



State-wise basic amenities among poor households in rural areas of India

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ABSTRACT:

Poverty is defined as the position where households is deprived of minimum basic requirements of living.. Poverty is a predominant rural phenomenon, as majority of poor live in rural areas. Rural people regularly face geographically disadvantage, being in rural area where the access to basic amenities is inadequate. Access to basic amenities such as decent house, sanitation, drinking water, cooking fuel, electricity and drainage is necessity for good quality of life on earth. The need for these basic amenities has been world-wide recognised and has been a major concern in the formulation of policies and programmes in India. While rural households in India showed gradual improvement in the access to basic amenities, but still continue to face high levels of deprivation. The objective is based on States-wise availability of basic households amenities and its different sources among poor households in rural area of India. The present study is based on data collected on the basis of basic household amenities such as decent house, sanitation, drinking water, cooking fuel, electricity and drainage in rural poor houses in all states of India extracted from the from the study conducted by NSSO, Government of India. The study adopted the two-stages sampling for data collection in all states. First stage sampling, the selection of census village in the rural areas and urban frame survey block in the urban sector. In second stage, household was selected by using random sampling. Survey covered 65,932 households and 333,104 persons were interviewed all over 36 states of India. The study result revealed that Majority 40.4% rural house belong self employed in agriculture, by casual labour in agriculture (20.1%), casual labour in non-agriculture (17.3%), self-employed in non-agriculture (12.0%), regular wage/salary earning (6.6%) and other (3.1%) respectively. 34.6% houses have latrine and Pit (21.3% and septic tank/ flush system (13.3%) were the main sources of latrine. 49% houses have drainage system and open katcha (30.1%) was the main source. Tap (27.3%) and tube-well/hand pump (57.0%) were the main sources of water and firewood and chips (82%) was the main source of cooking in rural poor houses in India



Keywords: *Availability of types of house, Basic household's amenities, Improved Latrine, Improved water, Poor houses*

I.INTRODUCTION

The United Nations and its agencies such as the World Health Organisation (WHO), Office of the United Nations High Commissioner for Human Rights, UN-HABITAT, United Nations Human Rights Programme (UNHRP), International Committee on Economic Social and Cultural Rights (ICESCR), and International Labour Organisation (ILO) have highlighted the role and relationship between right to adequate standard of living and access to adequate housing, water and sanitation. Poverty is the root cause of socioeconomic inequality that hinders regional development. Rural poverty is quite a common phenomenon as most of the populations in rural areas are dependent on agriculture as their prime source of income earning. Poverty is an extremely complex phenomenon, which manifests itself in a range of overlapping and interwoven economic, political and social deprivations. Poverty is a state of deprivation and can be defined in term of social phenomenon where a section of area did not meet even minimum requirements of living [1]. Many study revealed that households who have a low income may not have the same status as status of the section of population that is most materially deprived[2-5]. Therefore, income not only criteria to judge the deprivation but we need addition other factors like housing conditions, sanitation facilities, basic amenities and assets [6]. The elimination of poverty is not merely a question of economic upliftment but is a social and a political issue related to the level of the politico-social awareness of people [7]. We agreed that poor does not simply mean not having more money, moreover generally, a lack of access to resources enabling a minimum style of living and participation in the society within which one belongs [8]. From the equity perspective every peoples of a India has same right to live a good life, irrespective of his/her location, caste, gender, religion, occupation etc. But in reality inequality is a persistent phenomenon in everyday life of people especially those living in developing countries such as India. Particularly in case of location, the standards of living of people living in rural and urban location differ widely. Rural people regularly face problem in order to access their basic amenities due to their being in rural area, where lacking of resources being found. The deprivation of 3 basic amenities causes the rural life most vulnerable to insecurities. Lack of proper institutional measures for social security provisions ensures the continuation of deprivation of the people in the countryside.

The access needs of rural people can be grouped in three broad categories: (i) those associated with basic needs such as water supply, firewood and food security;(ii) those associated with the social welfare aspects of rural life such as health and education; (iii) those associated with the economic welfare aspects of rural life such as agriculture, livestock, cottage industry. Access can be improved in three fundamental and complementary ways: (i) through a better siting of basic facilities and services that rural people need to use (water supplies, schools,



health centers, markets); and (ii) through improving the mobility of rural people so that they can travel faster, easier, more convenient and less expensive (rural roads, tracks, trails, footbridges, waterways); and (iii) through promoting and stimulating the use of communication technology so that rural people have improved access to information related to health, education and market prices (rural telephones, e-mail and internet connections). For the development of India's rural areas, the Bharat Nirman (2005) was launched. Under Bharat Nirman project, action is proposed in the areas of irrigation, road construction (Pradhan Mantri Gram Sadak Yojana), rural housing (Indira Awaas Yojana), rural water supply, rural electrification (Rajiv Gandhi Grameen Vidyutikaran Yojana) and rural telecommunication connectivity. There are also programmes of Ministry of Rural Development, Drinking Water and Sanitation, etc. such as Rajiv Gandhi National Rural Drinking Water Programme, Total Sanitation Campaign (which is renamed as Nirmal Bharat Abhiyan in May 2012) and others.

Objective:

States-wise availability of basic households amenities and its different sources among poor households in rural area of India.

Study design

The present study is based on secondary data source collected by the National Sample Survey Organisation (NSSO), India.

Data source

The data based on basic households amenities in different states of India and unit level data was extracted from the 25th schedule of the 71st round of the cross-sectional collected by the National Sample Survey Organization (NSSO) on 'Health' and 'Education'. NSSO is a national organisation under the Ministry of Statistics In India. The data was collected in all states of India from January to June 2014.

