HOUSING CONDITIONS AMONG BELOW POVERTY LINE HOUSEHOLDS IN THE RURAL AREAS OF THE DISTRICT OF PALAKKAD

Thesis Submitted to the University of Calicut
for the Award of the Degree of

DOCTOR OF PHILOSOPHY IN ECONOMICS

BY

NAVAL KISHORE S

Under the supervision of

Dr. Sinitha Xavier
Assistant Professor
Research and Post Graduate Department of Economics
Panampilly Memorial Government College, Chalakudy

Research and Post Graduate Department of Economics
Panampilly Memorial Government College, Chalakudy
January 2025

Research and Post Graduate Department of Economics
Panampilly Memorial Government College
Chalakudy

Dr Sinitha Xavier
Assistant Professor and Research Supervisor
Panampilly Memorial Government College
Chalakudy

CERTIFICATE

This is to certify that revisions are made in this thesis as per the suggestions made by the adjudicators of the thesis.

Place: Potta

Date: 15/1/25.

Dr. Sinitha Xavier
Assistant Professor and Research Supervisor
Researchand Post Graduate Department of Economics,
Panampilly Memorial Government College, Chalakudy

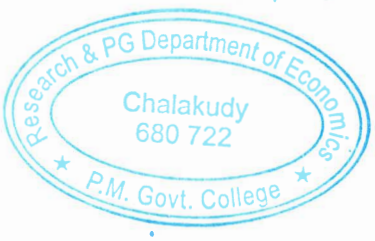
Research & PG Department of Economics
Chalakudy
680 722
P.M. Govt. College

CERTIFICATE

This is to certify that the study entitled "**HOUSING CONDITIONS AMONG BELOW POVERTY LINE HOUSEHOLDS IN THE RURAL AREAS OF THE DISTRICT OF PALAKKAD**" is a bonafide research work done by **NAVAL KISHORES** carried out under my supervision and guidance at the Research and Post Graduate Department of Economics, Panampilly Memorial Government College, Chalakudy, Thrissur. The contents of this thesis, in full or in part, have not been submitted and will not be submitted to any other institute or University for the award of any degree or diploma. Plagiarism is checked and found within the permitted limits.

Place: Potta
Date: 15/11/25.

Dr. Sinitha Xavier
Research Supervisor &Assistant Professor
Research and Post Graduate Department of Economics
Panampilly Memorial Government College, Chalakudy



DECLARATION

I, **Naval KishoreS** hereby declare that the thesis entitled **"HOUSING CONDITIONS AMONG BELOW POVERTY LINE HOUSEHOLDS IN THE RURAL AREAS OF THE DISTRICT OF PALAKKAD"** submitted by me for the award of the Degree of Doctor of Philosophy in Economics to University of Calicut is the original work done by me under the guidance and the supervision of **Dr.Sinitha Xavier**, Research Supervisor and Assistant Professor, Research and Post Graduate Department of Economics, Panampilly Memorial Government College, Chalakudy. I also declare that this thesis has not been submitted to any other University for the award of any other degree, diploma, associate-ship, fellowship or title or recognition and no plagiarism is made in the thesis.

Place: Potta
Date: 15/01/2025

Naval Kishore S
Panampilly Memorial Government College
Chalakudy

ACKNOWLEDGEMENT

This acknowledgement has been presented to express deep sense of gratitude and regards to all the persons and institutions for the assistance, encouragement and resources provided for completing this thesis.

First and foremost, I wish to express my deepest gratitude to my Research guide **Dr. Sinitha Xavier** who was a constant source of encouragement, guidance, and inspiration. She is a great motivator and mentor, guide, guardian and a visionary. She has taken me through a research experience that I shall treasure forever and without her support and unending encouragement this endeavour could never have seen the light of the day. I would also like to particularly thank her for her unconditional and tireless guidance always, through all kind of situations, throughout the course of conceptualising and writing this thesis. Her expertise and patience have not only helped me in finding relevant sources but have also broadened my understanding of the subject. Her dedication in helping me achieve my research goals has made a significant difference in my academic pursuits. Thank you for your unwavering support, encouragement, and willingness to go the extra mile to ensure my success.

