



**ORIGINAL RESEARCH PAPER**

**Geography**

**USE OF WALL MATERIALS IN RURAL HARYANA: A REGIONAL ANALYSIS**

**KEY WORDS:** Brunt Brick, Mud, Grass/Thatch/Bamboo/Stone/Wood.

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**ABSTRACT**

In the present paper, an attempt has been made to analyze the use of wall materials in rural Haryana. Haryana state is a northern part of India. The state of Haryana has 21 districts. The total rural households are 29.66 lac. For the present research work, 2011 census district wise household data has been used. Census of Haryana has classified wall material used for residential houses into ten types like burnt Brick, mud / un- brunt brick, grass /thatch/bamboo, stone packed with mortar, stone not packed with mortar, concrete, wood, plastic/ polythene, GI/metal and other materials in rural Haryana. The wall material used for residential houses has been calculated in percentage in proportion to total rural households of a district. Further, the study area has been divided into six broad regions. It is recorded that the maximum wall of the houses are made of (87.69 %) burnt brick, followed by mud/un-burnt brick (4.68 %), grass/thatch/bamboo (0.69 %), stone packed with mortar (4.21 %), stone not packed with mortar (1.31 %), concrete (1.12 %), wood (0.06 %) and G.I/metal asbestos Sheets (0.03 %) in rural Haryana. Further, it is observed that more than 90 per cent houses of the wall are made of burnt bricks in eastern part and central part in rural Haryana as per 2011. On the other hand maximum mud/ un-burnt bricks (7.77 %) are used in northwestern part, followed by southeastern part (7.07 %), while grass /thatch/ bamboo (1.13 %) are used in northeastern part. However, stone packed with mortar is used in southeastern (8.48 %) and southern (8.26 %) part in rural Haryana. Nearly three percent houses of the wall are made of various materials such as stone not packed with mortar (4.21 %), concrete (1.12 %), wood (0.06 %), G.I/metal asbestos sheets (0.03 %), polythene/ plastic (0.11 %) and any other materials (0.09 %) in rural Haryana. Finally, it is suggested that more attention should be given to improve the use of wall materials particularly in northwestern comprises the districts of Sirsa, Fatehabad and Hisar and southeastern comprises the districts of Gurgaon, Faridabad, Palwal and Mewat.

**Introduction**

Dwellings are the universal and basic element of settlement geography. Many geographers have also studies the dwelling in different forms in India as well as abroad. House is also a social concept its nature and cognition are varying with caste, class, religion and region. The word has been used as a synonym for census house, which in defined as, "a building or Part of a building having a separate main entrance form the road or common courtyard or staircase etc, used or recognized as a separate unit. It may be occupied or vacant. It may be used for residential or non-residential purpose or both".

In the classic studies, 'house and building' were a part of human geography (Jackson, 1952). However, in geographic literature it is the most important component of cultural landscape, which reflects the cultural heritage, cultural styles, functional needs, positive and negative aspects of non-cultural environment [Kniffen, 1965].

- The environment and economic conditions of the people are reflected in the use of building materials.
- Generally, the houses in a rural set up, are built by using materials available locally.

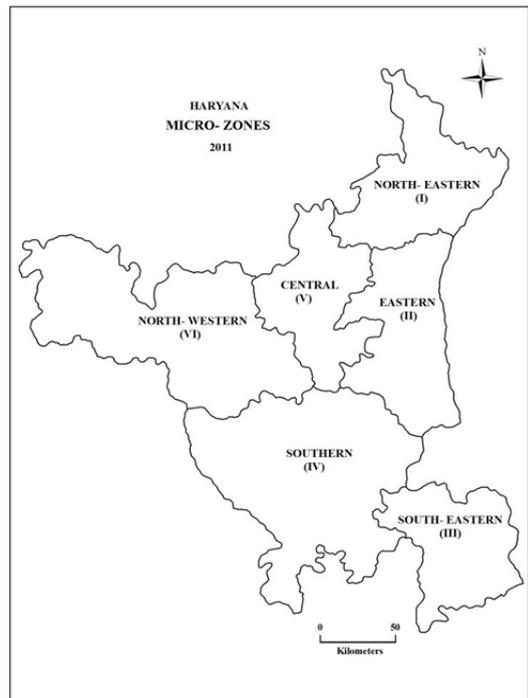
In the present paper, an attempt has been made to analyze the use of wall materials in rural Haryana.

**Objective of the study**

- To study the use of wall materials at district and broad regional level in rural Haryana.

**Source of Data and Research Methodology**

For the present research work district wise census data of 2011 has been used. Census has classified the wall material used for residential houses into ten categories like burnt Brick, mud/un-brunt brick, grass /thatch/bamboo, stone packed with mortar, stone not packed with mortar, concrete, wood, plastic/ polythene, GI/metal and other materials in rural Haryana. The wall material used for residential houses has been calculated in percentage in proportion to total rural households of a district. Further, the study area has been divided into six broad regions and shown with the help of map by using the Arc GIS (9.3 version).



