

Role of Roads on Housing and Health of Fringe of Raipur City, Chhattisgarh: A Comparative Analysis

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Abstract - The World Health Organization (WHO) stated that housing is a residential environment for family and individuals which involved as physical structure used for shelter. It is one of the basic human needs after food and clothing. Housing is most essential for civilized existence. The development of housing therefore must enjoy high priority in poor society where facilities and amenities are below the minimum standard. In the fringe of Raipur city most of the selected village's subordinate (lower level) housing condition because of such villages are closely associated with the low level of socio-economic and cultured lifestyle. In the study area, the quality of houses is medium or low type because low quality materials used for construction and lack of modern planning to frame the building components. Health is the ability of communities or individuals to put down physical, mental or social challenges. It is a complete physical, mental and social well being. The health condition of communities mostly depends on efficient and flourished health care system. In the case of Raipur Fringe health care infrastructure is very poor. There are no any primary health centers in the selected remote villages.

Keywords: House Type, Area of Houses, Household Goods, Fuel Energy, Disease in Family, Medicine Use.

I. INTRODUCTION

The World Health Organization (WHO) stated that housing is a residential environment for family and individuals which involved as physical structure used for shelter, all require facilities services, apparatus and ingredient needed or wished for the social well being and physical and mental health of the family and individuals (Omole, 2010). Housing is one of the basic human needs after food and clothing (Omole, 2010). A minimum standard of housing is most essential for civilized existence. Housing is pre vital for survival of man (Onibokun, 1985) which reflect the socio – economic and cultural values of society, as it is the best physical and historical evidence of civilization in a region (Sunday and Adebambo, 2014). The World Health Organization (WHO) stated that housing is a residential environment for family and individuals which involved as physical structure used for shelter. It is one of the basic human needs after food and clothing. Housing is most essential for civilized existence. The development of housing therefore must enjoy high priority in poor society where facilities and amenities are below the minimum standard. In the fringe of Raipur city most of the selected villages subordinate (lower level) housing condition because of such villages are closely associated with the low

level of socio – economic and cultured lifestyle. In the study area, the quality of houses is medium or low type because low quality materials used for construction and lack of modern planning to frame the building components. Here, 78.31% building have spent more than 30 years and only 4.75% of the total housing is under recent construction. Major percentage (59.05%) of respondents residing in katcha houses. The concentration of rental houses is maximum in road side villages than the remote villages.

Health is the ability of communities or individuals to accommodate and self manage, when facing physical, mental or social challenges (Huber et al., 2011). According to World Health Organization (2006) health as “a state of complete physical, mental and social well being and not merely the absence of disease or infirmity”. Health is measured differently in different sectors as medical records, self appreciations of health, limitations on physical functioning, anthropometric, measurements etc (Bloom and Canning, 2008). Health also comprises physical, mental and social function of an individual (Gotaulinus and Bancevica, 2015) or communities.

Health is the ability of communities or individuals to put down physical, mental or social challenges. It is a complete physical, mental and social well being. The health condition of communities mostly depends on efficient and flourished health care system. In the case of Raipur Fringe, health care infrastructure is very poor. There are no any primary health centers in the selected remote villages of Raipur fringe. Major percentage of household (86.34%) are depends on government hospitals for health treatment, located between 10 to 20 km. distance from remote villages. Due to unusable bathing and drinking water, respondents are easily affected by Jaundice; therefore 12.20% and 6.74% households are affected by Jaundice in the remote side and road side villages respectively. So, it is clear that road has a significant impact to influence the social status like housing conditions and health status of the people.

II. MATERIAL AND METHODS

To carry out this study primary data collected from field survey through well structured interview schedule and village diary. The schedule is concerned with several socio-economic characteristics related questions. Information about educational status, health facility, housing condition,

occupational structure, land use pattern, transportation cost, agricultural output, effects of transportation on agriculture and occupation were collected through a structured interview schedule. Information about land use pattern, impacts of road on land use changes, land price and causes of various transportation problems in the study area were obtained through village diary.

The data of house building materials, types of house, area of house, disease in family, health facilities etc has been collected through interview schedule from door to door survey . The satellite imagery of the study area has been obtained from Google Earth, 2011(satellite image) to update the existing road network.

The Fringe of Raipur city comprises 130 villages. Out of 130 villages 10% villages were selected for the survey which has been accepted at 95% confidence level or 0.05 significant levels. Out of 13 villages (10%), 6 villages have been selected from road side and other 7 villages have been selected from remote areas through purposive sampling. Then 10% households have been selected randomly from each village which is significant at 0.05 levels. The data were organized, classified and tabulated.

III. HOUSING CONDITION

The development of housing therefore must enjoy high priority in poor society where facilities and amenities are below the minimum standard. Housing activity supply to occupy many of the fundamental objectives of the plan providing shelter, raising the quality of life, creating conditions which are conducive of crucial objectives such as health, sanitation, education, additional employment, dispersed economic activity etc.

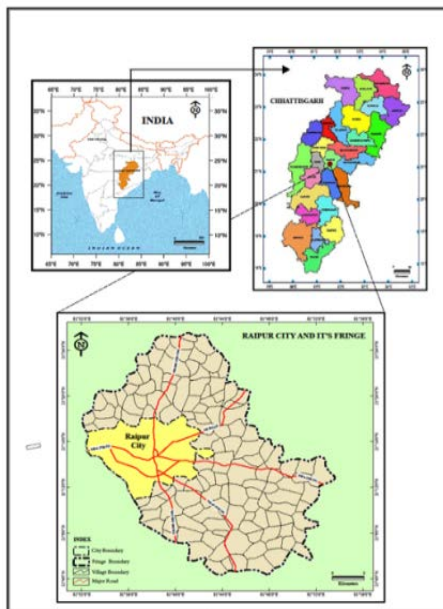


Fig. 1 Location Map of Fringe of Raipur City

In the fringe of Raipur city most of the selected village's subordinate (lower level) housing condition because of such villages are closely associated with the low level of socio – economic and cultured lifestyle. But in some cases, housing condition is relatively better in the fringe area. In the study area, housing conditions measured by some basic characteristics of houses, those are, building materials , built up area of houses, number of rooms, facilities and amenities of houses, household goods etc.

IV. TYPE OF HOUSES

Dr. S. D. Kaushik classified the house type on the basis of size, shape and material. The house of the surface area has been divided as Pucca, Semipucca and katcha. The pucca houses belong to the upper class families and semipucca and katcha houses belong to the middle and lower class families. In the study area, the quality of houses is medium or low type because low quality materials used for construction and lack of modern planning to frame the building components.