I wish to express my sincere gratitude to **Shri. Shaju K.S**, the Principal of Panampilly Memorial Government College, Chalakudy. **Prof (Dr.) Aravind Krishnan K, Dr. Jojomon N. A, Shri. Albert Antony**, the former principals of the college are gratefully remembered for their unconditional support and guidance. With deep sense of gratitude, I remember **Shri. Shinto M. Kuriakose,** the Head of the Department of Economics and the members of the faculty of the department of Economics for their support. I also take this opportunity to thank **Dr. Madhusudhanan Kartha** and **Dr. Shefeer Kappil** for their valuable suggestions and guidance during the course of the study.

No research is possible without the Library, the centre of learning resources. I take this time to thank all the library staffs of Panampilly Memorial Government College,Chalakudy for their support. I would also like to express my gratitude to all the library staffs of CH Mohammed Koya Library, University of Calicut and Centre for Development Studies, Thiruvananthapuram, Kerala for their services.

I am also extremely grateful to the staffs of the LIFE Mission Thiruvananthapuram, Department of Civil Supplies and Consumer Affairs and Taluk Supply Offices of Palakkad, Alathur and Mannarkkad for their support and services. I am also thankful to the staffs of the Commissionerate of the Rural Development (CRD) and the Poverty Alleviation Unit for their assistance.

I would also like to take this opportunity to thank all the office staffs of Panampilly Memorial Government College for their support.

I am also grateful to my fellow research scholars Dr. Sruthy K. S, Dr.Vibini K.R, Fr. (Dr.) Celestine P. F, Dr. Dhanusree Ullas. K, Dr. Sathya Prakash. P, Sr. Anna Maria Sunny, Anisha Anil and Anjana T.K for their support. I would also be thankful to all the research scholars of the Department of Commerce of Panampilly Memorial Government College.

I have profound gratitude to Sri. Thomson Jose (IPS) and Sri. Harisankar (IPS) for their constant support and encouragement.

I am indebted to my friends Dr. Cyril George, Ginto Kannoth, Sajil C. S, Shiva Prasad and Jijo Chacko for their support and motivation in mypersonal and academic life.

I am immensely pleased with the printing and binding work of this thesis. I am thankful to Dj Dot Net Cafe for providing great support through the services of Printing and binding.

I also owe much gratitude to my dear Amma (K. M Suseela) and Achan (K. R Sukumaran) who raised me and supported in all my pursuits. They have made an untold number of sacrifices to provide the best opportunities for my education. They taught me how to turn hopes and dreams into shining realities and it invoked a kind of energy in me to achieve my dream. They have, indeed, played a big role in strengthening my character, fostering compassion, and developing emotional intelligence. They prayed for me throughout the time of my research which sustained me thus far. I thank them for their eternal support. I am also thankful to my brother Dr.Naveen S for the support. I also thank Mrs. Ambili P. K. for her wholehearted support.

Special love and thanks to my wife Dr. Ushabhayi, Assistant Professor, Government Medical College, Thrissur, who has supported me throughout this process and deserves my deep appreciation. She has been my great companion and best friend, supported, encouraged, loved, entertained, and helped me to get through all my travails. Her Academic and emotional help is immeasurable which helped me to keep things in perspective and gave me the strength to work through all these years.

Words are, perhaps, inadequate to express my heartfelt gratitude to my beloved children Adityakiran and Amitabh for their unconditional love and support. They have kept my spirit high throughout this journey and their smiling faces were the driving force for this endeavour.

Above all, I bow my head before 'The God Almighty' whose grace guided me from the very inception of my academic life up to this Doctoral level. God has always been there to steer me towards the right path when I was standing at crossroads in my life. Thank you for giving me the countless blessings,health, strength, knowledge, wisdom, and opportunity to undertake this research task and accomplish my academic pursuits.

