21.1 % of

its total population whereas the state Sikkim having 0.206 million scheduled tribe population has been recorded at the lowest rank. Among States/Union territories, Lakshadweep has the largest percentage (94.8%) of scheduled tribe population which is followed by Mizoram (94.4%).

### III. RESULT & DISCUSSION

State and union territory-wise distribution of z- score of all household amenities such as drinking water, electricity, latrine, bathroom, and kitchen have been presented in Table-1.

States/UT	Drinking water	Electricity	Latrine	Bathroom	Kitchen	CSS
JAMMU & KASHMIR	-0.69	-0.15	-0.49	-0.64	0.33	-0.33
HIMACHAL PRADESH	1.03	1.23	0.75	0.83	0.94	0.95
UTTARAKHAND	1.19	0.73	-0.06	0.10	-0.54	0.28
RAJASTHAN	-0.99	-0.92	-1.15	-1.03	-2.02	-1.22
UTTAR PRADESH	0.25	-1.60	-0.72	-0.19	-1.34	-0.72
BIHAR	0.64	-1.99	-0.96	-0.54	-1.70	-0.91
SIKKIM	0.72	1.05	1.55	0.65	0.03	0.80
ARUNACHAL PRADESH	0.12	-0.08	0.47	-0.48	1.20	0.25
NAGALAND	-0.34	0.56	1.06	1.46	1.39	0.82
MANIPUR	-0.80	-0.04	1.32	0.57	0.89	0.39
MIZORAM	-1.03	0.30	1.60	0.72	0.93	0.50
TRIPURA	-0.76	-0.60	0.83	-1.13	0.28	-0.28
MEGHALAYA	-0.74	-0.34	0.55	-0.47	0.44	-0.11
ASSAM	1.01	-1.40	0.05	-0.80	0.56	-0.12
WEST BENGAL	-0.57	-1.30	-0.65	-1.25	-1.01	-0.96
JHARKHAND	-1.14	-1.37	-1.15	-1.41	-1.28	-1.27
ODISHA	-1.12	-1.79	-1.09	-1.42	-0.23	-1.13
CHHATTISGARH	-1.00	-0.25	-0.85	-1.43	-0.30	-0.77
MADHYA PRADESH	-1.03	-0.34	-1.09	-0.89	-1.13	-0.90
GUJARAT	-0.25	0.61	-0.77	-0.15	0.05	-0.10
DAMAN & DIU	1.34	1.30	-0.59	1.44	0.65	0.83
DADRA & NAGAR HAVELI	-0.15	1.06	-0.92	-0.45	1.02	0.11
MAHARASHTRA	-0.14	-0.40	-0.56	0.74	-0.32	-0.13
ANDHRA PRADESH	-0.58	0.63	-0.92	-0.05	-1.69	-0.52
KARNATAKA	-0.42	0.74	-0.74	1.15	0.83	0.31
GOA	1.28	1.17	0.54	0.95	1.20	1.03
LAKSHADWEEP	2.79	1.43	2.05	2.12	0.01	1.68
KERALA	0.67	-0.12	1.02	0.03	1.11	0.54
TAMIL NADU	-0.99	0.70	-0.81	-0.33	-1.00	-0.49
ANDAMAN & NICOBAR ISLANDS	1.70	1.20	1.70	1.91	0.70	1.45

Table 1: State/Union Territory-wise Z-Scores Distribution of the Household Amenities to Rural Scheduled Tribe Population in India, 2011

#### A. Drinking water:

The value of z-score of drinking water facility given in table-1 shows the wide regional variations in the country which

varies from -1.14 score in Jharkhand to 2.79 score in Lakshadweep. These variations have been grouped into three categories in table-2 such as high (above +0.5 score), medium (-0.5 to 0.5 score) and low (-0.5 score).

Category	Percentage	No. of State	Percent of total	Name of States
High	Above 0.5	10	33.33	Himachal Pradesh, Uttarakhand, Bihar, Sikkim, Assam, Daman & Diu, Goa, Lakshadweep, Kerala, Andman & Nicobar Islands
Medium	-0.5 - 0.5	7	23.33	Uttar Pradesh, Arunachal Pradesh, Nagaland, Gujarat, Dadra & Nagar Haveli, Maharashtra, Karnataka
Low	Below -0.5	13	43.33	

				Jammu & Kashmir, Rajasthan, Manipur, Mizoram, Tripura, Meghalaya, West Bengal, Jharkhand, Odisha, Chhattisgarh, Madhya Pradesh, Andhra Pradesh, Tamilnadu
Total	30	100		

Source: Based on Table 1.

