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Housing Security Index - A New Measure of Housing Security

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Abstract: ***Affordable and adequate housing is necessary towards ensuring a dignified life for human beings, and to ensure inclusive economic growth for the city and the state. The state has a responsibility to ensure access to affordable and adequate housing for all. Owning a house provides social and economic security as well as status in the society. There are several programmes implemented for human development in India. Rural housing programme is a veritable tool for fighting poverty and achieving economic prosperity, wellbeing, improving the quality of the life of people at the grassroots level especially those below the poverty line. Housing has importance also significant impact on health, education, drinking water, so that it improves quality of life in rural areas particularly the weaker sections of the society as well women. To providing houses for houseless in rural areas there are many programmes has been implemented by Government of India. Karnataka is one of the foremost states to have taken up housing in a major way. The present study is based on purely primary data. The objectives of the paper is to analytical study of shelter and well-being in Mandya district, to study the performance of rural housing programmes in the study areaand to suggest measures to improve housing programmes for human development.***

Keywords: Housing Security Index, Human Development, Sustainable Development

1. Introduction

Housing is a basic necessity as well as, a vital part of the construction sector, an important factor of the economy. As such, housing acts as a major contributor to the employment sector and income generation and also helps the individuals both directly and indirectly in their socio-economic development. Thus the government policies on the housing front have a direct impact on the health of the economy. The requirement of housing is growing in the context of the development of knowledge, changes in the civilization, people becoming more aware about the privacy, sanitation, consciousness of health, environment, infrastructural facilities etc. Housing also provides opportunities for home based economic activities. At the same time, adequate housing also decides the health status of the occupants. Therefore, on account of health and income considerations, housing is a very important tool to alleviate poverty and generate employment. Housing schemes have yielded fairly positive results in the area of housing and human settlements. Also, these programmes have become a tool to bring about changes in the different areas such as, perception on education, perception on health, perception on income generation, perception on standard of living, sanitation, drinking water, electricity, status of weaker section and so on. The detailed impact of rural housing programmes on human development in the study has been analysedin the following pages.

The rural housing has a greater impact on Housing Security Index(HSI). The detailed information about housing security index is as follows.

2. Objectives

The objectives of this research paper is as follows.

a) To know the concept of Housing Security Index
b) To suggest measures to improve housing programmes for human development

3. Methodology

This research paper is based on both primary and secondary data. Mandya district of Karnataka is purposively selected keeping in view that this district comes under the different rural housing programmes considered for selection of the study area.

4. Tools and Techniques

For the purpose of testing hypotheses specific tools like ANOVA one-way test, Correlation, Paired sample T-test and Standard Deviation, as well as tables, graphs were also used.

5. Hypothesis

H_1 There is a significant relationship between rural housing programmes and housing security index.

Housing Security Index (HSI) -A New Measure of Housing Security

The Housing Security Index (HSI) is a new measure of housing security designed to foster research and policy analysis. The Housing Security Index (HSI) is a summary measure of average achievement in key dimensions of human development, using a simple definition of housing security and measured using the 3 indicators. The indicators of Housing Security Index are:

a) Housing Electricity
b) Housing Sanitation
c) Drinking Water

a) Housing Electricity

Housing electricity is concerned about the electricity services in the constructed houses. Electricity creates opportunities for people to lift themselves out of poverty. This actually bridges a basic need for humans that is to see when there is no natural light.

Table 1: Electrification in the Houses

Electrical Provided	Maddur Taluk (n=150)		Mandya Taluk (n=150)		Total (n=300)	
	Before	After	Before	After	Before	After
Available	95(63.33)	144(96)	102(68)	148(98.66)	197(65.66)	292(97.33)
Not Available	55(36.66)	6(4)	48(32)	2(1.33)	103(34.33)	8(2.66)
Total	**150(100)**	**150(100)**	**150(100)**	**150(100)**	**300(100)**	**300(100)**

Note: figures in parentheses are actual numbers, rest are percentages
Source: Field Study

The above table reveals electrification of houses in the study area. Electrification is one of the indicators of rural development. The objective of the housing scheme is to provide a house which is fit for possession. Out of the total 300respondents 292(97.33) respondents have agreed that their houses are equipped with electricity. Only 8(2.66) respondents do not have electricity in their houses. After the construction of house all the houses were provided with electricity supply in the study area and also it had a positive impact on respondent's children's reading habits and educational improvements. Before the construction of house 103(34.33) respondents do not have electricity in their house.