Thanks to one and all…

CONTENTS

List of Tables

List of Figures

ABBREVIATIONS

AAA	Antyodaya Anna Yojana
AHP	Affordable Housing in Partnership
AOP	Average Amount of Debt
APL	Above Poverty Line
AUECS	Ayyankali Urban Employment Creation Scheme
AVE	Average Variance Extracted
BPL	Below Poverty Households
BSUP	Basic Services to Urban Poor
CAG	Comptroller and Auditor General of India
CB-CFA	Covariance Based-Confirmatory Factor Analysis
CDS	Community Development Society
CESCR	Committee on Economic, Social and Cultural Rights
CFA	Confirmatory Factor Analysis
CHRP	Coastal Housing and Re-settlement Programs
COSTFORD	Centre of Science and Technology for Rural Development
CPWD	Central Public Works Department
DRDA	District Rural Development Agencies
EFA	Exploratory Factor Analysis
EWS	Economically Weaker Section
FYP	Five Year Plan
GOAL	Governance And Accelerated Livelihoods
HDFC	Housing Development Finance Corporation
HFC	Housing Finance Companies
HFI	Housing Financing Institution
HUDCO	Housing and Urban Development Corporation
IAY	Indira Awas Yojana
IRES	Indian Residential Energy Survey
IHSDP	Integrated Housing and Slum Development Project
ISHUP	Interest Subsidy scheme for Housing the Urban Poor
JJM	Jal Jeevan Mission
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
KRWSSP	Kerala Rural Water Supply and Sanitation Project
KSFE	Kerala State Financial Enterprises
KSHB	Kerala State Housing Board
LIFE	Livelihood, Inclusion, Financial Empowerment
LIG	Low Income Group
LSG	Local Self-Governments
MIG	Middle Income Group
MNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MoHUPA	Ministry of Housing and Urban Poverty Alleviation

NBO	National Building Organisation
NFWS	National Fishermen Welfare Fund
NHB	National Housing Bank
NRDWP	National Rural Drinking Water Programme
NREGP	National Rural Employment Guarantee Programme
PMAY	Pradhan Mantri Awas Yojana
PDS	Public Distribution System
RAY	Rajiv Awas Yojana
PHH	Priority Household
RLEGP	Rural Landless Employment Guarantee Programme
RMSEA	Root Mean square Error of Approximation
ROMHS	Rajiv One Million Housing Scheme
SBM-G	Swatch Bharath Mission Gramin
SC	Scheduled Caste
SECC	Socio Economic Caste Census
SEM	Structural Equation Model
SHG	Self Help Group
ST	Scheduled Tribes
UNDP	United Nation Development Programme
VAMBAY	Valmiki Ambedkar Awas Yojana
WASH	Water, Sanitation, and Hygiene
WGRH	Working Group Report on Housing

ABSTRACT

The state of Kerala is well acclaimed for its density of population and it is reflected in the housing scenario of the state. Housing conditions among the rural population Below Poverty Line (hereafter BPL) households of Palakkad district are assessed in the study. House is the fundamental requirement for every household which affects the day-to-day activities of household members. The role 'housing' plays in the overall well-being of the household and the factors affecting the quality of rural housing are investigated in this study. The current study focuses on housing conditions of BPL households in rural areas of the district of Palakkad of the state of Kerala.

Capability theory of Amarthya Sen is applied in this study as the theoretical frame work. Capability theory is an open-ended framework, and therefore named as "an approach" instead of "a theory". It proposes that social arrangements should be primarily evaluated according to the extent of freedom people have to promote or achieve functioning they value. It offers capabilities as a tool for evaluating or comparing deprivations and advantages of individuals instead of resources and utility. 'Capability' refers to the set of valuable functioning that are feasible for a person to achieve. Thus, a person's capability represents the effective freedom of an individual to choose between different functioning combinations. The capability approach is generally conceived as a flexible and multi-purpose framework, rather than a precise theory of well-being. The resources provide a possibility of a set of capabilities or opportunities. Individuals or households convert these resources into their valued functioning. The conversion factors represent the individual characteristics which affect the capabilities achieved. Here resources are not the indicators of how well the households are doing, but the outcomes in the form of the functioning they choose to achieve. Two models are used in this study based on capability theory. The first model deals with the effects of physical and financial condition of housing on well-being while the second model deals with the effect of quality of rural housing on 'life' satisfaction and 'housing' satisfaction. In Capability approach framework for well-being, the housing conditions and financial conditions of the household are conceptualized as a resource which in turn facilitates other five capabilities like health, education, material well-being, social interaction and personnel safety. These five

capabilities are coined together under the umbrella term overall well-being. The model of the Effect of Quality of Rural Housing on Life Satisfaction and Housing Satisfaction, considers the quality of rural housing as the capability based on which the households achieve the functioning in the form of life satisfaction and housing satisfaction.