Here 78.31% building have spent more than 30 years and only 4.75% of the total housing is under recent construction. In this area large number of houses of have low habitability because maximum houses belongs under old construction which has direct effects on health socio – economic well being of the residents.

Table I shows that, 53.11% pucca, 19.17% semi pucca and 27.72% katcha houses recorded in road side villages, where as 20.49% pucca, 17.56% semi pucca and 61.95% katcha houses found in remote villages. Table no.1 also evaluate that road has profound impact on house type, therefore maximum concentration of pucca houses has been found in road side villages, whereas remote village are owing maximum percentage of katcha houses.

Maximum respondents have katcha houses in Hatband (83.33%) and the village Jora has relatively least percentage of katcha houses (46.67%). The maximum pucca houses has been found in Jora village (23.33%), followed by Siltara (21.90%), Mana (20.93%), Dhaneli (14.55%), Sejbahar (14.29%), Dondekhurd (13.33%), Kanhera (12.00%), Kandul (10.71%), Nagargaon (10.00%), Dhusera (8.57%), Hatband (8.33%) and Tulsi (5.00%) village.

The highest concentration of semipucca houses has been found in Sejbahar village as 31.43%, followed by Jora (30.00%), Dhaneli (29.09%), Dondekhurd (28.89%), Dhusera (28.57%), Darba (28%), Mana (27.91%), Nagargaon (27.50%), Siltara (24.76%), Kandul (17.86%), Tulsi (15.00%), Hatband (8.33%) and Kanhera village (8.00%). In the study area major percentage of respondents residing in katcha houses 59.05% where pucca and semipucca houses considered as 15.57% and 25.38% respectively in entire region.

TABLE I HOUSE TYPE

Village Type	Village Name	Pucca	%	Semipucca	%	Katcha	%	Total
Road Side Villages	Dondekhurd	27	60.00	6	13.33	12	26.67	45
	Sejbahar	19	54.29	5	14.29	11	31.43	35
	Mana	44	51.16	18	20.93	24	27.91	86
	Dhaneli	31	56.36	8	14.55	16	29.09	55
	Jora	28	46.67	14	23.33	18	30.00	60
	Total	205	53.11	74	19.17	107	27.72	386
	Siltara	56	53.33	23	21.90	26	24.76	105
	Total	205	53.11	74	19.17	107	27.72	386
Remote Villages	Dhusera	10	28.57	3	8.57	22	62.86	35
	Kanhera	2	8.00	3	12.00	20	80.00	25
	Nagargaoan	11	27.50	11	27.50	18	45.00	40
	Darba	7	28.00	9	36.00	9	36.00	25
	Nagargaon	11	27.50	11	27.52	18	45.00	40
	Tulsi	6	15.00	2	5.00	32	80.00	40
	Kandul	5	17.86	7	25.00	16	57.14	28
	Hatband	1	8.33	1	8.33	10	83.33	12
	Kandul	5	17.86	7	25.00	16	57.14	28
	Total	42	20.49	36	17.56	127	61.95	205
	Gr.Total	247	41.79	110	18.61	234	39.59	591

Source: Personal Survey, 2010

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V. STRUCTURAL CONDITION OF HOUSES

The structural condition of houses refers to building materials of houses used for wall roof and floor construction. The wall materials of the house are 39.6% of mud 18.6% mud- brick and 41.8% cement. Roofing material of the houses has been considered as 36.2% tiles 22% tin and 41.8% concrete materials. Floor of the houses constructed by mud, concrete, stone and tiles where the floors are constructed by mud, tin and tiles with 46.5%, 50.1% and 3.55% houses respectively in entire region.

The building materials of houses indicate that, the level of technology of the building construction is far better in road side villages than the remote village, because houses of road side villages recorded as, 27.5 % tile 19.4% tin and 53.1% concrete for roof construction.

Whereas the houses of remote villages considered by 52.7% tile 26.8% tin and only 20.5% concrete for roofing . The category of the floor of the houses also differs from road side to remote villages. To floor construction stone and tiles has been used by 4.66% houses in road side villages and 1.46% houses in remote villages. In the study area 68% of the houses need their minor and major repairs out of which 32% are completely old and dilapidated.

VI. AREA OF HOUSES

Built up area of houses refers to an area covered by the houses in a particular region which measured by square feet. Built up area of houses are increasing rapidly in during last

five years (2005 – 2010) in the fringe of Raipur city. Area of houses in the study area has been divided into five categories viz. below 250sqft, 250-500sqft, 500-750sft, 750-1000sqft, and 1000-sqft above.

TABLE II BUILT UP AREA OF HOUSES (SQUARE FEET)

Village Type	Village Name	<250	%	250-500	%	500-750	%	750-1000	%	>1000	%	Total
Road Side Villages	Dondekhurd	19	42.22	13	28.89	8	17.78	3	6.67	2	4.44	45
	Mana Sejbahar	38	44.19	32	37.21	8	9.302	5	5.81	3	3.49	86
	Mana	14	40	11	31.43	6	17.14	2	5.71	2	5.71	35
	Mana	38	44.19	32	37.21	8	9.30	5	5.81	3	3.49	86
	Dhaneli	25	45.45	17	30.91	8	14.55	3	5.45	2	3.64	55
	Jora	16	26.67	10	16.67	14	23.33	15	25.00	5	8.33	60
	Siltara	43	40.95	35	33.33	7	6.667	11	10.48	9	8.57	105
	Total	155	40.16	118	30.57	51	13.21	39	10.10	23	5.96	386
Remote Villages	Dhusera	18	51.43	11	31.43	3	8.571	2	5.71	1	2.86	35
	Kanhera	14	56	10	40		0	1	4.00		0.00	25
	Nagargaon Darba	20	50	13	32.5	4	10	2	5.00	1	2.50	40
	Nagargaon	13	52	6	24	3	12	2	8.00	1	4.00	25
	Nagargaon	20	50	13	32.5	4	10	2	5.00	1	2.50	40
	Tulsi	19	47.5	15	37.5	3	7.5	2	5.00	1	2.50	40
	Hatband	3	25	6	50	2	16.67	1	8.33		0.00	12
	Kandul	14	50	7	25	5	17.86	2	7.14		0.00	28
	Total	101	49.27	68	33.17	20	9.76	12	5.85	4	1.95	205
	Gr.Total	256	43.32	186	31.47	71	12.01	51	8.63	27	4.57	591

Source: Personal Survey 2010 - 11.