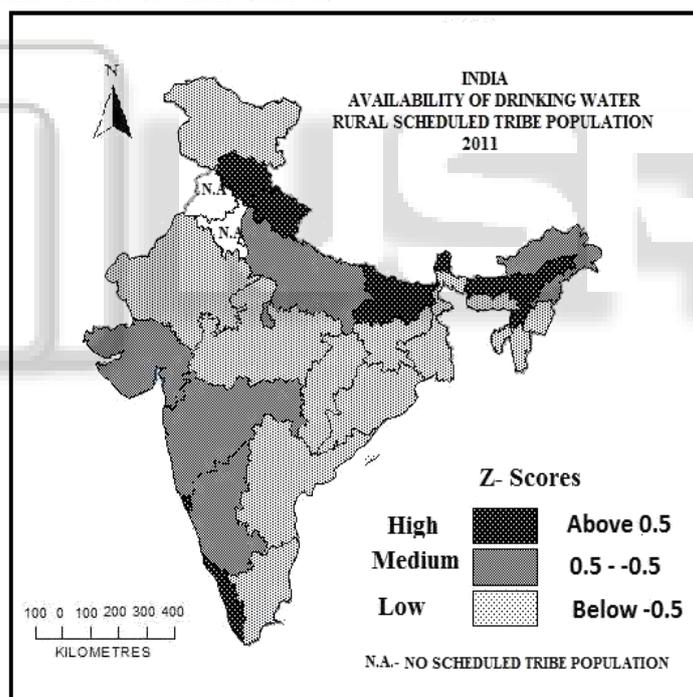
Table 2: Availability of Drinking Water in Rural scheduled Tribe Population in India

An analysis of table-2 reveals that 7 states and 3 union territories of India fall under the high category of availability of drinking water namely Himachal Pradesh, Uttarakhand, Bihar, Sikkim, Assam, Daman & Diu, Goa, Lakshadweep, Kerala, and Andaman & Nicobar Islands. Two of them i.e. Himachal Pradesh & Uttarakhand constitute a well-recognized region in the northern part of the country. While the other two states namely Bihar and Sikkim lying in the north and in north-eastern part of the country do not form a identifiable region. The single state Assam lies in the eastern part of India. The remaining states of high category such as Goa, Kerala, Lakshadweep, and Andaman & Nicobar are dispersly distributed in the south-west and south-east of India which fail to make any separate identifiable region.

Medium level of drinking water embraces seven states/union territories of the country namely, Uttar Pradesh, Arunachal Pradesh, Nagaland, Gujarat, Dadra & Nagar Haveli, Maharashtra, Karnataka. Three of them such as

Gujarat, Maharashtra, make a linear contiguous region in the south-west of India. Another region of medium category is formed in the north-eastern part by Arunachal Pradesh and Nagaland whereas the one state lying in the north does not form any recognized region in the same part of the country.

The low category of availability of drinking water has been observed in thirteen states on India. These are Jammu & Kashmir, Rajasthan, Manipur, Mizoram, Tripura, Meghalaya, West Bengal, Jharkhand, Odisha, Chhattisgarh, Madhya Pradesh, Andhra Pradesh, Tamilnadu. Nearly ninety percent of them constitute two separate regions. The one lies in the north-east of the country comprising the states Manipur, Mizoram, Tripura and Meghalaya, while the other is largely located in the central, north and south-east part of the country extending from Rajasthan in the north-west to the west Bengal in the north and then ending to the Tamilnadu in the south most part.



Source: Based on Table-2

Fig. 2:

**B. Electricity:**

The distribution of z-score of electricity has been presented in table-3 and depicted in figure-3. An observation of table-3 and figure-3 show that there are great variations in the availability of electricity across the states and union

territories of the country which varies from -1.99 scores in Bihar to 1.70 scores in Andaman & Nicobar. These variations may be divided into three grades such as high (above +0.5 score), medium (-0.5 to 0.5 score) and low (-0.5 score).