**Study Area**

- Haryana state is a northern part of India. It has 21 districts as per 2011 census. The total rural population of Haryana is 16509359 persons which resides in 29.66 lac rural households. It is recorded that the maximum wall of the houses are made of grass/thatch/bamboo (0.69 %), Plastic/ Polythene (0.11%), followed by mud/un-brunt brick (4.68 %), wood (0.06 %), stone packed with mortar (4.21 %), stone not packed with mortar (1.31 %), G.I/metal asbestos Sheets (0.03 %), burnt brick (87.69 %), concrete (1.12 %) and any other material (0.09) in rural Haryana.
- Further, it is observed that more than 90 per cent houses of the wall are made of burnt bricks in eastern part and central part in rural Haryana as per 2011.
- About 95 % houses used four major types of wall materials namely, Brunt brick, Mud \ unbrunt brick, Grass \ Thatch\

Bamboo and Stone packed with mortar in rural Haryana.

**District - Wise Pattern of Wall Materials in Rural Haryana**

- According to census 2011, it is observed that Grass\Thatch\ Bamboo is maximum used in the districts of Yamunanagar (1.67 %), followed by Mewat (1.65%), Panchkula (1.53%), and Sirsa (1.47 %) while lowest is used in Rewari (0.21%), Gurgaon (0.23%), Mahendergarh (0.23%) and Sonipat (0.28%).
- Polythene/ polythene as wall materials has been used highest in the districts of Sirsa (0.19%), Ambala (0.18%) and Karnal (0.17%) and lowest in Rohtak (0.04%) followed by Panipat (0.05%) and Jhajjar, Rewari (0.06%) etc.
- Mud\ Unburnt brick as wall material has been used highest in the districts of Sirsa (13.74%), Mewat (12.32%),

Yamunanagar (6.29%) and Fatehabad (6.23%) lowest used by Rewari (1.58%), Mahendergarh (2.18%) followed by Sonipat (2.19%)

- Wood are mostly used by Mewat (0.21%), Faridabad (0.13%) and Mahendergarh (0.11%) and lowest used by whole part of the study area. Highest proportion of stone packed with mortar used by Mahendergarh (21.52%), Mewat (15.45%), Rewari (12.30%) and lowest used in Sirsa (0.30%) and Hisar (0.66%). Highest proportion of stone not packed with mortar used by Mewat (3.80%), Faridabad (2.75%) and lowest used by Fatehabad (0.59%), Sirsa (0.63%) and Hisar (0.65%). Highest proportion of G.I\ metal /asbestos sheets used by the district of Faridabad (0.10%) and Ambala (0.09%) followed by Gurgaon, Palwal and Mahendergarh (0.08%) and lowest used by whole part of the study area.

HARYANA DISTRICT WISE : USE OF WALL MATERIAL (%) : 2011

District Code	Name of the District	Rural Total Hhold	Grass/ thatch/ bamboo %	Plastic/ polythene %	Mud/ unbrunt brick%	Wood	Stone not packed with Mortar	Stone packed with Mortar (%)	GI /Metal/ Asbestos sheets%	Brunt brick %	Concrete %	Any other material %
069	Panchkula	42651	1.53	0.37	2.92	0.04	1.52	7.25	0.05	84.28	1.99	0.04
070	Ambala	112525	0.98	0.18	4.10	0.07	1.26	2.20	0.09	87.85	3.21	0.08
071	Yamunanagar	133009	1.67	0.14	6.29	0.04	0.76	0.86	0.01	87.93	2.22	0.08
072	Kurukshetra	126220	0.56	0.06	3.34	0.04	1.18	1.62	0.02	90.52	2.56	0.08
073	Kaithal	154438	0.69	0.10	5.42	0.06	1.40	2.27	0.02	88.30	1.66	0.08
074	Karnal	194003	0.63	0.17	4.03	0.07	1.05	2.03	0.01	90.04	1.89	0.08
075	Panipat	114922	0.48	0.05	3.66	0.04	0.97	1.46	0.02	92.25	1.02	0.05
076	Sonipat	180286	0.28	0.05	2.19	0.05	1.11	2.15	0.05	93.33	0.74	0.07
077	Jind	187059	0.80	0.06	2.20	0.05	0.84	0.77	0.01	94.37	0.84	0.06
078	Fatehabad	141266	0.76	0.16	6.23	0.03	0.59	0.80	0.02	90.25	1.11	0.07
079	Sirsa	178789	1.47	0.19	13.74	0.05	0.63	0.37	0.01	82.93	0.52	0.09
080	Hisar	221028	0.40	0.08	3.92	0.03	0.65	0.66	0.01	93.08	1.11	0.05
081	Bhiwani	245761	0.46	0.10	3.94	0.05	1.06	3.85	0.03	89.80	0.62	0.09
082	Rohtak	115506	0.28	0.04	2.41	0.08	1.17	2.19	0.03	92.97	0.78	0.05
083	Jhajjar	134340	0.31	0.06	2.21	0.06	1.53	3.39	0.03	91.08	1.28	0.05
084	Mahendragarh	145235	0.23	0.07	2.18	0.11	2.45	21.52	0.08	73.00	0.30	0.07
085	Rewari	126261	0.21	0.06	1.58	0.09	2.03	12.30	0.06	82.80	0.51	0.35
086	Gurgaon	88013	0.23	0.09	2.36	0.06	1.29	5.28	0.08	89.08	1.42	0.11
087	Mewat	137261	1.65	0.11	12.32	0.21	3.80	15.45	0.06	66.07	0.19	0.14
088	Faridabad	60315	0.74	0.16	5.37	0.13	2.75	5.46	0.10	84.51	0.56	0.24
089	Palwal	127165	0.86	0.12	5.47	0.08	1.47	4.59	0.08	86.88	0.29	0.14
000	State-Haryana	2966053	0.69	0.11	4.68	0.06	1.31	4.21	0.03	87.69	1.12	0.09