Table II reveals that built up area of houses are relatively large in roads side village than remote villages. Road side villages have 40.16% houses are under 250sqft, 30.57% houses within 250-500sqft, 13.21% houses within 500-750sqft, 10.10% houses within 750-1000sqft, and 85.96% houses are under above 1000sft; where remote villages considered as 49.27% houses are under 250sft, 33.17% houses are within 250-500sqft 9.76% houses are 500-750sft, 5.85% houses are 750-1000sft, and 1.95% houses are under above 1000sft built up area. Above table shows that, out of sample houses , 43.32% houses are build with less than 250sft, 31.47% houses are built within 250-500sft ,12.01% houses are within 500-750sft 8.64% houses are

750-1000sft and 5.92% houses covered an area of more than 1000sqft in the fringe of Raipur City. The built up area of houses with more than thousand square feet is considered as marginal percentage in the study area. It ranges from2.50% in Tulsi and Nagarga on to 8.57% in Siltara.

VII. OWNERSHIP OF HOUSES

Home ownership is a form of housing tenure where a person owns the home as house, apartment, cooperative housing etc, in where he or she lives. It is also function of real property investment. The ownership of house in the

fringe of Raipur city has been divided by their categories viz. private, public and Government (Govt).

Private houses also divided into three categories on the basis of their amount of house rent as less than 1000Rs/ month, 1000-1500Rs/ month and more than 1500Rs/ month.

TABLE III OWNERSHIP OF HOUSES

Village Type	Village Name	Private	%	Rental (Monthly Rent in Rs.)							%	Govt	%	Total House Hold
				<500	%	500-1000	%	1000-1500	%	>1500				
Road Side Village	Dondekhurd	40	88.9	2	4.4	1	2.22	2	4.44	0	0	0	0	45
	Sejbahar	32	91.4	2	5.7	1	2.86	0	0	0	0	0	0	35
	Mana	79	99.9	3	3.5	2	2.33	1	1.16	1	1.16	0	0	86
	Dhaneli	50	90.9	2	3.6	1	1.82	2	3.64	0	0	0	0	55
	Jora	53	88.3	3	5.0	2	3.33	0	0	1	1.67	1	1.67	60
	Siltara	88	83.8	5	4.8	3	2.86	2	1.9	4	3.81	3	2.86	105
Remote Village	Total	342	88.6	17	4.4	10	0	7	1.81	6	1.55	4	1.04	386
	Dhusera	35	100	0	0.0	0	0	0	0	0	0	0	0	35
	Kanhera	25	100	0	0.0	0	0	0	0	0	0	0	0	25
	Darba	25	100	0	0.0	0	0	0	0	0	0	0	0	25
	Nagargaon	38	95	1	2.5	0	0	0	0	0	0	1	2.5	40
	Tulsi	39	97.5	1	2.5	0	0	0	0	0	0	0	0	40
	Hatband	12	100	0	0.0	0	0	0	0	0	0	0	0	12
	Kandul	28	100	0	0.0	0	0	0	0	0	0	0	0	28
Total	202	99.5	2	1.0	0	0	0	0	0	0	1	0.49	205	
Gr.Total	544	92	19	3.2	10	1.69	7	1.18	6	1.02	5	0.85	591	

Source: Personal Survey, 2010 – 11

Table no. 3 shows that the selected villages have 92% private houses, 0.85% public houses and 7.11% rental houses. Here the ownership of houses considered as 88.6% private, 1.04% public and 10.36% rental in road side villages. Where, 98.5% private 0.49% public 1% rental household has been found in remote villages. Except Nagargaon, there are no any public (Govt) houses in remote villages. In both cases the concentration of private houses are maximum than others type of houses. In the study area highest concentration of rental houses has been found in Siltara village (13.33%), followed by Dondekhurd (11.11%), Jora (10.00%), Dhaneli (9.09%), Sejbahar (8.57%) and Mana (8.14%). Above table examined that concentration of rental houses is maximum in road side villages than the remote villages.

VIII. INFRASTRUCTURAL FACILITIES IN HOUSES

Here infrastructural facility in houses refers to number of rooms, sitting room, bathroom, water supply electricity etc. The level of arrangement of these facilities varies from one to other houses.

In the study area, 24.7% household are having single room, whereas 46.9% and 28.4% households are having double and more than double rooms respectively. Households are

having single room with 15.3% in road side villages and 42.4% in remote villages. It ranges from 10.5% in Siltara to 48% in Darba. Major percentages of households are having double room in the study area. It ranges from 24% in Kanhera to 56.2% in Siltara. The highest percentage of household with more than two rooms, has been occupies by Mana (33.7%) and lowest percentage recorded in Kandul (14.3%).

In the study area only 17.98% household has sitting room. It ranges from 3.57% in Kandul to 31.6% in Jora. Bathroom and sewage facilities are not available in the selected sample villages. In the road side villages 1.66% and 6.7% household are having bathroom and sewage facility respectively. Whereas, 6.22% and 3.35% households are enjoying these facilities respectively in remote sample village.

Table 4 evaluates that accessibility of road network is most essential to improve housing condition as well as facilities and amenities in houses, because motor able roads minify transportations cost of housing materials from urban to rural areas (Toyobo, 2014; Mulmi, 2009). Therefore roadside villages have better housing condition with available facilities than remote villages.

TABLE IV SANITATION FACILITIES

Village Type	Village Name	No. of Rooms						Sitting Room		Bath/ Latr.		Sewage Facilities		Total
		1	%	2	%	>2	%	Yes	%	Yes	%	Yes	%	
Road Side Villages	Dondekhurd	7	15.6	23	51.1	15	33.3	11	24.44	5	11.1	2	4.444	45
	Sejbahar	9	25.7	18	51.4	8	22.9	6	17.14	7	20	3	8.571	35
	Mana	12	14	45	52.3	29	33.7	17	19.77	13	15.1	5	5.814	86
	Dhaneli	13	23.6	26	47.3	16	29.1	10	18.18	9	16.4	3	5.455	55
	Jora	7	11.7	33	55	20	33.3	19	31.67	11	18.3	6	10	60
	Siltara	11	10.5	59	56.2	35	33.3	31	29.52	19	18.1	7	6.667	105
	Total	59	15.3	204	52.8	123	31.9	94	24.35	64	16.6	26	6.736	386
Remote Villages	Dhusera	13	37.1	15	42.9	7	20	3	8.571	2	5.71	1	2.857	35
	Kanhera	11	44	6	24	8	32	1	4	1	4	0	0	25
	Nagargaon	17	42.5	13	32.5	10	25	3	7.5	3	7.5	2	5	40
	Darba	12	48	8	32	5	20	2	8	2	8	1	4	25
	Nagargaon	17	42.5	13	32.5	10	25	3	7.5	3	7.5	2	5	40
	Tulsi	19	47.5	12	30	9	22.5	2	5	2	5	2	5	40
	Hatband	5	41.7	5	41.7	2	16.7	1	8.333	1	8.33	0	0	12
	Kandul	10	35.7	14	50	4	14.3	1	3.571	2	7.14	1	3.571	28
	Total	87	42.4	73	35.6	45	22	13	6.341	13	6.34	7	3.415	205
Gr. Total	146	24.7	277	46.9	168	28.4	107	18.1	77	13	33	5.584	591	

Source: Personal Survey, 2010 - 11.