Category	Percentage	No. of State	Percent of total	Name of States
High	Above 0.5	13	43.33	Himachal Pradesh, Uttarakhand, Sikkim, Nagaland, Gujarat, Daman & Diu, Dadra & Nagarhaveli, Andhra Pradesh, Karnataka, Goa, Lakshadweep, Tamilnadu, Andaman & Nicobar Island

Medium	-0.5 to 0.5	9	30.00	Jammu & Kashmir, Arunachal Pradesh, Manipur, Mizoram, Meghalaya, Chhattisgarh, Madhya Pradesh, Maharashtra, Kerala,
Low	Below -0.5	8	26.66	Rajasthan, Uttar Pradesh, Bihar, Tripura, Assam, West Bengal, Jharkhand, Odisha,
Total		30	100	

Source: Based on table 1.

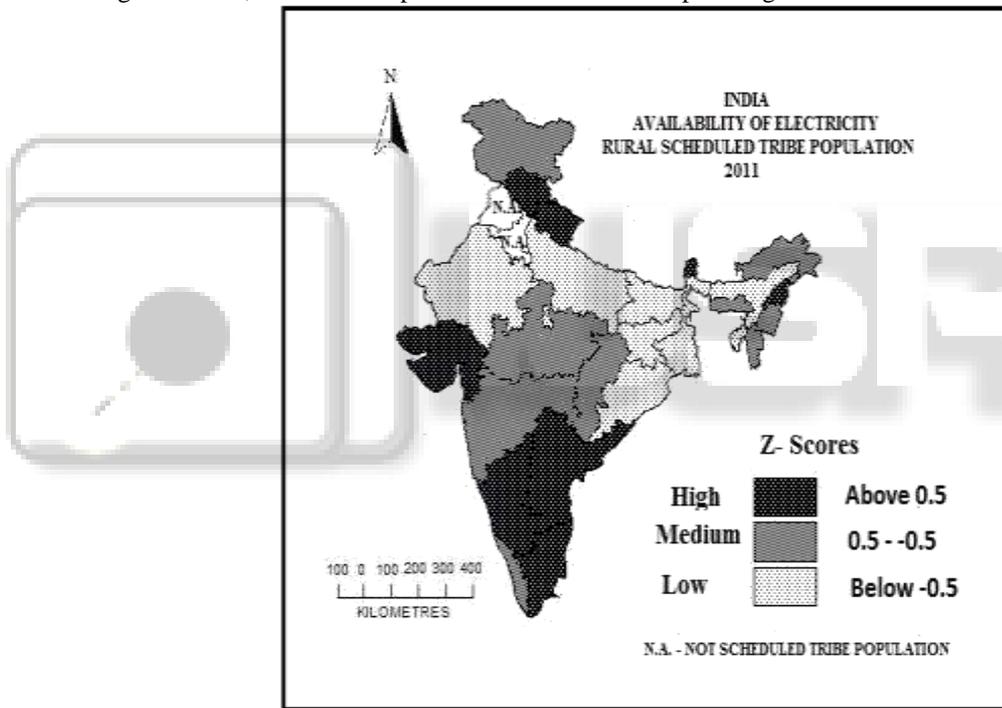
Table 3: Availability of Electricity in Rural Scheduled Tribe Population in India

An assessment of table-3 discloses that 9 states and four union territories namely Himachal Pradesh, Uttarakhand, Sikkim, Nagaland, Gujarat, Daman & Diu, Dadra & Nagarhaveli, Andhra Pradesh, Karnataka, Goa, Lakshadweep, Tamilnadu, Andaman & Nicobar Islands belong to high grade of availability of electricity. Four of them such as Goa, Karnataka, Tamilnadu and Andhra Pradesh make a contiguous region in the south of India while two other namely Himachal Pradesh and Uttarakhand constitute a separate identifiable region of high category in the north of India. The remaining states as Gujarat in the west, Nagaland in the east, and union territories like Daman & Diu, Dadra & Nagar Haweli, Lakshadweep and Andaman &

Nicobar spreading in the west and east do not comprise any distinct recognizable regions.