The first objective of the present research work was to study the rural and urban housing conditions in India and Kerala based on secondary data in detail and found out that there exists a wide gap in housing between rural and urban households. The rural and urban differences in the housing and related facilities are significant and the characteristics examined included the house ownership status, the number of dwelling rooms, the availability of power, latrine facility, and safe drinking water as well as the materials used in building, the house, habitability and the type of cooking fuel. The rural households are deprived of electricity, latrine, safe drinking water, permanent materials for house construction, good condition houses and clean cooking fuel. These deprivations have ripple effects on the overall well-being of the household as well as the socio-economic and cultural development of the society.

The second objective as per the objective set up of the study was to assess the physical conditions of housing and the financial conditions among BPL households in the Palakkad district based on the primary data. Analysis of primary data was carried out using the attributes for physical and financial conditions and well-being. Three taluks namely Alathur, Mannarkad, and Palakkad were selected from Palakkad district for the study. The study proved that the poor physical conditions of the rural households had significant association with gender, education and marital status of the head of the household. Household characteristics like total income of the household, community and type of family affected the physical conditions of housing. The financial condition of households explicated the similar trend. The gender, educational and marital status of the household head portrayed a significant relationship on the financial condition of the rural BPL household. Community of household exhibited significant link with the financial condition of household. There should be emphasis on policy circles in providing education and employment opportunities to the rural poor households alongside the interventions in housing. The Structural equation model

applied in the study proved that Physical condition of the rural housing and financial conditions among BPL household had a positive effect on their overall well-being. Physical and financial conditions of the rural BPL households in the district of Palakkad, are important for predicting the overall well-being of the Rural BPL households.

The third objective of the study focused on the factors affecting the quality of rural houses among the BPL households in the rural areas of the district of Palakkad. The characteristics like age, gender and marital status, and education of the head of the household as well as the characteristics like total income, community, type of family, assets and type of ration card in determining the housing quality were found to be significant. The Structural Equation Mediation Model applied in the study brought out a direct and positive effect on quality of rural houses and life satisfaction and indirect and positive effect of quality of rural houses and life satisfaction of BPL households via housing satisfaction. The study also found out that the physical and financial conditions of the rural BPL households in Palakkad, are important for predicting the overall well-being of the rural BPL households in Palakkad. Study indicates that the housing quality is a multifactorial problem and needs a personalised solution. Each household has its own unique hurdle to cross when they plan to build a house. The policy makers and programme implementers should consider the above factors affecting housing before initiating any new programme.

സംഗ്രഹം

കേരള സംസ്ഥാനം അതിന്റെ ജനസാന്ദ്രതയ്ക്ക് ഏറെ പ്രശസ്തമാണ്, അത് സംസ്ഥാനത്തിന്റെ പാർപ്പിട സാഹചര്യങ്ങളിൽ പ്രതിഫലിക്കുന്നു. പാലക്കാട് ജില്ലയിലെ ദാരിദ്ര്യരേഖയ്ക്ക് താഴെയുള്ള (ഇനി മുതൽ ബിപിഎൽ) ഗ്രാമീണ ജനതയുടെ ഭവന സാഹചര്യങ്ങൾ പഠനത്തിൽ വിലയിരുത്തുന്നു. ഓരോ കുടുംബത്തിന്റെയും അടിസ്ഥാന ആവശ്യകതയാണ് വീട്, ഇത് കുടുംബാംഗങ്ങളുടെ ദൈനംദിന പ്രവർത്തനങ്ങളെ ബാധിക്കുന്നു. കുടുംബത്തിൻ്റെ മൊത്തത്തിലുള്ള ക്ഷേമത്തിൽ 'ഭവനം' വഹിക്കുന്ന പങ്കും ഗ്രാമീണ ഭവനങ്ങളുടെ ഗുണനിലവാരത്തെ ബാധിക്കുന്ന ഘടകങ്ങളും ഈ പഠനത്തിൽ അന്വേഷിക്കുന്നു. നിലവിലെ പഠനം കേരളത്തിലെ പാലക്കാട് ജില്ലയിലെ ഗ്രാമപ്രദേശങ്ങളിലെ ബിപിഎൽ കുടുംബങ്ങളുടെ പാർപ്പിട സാഹചര്യങ്ങളെ കേന്ദ്രീകരിക്കുന്നു.