Methodology

For this study, a stratified two-stage sampling design was adopted. First stage sampling based on the selection of census village in the rural areas and urban frame survey blocks in the urban sector. In second stage, household was selected by using random sampling. Survey covered total of 4577 villages and 3720 urban blocks surveyed from which 36,480 and 29,452 households were sampled in rural and urban areas respectively. Survey covered 65,932 households and 333,104 persons were interviewed all over 36 states of India. The face-to-face interviews were conducted using an interview schedule, on morbidity (self-reported), utilization of health care services (including types) and household expenditure on health care.

Data analysis

Data was analysed using SPSS version 21.0 for analysis (SPSS Inc. SPSS Statistics for Windows, Version 21.0. Chicago). Based on per capita monthly expenditure, all over households is divided in poor and non poor categories using poverty cut of urban (Rs.1000) and rural (Rs.816) area respectively [9].



II.RESULT:

Majority of rural households have self-employed in agriculture (40.4%) followed by casual labour in agriculture (20.1%), Casual labour in non-agriculture (17.3%), self-employed in non-agriculture (12.0%), regular wage/salary earning (6.6%) and other (3.1%) respectively. Mizoram (91%), Sikkim (84.2%), Arunachal Pradesh (75.9%), Nagaland (68.4%) showed more self-employed in agriculture houses, majority of self-employed in non-agriculture houses found in Manipur (22.7%), Kerala (18.8%), Pondicherry (18.8%) and West Bengal (18%), majority of regular wage/salary earning houses found in Daman and Diu (100%), Goa (41.7%) and Lakshadweep (38.9%) and Dadar and Nagar Haveli (28.6%), casual labour in agriculture housed found in Pondicherry (50%), Andhra Pradesh (45.9%), Punjab (37.4%) and West Bengal (36.8%) respectively, casual labour in non-agriculture houses found in Dadar and Nagar Haveli (57.1%), Jammu and Kashmir (55%), Kerala (35.9%), Rajasthan (33.7%) and Himachal Pradesh (29.4%) where as other type of houses found in Lakshadweep (11.1%), Goa (8.3%), Kerala (7.8%) and Uttaranchal (7.8%) respectively (Table 1).

Table 1: Availability of types of house in poor households in India

	self-employed in agriculture	self-employed in non-agriculture	regular wage/salary earning	casual labour in agriculture	casual labour in non-agriculture	Other
Jammu and Kashmir	16.5	16.5	5.0	4.5	55.0	2.5
Himachal Pradesh	44.7	14.1	10.6	0.0	29.4	1.2
Punjab	10.1	17.2	14.1	37.4	19.2	2.0
Uttaranchal	49.4	9.1	9.1	14.3	10.4	7.8
Haryana	20.0	17.9	13.6	20.0	27.9	0.7
Rajasthan	39.0	9.4	5.0	8.8	33.7	4.1
Uttar Pradesh	40.8	13.4	3.6	16.4	22.3	3.5
Bihar	30.5	13.9	4.8	22.7	21.5	6.5
Sikkim	84.2	5.3	5.3	0.0	5.3	0.0
Arunachal Pradesh	75.9	3.8	15.2	1.9	1.3	1.9
Nagaland	68.4	12.8	10.3	1.7	6.0	0.9
Manipur	62.2	22.7	11.1	1.1	2.0	0.9
Mizoram	91.0	2.6	3.8	0.0	1.3	1.3
Tripura	55.6	16.7	0.0	0.0	27.8	0.0
Meghalaya	43.1	17.6	5.9	23.5	9.8	0.0



Assam	41.3	12.5	16.6	17.2	10.3	2.2
West Bengal	21.7	18.0	5.3	36.8	12.7	5.6
Jharkhand	48.9	11.4	3.7	5.9	25.1	5.0
Odisha	50.3	11.0	1.5	16.9	16.5	3.7
Chhattisgarh	51.2	4.1	5.1	29.5	8.3	1.8
Madhya Pradesh	37.4	6.4	4.5	32.5	18.5	0.6
Gujarat	32.4	10.8	9.5	29.7	14.2	3.4
Daman and Diu	0.0	0.0	100.0	0.0	0.0	0.0
Dadar and Nagar Haveli	14.3	0.0	28.6	0.0	57.1	0.0
Maharashtra	38.2	8.6	3.9	36.0	11.1	2.2
Andhra Pradesh	29.7	8.1	5.4	45.9	9.5	1.4
Karnataka	44.7	11.4	5.7	26.1	10.2	1.9
Goa	25.0	8.3	41.7	8.3	8.3	8.3
Lakshadweep	27.8	0.0	38.9	22.2	0.0	11.1
Kerala	15.6	18.8	9.4	12.5	35.9	7.8
Tamil Nadu	18.9	10.1	11.5	30.4	25.7	3.4
Pondicherry	0.0	18.8	18.8	50.0	6.3	6.3
A & N Island	66.7	0.0	5.6	11.1	16.7	0.0
Telangana	44.4	14.8	3.7	27.8	3.7	5.6
India	40.4	12.0	6.6	20.1	17.8	3.1

Overall majority of availability of houses in India have Pit(21.3%) and. Septic tank/ Flush system (13.3%) latrine system. Majority of states showed more 100% availability of latrine in Meghalaya, Nagaland, Daman and Diu, Sikkim, Lakshadweep and where minimum availability of latrine found in Rajasthan (9.7%), Chhattisgarh (8.8%), Jharkhand (7.8%), Odisha (6.4%), Dadar and Nagar Haveli (3.6%) respectively. Majorities of states have latrine services found in Puducherry (12.5%), Arunachal Pradesh (9.5%), Jammu and Kashmir (5%) and Himachal Pradesh (2.4%), Pit Latrine found in Tripura (94.4%), Kerala (82.8), Lakshadweep (77.8%), Manipur (76.4%) and Mizoram (73.1%) respectively. Septic tank/ Flush system found in Daman and Diu (100%), Himachal Pradesh (57.6%), Nagaland (48.7%), Puducherry (37.5%), other found in Meghalaya (52.9%), Arunachal Pradesh (22.2%), Assam (12.5%), respectively (Table 2).