The medium category of availability of electricity include nine states; three of them, namely Madhya Pradesh, Maharashtra and Chhattisgarh make a single dominant region in the central part of the country, while another region falling in the eastern part of India is comprised of Manipur and Mizoram.

Eight states of the country fall under the low category of development in term of electricity which are Rajasthan, Uttar Pradesh, Bihar, Tripura, Assam, West Bengal, Jharkhand, Odisha and make a contiguous region spreading from north-west to north-east of the India



Source: Based on table 3.

Fig. 3:

C. Latrine Facility:

The distribution of z-scores of availability latrine facility within the premise to rural scheduled tribe households has been given in table-4 and regional variations have been presented in figure-4. The observation of table-4 depicts that availability of latrine is not evenly distributed across the all states and union territories, thereby strikes the wide disparity from one state to another. The regional variations in terms of latrine have been organized into three categories namely high (above +0.5 score), medium (-0.5 to 0.5 score) and low (-0.5 score).

The regional pattern of latrine facility as depicted in figure:4 reveals that thirty seven percent of states/union

territories of the country have the high category of latrine facility, these are Himachal Pradesh, Sikkim, Nagaland, Manipur, Mizoram, Tripura, Meghalaya, Goa, Lakshadweep, Kerala, Andaman & Nicobar Islands. The four state namely such as Nagaland, Manipur, Mizoram, and Tripura make a distinct regions in the north-east of the country and the second is formed by Goa and Karnataka in the south-west of India while other states/union. As per of medium category, only four states namely Jammu & Kashmir, Uttarakhand, Arunachal Pradesh, Assam belong the this category; two of them Arunachal Pradesh and Assam constitute a single region in the north-east of India and other states Jammu & Kashmir and Uttarakhand lie the north of country failing to construct any separate regions.

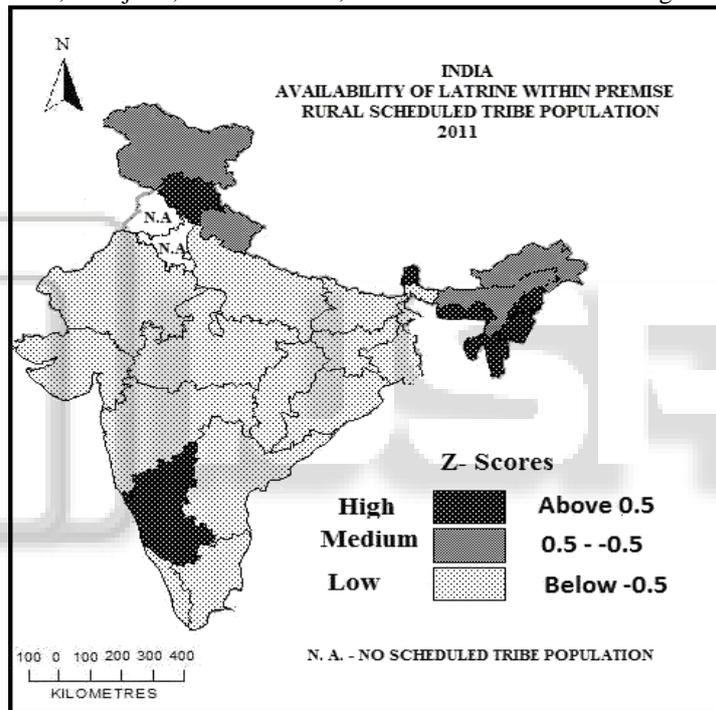
Category	Percentage	No. of State	Percent of total	Name of States
High	Above 0.5	11	36.67	Himachal Pradesh, Sikkim, Nagaland, Manipur, Mizoram, Tripura, Meghalaya, Goa, Lakshadweep, Kerala, Andaman & Nicobar
Medium	0.5 - 0.5	4	13.33	Jammu & Kashmir, Uttarakhand, Arunachal Pradesh, Assam,
Low	Below - 0.5	15	50	Rajasthan, Uttar Pradesh, Bihar, West Bengal, Jharkhand, Odisha, Chhattisgarh, Madhya Pradesh, Gujarat, Daman & Diu, Dadra & Nagar Haveli, Maharashtra, Andhra Pradesh, Karnataka, Tamilnadu
Total		30	99.99	

Source: Based on Table 1.