അമർത്യ സെന്നിന്റെ ശേഷി സിദ്ധാന്തം ഈ പഠനത്തിൽ സൈദ്ധാന്തിക ചട്ടക്കൂടായി പ്രയോഗിക്കുന്നു. ശേഷി സിദ്ധാന്തം ഒരു തുറന്ന ചട്ടക്കൂടാണ്, അതിനാൽ "ഒരു സിദ്ധാന്തം" എന്നതിന് പകരം "ഒരു സമീപനം" എന്ന് നാമകരണം ചെയ്യപ്പെട്ടു. ആളുകൾക്ക് അവർ വിലമതിക്കുന്ന പ്രവർത്തനം പ്രോത്സാഹിപ്പിക്കുന്നതിനോ നേടിയെടുക്കുന്നതിനോ ഉള്ള സ്വാതന്ത്ര്യത്തിന്റെ പരിധിക്കനുസരിച്ച് സാമൂഹിക ക്രമീകരണങ്ങൾ പ്രാഥമികമായി വിലയിരുത്തപ്പെടണമെന്ന് ഇത് നിർദ്ദേശിക്കുന്നു. വിഭവങ്ങൾക്കും പ്രയോജനത്തിനും പകരം വ്യക്തികളുടെ കുറവുകളും നേട്ടങ്ങളും വിലയിരുത്തുന്നതിനോ താരതമ്യം ചെയ്യുന്നതിനോ ഉള്ള ഒരു ഉപകരണമായി ഇത് കഴിവുകൾ വാഗ്ദാനം ചെയ്യുന്നു. ഒരു വ്യക്തിക്ക് കൈവരിക്കാൻ കഴിയുന്ന മൂല്യവത്തായ പ്രവർത്തനങ്ങളുടെ കൂട്ടത്തെയാണ് 'കഴിവ്' സൂചിപ്പിക്കുന്നത്. അങ്ങനെ, ഒരു വ്യക്തിയുടെ കഴിവ് വ്യത്യസ്ത പ്രവർത്തന കോമ്പിനേഷനുകൾക്കിടയിൽ തിരഞ്ഞെടുക്കാനുള്ള ഒരു വ്യക്തിയുടെ ഫലപ്രദമായ സ്വാതന്ത്ര്യത്തെ പ്രതിനിധീകരിക്കുന്നു. ക്ഷേമത്തിന്റെ കൃത്യമായ സിദ്ധാന്തത്തിനുപകരം വഴക്കമുള്ളതും വിവിധോദ്ദേശ്യങ്ങളുള്ളതുമായ ചട്ടക്കൂടായാണ് കഴിവിന്റെ സമീപനം പൊതുവെ വിഭാവനം ചെയ്തിരിക്കുന്നത്. വിഭവങ്ങൾ ഒരു കൂട്ടം കഴിവുകളുടെയോ അവസരങ്ങളുടെയോ സാധ്യത നൽകുന്നു. വ്യക്തികൾ അല്ലെങ്കിൽ കുടുംബങ്ങൾ ഈ വിഭവങ്ങൾ അവരുടെ മൂല്യവത്തായ പ്രവർത്തനത്തിലേക്ക് മാറ്റുന്നു. കൈവരിച്ച കഴിവുകളെ ബാധിക്കുന്ന വ്യക്തിഗത സവിശേഷതകളെയാണ് പരിവർത്തന ഘടകങ്ങൾ പ്രതിനിധീകരിക്കുന്നത്. ഇവിടെ വിഭവങ്ങൾ കുടുംബങ്ങൾ എത്ര നന്നായി ചെയ്യുന്നു എന്നതിന്റെ സൂചകങ്ങളല്ല, മറിച്ച് അവർ നേടിയെടുക്കാൻ തിരഞ്ഞെടുക്കുന്ന പ്രവർത്തനത്തിന്റെ രൂപത്തിലുള്ള ഫലങ്ങളാണ്. ശേഷി സിദ്ധാന്തത്തെ അടിസ്ഥാനമാക്കി ഈ പഠനത്തിൽ രണ്ട് മോഡലുകൾ ഉപയോഗിക്കുന്നു. ആദ്യ മോഡൽ ഭവനത്തിന്റെ ഭൗതികവും സാമ്പത്തികവുമായ അവസ്ഥയുടെ ക്ഷേമത്തിൽ വരുത്തുന്ന പ്രത്യാഘാതങ്ങൾ കൈകാര്യം ചെയ്യുന്നു, രണ്ടാമത്തെ മോഡൽ ഗ്രാമീണ ഭവനങ്ങളുടെ ഗുണനിലവാരം 'ജീവിത' സംതൃപ്തിയിലും 'ഭവന' സംതൃപ്തിയിലും ചെലുത്തുന്ന സ്വാധീനത്തെക്കുറിച്ചാണ് കൈകാര്യം ചെയ്യുന്നത്. ആരോഗ്യം, വിദ്യാഭ്യാസം, ഭൗതിക ക്ഷേമം, സാമൂഹിക ഇടപെടൽ, പേഴ്സണൽ സുരക്ഷ തുടങ്ങിയ മറ്റ് അഞ്ച് കഴിവുകൾ സുഗമമാക്കുന്ന ഒരു വിഭവമായാണ് ക്ഷേമത്തിനായുള്ള കഴിവ് സമീപന ചട്ടക്കൂടിൽ, കുടുംബത്തിൻ്റെ ഭവന സാഹചര്യങ്ങളും സാമ്പത്തിക സാഹചര്യങ്ങളും സങ്കൽപിക്കുന്നത്. മൊത്തത്തിലുള്ള ക്ഷേമം എന്ന കുടക്കീഴിൽ ഈ അഞ്ച് കഴിവുകളും ഒരുമിച്ച് രൂപപ്പെടുത്തിയിരിക്കുന്നു. ജീവിത സംതൃപ്തിയിലും പാർപ്പിട സംതൃപ്തിയിലും ഗ്രാമീണ ഭവനങ്ങളുടെ ഗുണമേന്മയുടെ മാതൃക, ഗ്രാമീണ ഭവനങ്ങളുടെ ഗുണനിലവാരം ജീവിത സംതൃപ്തിയുടെയും ഭവന സംതൃപ്തിയുടെയും രൂപത്തിൽ കുടുംബങ്ങൾ പ്രവർത്തിക്കാനുള്ള കഴിവിനെ അടിസ്ഥാനമാക്കിയുള്ളതാണ്.