- Burnt brick as wall material has been used in Haryana state (87.69%). In Haryana maximum used in these districts i.e. Jind (94.37%), Sonipat (93.33%), Hisar (93.08%), Rohtak (92.47%) and Panipat (92.25%) followed by whole part of the state.
- Concrete are mostly used by Ambala (3.21%), Kurukshetra (2.56%) and Yamunanagar (2.22%) and lowest proportion of concrete used in Mewat (0.19%) followed by Palwal (0.29) Mahendergarh (0.30%). Any other material is (0.24%) highest used in Faridabad and lowest (0.04%) is

used in Panchkula district.

**Zone - Wise Analysis**

- It has been observed that the maximum 87.69 % of the houses in the study region have used Burnt brick as wall material. However the percentage of such houses was relatively high that is 90 % in eastern part and central part in rural Haryana as per census 2011 followed by North eastern (88.32 %), south eastern (80.8 %) and southern (86.17 %) and north western (88.99 %) part in rural Haryana.

HARYANA ZONE WISE : USE OF WALL MATERIAL (%) : 2011

ZONE	Grass/th./bamboo	Plastic/ Polythene	Mud./unbrunt brick	Wood	Stone not packed with Mortar	Stone packed with Mortar	G.I/Metal/ Asbestos Sheets	Brunt Brick	Concrete	Any other material
North Eastern	1.13	0.15	4.45	0.05	1.10	2.11	0.04	88.32	2.57	0.07
Eastern	0.47	0.10	3.27	0.05	1.05	1.94	0.03	91.77	1.26	0.06
South Eastern	0.97	0.12	7.07	0.12	2.40	8.48	0.08	80.08	0.54	0.15
Southern	0.32	0.07	2.69	0.07	1.58	8.26	0.04	86.17	0.68	0.11
Central	0.75	0.08	3.65	0.05	1.09	1.45	0.01	91.62	1.21	0.07
North Western	0.85	0.13	7.77	0.04	0.63	0.60	0.01	88.99	0.91	0.06
Haryana	0.69	0.11	4.68	0.06	1.31	4.21	0.03	87.69	1.12	0.09

- Similarly, the houses using grass \thatch\bamboo as wall material accounted for 0.69 % in the study region and 1.13 % of the houses in north-eastern part, eastern part (0.47 %), in south-eastern part (0.97 %), southern (2.69), central part

(0.75%) and (0.85 %) in north-western part in rural Haryana.

- The proportion of houses using Mud \Unburnt brick as wall material was 4.68 % in rural Haryana. About 4.45 % residential houses in north eastern part, eastern (2.27 %),

south eastern (7.07 %), southern (2.69 %) and 3.65 % in central part, 7.77 % in north western part have used as wall materials.

- The houses using stone packed with mortar as wall material accounted for 04.21 % in the study region and 2.11 % of the houses in north-eastern part, eastern part (1.94 %), in south-eastern part (8.48 %), southern (8.26), central part (1.45%) and (0.60 %) in north-western part in rural Haryana.
- It is recorded that the maximum Grass\Thatch\Bamboo (1.13 %) is in the construction of wall in north-eastern and lowest (0.32 %) in southern part of Haryana.
- It is recorded that the highest polythene/plastic (0.15%) is used in the construction of wall in northeastern part and lowest (0.07%) in southern part of Haryana state.
- More than 7 % houses used Mud/ Un- brunt bricks in constructing the wall in south - eastern and north - western part and lowest in southern part of Haryana. Wood (0.12%) is highest used in south- eastern part and lowest (0.04%) used in northwestern part of Haryana.
- Stone not packed with mortar and stone packed with mortar (2.40%, 8.48%) are highest used in southeastern part and lowest (0.63%, 0.60%) in northwestern part of Haryana.
- More than 0.8% GI/Metal/Asbestos sheets is used in south eastern part and lowest (0.01%) in central and north western part.
- More than 92 % Burnt Brick is used in eastern and central part of Haryana. It is mostly used in whole part of Haryana.
- More than 2.57 % Concrete is used in northeastern part and lowest (0.54%) in southeastern part of Haryana.

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