Table 4: Availability of Latrine Facility to Rural Scheduled Tribe Households, 2011

The majority of states/union territories by comprising fifty percent of all the states/UT fall under the low category of latrine facility. Thirteen of them Rajasthan, Uttar Pradesh, Bihar, West Bengal, Jharkhand, Odisha, Chhattisgarh, Madhya Pradesh, Gujarat, Maharashtra,

Andhra Pradesh, Karnataka, Tamilnadu constitute a prominent region in extending from the north to the south. The two namely Daman & Diu, Dadra & Nagar Haveli are separately located in the in the east-west of the country and thus makes no distinct region.



Source: Based on Table 4.

Fig. 4:

**D. Bathroom:**

The state-wise z-scores bathroom facility inside the rural scheduled tribe population of India has been shown in table-5. Among the states/UT of the country z-scores varies from -1.43 in Chhattisgarh to 2.21 scores in Lakshadweep. The entire range of variations may be arranged into three categories such as high (above +0.5 score), medium (-0.5 to 0.5 score) and low (-0.5 score).

Table-5 and figure-5 visualizes that nine states and two union territories fall under the high category of bathroom facility and eight of them they make two distinct regions. One which makes a single identifiable region in the north-east of the country includes Nagaland, Manipur, and Mizoram. The other, which is comparatively larger in size is located in south-west of the country and comprises of three districts namely Goa, Maharashtra and Karnataka. The remaining states namely

Category	Percentage	NO. of States	Percent of total	Name of States
High	Above 0.5	11	36.66	Himachal Pradesh, Sikkim, Nagaland, Mizoram, Manipur, Daman & Diu, Maharashtra, Karnataka, Goa, Lakshadweep, Andaman & Nicobar Island
Medium	0.5 - 0.5	9	30	Uttarakhand, Uttar Pradesh, Arunachal Pradesh, Meghalaya, Gujarat, Dadra & Nagarhaveli, Andhra Pradesh, Kerala, Tamilnadu,

Low	Below - 0.5	10	33.33	Jammu & Kashmir, Rajasthan, Bihar, Tripura, Assam, West Banal, Jharkhand, Odisha, Chhattisgarh, Madhya Pradesh,
Total		30	99.99	

Source: Based on Table 1.

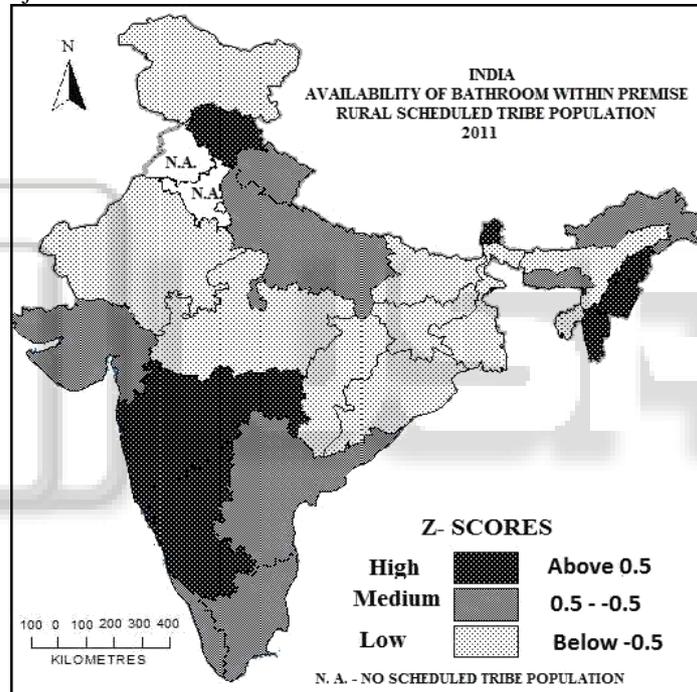
Table 5: Availability of Bathroom Facility to Rural Tribe households, 2011

The medium category records eight states and one union territory of country. The one distinct formed in the south of country comprised of three states which are Kerala, Tamilnadu and Andhra Pradesh while the other region located in the north is comprised of two states namely Uttarakhand and Uttar Pradesh whereas the rest are scattered over the country. These states are Meghalaya, Gujarat, Arunachal Pradesh and Dadra & Nagar Haweli.