Table 2: Type of Electricity

Type of Electricity	Maddur Taluk (n=150)		Mandya Taluk (n=150)		Total (n=300)	
	Number	Percentage	Number	Percentage	Number	Percentage
No Electricity	6	4	2	1.33	8	2.66
Electricity with Bhagyajyothi	144	96	148	98.66	292	97.33
Electricity Owned	0	0	0	0	0	0
Total	**150**	**100**	**150**	**100**	**300**	**100**

Source: Field Study

The above table indicates the different schemes under which electricity was provided to respondents. In the study area through the Bhagyajyothi scheme electricity being supplied. After the construction of house out of the 300 respondents majority have electricity connectivity which means 292(97.33%) respondents have electricity in their house under the bhagyajyothi scheme. Only 8(2.66%) of the respondents do not have electricity in their houses. None of the respondents owned electricity in their houses in the study area. Before the construction of houses, many of them did not have electricity connection to their house.

Table 3: Changes in Reading Habit

Reading Habits	Maddur Taluk (n=150)		Mandya Taluk (n=150)		Total (n=300)	
	Before	After	Before	After	Before	After
Positive changes	85(56.66)	148(98.66)	86(57.33)	148(98.66)	171(57)	296(98.66)
Negative changes	65(43.33)	2(1.33)	64(42.66)	2(1.33)	129(43)	4(1.33)
Total	**150(100)**	**150(100)**	**150(100)**	**150(100)**	**300(100)**	**300(100)**

Note: figures in parentheses are actual numbers, rest are percentages
Source: Field Study

The above table shows the changes in reading habits of the respondent's children in the study area. It is found that after the construction of house, out of 300 respondents 296(98.66%) have experienced positive changes in the reading habits of their children. Only 4(1.33%) respondents responded negatively about the changes in the reading habits of the children. Before the construction of house, negative changes were more in the study area. Electricity connection to their house had a positive impact on the changes in the reading habits of the respondents children as well as improvement in their educational development in the study area.

b) Housing Sanitation

The concept of sanitation broadly includes liquid and solid waste disposal, personal and food related hygiene and domestic as well as environmental hygiene. It would not be wrong to say that hardly describes the sanitary conditions as they see in the villages of India. Rural sanitation figures prominently in the national agenda for governance. At present the extent of sanitation coverage in India is around 16 percent of all rural households. Rural sanitation is a state subject. The state governments implement rural sanitation programme under state sector's Minimum Need Programme (MNP). The central government supplements their efforts providing financial and technical assistance through the centrally sponsored Rural Sanitation Programme (CRSP).

Table 4: Sanitation Condition

Yes / No	Maddur Taluk (n=150)		Mandya Taluk (n=150)		Total (n=300)	
	Before	After	Before	After	Before	After
Good	75(50)	140(93.33)	80(53.33)	142(94.66)	155(51.66)	282(94)
Bad	75(50)	10(6.66)	70(46.66)	8(5.33)	145(48.33)	18(6)
Total	**150(100)**	**150(100)**	**150(100)**	**150(100)**	**300(100)**	**300(100)**

Note: figures in parentheses are actual numbers, rest are percentages
Source: Field Study

The above table depicts the respondents opinion on the status of housing sanitation. It is observed that after the construction of house, out of the 300 respondents 282 (94%) respondents said that their status of housing sanitation is good. Only 18(6%) respondents said that there is bad housing sanitation. Sanitation is a better indicator of quality of life of the people as well as a health indicator. Before the construction of house, fifty percent of the houses were listed under the bad sanitation condition and remaining were having good sanitation in the study area.

Table 5: Toilet Connectivity

Toilet Facility	Maddur Taluk (n=150)		Mandya Taluk (n=150)		Total (n=300)	
	Before	After	Before	After	Before	After
Available	80(53.33)	143(95.33)	85(56.66)	148(98.66)	165(55)	291(97)
Not Available	70(46.66)	7(4.66)	65(43.33)	2(1.33)	135(45)	9(3)
Total	**150(100)**	**150(100)**	**150(100)**	**150(100)**	**300(100)**	**300(100)**

Note: figures in parentheses are actual numbers, rest are percentages
Source : Field Study

The above table shows the toilet facility in the constructed house. Under the Swacha Bharath Mission(SBM) scheme these toilets were connected while constructing house by providing an amount of Rs. 12,000 for each house in the study area. Out of the 300 respondents in the study area 291(97%) of the respondents have toilet connectivity with their constructed house and only 9(3%) of the respondents do not have toilet connectivity with their constructed house. After the construction of house majority of the houses have toilet connection with their houses in the study area Before the construction of house 45 percent of houses did not have toilet connection in their house.