Table 2: Availability of Improve latrine in poor households In India

	latrine: service	Pit	septic tank/ flush system	others	Availability of Latrine	No Latrine	Availability of Improve Latrine
Jammu and Kashmir	5.0	49.5	24.0	1.5	80.0	20.0	73.5
Himachal Pradesh	2.4	11.8	57.6	0.0	71.8	28.2	69.4
Punjab	1.0	24.2	37.4	1.0	63.6	36.4	61.6
Uttaranchal	0.0	66.2	11.7	0.0	77.9	22.1	77.9
Haryana	0.7	46.4	11.4	0.0	58.6	41.4	57.9
Rajasthan	0.0	7.3	2.3	0.0	9.7	90.3	9.7
Uttar Pradesh	0.7	6.7	10.5	0.2	18.1	81.9	17.3
Bihar	0.8	8.2	8.6	0.4	18.1	81.9	16.8
Sikkim	0.0	63.2	36.8	0.0	100.0	0.0	100.0
Arunachal Pradesh	9.5	39.2	23.4	22.2	94.3	5.7	62.7
Nagaland	0.0	46.2	48.7	5.1	100.0	0.0	94.9
Manipur	1.7	76.4	16.2	5.1	99.4	0.6	92.6
Mizoram	0.0	73.1	23.1	0.0	96.2	3.8	96.2
Tripura	0.0	94.4	0.0	0.0	94.4	5.6	94.4
Meghalaya	0.0	45.1	2.0	52.9	100.0	0.0	47.1
Assam	0.6	68.8	15.0	12.5	96.9	3.1	83.8
West Bengal	0.3	26.7	9.0	3.2	39.2	60.8	35.7
Jharkhand	0.5	1.4	5.9	0.0	7.8	92.2	7.3
Odisha	0.7	4.4	1.1	0.2	6.4	93.6	5.5
Chhattisgarh	2.3	0.5	6.0	0.0	8.8	91.2	6.5
Madhya Pradesh	0.8	7.0	6.6	0.2	14.6	85.4	13.6
Gujarat	0.0	3.4	14.2	0.0	17.6	82.4	17.6
Daman and Diu	0.0	0.0	100.0	0.0	100.0	0.0	100.0
Dadar and Nagar Haveli	0.0	3.6	0.0	0.0	3.6	96.4	3.6
Maharashtra	0.4	4.7	27.2	0.7	33.0	67.0	31.9
Andhra Pradesh	1.4	4.1	13.5	0.0	18.9	81.1	17.6
Karnataka	0.4	22.0	5.7	0.4	28.4	71.6	27.7
Goa	0.0	41.7	16.7	0.0	58.3	41.7	58.3
Lakshadweep	0.0	77.8	22.2	0.0	100.0	0.0	100.0



Kerala	0.0	82.8	12.5	0.0	95.3	4.7	95.3
Tamil Naidu	0.0	2.7	12.8	0.0	15.5	84.5	15.5
Puducherry	12.5	0.0	37.5	0.0	50.0	50.0	37.5
A & N Island	0.0	11.1	5.6	0.0	16.7	83.3	16.7
Telangana	0.0	3.7	29.6	1.9	35.2	64.8	33.3
India	1.0	21.3	13.3	2.3	37.9	62.1	34.6

Overall availability of drainage (49 %) in India and difference type of drainage found as Open kutchha (30.1%), Open pucca (13.6%), covered pucca (2.9%), underground (2.4%) respectively. Majorities of states showed open kutchha drainage in Puducherry (87.5%), Meghalaya (76.5%), Sikkim (68.4%), Manipur (63.4%), and Nagaland (59%) respectively. Open drainage found in Punjab (61.6%), Haryana (55%), Karnataka (29.9%), Telangana (29.6%) and Nagaland (21.3%), Covered pucca drainage found in Kerala (28.1%), Goa (8.3%), Andhra Pradesh (8.3%) and Karnataka (77.2%) respectively (Table 3).

Table 3: Availability of drainage in poor households In India

	Open kutchha	Open pucca	Covered pucca	Under Ground	Availability of Drainage	No Drainage
Jammu and Kashmir	48.0	14.5	2.5	2.5	67.5	32.5
Himachal Pradesh	45.9	11.8	3.5	2.4	63.5	36.5
Punjab	17.2	61.6	2.0	11.1	91.9	8.1
Uttaranchal	32.5	15.6	1.3	0.0	49.4	50.6
Haryana	32.9	55.0	1.4	1.4	90.7	9.3
Rajasthan	16.1	7.0	2.1	0.9	26.1	73.9
Uttar Pradesh	41.8	20.2	6.9	5.8	74.6	25.4
Bihar	42.5	9.1	1.5	0.6	53.7	46.3
Sikkim	68.4	5.3	0.0	0.0	73.7	26.3
Arunachal Pradesh	33.5	7.6	1.3	0.0	42.4	57.6
Nagaland	59.0	29.1	2.6	0.0	90.6	9.4
Manipur	63.4	21.3	0.0	0.0	84.7	15.3
Mizoram	37.2	1.3	0.0	0.0	38.5	61.5
Tripura	5.6	0.0	5.6	0.0	11.1	88.9
Meghalaya	76.5	2.0	2.0	0.0	80.4	19.6
Assam	37.8	2.2	0.0	0.0	40.0	60.0