ദ്വിതീയ ഡാറ്റയെ അടിസ്ഥാനമാക്കി ഇന്ത്യയിലെയും കേരളത്തിലെയും ഗ്രാമീണ, നഗര ഭവന വ്യവസ്ഥകൾ വിശദമായി പഠിക്കുകയും ഗ്രാമ-നഗര കുടുംബങ്ങൾക്കിടയിൽ ഭവനനിർമ്മാണത്തിൽ വലിയ വിടവ് ഉണ്ടെന്ന് കണ്ടെത്തുകയും ചെയ്യുക എന്നതാണ് ഇപ്പോഴത്തെ ഗവേഷണ പ്രവർത്തനത്തിന്റെ ആദ്യ ലക്ഷ്യം. ഭവന, അനുബന്ധ സൗകര്യങ്ങളിലെ ഗ്രാമീണ, നഗര വ്യത്യാസങ്ങൾ വളരെ പ്രധാനമാണ്, കൂടാതെ വീടിന്റെ ഉടമസ്ഥാവകാശ നില, വാസമുറികളുടെ എണ്ണം, വൈദ്യുതി ലഭ്യത, കക്കൂസ് സൗകര്യം, സുരക്ഷിതമായ കുടിവെള്ളം, കെട്ടിട നിർമ്മാണത്തിൽ ഉപയോഗിക്കുന്ന വസ്തുക്കൾ എന്നിവയും പരിശോധിച്ച സവിശേഷതകളിൽ ഉൾപ്പെടുന്നു. വീട്, വാസയോഗ്യത, പാചക ഇന്ധനത്തിന്റെ തരം. ഗ്രാമീണ കുടുംബങ്ങൾക്ക് വൈദ്യുതി, കക്കൂസ്, ശുദ്ധമായ കുടിവെള്ളം, വീട് നിർമ്മാണത്തിനുള്ള സ്ഥിരം സാമഗ്രികൾ, നല്ല നിലയിലുള്ള വീടുകൾ, ശുദ്ധമായ പാചക ഇന്ധനം എന്നിവ നഷ്ടപ്പെട്ടിരിക്കുന്നു. ഈ ഇല്ലായ്മകൾ കുടുംബത്തിൻ്റെ മൊത്തത്തിലുള്ള ക്ഷേമത്തിലും സമൂഹത്തിൻ്റെ സാമൂഹിക-സാമ്പത്തിക-സാംസ്കാരിക വികസനത്തിലും അലകളുടെ സ്വാധീനം ചെലുത്തുന്നു.