TABLE V ROOM DENSITY

Village Type	Village Name	Sample Population	No. of Rooms	Room Density(Person/Room)
RoadSide Villages	Dondekhurd	364	113	3.22
	Sejbahar	355	81	4.38
	Mana	462	196	2.36
	Dhaneli	364	118	3.08
	Jora	415	137	3.03
	Siltara	490	240	2.04
	Total	2450	885	2.77
Remote Villages	Dhusera	187	57	3.28
	Kanhera	179	40	4.48
	Nagargaon	284	73	3.89
	Darba	210	39	5.38
	Nagargaon	284	73	3.89
	Tulsi	309	63	4.90
	Kandul	172	52	3.31
	Hatband	87	23	3.78
	Kandul	172	52	3.31
Total	1428	347	4.12	
Gr.Total	3878	1232	3.14	

Source: Personal Survey 2010-11

Table 5 reveals that room density in the selected sample villages of fringe of Raipur City. The average room density is 3.14 person / room. It ranges from 5.38 person /room in Darba to 2.04 person /room in Siltara.

There are four such villages viz. Sejbahar, Kanhera, Darba and Tulsi, where room density accounts for more than 4.00/room. As against this there are two such villages viz. Mana and Siltara, those are having less than 3.00/room. Highest figure recoded in Darba village (5.38) and followed by Tulsi (4.90), kanhera (4.48), Sejbahar (4.38), Nagargaon (3.89), Hatband (3.78), Kandul (3.31), Dhusera (3.28), Dondekhurd (3.22), Dhaneli (3.08), Jora (3.03), Mana (2.36) and Siltara (2.04).

IX. SOURCES OF DRINKING WATER

Adequate source of pure drinking water plays a vital role to encourage people for residing at particular area and promote more housing as well as social development.

Table no. 6 reveals that ground water is the main source of drinking water supply in the fringe of Raipur city.

Sufficient water supply is most essential in the study area. There are two fundamental sources of drinking water, one is hand pumps and another is wells. In the study area, pipe borne water is another source of some villages.

Table 6 shows that 40.95% household depends on public hand pump for drinking water and followed by 36.89% public wells, 8.79% private wells, 6.94% private hand pumps, 4.74% other than public hand pumps or wells and 1.69% other than private hand pumps or wells. Most of the respondents from road side (41.2%) and remote villages (40.49%), both are using public (government) hand pump.

But as a source of drinking water hand pumps and wells are relatively adequate in road side villages. Therefore, from road side villages, 10.10% and 11.70% households depend on private hand pumps and wells respectively, whereas only 0.98% and 3.41% households are using hand pumps and wells respectively, in the remote villages. There are no other sources of drinking water in remote sample villages.

TABLE VI SOURCES OF DRINKING WATER

Village Type	Village Name	Private						Public						Total
		HP	%	Well	%	Others	%	HP	%	Well	%	Others	%	
Road Side Villages	Dondekhurd	5	11.1	6	13.3	0	0	19	42.22	13	28.89	2	4.44	45
	Sejbahar	8	22.9	5	14.3	1	2.86	13	37.14	6	17.14	2	5.71	35
	Mana	7	8.14	16	18.6	2	2.33	34	39.53	24	27.91	3	3.49	86
	Dhaneli	4	7.27	7	12.7	1	1.82	16	29.09	23	41.82	4	7.27	55
	Jora	4	6.67	5	8.33	2	3.33	26	43.33	18	30	5	8.33	60
	Siltara	11	10.5	6	5.71	4	3.81	51	48.57	24	22.86	9	8.57	105
	Total	39	10.10	45	11.7	10	2.6	159	41.19	108	27.98	25	6.5	386
Remote Villages	Dhusera	0	0	2	5.71	0	0	8	22.86	24	68.57	1	2.86	35
	Kanhera	1	4	1	4	0	0	7	28	16	64	0	0	25
	Darba	0	0	2	8	0	0	13	52	10	40	0	0	25
	Nagargaon	0	0	1	2.5	0	0	17	4.25	22	55	0	0	40
	Tulsi	1	2.5	0	0	0	0	23	57.5	15	37.5	1	2.5	40
	Hatband	0	0	0	0	0	0	4	33.33	7	58.33	1	8.33	12
	Kandul	0	0	1	3.57	0	0	11	39.29	16	57.14	0	0	28
	Total	2	0.98	7	3.41	0	0	83	40.49	110	53.66	3	1.46	205
Gr.Total	41	6.94	52	8.8	10	1.69	242	40.95	218	36.89	28	4.74	591	

Above table examined that, maximum respondents of Tulsi village are using public hand pumps as 57.50%. Similarly in the Kandul village, major percentages (57.10%) of households depend on public dug wells. Siltara, being the only village in the study area where 8.57% households have others sources of drinking water. Respondents from Dondekhurd, Sejbahar, Mana, Dhaneli, Jora, Siltara, Kanhera, and Tulsi villages are

having personal hand pumps as a source of drinking water. It is clear that road side villages occupy regular supply of drinking water, while remote villagers in the study area fall by water crisis as compared to demand in summer season, especially in Dhusera, Darba, Nagargaon and Kandul villages.

X. SOURCES OF BATHING WATER

In the study area ponds are most important source of bathing water. Dug well and hand pumps also play a

vital role to respondents for bathing. Shortage of bathing water is a most common phenomenon in sample villages of fringe of Raipur City. Here river and government supply of water are also another source of bathing water.