The states having the low category of bathroom facility account for nine states. Eight of them including Rajasthan, Bihar, Tripura, Assam, West Banal, Jharkhand, Odisha, Chhattisgarh, Madhya Pradesh except Jammu & Kashmir make a large contiguous region in the central part of India which extends from Rajasthan in the West to Assam

in the east while Jammu & Kashmir lying separately in the north fails to make any distinct region.

There may be drawn some interferences from above analysis that the bathroom facility availed by the rural scheduled tribe population is better in the north, north-east and in the south of country but its poor in the central states of the country.



Source: Based on Table 5.

Figure: 5

**E. Kitchen Facility:**

The distribution of kitchen facility also has the significant inter-state variations across the country which varies from - 2.20 scores in Rajasthan to 1.39 scores in Nagaland. This range may be categorized into three grades i.e. as high (above +0.5 score), medium (-0.5 to 0.5 score) and low (-0.5 score). Figure-6 displays the regional distribution of kitchen facility inside the house of rural scheduled tribe population. It may be revealed from that nine states and three union territories by comprising the forty percent of the states having the

scheduled tribe population are enjoying the high category; out of them, the five states comprising Arunachal Pradesh, Assam, Nagaland, Manipur, and Mizoram form a predominant region in the north-east of the country and other three of them namely Goa, Karnataka and Kerala make a distinct identifiable region in the south-west of the country. The remaining states such as Himachal Pradesh and three union territories namely Dadra & Nagar Haweli, Daman & Diu, and Andaman & Nicobar being dispersed in different parts make form no separate region.

Category	Percentage	No. of State	Percent of total	Name of States
High	Above 0.5	12	40	Himachal Pradesh, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Assam, Daman & Diu, Dadra & Nagar Haveli, Goa, Karnataka, Kerala, Andaman & Nicobar

Medium	0.5 - 0.5	9	30	Jammu & Kashmir, Sikkim, Tripura, Meghalaya, Odisha, Chhattisgarh, Gujarat, Lakshadweep, Maharashtra,
Low	Below - 0.5	9	30	Uttarakhand, Rajasthan, Uttar Pradesh, Bihar, West Bengal, Jharkhand, Madhya Pradesh, Andhra Pradesh, Tamilnadu
Total		30	100	

Source: Based on Table 6.

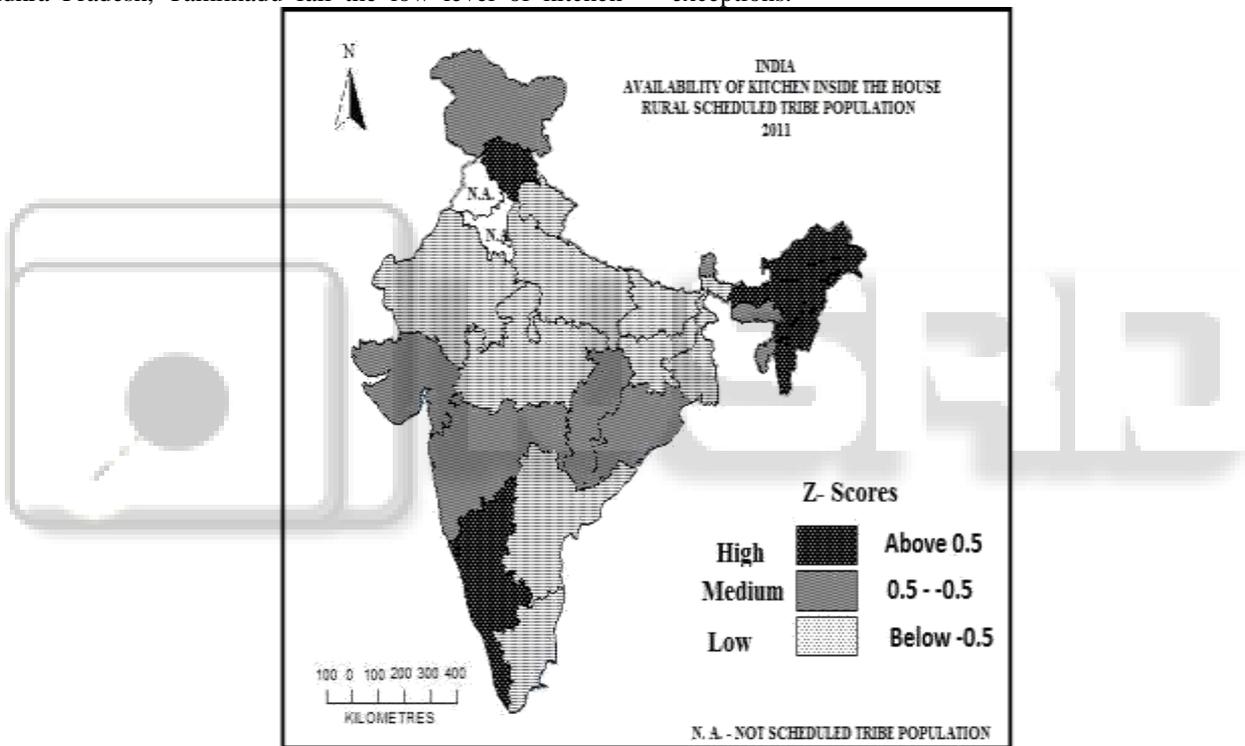
Table 6: Availability of Kitchen Facility to Rural Scheduled Tribe Households