West Bengal	8.7	1.9	0.3	0.5	11.4	88.6
Jharkhand	16.0	0.9	0.0	1.4	18.3	81.7
Odisha	3.7	0.7	0.9	0.4	5.7	94.3
Chhattisgarh	12.9	6.9	0.5	0.0	20.3	79.7
Madhya Pradesh	38.1	7.6	2.3	0.6	48.6	51.4
Gujarat	1.4	1.4	0.0	14.9	17.6	82.4
Daman and Diu	0.0	0.0	0.0	100.0	100.0	0.0
Dadar and Nagar Haveli	0.0	0.0	0.0	0.0	0.0	100.0
Maharashtra	17.7	21.1	4.3	5.0	48.2	51.8
Andhra Pradesh	23.0	10.8	8.1	5.4	47.3	52.7
Karnataka	28.0	29.9	7.2	1.1	66.3	33.7
Goa	25.0	8.3	8.3	8.3	50.0	50.0
Lakshadweep	0.0	5.6	5.6	0.0	11.1	88.9
Kerala	9.4	4.7	28.1	4.7	46.9	53.1
Tamil Naidu	23.6	16.9	3.4	1.4	45.3	54.7
Puducherry	87.5	12.5	0.0	0.0	100.0	0.0
A & N Island	5.6	0.0	0.0	0.0	5.6	94.4
Telangana	31.5	29.6	1.9	1.9	64.8	35.2
India	30.1	13.6	2.9	2.4	49.0	51.0

Different type of sources of drinking water in India were found as bottles water (0.2%), tap (27.3%), tube-well/hand pump (57%), tanker (0.4%), pucca well (6.4%), tank/ pond reserved for drinking (2.5%), river/canal (2.2%) and river (3.9%) respectively. With in state, **bottle water** sources shown in Telengana (13%), Andhra Pradesh (1.4%), Tamil Naidu (0.7%) and Rajasthan (0.6%) where as remaining states showed almost zero proportion, **Tap sources of drinking** water is showed maximum proportion in Daman and Diu (100%), Tamil Naidu (91.9%), Goa (91.7%), Sikkim (89.5% and Puducherry (87.5%), **tube-well/hand pump** found in Bihar (97.9%), Uttar Pradesh (93.2%), Odisha (86.2%), west Bengal (85.4%) and Chhattisgarh (82%), **Tanker** found in Haryana (3.6%), Gujarat (3.4%), Karnataka (1.5%), Andhra Pradesh (1.2%) and Himachal Pradesh (1.2%), **pucca well** found in Kerala (54.7%), Lakshadweep (27.8%), Jharkhand (21.5%), Madhya Pradesh (17.9%) and Dadar and Nagar Haveli (17.9%), **tank/ pond reserved** for drinking found in Nagaland (38.5%), Meghalaya (23.5%), Mizoram (16.7%), Manipur (16.5%) and Lakshadweep (11.1%). **River/Canal found in Mizoram** (43.6%), Manipur (14.8%), Andhra Pradesh (6.8%), Jammu and Kashmir (5.5%). **Other sources** found in A & N Island (77.8%), Mizoram (33.3%), Manipur (31%), Meghalaya (21.6%) and Uttaranchal (15.6%) respectively (Table 4).



Table 4 : Availability of different source of drinking water and improve water in poor households in India

	Bottled water	Tap	<i>Tube-well/hand pump</i>	Tankers	Pucca well	Tank/ pond reserved for drinking	River/ canal	Others	Availability of Improve water
Jammu and Kashmir	0.0	77.0	6.5	0.0	0.5	1.0	5.5	9.5	85.0
Himachal Pradesh	0.0	84.7	3.5	1.2	3.5	0.0	0.0	7.1	91.8
Punjab	0.0	46.5	51.5	0.0	0.0	0.0	0.0	2.0	98.0
Uttaranchal	0.0	62.3	19.5	0.0	0.0	1.3	1.3	15.6	83.1
Haryana	0.0	62.1	30.7	3.6	2.9	0.0	0.0	0.7	95.7
Rajasthan	0.6	23.2	58.9	0.9	11.1	3.5	1.2	0.6	96.8
Uttar Pradesh	0.1	4.8	93.2	0.0	1.6	0.1	0.1	0.2	99.6
Bihar	0.0	0.2	97.9	0.2	1.7	0.0	0.0	0.0	99.8
Sikkim	0.0	89.5	0.0	0.0	0.0	0.0	0.0	10.5	89.5
Arunachal Pradesh	0.0	65.8	25.9	0.0	0.0	0.0	0.6	7.6	91.8
Nagaland	0.0	45.3	8.5	0.0	7.7	38.5	0.0	0.0	100.0
Manipur	0.3	32.1	4.3	0.3	0.9	16.5	14.8	31.0	53.7
Mizoram	0.0	1.3	3.8	0.0	1.3	16.7	43.6	33.3	23.1
Tripura	0.0	33.3	55.6	0.0	0.0	0.0	0.0	11.1	88.9
Meghalaya	0.0	33.3	17.6	0.0	3.9	23.5	0.0	21.6	78.4
Assam	0.0	4.4	80.3	0.0	5.3	1.3	1.9	6.9	91.3
West Bengal	0.3	10.3	85.4	0.0	4.0	0.0	0.0	0.0	99.7
Jharkhand	0.0	0.9	75.8	0.5	21.5	0.0	0.9	0.5	98.2
Odisha	0.0	7.0	86.2	0.2	4.2	0.0	2.4	0.0	97.4
Chhattisgarh	0.0	8.3	82.0	0.0	8.3	0.5	0.9	0.0	99.1
Madhya Pradesh	0.2	9.3	70.0	0.0	17.9	0.0	1.9	0.8	97.1
Gujarat	0.0	59.5	27.0	3.4	10.1	0.0	0.0	0.0	96.6
Daman and Diu	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0