TABLE VII SOURCES OF BATHING WATER

Village Type	Village Name	HP	%	WL	%	PN	%	OT	%	HP	%	WL	%	PN	%	OT	%	Toatal
Road Side Villages	Dondekhurd	0	0.0	1	2.22	1	2.2	0	0	7	15.6	1	2.22	34	75.56	1	2.22	45
	Sejbahar	1	2.9	1	2.86	0	0.0	0	0	5	14.3	1	2.86	27	77.14	0	0	35
	Mana	1	1.2	3	3.49	0	0	1	1.16	11	12.8	4	4.65	64	74.42	2	2.33	86
	Dhaneli	0	0.0	1	1.82	0	0.0	0	0	6	10.9	3	5.45	44	80	1	1.82	55
	Jora	0	0.0	1	1.67	0	0.0	0	0	8	13.3	3	5	47	78.33	1	1.67	60
	Siltara	3	2.9	2	1.9	0	0.0	2	1.9	12	11.4	4	3.81	79	75.24	3	2.86	105
	Total	5	1.3	9	2.33	1	0.3	3	0.78	49	12.7	16	4.15	295	76.42	8	2.07	386
Villages Remote	Dhusera	0	0.0	1	2.86	0	0.0	0	0	1	2.86	3	8.57	30	85.71	0	0	35
	Kanhera	0	0.0	0	0	1	4.0	0	0	0	0	2	8	22	88	0	0	25
	Darba	0	0.0	1	4	0	0.0	0	0	2	8	1	4	21	84	0	0	25
	Nagargaon	0	0	0	0	1	2.5	0	0	1	2.5	3	7.50	35	87.5	0	0	40
	Tulsi	0	0.0	0	0	0	0.0	0	0	2	5	1	2.5	37	92.5	0	0	40
	Hatband	0	0.0	0	0	0	0.0	0	0	0	0	0	0	10	83.33	2	16.7	12
	Kandul	0	0.0	0	0	0	0.0	0	0	1	3.57	1	3.57	26	92.86	0	0	28
	Total	0	0.0	2	0.98	2	1.0	0	0	7	3.41	11	5.37	181	88.29	2	0.98	205
	Gr.Total	5	0.8	11	1.86	3	0.5	3	0.51	56	9.48	27	4.57	476	80.54	10	1.69	591

Source: Personal Survey, 2010 - 11.

Table 7 examined that there are two main source or bathing water i.e. ponds and wells. In the selected villages 80.54% households are depends on public ponds for bathing and followed by 9.48% on public hand pumps, 4.56% on public dug well, 1.86% on private well, 1.69% on other public sources, 0.85 on private hand pumps and 0.51% on private ponds and other sources of bathing water. For bathing, most of the respondents are generally depends public ponds and wells. Here, 92.9 % and 92.5% respondents from kandul and Tulsi village are using public ponds for bathing.

Public hand pumps and dug wells are also another important source of bathing water in Dondekhurd and Dhusera village, where 15.60% households are depends on public hand pumps and 8.57% households are depends on public dug wells in Dondekhurd and Dhusera village respectively.

Respondents from Hatband (16.7%), Siltara (2.86%), Mana (2.33%), Dondekhurd (2.22%), Dhaneli (1.82%) and Jora (1.67%) are having other sources of bathing water than hand pumps well and ponds. In Darba village, 4% households are

having private dug well for bathing water supply and followed by Mana (3.49%), Sejbahar, Dhusera (2.86%), Dondekhurd (2.22%), Siltara (1.90%), Dhaneli (1.82%) and Jora (1.67%). Except Mana and Siltara ,there exit no any personal other sources of bathing water in entire region, where 1.16% and 1.90% households are having others personal sources of bathing water respectively .

Private ponds are considered as a source of bathing water by 4.00% respondents in Darba village, 2.50% in Nagargaon and 2.22% in Dondekhurd. Household from Sejbahar and Mana, are using private hand pumps for bathing water as 2.90% and 1.20% respectively.

Table 7 evaluate that there are so many sources of bathing water viz. ponds hand pumps dug well, river etc. But ponds are most important source of bathing water in both of road side and remote villages. Private source of bathing water are not available in remote villages viz. Dhusera, Kanhera, Darba, Nagargaon, Tulsi, Hathband. There are no any private sources of bathing water in Tulsi, Hatband and

Kandul villages. Whereas, 1.3%, 2.33%, 0.3% and 078% household has occupies private hand pumps, wells, ponds and other sources for bathing in road side sample villages.

XI. HOUSEHOLD GOODS

House hold goods are tangible products, used by house members and these products are movable property placed in dining rooms, kitchen rooms, bathrooms, living rooms etc. Household goods as items of personal property found in house or near a house those are uses on a regular or irregular basis by a person (Household goods and personal effects, 2011).

The socio – economic condition of any places may be determined by house hold goods. Domestic goods are able to effects the social life style of family. In the fringe of Raipur city house hold goods induces as furniture, electronic goods, ornaments, vehicle etc.

Household goods are available in road side villages than remote villages. Electronic goods as cooler, refrigerator, washing machine, mixers are not available in remote villages. Only two sample household are having two washing machines in remote villages.

The numbers of cars also account for 25 and 4 in road side and remote villages respectively. Except Jora and Siltara villages, there exit no any AC in the study area. Furniture also varies from house to house in the region. The dining tables and dressing table are not common furniture in the selected villages.

There exit no respondents have dining and dressing table in Dhusera, kanhera and Hatband villages. The electronic goods as T.V and Mobiles are available in both road side and remote villages. Table denotes that, respondents from road side villages are availing mobile phone facilities. Above

table examined that almost household goods are required to be provided by unconfined access of roads. Respondents of remote villages are mostly affected by inaccessibility of roads. Therefore household goods are not adequate in remote villages.

On the other hand 86.36% of the household goods are accessible by motor able road from road side villages. Thus, household goods are relatively sufficient in road side villages, where 6.48% household has refrigerator and 3.38% households are having dining table in road side villages.

XII. FUEL ENERGY CONSUMPTION

Energy refers to the ability of capacity to do work. Adequate supply of energy has a great concerned with output of any sector such as industrial and agricultural. Without source of energy no any works has been possible like as industrialization, agricultural, modernization, and rise of human standard of living etc. (Murugan, 2011).

In the fringe of Raipur city a rural person needs energy for lighting, cooking, water supply etc. Demand of energy is basically stands for cooking in sample villages. Energy consumption pattern in the study area are as fuel wood, coal, kerosene, LPG. These are classified into two broad categories such as commercial and domestic sources of energy, commercial sources of energy are coal, kerosene, LPG and electricity whereas, domestic sources of energy refers to cow dung, fuel wood, agricultural waste, crop residue etc.