The medium category which ranges from -0.5 to 0.5 scores includes eight states and one union territory. One region of medium grade is predominately located in the central part of the country which comprising of Gujarat, Maharashtra, Chhattisgarh and Odisha extend from west to the east. The other two states; Tripura and Meghalaya lying in the same category form a separate region in the north-east of the country.

The nine states; Uttarakhand, Rajasthan, Uttar Pradesh, Bihar, West Bengal, Jharkhand, Madhya Pradesh, Andhra Pradesh, Tamilnadu fall the low level of kitchen

facility, seven of them excluding Tamilnadu and Andhra Pradesh combinely constitute a large region in the north of the country with exception of Himachal Pradesh and Jammu & Kashmir. Another region of low category formed by two states such as Tamilnadu and Andhra Pradesh been recognized in the south-east of country.

The general regional pattern emerged from the analysis is that in the eastern and south-western part the level of kitchen facility is found to be high, it tends to decline towards the south-eastern and northern part with few exceptions.



Source: Based on Table 6

Fig. 6:

**F. Composite Z-scores of all amenities:**

The composite scores of all amenities like drinking water, electricity, latrine facility, bathroom, and kitchen has been contained in table-7 and figure-7 which shows substantial spatial variations in the distribution so amenities. The composite mean values of amenities varies from 1.68 scores in Lakshadweep to -1.22 scores in Rajasthan. The entire composite z-scores may be grouped into three categories such as high (high above 0.4 scores), medium (-0.4 scores to 0.4 scores) and low (-0.4 scores).

The high category of composite score comprise six states and three union territories like Himachal Pradesh, Sikkim, Nagaland, Mizoram, Daman & Diu, Goa, Lakshadweep, Kerala, Andaman & Nicobar Island. The