Table 6: Type of Toilet

Type of Toilet	Maddur Taluk (n=150)		Mandya Taluk (n=150)		Total (n=300)	
	Before	After	Before	After	Before	After
Individual Toilet	48 (32)	143 (95.33)	52 (34.66)	148 (98.66)	100 (33.33)	291 (97)
Open Defection	94 (62.66)	7 (4.66)	88 (58.66)	2 (1.33)	182 (60.66)	9 (3)
Community Latrine	8	0 (0.00)	10	0 (0.00)	18 (6)	0 (00)
Total	**150 (100)**	**150 (100)**	**150 (100)**	**150 (100)**	**300 (100)**	**300 (100)**

Note: figures in parentheses are actual numbers, rest are percentages
Source: Field Study

The above table shows the type of toilet used by the respondents. In the study area through the MGNREGA toilets have been constructed in their house. After the construction of house, out of the 300 respondents majority have individual toilet connectivity which means 291(97%) have toilet with their house by MGNREGA. Only 9(3%) of the respondents do not have toilet connectivity with their houses and they belong to open defection category. None of the respondents were using community toilet in the study area. Before the construction of house majority of the respondents did not have toilet connectivity with their house and they used to defecate in the open in the taluk under study.

Table 7: Drainage Connections

Drainage Connections	Maddur Taluk (n=150)		Mandya Taluk (n=150)		Total (n=300)	
	Before	After	Before	After	Before	After
Available	84 (56)	138 (92)	91 (60.66)	143 (95.33)	175 (58.33)	281 (93.66)
Not Available	66 (44)	12 (8)	59 (39.33)	7 (4.66)	125 (41.66)	19 (6.33)
Total	**150 (100)**	**150 (100)**	**150 (100)**	**150 (100)**	**300 (100)**	**300 (100)**

Note: figures in parentheses are actual numbers, rest are percentages
Source: Field Study

The above table reveals that the drainage connectivity in the constructed house. A good drainage connection will have positive impact on health. It is observed that respondents after the construction of house, of the 300 respondents in the study area 281(93.66%) respondents have drainage connectivity with their constructed house and only 19(6.33%) of the respondents did not have drainage connectivity with their constructed house. Before the construction of house, nearly fifty percent of the houses donot have drainage connection with their houses in the study area.

c) Drinking Water

India has long faced the challenge of providing safe drinking water to over 700 million people in more than 1.5 million villages. However many systems were no longer functional. The key issue is how they are accessed by respondents.

Table 8: Drinking Water Connectivity

Drinking Water Connectivity	Maddur Taluk (n=150)		Mandya Taluk (n=150)		Total (n=300)	
	Before	After	Before	After	Before	After
Available	63 (42)	150 (100)	71 (47.33)	150 (100)	134 (44.66)	300 (100)
Not Available	87 (58)	0 (0.00)	79 (52.66)	0 (0.00)	166 (55.33)	0 (0.00)
Total	**150 (100)**	**150 (100)**	**150 (100)**	**150 (100)**	**300 (100)**	**300 (100)**

Note: figures in parentheses are actual numbers, rest are percentages
Source: Field Study

The government is committed to provide safe and clean drinking water to the rural areas through piped connections. The above table indicates the connectivity of drinking water to the respondents. It is observed that after the construction of house, all houses have drinking water connectivity to their houses. Drinking water is a basic need for rural people even though the drinking water is supplied through the tap connectivity. Before the construction of house nearly sixty percent of the houses did not have water connection to their houses in the study area. It is clear that while constructing of their house they have been provided with drinking water connectivity.

Table 9: Type of Water Supply Facilities

Type Water Supply Facilities	Maddur Taluk (n=150)		Mandya Taluk (n=150)		Total (n=300)	
	Before	After	Before	After	Before	After
Private Tap	65 (43.33)	132 (88)	73 (48.66)	134 (89.33)	138 (46)	266 (88.66)
Bore well with hand pump	79 (52.66)	18 (12)	73 (48.66)	16 (10.66)	152 (50.6)	34 (11.33)
Open Well	6 (4)	0 (0.00)	4 (2.66)	0 (0.00)	10 (3.33)	0 (0.00)
Total	**150 (100)**	**150 (100)**	**150 (100)**	**150 (100)**	**300 (100)**	**300 (100)**

Note: figures in parentheses are actual numbers, rest are percentages
Source : Field Study

The above table reveals type of water supply provided to all the houses built under housing scheme. After the construction of house, out of the total 300 beneficiaries 266 (88.66%) of them stated that potable water facilities with taps to the individual houses were provided. Remaining 34 (11.33%) of the beneficiaries had access to bore well which providedthem potable drinking water. Now a days in the study area purified drinking water is also available which is under pay and use. Before the construction of house fifty percent of the respondents drew water from bore well with hand pump facility in the study area.