There are various source of fuel energy, consumed by the people in the selected villages. Table 8 shows that 69.71% of households used non commercial fuel as cow dung, wood crop residue and agricultural waste for cooking and 48.22% of household are used commercial fuels like coal, kerosene, and LPG.

In the road side villages, 52.1% household used the fuel wood as against 16.3%, 15.3%, 28.5% and 6.99% that used coal, kerosene, gas and others fuel receptively. Where 74.6% household used fuel wood, 7.8% coal 11.7% kerosene 6.34% gas and 15.1% others fuel energy from remote sample villages. In the study area, maximum percentage of household for fuel energy consumption has been recorded as 83.3% in Hatband with wood, 20% in Dondekhurd and sejbahar with kerosene, 43.3% in Jora used gas and 9.3% in Mana used others fuel.

The lowest percentage of households is recorded as 43.8% household used wood in Dondekhurd village, 5.0% with coal in Nagargaon, 5% in Jora with kerosene, 2.5% in Tulsi with gas and 2% in Sejabahr and Tullsi villages with others fuel.

In the study area, fuel energy consumption has been recorded as 2.26 quintal per household per month in road side village and 2.83 quintal per household per month in remote village. Whereas average consumption, accounts for 2.56 quintal/household/month.

The maximum fuel energy consumption for cooking has been recorded by Hatband (3.10Q.), followed by Darba (3.02 Q.), Kanhera (2.91Q.), Dhusera (2.86Q.), Tulsi (2.81Q.), Kandul (2.65Q.), Jora (2.54Q.), Dhaneli (2.51Q.), Nagargaon (2.44Q.), Dondekhurd (2.91Q.), Mana (2.15Q.), Siltara (1.98Q.) and Sejbahar (1.96Q.).

TABLE VIII FUEL ENERGY CONSUMPTION

Village Type	Village Name	Wood	%	Coal	%	Kero.	%	Gass	%	Others	%	Total
Road Side Villages	Dondekhurd	24	53.3	9	20.0	10	22.2	8	17.8	4	8.89	45
	Sejbahar	27	77.1	7	20.0	10	28.6	7	20	2	5.71	35
	Mana	44	51.2	14	16.3	15	17.4	21	24.4	8	9.3	86
	Dhaneli	29	52.7	3	5.5	4	7.27	11	20	3	5.45	55
	Jora	31	51.7	4	6.7	3	5	26	43.3	4	6.67	60
	Siltara	46	43.8	20	19.0	17	16.2	37	35.2	6	5.71	105
	Total	201	52.1	63	16.3	59	15.3	110	28.5	27	6.99	386
Remote Villages	Dhusera	27	77.1	2	5.7	8	22.9	1	2.86	6	17.1	35
	Kanhera	19	76		0.0	4	16	2	8	4	16	25
	Darba	18	72	3	12.0	3	12	2	8	5	20	25
	Nagargaon	26	65	2	5.0	4	10	4	10	9	22.5	40
	Tulsi	31	77.5	6	15.0		0	1	2.5	2	5	40
	Hatband	10	83.3		0.0	1	8.33	1	8.33		0	12
	Kandul	22	78.6	3	10.7	4	14.3	2	7.14	5	17.9	28
Total	153	74.6	16	7.8	24	11.7	13	6.34	31	15.1	205	
Gr.Total	354	59.9	79	13.4	83	14	123	20.8	58	9.81	591	

Source: Personal Survey 2010 - 11.

XIII. HEALTH

The health condition of individuals or communities mostly depends on efficient and advanced health care system (Saikia and Das, 2014). To developed health-care infrastructure in the country, India Government launched the NRHM (National Rural Health Mission, 2005), which provide effective health care to the rural population and adequate public health infrastructure facilities.

The health care infrastructure in rural India has been developed as Sub -Center (SC) Primary Health Centre (PHC) and Community Health Centre (CHC). These centers are based on the population with 5000 per SC, 3000Per PHC, 120000 per CHC, in plain areas and 3000 per SC, 2000per PHC and 80000 per CHC in hilly, tribal or desert areas (GOI, 2011).

But in the case of Raipur fringe health care infrastructure is very poor. There are no any primary health centers in the selected remote villages of Raipur fringe. Health centre are situated within 5 to 10 kms. distance from the sample villages. In the study area some common factors are responsible for affecting people health such as:

A. Location

In the study area almost all the villages situated in remote location. People are associated with inadequate transport facilities, scarcity of drinking water, non effective health care infrastructure etc. in remote villages.

But due to good transport network (NH. 30, NH.53), road side villagers are able to access an effective health care facility, therefore, populations in remote villages display a less healthy behavior than the peoples of road side villages.

B. Education

Level of education is one of the most important factors for affecting health status of any nations (Islam and Sheikh, 2010). In the fringe of Raipur City, road side dwellers belong under better health status than remote respondents,

due to their high level of education as 74.39% literate. Whereas, literacy rate is about 67.37% in remote villages, thus they suffer from poor health status.

C. Housing

Housing conditions play a vital role in health status of an individual (Sunday and Adebambo, 2014) or communities. Adequate housing should provide physical and mental wellbeing (Turn et al . 2010), which protect infectious diseases such as meningitis, hepatitis, pox cholera, pneumonia, sexually transmitted diseases etc., Chronic diseases such as, asthma, dysentery fever etc. and reduce psychological stresses (Rakibul Islam and Mashhood Ahmed Sheikh, 2010).

In the remote sample villages 61.95% respondents are residing in Katcha houses, where there is no healthy housing environment exist owing by the dwellers and only 20.49% households have pucca houses.

Some households suffer from communicable and chronic diseases as 2.33 household by malaria. On the other hand inadequate housing influences the communicable diseases in remote villages. Where 39.02% households suffer from dysentery and 49.27% respondents are suffering by skin diseases.

D. Income

Health status directly affected by income. Sufficient income leads to access good health. In the study area, average

annual per capita income of road side villagers is Rs.72.20 thousand. Therefore 26.94% households are able to occupy nursing home facilities in road side villages and only 13.66% household associated with nursing home for health in remote villages. In road side villages, 23.58% household are able to spent money for health by private doctor treatment, where, only 10.24% households are depends on private doctor treatment due to their lower level of income.

E. Occupation

Occupation and employment play a vital role on health status of selected villages. Most of the people are involved

in primary occupation such as 23.8% farmer and also depends on seasonal employment as 37.3% labour in remote villages.