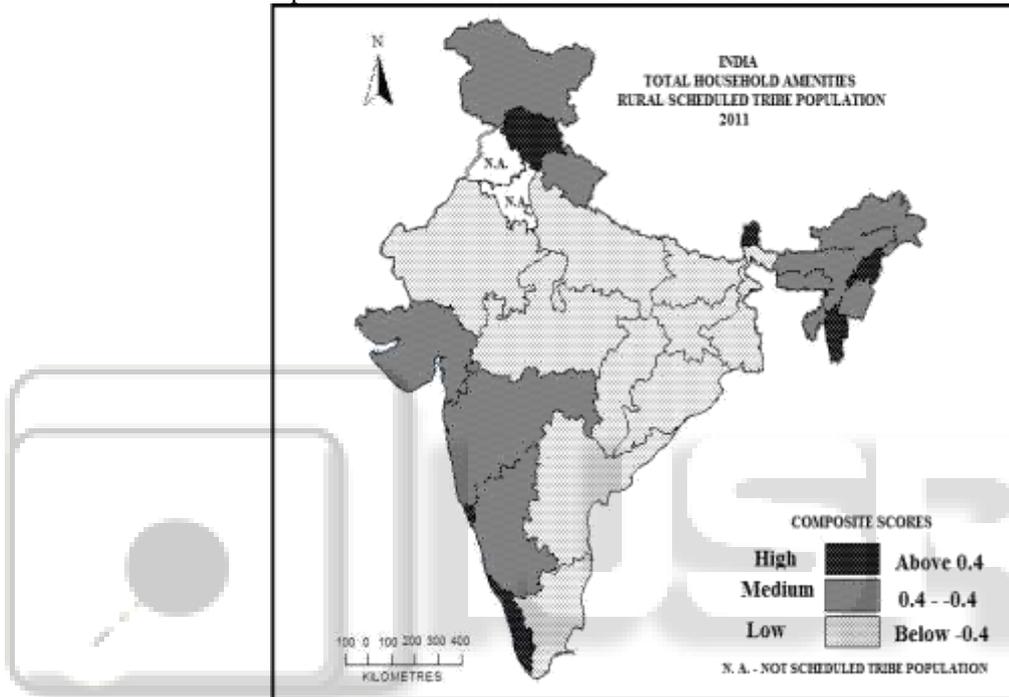
states with high level of development being scattered over the country fail to make even a single identifiable region while the majority of the states/UN come under the medium category which are Jammu & Kashmir, Uttarakhand, Arunachal Pradesh, Manipur, Tripura, Meghalaya, Assam, Gujarat, Dadra & Nagar Haveli, Maharashtra, Karnataka. The three states having medium level of development constitute a identifiable region in south-west of India where other five states comprise second region in the north-eastern part.

The states such as Rajasthan, Uttar Pradesh, Bihar, West Bengal, Jharkhand, Odisha, Chhattisgarh, Madhya Pradesh, Andhra Pradesh, Tamil Nadu under falling in low level of development make a single contiguous region which extend from the northern part to the southern part.

Category	Percentage	NO. of State	Percent of total	Name of States
High	Above 0.4	9	30	Himachal Pradesh, Sikkim, Nagaland, Mizoram, Daman & Diu, Goa, Lakshadweep, Kerala, Andman & Nicobar Island
Medium	0.4 - 0.4	11	36.66	Jammu & Kashmir, Uttarakhand, Arunachal Pradesh, Manipur, Tripura, Meghalaya, Assam, Gujarat, Dadra & Nagar Haveli, Maharashtra, Karnataka
Low	Below -0.4	10	33.33	Rajasthan, Uttar Pradesh, Bihar, West Bengal, Jharkhand, Odisha, Chhattisgarh, Madhya Pradesh, Andhra Pradesh, Tamil Nadu
Total		30		

Source: Based on Table-1

Table 7: Composite Z-score of Amenities available to the Rural Scheduled Tribe Households,



Source: Based on Table-7

Fig. 7:

#### IV. CONCLUSION

Having assessed the overall analysis of above discussion, it may be concluded that the availability of basic facilities such as drinking water, electricity, toilet, bathroom and kitchen is not evenly distributed rather it varies significantly from one region to another. The availability of drinking water is high in northern, north-eastern and south-western parts of India, while the central and eastern part experiences the low of level of development in term of drinking water facility. The accessibility of electricity is comparatively higher among the scheduled tribe population of rural southern part of India than the northern. Besides, there has been a wide disparity in latrine facility as most of part of India facing the low availability of latrine facility except the few regions lying in northern, north-eastern and south-western part of India. The availability of kitchen facility within premise of rural scheduled tribe population has been witnessed high only in southern and north-eastern part with little exception in northern part of India. Accessibility of Bathroom facility within the households of scheduled tribe population is not significantly all over the India. The southern, eastern and little

northern part of India have recorded better facility of bathroom than the central part. The overall analysis of availability of amenities reveals that high level of availability of amenities is scattered in northern, eastern and southern part of India, thereby, forming no contiguous regions whereas the northern, eastern and south-western part of India have the medium level of development excluding the state Himachal Pradesh and Sikkim in North, Meghalaya and Mizoram in east which form the distinct small regions. The Central, and South-eastern states of India ranging from Rajasthan in west to West Bengal east and to the Tamilnadu in South have the low level of development in respect of household amenities.

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