Table 10: Supply of Water Regular/Irregular

Regular/ Irregular	Maddur Taluk (n=150)		Mandya Taluk (n=150)		Total (n=300)	
	Number	Percentage	Number	Percentage	Number	Percentage
Regular	145	96.66	148	98.66	293	97.33
Irregular	5	3.33	2	1.33	7	2.66
Total	**150**	**100**	**150**	**100**	**300**	**100**

Source: Field Study

The above table shows the supply of water regular or irregular supply of water to the house. Out of the 300 respondents 293(97.33%) respondents were having regular water supply to their houses. Remaining 7(2.66%) of the respondents had irregular water supply to the house. Before the construction of the house the availability of drinking water was irregular in the study area.

6. Testing of Hypothesis

H_1
H_0: There is no significant relationship between rural housing programmes and Housing Security Index.

H_1: There is a significant relationship between rural housing programmes and Housing Security Index.

Table 11: Rural Housing Programmes and Housing Security Index

ANOVA

Sl.No.	Particulars	Df	Mean Square	F	Sig.
1	Different Rural Housing Programmes	2	42.472	262.497	.000
2	Housing Security Index(HSE)				
A	Housing Electricity	2	3.893	74.829.	.000
B	Housing Sanitation	2	27.873	2.8386.	.000
C	Drinking Water	2	28.323	2.0083	.000

Note: df-degree of freedom, F-test, Sig.-Level of Significance

The above table depicts the relationship between rural housing programmes and Housing Security Index parameters such as electricity, sanitation and drinking water. It reveals that housing programmes of mean square is 42.472 and total F value is 262.497 Therefore the significant value 0.0001 is lesser than the 0.5.Housing Security Index parameters like electricity, sanitation and drinking water of mean square is 3.893, 27.873 and 28.323 respectively. Their tested value of F is 474.829, 2.8386 and 2.0083 respectively. Therefore Housing Security Index parameters of electricity, sanitation and drinking water is more significant, that is 0.0001 is lesser than 0.5.Hence the Rural Housing Programmes and Housing Security Index have more significance in the study area.

Table 11.1: Paired Sample Statistics

S. No	Particulars	Mean	N	Std. Deviation	Std. Error Mean
1	Different Rural Housing Programmes	1.90	300	.667	.039
2	Housing Security Index (HSI)	3.7800	300	2.15303	.12002

Paired Sample Correlations

Particulars	N	Correlation	Sig.
Different Rural Housing Programmes & HSI	300	.796	.000

The above table clearly indicates that “There is a significant relationship between Rural Housing Programmes and Housing Security Index.” The paired sample test revealed that the tested value of correlation is 0.796 and significant at zero level. Further, it is clear that, there is a significantrelationship between rural housing programmes and housing security index. Thus it indicates that “There is a significant relationship between rural housing programmes and housing security index” Therefore the results indicates that the null hypothesis be rejected and accept the alternative hypothesis.

7. Findings

- Out of the total respondent’s majority of the respondents are belonged to female category 260(80%) which means the housing schemes sanctioned only for women in the study area.

- Maximum number of houses constructed under the Indira AwasYojana next is Rural Ashraya Scheme and AmbedkarAwasYojana
- Out of the total respondents in the study area 291(97%) of the respondents have toilet connectivity to their constructed house.
- Of the total respondents 292 respondents have electricity in their houses and only 8 respondents have no electricity in their houses.
- Of the total beneficiaries, 88.66 per cent of them had potable water facilities with taps to the individual houses.
- Out of the total respondents 225(75%) of the respondents opined that, their consumption has improved quality wise after owning the house
- It is noticeable that 182(60.66%) of respondents agreed that housing programmes are necessary for health improvement.
- It is found that out of the total respondents 296(98.66%) have experienced positive changes in the reading habits of their children.

8. Suggestions

- Selecting of beneficiaries should be transparent in nature.
- It is observed that the allocation of amount takes more due to some technical problems. The finance allocation should be provided as early as possible.
- According to officials of gram panhayaths the GPS system is facing some technical problems and delay. This type of technical problem should be solved and GPS system should be strengthened at all gram panchayaths.
- All houses should have RashtriyaSwasthyaBhimaYojana (RSBY) cards and it should be a continuous process BPL card itself (attested) should be a proof of insurance on the lines of Rajasthan for any claims.
- There is also a need of appropriate technology with environment friendly as well as efficiently in rural areas.
- The census of below poverty line must conducted every five years. It will helpful for proper allocations and sectioning true beneficiaries can get benefits.
- All selected beneficiaries must be encouraged and supported to use energy resources like bio gas and solar facility.
- Issuing of MGNREGA job cards should be given by banks only for easy financial transaction.

9. Conclusion

Housing is a veritable tool for fighting poverty and achieving economic prosperity, wellbeing, improving the quality of the life of people at the grassroots level and it has importance also significant impact on health, education, drinking water, so that it improves quality of life in rural areas particularly the weaker sections of the society.

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