Dadar and Nagar Haveli	0.0	28.6	53.6	0.0	17.9	0.0	0.0	0.0	100.0
Maharashtra	0.0	52.0	33.7	0.2	11.3	1.1	1.4	0.4	98.0
Andhra Pradesh	1.4	56.8	27.0	1.4	2.7	0.0	6.8	4.1	86.5
Karnataka	0.4	76.9	14.0	1.5	3.8	2.3	1.1	0.0	97.0
Goa	0.0	91.7	0.0	0.0	0.0	0.0	0.0	8.3	91.7
Lakshadweep	0.0	50.0	0.0	0.0	27.8	11.1	0.0	11.1	88.9
Kerala	0.0	15.6	9.4	0.0	54.7	9.4	0.0	10.9	89.1
Tamil Naidu	0.7	91.9	5.4	0.7	1.4	0.0	0.0	0.0	98.6
Puducherry	0.0	87.5	12.5	0.0	0.0	0.0	0.0	0.0	100.0
A & N Island	0.0	22.2	0.0	0.0	0.0	0.0	0.0	77.8	22.2
Telengana	13.0	42.6	33.3	0.0	3.7	3.7	0.0	3.7	83.3
India	0.2	27.3	57.0	0.4	6.4	2.5	2.2	3.9	93.2

Majority of fuel in rural poor households found was firewood and chips (82%) followed by coke, coal (1.1%), LPG (6.9%), Gobar Gas (0.3%), Dung cake (8%), Charcoal (0.1%), Kerosene (0.3%) and Electricity and other each (0.1%) respectively. Within states, different sources of fuel; **Coke caol** found in Jharkhand (8.7%), Assam (6.3%), West Bengal (4%), Telengana (3.7%) and Punjab (1%), **firewood and chips** found in Tripura (100%), Daman and Diu (100%), Dadar and Nagar Haveli (100%), Rajasthan (97.9%) and Himachal Pradesh (95.3%), **LPG** found in Puducherry (43.8%), Goa (33.3%), Tamil Naidu (31.8%), Telengana (22.2%) and Sikkim (21.1%), **Gobar gas** found in Haryana (2.1%), Telengana (1.9%), UP (0.8%) and Maharashtra (0.8%), **Dung cake** found in Bihar (28.8%), Punjab (27.3%), UP(26.5%), Haryana (23.6%) and Madhya Pradesh (4.9%), **Charcoal** found in Meghalaya (3.9%), Kerala (1.6%), Madhya Pradesh (0.8%) and West Bengal (0.3%), **Kerosene** found in Lakshadweep (11.1%), Nagaland (1.7%), Gujarat (1.4%) and Himachal Pradesh (1.2%), **Electricity** found in Meghalaya (15.7%), Punjab(1%) and Jammu and Kashmir (0.5%) and **Others** sources found in West Bengal (9.5%), A & N Island (5.6%), Bihar (4.2%) and UP (1.2%) respectively (Table 5).

Table 5: Availability of different source of cooking fuel and improve cooking fuel in poor households in India

	coke, coal	firewood and chips	LPG	Gobar gas	Dung cake	Charcoal	Kerosene	Electricity	Others	no cooking arrangement	Improve fuel
Jammu and Kashmir	0.0	80.0	19.0	0.0	0.5	0.0	0.0	0.5	0.0	0.0	19.5
Himachal	0.0	95.3	3.5	0.0	0.0	0.0	1.2	0.0	0.0	0.0	3.5



Pradesh											
Punjab	1.0	60.6	10.1	0.0	27.3	0.0	0.0	1.0	0.0	0.0	11.1
Uttaranchal	0.0	93.5	5.2	0.0	1.3	0.0	0.0	0.0	0.0	0.0	5.2
Haryana	0.0	71.4	2.9	2.1	23.6	0.0	0.0	0.0	0.0	0.0	5.0
Rajasthan	0.3	97.9	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8
Uttar Pradesh	0.9	66.8	3.7	0.8	26.5	0.0	0.1	0.0	1.2	0.0	4.5
Bihar	0.6	63.8	2.1	0.4	28.8	0.0	0.0	0.0	4.2	0.0	2.5
Sikkim	0.0	78.9	21.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.1
Arunachal Pradesh	0.0	89.9	10.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1
Nagaland	0.0	82.1	16.2	0.0	0.0	0.0	1.7	0.0	0.0	0.0	16.2
Manipur	0.0	79.8	19.9	0.0	0.0	0.0	0.3	0.0	0.0	0.0	19.9
Mizoram	0.0	82.1	17.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.9
Tripura	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meghalaya	0.0	80.4	0.0	0.0	0.0	3.9	0.0	15.7	0.0	0.0	15.7
Assam	6.3	83.1	10.3	0.0	0.0	0.0	0.3	0.0	0.0	0.0	10.3
West Bengal	4.0	80.2	1.3	0.0	3.7	0.3	1.1	0.0	9.5	0.0	1.3
Jharkhand	8.7	90.9	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Odisha	0.4	93.8	0.7	0.2	4.0	0.0	0.2	0.0	0.7	0.0	0.9
Chhattisgarh	0.0	94.9	1.8	0.0	3.2	0.0	0.0	0.0	0.0	0.0	1.8
Madhya Pradesh	0.0	92.6	1.2	0.2	4.9	0.8	0.2	0.0	0.0	0.0	1.4
Gujarat	0.0	91.9	6.1	0.0	0.0	0.0	1.4	0.0	0.0	0.7	6.1
Daman and Diu	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dadar and Nagar Haveli	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maharashtra	0.2	87.8	10.6	0.5	0.0	0.0	0.9	0.0	0.0	0.0	11.1
Andhra Pradesh	0.0	90.5	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5
Karnataka	0.0	88.3	11.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.7
Goa	0.0	66.7	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3
Lakshadweep	0.0	88.9	0.0	0.0	0.0	0.0	11.1	0.0	0.0	0.0	0.0
Kerala	0.0	93.8	4.7	0.0	0.0	1.6	0.0	0.0	0.0	0.0	4.7