On the other hand people are involved in regular employment as 8.58% service throughout the year in road side villages, where 87.05% households depend on allopathic medicine in road side villages and 67.80% households depend on allopathic medicine in remote villages.

TABLE IX HEALTH STATUS

Village Type	Village Name	Health Facility				Health Service								Sample House Hold
		Nursing Home	%	Government Hospital	%	Private Doctor	%	Govt Doctor	%	Hakim	%	Baidya	%	
Road Side Villages	Dondekhurd	14	31.11	31	68.89	12	26.67	28	62.22	3	6.67	2	4.44	45
	Sejbahar	8	22.86	27	77.14	8	22.86	21	60.00	4	11.43	2	5.71	35
	Mana	21	24.42	65	75.58	20	23.26	59	68.60	5	5.81	2	2.33	86
	Dhaneli	13	23.64	42	76.36	12	21.82	38	69.09	4	7.27	1	1.82	55
	Jora	16	26.67	44	73.33	17	28.33	34	56.67	5	8.33	4	6.67	60
	Siltara	32	30.48	73	69.52	22	20.95	73	69.52	6	5.71	4	3.81	105
	Total	104	26.94	282	73.6	91	23.58	253	65.54	27	6.99	15	3.89	386
Remote Villages	Dhusera	2	5.71	33	94.29	2	5.71	31	88.57	1	2.86	1	2.86	35
	Kanhera	3	12.00	22	88.00	3	12.00	14	56.00	5	20.00	3	12.00	25
	Darba	4	16.00	21	84.00	4	16.00	12	48.00	4	16.00	5	20.00	25
	Nagargaon	8	20.00	32	80.00	3	7.50	23	57.50		15.00	8	20.00	40
	Tulsi	7	17.50	33	82.50	5	12.50	25	62.50	4	10.00	6	15.00	40
	Hatband	2	16.67	10	83.33	2	16.67	8	66.67	1	8.33	1	8.33	12
	Kandul	2	7.14	26	92.86	2	7.14	17	60.71	5	17.86	4	14.29	28
		Total	28	13.66	177	86.34	21	10.24	130	63.41	26	12.68	28	13.66
	Gr.Total	132	22.34	459	77.66	112	18.95	383	64.81	53	8.97	43	7.28	591

Source: Personal Survey 2010-11

Table 9 shows that 26.94% and 13.66% households are able to occupy nursing home facilities for health treatment in road side and remote sample villages respectively. Major percentage of household (86.34%) are depends on government hospitals for health treatment, located 10 to 20 km. distance from remote villages.

There exit no any primary health centres in the selected villages. But some ayurvedic dispensary and private

practitioners serve health treatment in road side villages. Health service considered as 23.58% households treated by private doctor , 65.54% households treated by government doctor, 6.99% households treated by Hakim and 3.89% households treated by Baidya in road side villages, where 10.24% household depends on private doctor, 63.41% depends on government doctors, 12.68% depends on Hakim and 13.66 % depends on Baidya in remote villages.

TABLE X MEDICINE USE

Village Type	Village Name	Homeopathic	%	Allopathic	%	Ayurvedic	%	Others	%	Total
Road Side Villages	Dondekhurd	14	31.11	28	62.22	6	13.33	4	8.89	45
	Sejbahar	12	34.29	33	94.29	8	22.86	3	8.57	35
	Mana	23	26.74	76	88.37	10	11.63	6	6.98	86
	Dhaneli	18	32.73	45	81.82	5	9.09	6	10.91	55
	Jora	15	25.00	55	91.67	7	11.67	8	13.33	60
	Siltara	19	18.10	99	94.29	5	4.76	7	6.67	105
	Total	101	26.17	336	87.05	41	10.62	34	8.81	386
Remote Villages	Dhusera	13	37.14	24	68.57	6	17.14	3	8.57	35
	Kanhera	12	48.00	17	68.00	5	20.00	5	20.00	25
	Darba	10	40.00	15	60.00	6	24.00	8	32.00	25
	Nagargaon	14	35.00	29	72.50	8	20.00	2	5.00	40
	Tulsi	17	42.50	30	75.00	9	22.50	4	10.00	40
	Hatband	7	58.33	8	66.67	2	16.67	1	8.33	12
	Kandul	11	39.29	16	57.14	3	10.71	2	7.14	28
	Total	84	40.98	139	67.80	39	19.02	25	12.20	205
Gr.Total	185	31.30	475	80.37	80	13.54	59	9.98	591	

Source: Personal Survey 2010-11

Table 10 reveals that, wide varieties of medicines are used in the study area, such as homeopathic, allopathic, ayurvedic etc.

In the Study area 31.30% households use homeopathic, 13.54% households use ayurvedic medicine, whereas 80.37% households depend on allopathic medicine for health treatment.

Medicines are used by the household as 26.17% homeopathic, 87.05% allopathic and 10.62 % ayurvedic in road side villages,

where 40.98%, 67.80% and 19.02% households use homeopathic, allopathic and ayurvedic medicines respectively in remote vilages.

Maximum respondents depend on allopathic medicines for health treatment in Sejbahar and Siltara village, where 94.29% households are treated by allopathic medicines and 57.14% households are treated by allopathy medicines in Kandul village.

Minor percentages of households depend on ayurvedic medicines, where 4.76% households in Siltara village and 24.00% households in Dabra villages have been treated by ayurvedic medicines.