Tamil Naidu	0.0	67.6	31.8	0.0	0.0	0.0	0.7	0.0	0.0	0.0	31.8
Puducherry	0.0	56.3	43.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	43.8
A & N Island	0.0	94.4	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0	0.0
Telangana	3.7	72.2	22.2	1.9	0.0	0.0	0.0	0.0	0.0	0.0	24.1
India	1.1	82.0	6.9	0.3	8.0	0.1	0.3	0.1	1.1	0.0	7.4

Overall 49% availability of drainage was found in rural poor households in India. Daman and Diu (100%), Puducherry (100%), Punjab (91.9%), Haryana (90.7%), Nagaland (90.6%) showed maximum drainage and West Bengal (11.4%), Tripura (11.1%), Lakshadweep (11.1%), Odisha (5.7%), A&N Island (5.6%), Dadar and Nagar Hawali (0.0%) showed minimum availability of drainage whereas remaining states showed availability of drainage between 17.6% and 84.7% (Fig 1).

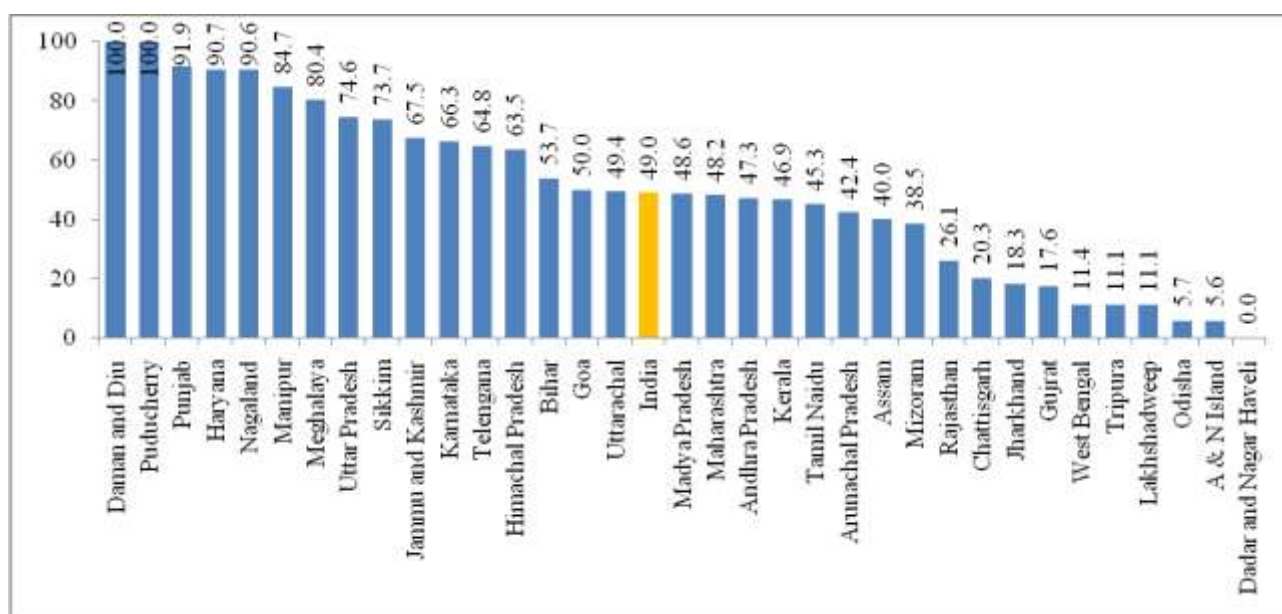


Fig1: State-wise availability of drainage in India

Overall 34.6% availability of improved latrine was seen in rural poor household in India. Sikkim (100%), Daman and Diu (100%), Lakshadweep (100%) Mizoram (96.2%), Kerala (95.3%), Nagaland (94.9%), Tripura (94.4%), Manipur (92.6%) showed maximum of availability of improved latrine and Rajasthan (9.7%), Jharkhand (7.3%), Chhattisgarh (6.5%), Odisha (5.5%) and Dadar and Nagar Hawali (3.6%) showed minimum of availability of improved latrine whereas remaining states showed availability of improved latrine between 13.6% and 83.8% (Fig 2).

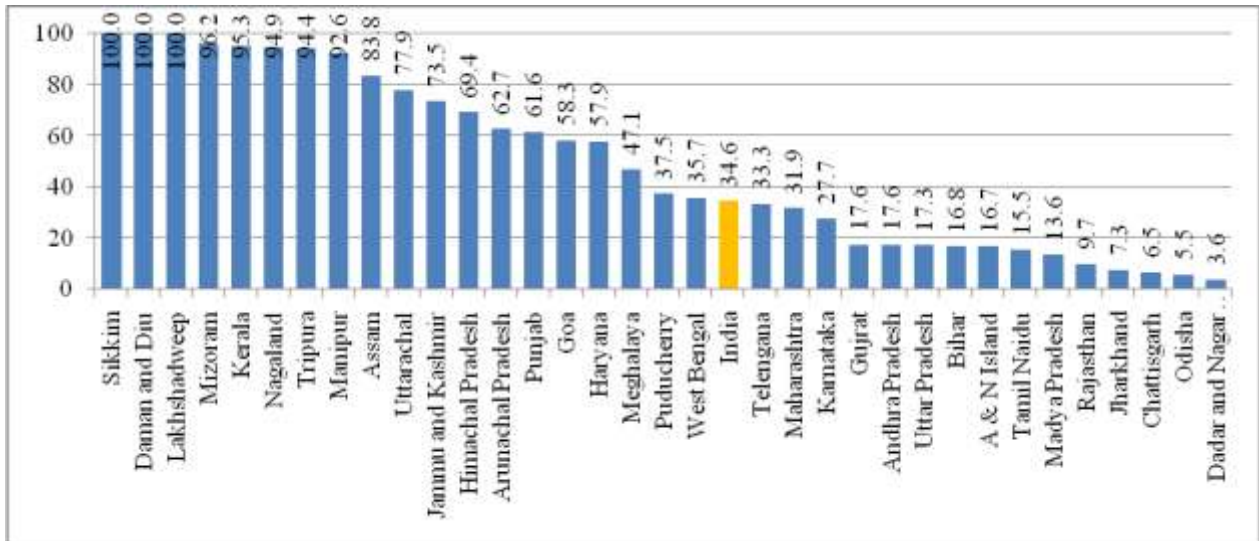


Fig 2: State-wise availability of improve Latrine in India

Overall 93.2% availability of improved water was seen in rural poor household in India. Nagaland (100%), Daman and Diu (100%), Dadar and Nagar Haveli (100%), Puducherry (100%), Bihar (99.8%) showed significant of availability of improved water and Manipur (53.71%), Mizoram (23.1%), Rajasthan (9.7%) and A & N Island (22.2%) showed minimum of availability of improved water whereas remaining states showed availability of improved latrine between 78.4% and 99.7% (Fig 3).

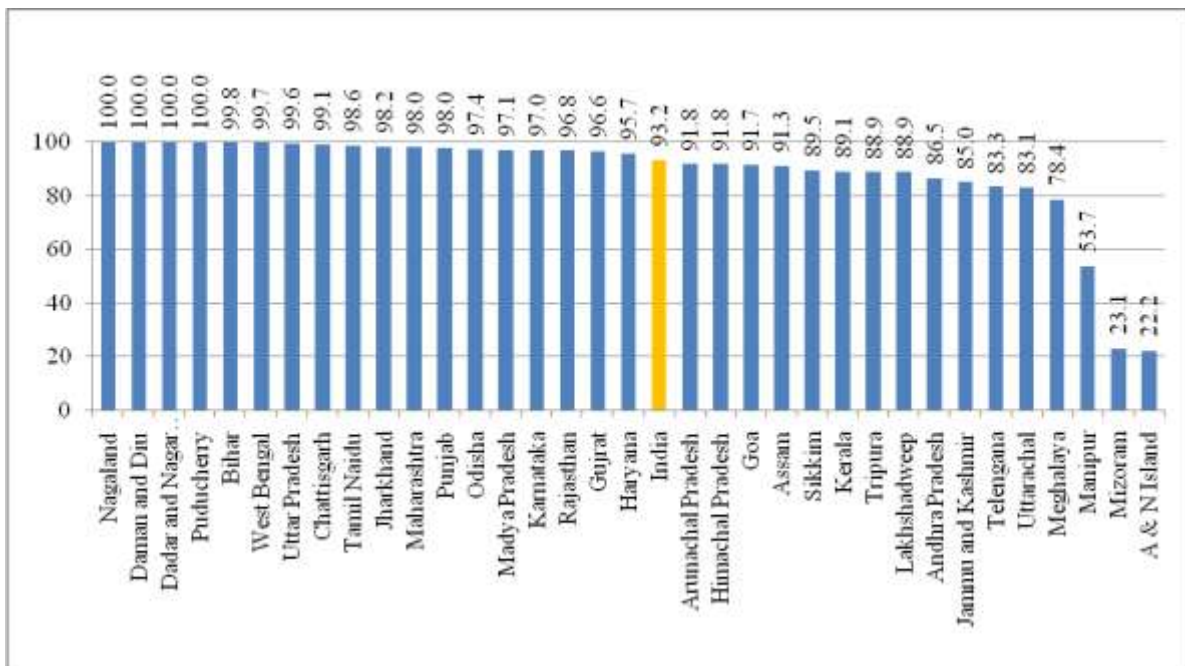


Fig 3: State-wise availability of improve source of water in India



Overall 7.4% availability of improved cooking fuel was seen in rural poor household in India. Puducherry (43.8%), Goa (33.3%), Tamil Naidu (31.8%), Telengana (24.1%), Sikkim (21.1%) showed significant of availability of improved cooking fuel and Chhattisgarh (1.8%), Rajasthan (1.8%), Madhya Pradesh (1.4%), West Bengal(1.3%) and Odisha (0.9%) showed minimum of availability of improved cooking fuel (Fig 4).