TABLE XI DISEASE IN FAMILY

Village Type	Village Name	Tuber Culosis	%	Malaria	%	Asthma	%	Jaundice	%	Polio	%	Skin Disease	%	Dysentery	%	Others	%	Total
Road Side Villages	Dondekhurd	0	0.00	6	13.33	3	6.67	6	13.33	1	2.22	15	33.33	7	15.56	2	4.44	45
	Sejbahar	2	5.71	5	14.29	1	2.86	4	11.43	0	0.00	13	37.14	3	8.57	5	14.29	35
	Mana	0	0.00	7	8.14	0	0.00	4	4.65	1	1.16	6	6.98	4	4.65	3	3.49	86
	Dhaneli	0	0.00	8	14.55	2	3.64	2	3.64	0	0.00	10	18.18	5	9.09	2	3.64	55
	Jora	0	0.00	7	11.67	1	1.67	3	5.00	1	1.67	11	18.33	4	6.67	1	1.67	60
	Siltara	1	0.95	18	17.14	2	1.90	7	6.67	0	0.00	6	5.71	6	5.71	7	6.67	105
	Total	3	0.78	51	13.21	9	2.33	26	6.74	3	0.78	61	15.80	29	7.51	20	5.18	386
Remote Villages	Dhusera	0	0.00	2	5.71	1	2.86	2	5.71	1	2.86	12	34.29	8	22.86	4	11.43	35
	Kanhera	1	4.00	4	16.00	0	0.00	5	20.00	0	0.00	8	32.00	5	20	1	4.00	25
	Darba	0	0.00	6	15.00	0	0.00	8	20.00	2	5.00	11	27.50	3	7.5	2	5.00	40
	Nagargaoan	0	0.00	0	0.00	1	4.00	0	0.00	1	4.00	7	28.00	6	24	3	12.00	25
	Tulsi	0	0	6	15.00	0	0.00	8	20.00	2	5.00	11	27.50	3	7.5	2	5.00	40
	Hatband	1	2.50	2	5.00	0	0.00	7	17.50	1	2.50	7	17.50	9	22.5	1	2.50	40
	Kandul	0	0.00	1	8.33	1	8.33	0	0.00	0	0.00	4	33.33	0	0	3	25.00	12
	Total	2	7.14	1	3.57	0	0.00	3	10.71	1	3.57	6	21.43	6	21.43	3	10.71	28
	Gr.Total	4	1.95	16	7.80	3	1.46	25	12.20	6	2.93	55	26.83	37	18.05	17	8.29	205
		7	2.73	67	11.34	12	2.03	51	8.63	9	1.52	116	19.63	66	11.17	37	6.26	591

Source: Personal Survey, 2010-11

XIV. DISEASE IN FAMILY

Table 11 shows that the respondents of the selected villages are suffering from various types of diseases such as TB, Malaria, Asthma, Jaundice, Polio, Skin diseases, Dysentery etc. Maximum percentages of household also suffer from malaria due to much pollution in road side villages. On the other hand 26.83% and 18.05% households suffer from skin diseases and chronic dysentery respectively in remote villages. Due to unusable bathing and drinking water, respondents are easily affected by Jaundice; therefore 12.20% and 6.74% households are affected by Jaundice in the remote side and road side villages respectively. The rate of air pollution is relatively higher in road side villages than the remote villages, therefore 2.33% and 1.46% respondents are affected by asthma in road side and remote villages respectively. In present day, although polio is an uncommon disease but 2.93% respondents suffer from polio in remote villages and 0.78% respondents in road side villages.

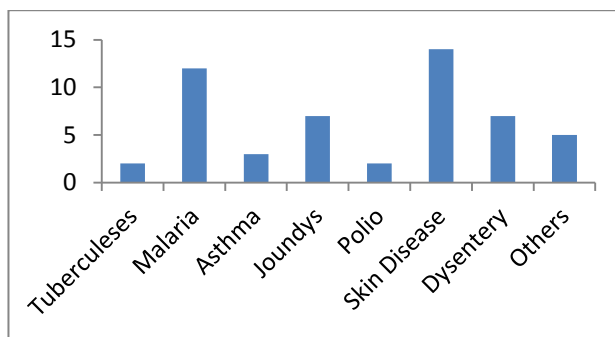


Fig.2 Road Side Villages

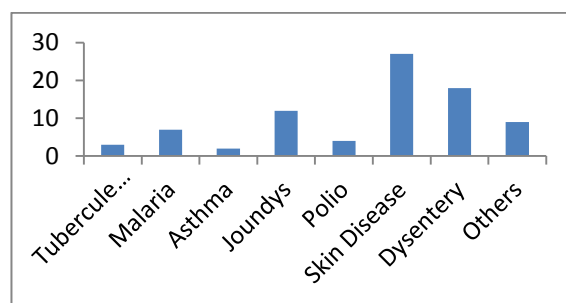


Fig.3 Remote Villages

XV. CORRELATION AMONG HOUSEHOLD FACILITIES AND ACCESS

Table no.12 reveals that correlation among distance from the city centre in km., percentage of pucca houses, rental houses, private houses, sitting room, bathroom, sewage, private source of drinking water, fuel energy consumption, room density etc. There is a negative relation between distance of village from city centre (Raipur city, C.G) and percentage of pucca houses, which is significant at 0.05 levels. It indicates that reduction of distance would attract the improvement of housing infrastructure.

On the other hand the percentage of pucca houses has positively strong correlation with rental houses (0.817), sitting room (0.865), bathroom (0.857), sewage (0.890), significant at 0.05 levels by one-tailed test. Rental houses has also positively strong relation with sitting room, bath room and sewage facility which is significant at 0.05 levels. The private source of drinking water also positively related with percentage of pucca houses at 0.05 significance levels, where the correlation value is about +0.661 between them.

TABLE XII CORRELATION MATRIX

	A	B	C	D	E	F	G	H	I	J
A	1									
B	-0.478	1.000								
C	-0.384	0.817*	1.000							
D	0.339	-0.791	-0.965	1.000						
E	-0.349	0.865*	0.942*	-0.925	1.000					
F	-0.415	0.857*	0.926*	-0.890	0.905*	1.000				
G	-0.438	0.890*	0.953*	-0.914	0.928*	0.918*	1.000			
H	-0.397	0.661*	0.802*	-0.753	0.683*	0.805*	0.673*	1.000		
I	0.253	-0.689	-0.794	0.797*	-0.652*	-0.791	-0.725	-0.798	1.000	
J	0.449*	-0.734	-0.653*	0.604*	-0.739	-0.697	-0.745	-0.341	0.488*	1.000

*Correlation is significant at 0.05 levels (one-tailed test)

A= Distance from city centre to village in km., B=Pucca houses in percentage, C= Rental houses in percentage, D= Private Houses in percentage, E= Number of household with sitting room, F= percentage of household with bathroom facility, G= Sewage facility in houses (%), H= Percentage of household with private source of drinking water, I= Monthly fuel energy consumption, J=Room Density.

XVI. CONCLUSION

In the study area, social factors like literacy, health status, housing condition etc. are more uneven from road side village to remote village. Health facility is insufficient in the remote villages. Almost remote villages have no primary health centre. House hold facilities like source of drinking and bathing water, sewage facility and latrine facility are not available in remote area. Almost people (>80%) in remote area uses fire wood, cow dung and crop residue for cooking. More than 15% household are suffer from

dysentery in remote villages, while it is below 10% in road side villages. Room density is above 4% in remote villages and below 4% in road side villages. Therefore, it is clear that road has a significant impact to improve the housing conditions and health status of the people in the study area.

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