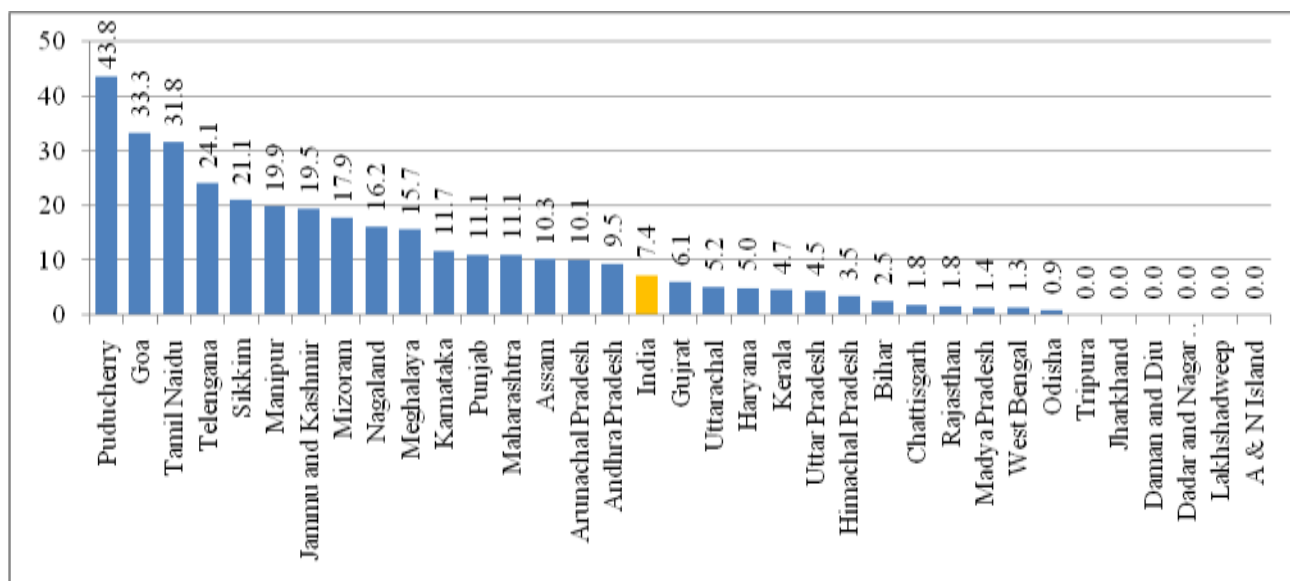


Fig 4: State-wise availability of Improve cooking fuel in India

Discussion:

Study reveals that in India 40.4% houses belong to self employed in agriculture, and Mizoram (91%), Sikkim (84.2%), Arunachal Pradesh (75.9%), Nagaland (68.4%) showed houses belong to self-employed in agriculture. 6.6 % housed found of regular wage/salary earning. This showed that in rural area most of houses belongs to self employed and casual labour working in agriculture – non agriculture fields.

Overall 34.6% house has availability of latrine system in their houses. 21.3% houses have Pit Latrine and 13.3% houses have Septic tank/ Flush system. Meghalaya, Nagaland, Daman and Diu, Sikkim, Lakshadweep showed maximum 100% availability of latrine in their houses. In 2011, of the 30.7% of households with latrine facility within the premises, 19.4% had water closets and 11.3% had pit and other latrine facilities. Of the 69.3% of households without latrine facility within the premises in 2011, 1.9% used public latrines and 67.3% used open defecation [10]. The study revealed that 62.1% rural poor houses have no latrine. The proportion of households with no latrine facility in the house were 87.3%, 78.3%, 66.4%, and 59.4% during 1993, 2002, 2008-09, and 2012, respectively [11]. The compounded annual rate of decline in the proportion of households with no latrine facility in the house were found to be 1.1%, 2.6% and 3.0% between 1993-2002, 2002-08-09 and 2008-09-12, respectively. Overall 49% houses showed availability of open kutcha drainage system in India whereas Puducherry (87.5%), Meghalaya (76.5%), Sikkim (68.4%), Manipur (63.4%) showed more access of drainage



system. 93.2 % houses have improved water whereas 27.3% have tap and 57% have Tube-well/hand pump main source of water in India. Nagaland (100%), Daman and Diu, Dadar and Nagar Hawali, Puducherry, Bihar showed significant of availability of improved water. In 2015, 88% of the total population had access to at least basic water, or 96% in urban areas and 85% in rural areas. In India in 2015, 44% had access to "at least basic sanitation", or 65% in urban areas and 34% in rural areas. In 2015, there were still 150 million people without access to "at least basic" water and 708 million without access to "at least basic" sanitation [12]. Only 7.4 % houses have improve cooking fuel in India and 82% houses have firewood and chips as the main sources of cooking where as Tripura , Daman and Diu, Dadar and Nagar Haveli, Rajasthan and Himachal Pradesh showed firewood and chips as the main sources of cooking. Goa, Puducherry, Telengana and Sikkim showed LPG as source of cooking. According to census 2011 where 12.0% rural houses using LPG gas. The most widely used cooking fuel remains firewood, used by 72 per cent of households. Dung cakes are the second most common cooking fuel, used by 39 per cent of households [13].

III.CONCLUSION

Household assets and amenities reflect a households quality of life. Provision of electricity, clean drinking water, road condition, sanitary condition, health and hygiene, accessibility to cleaner fuel and smokeless stove for domestic use in households determines the overall development of a region. The position of housing in rural poor areas mainly belongs to self employed and casual labour in agriculture and non-agriculture. Need to government to create intension toward the employment in rural area, so that poor uplift from deprivation. Rural Domestic Cooking Energy with its two components i.e., Improved Chulha and rural Fuelwood Plantation have helped the rural women in overcoming the problem of non-commercial use of cooking energy. But it has been found that in our country about half of our population is without safe drinking water. The number of poor households with amenities like L.P.G connection, toilet facility and drainage system need attention in rural areas of India.

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Competing interests

The authors declare that they have no competing interests.

Consent for publication

Not applicable.



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