പ്രാഥമിക വിവരങ്ങളുടെ അടിസ്ഥാനത്തിൽ പാലക്കാട് ജില്ലയിലെ ബിപിഎൽ കുടുംബങ്ങൾക്കിടയിലെ ഭവനത്തിന്റെ ഭൗതിക സാഹചര്യങ്ങളും സാമ്പത്തിക സ്ഥിതിയും വിലയിരുത്തുക എന്നതായിരുന്നു പഠനത്തിന്റെ ലക്ഷ്യം സഹജീകരിച്ചിരിക്കുന്ന രണ്ടാമത്തെ ലക്ഷ്യം. ഭൗതികവും സാമ്പത്തികവുമായ അവസ്ഥകൾക്കും ക്ഷേമത്തിനുമുള്ള ആട്രിബ്യൂട്ടുകൾ ഉപയോഗിച്ചാണ് പ്രാഥമിക ഡാറ്റയുടെ വിശകലനം നടത്തിയത്. പാലക്കാട് ജില്ലയിൽ നിന്ന് ആലത്തൂർ, മണ്ണാർക്കാട്, പാലക്കാട് എന്നീ മൂന്ന് താലൂക്കുകളാണ് പഠനത്തിനായി തിരഞ്ഞെടുത്തത്. ഗ്രാമീണ കുടുംബങ്ങളിലെ മോശം ഭൗതിക സാഹചര്യങ്ങൾക്ക് ലിംഗഭേദം, വിദ്യാഭ്യാസം, കുടുംബനാഥന്റെ വൈവാഹിക നില എന്നിവയുമായി കാര്യമായ ബന്ധമുണ്ടെന്ന് പഠനം തെളിയിച്ചു. കുടുംബത്തിന്റെ മൊത്തവരുമാനം, സമൂഹം, കുടുംബത്തിന്റെ തരം തുടങ്ങിയ ഗാർഹിക സവിശേഷതകൾ ഭവനത്തിന്റെ ഭൗതിക സാഹചര്യങ്ങളെ ബാധിച്ചു. കുടുംബങ്ങളുടെ സാമ്പത്തിക സ്ഥിതിയും സമാനമായ പ്രവണതയെ വ്യക്തമാക്കുന്നു. ഗൃഹനാഥയുടെ ലിംഗഭേദം, വിദ്യാഭ്യാസം, വൈവാഹിക നില എന്നിവ ഗ്രാമീണ ബിപിഎൽ കുടുംബത്തിന്റെ സാമ്പത്തിക സ്ഥിതിയിൽ ഒരു സുപ്രധാന ബന്ധത്തെ ചിത്രീകരിക്കുന്നു. കുടുംബത്തിലെ സമൂഹം കുടുംബത്തിന്റെ സാമ്പത്തിക സ്ഥിതിയുമായി കാര്യമായ ബന്ധം പ്രകടിപ്പിച്ചു. ഗ്രാമീണ ദരിദ്ര കുടുംബങ്ങൾക്ക് വിദ്യാഭ്യാസ-തൊഴിൽ അവസരങ്ങൾ പ്രദാനം ചെയ്യുന്നതിൽ പോളിസി സർക്കിളുകൾക്ക് ഊന്നൽ നൽകണം.

CHAPTER 1
INTRODUCTION

1.1 Introduction

"Housing is absolutely essential to human flourishing. Without stable shelter it falls apart"

-Mathew Desmond

Shelter is one of the necessities for every individual along with food and clothing. Adequate housing is a pivotal element in the overall well-being of a family where each member resides with security, peace, and dignity. A person's total growth and development depends on having adequate housing conditions which allows him to have good mental and physical health. A residential dwelling is a customised private durable good at the household level. A house is considered as an asset which provides access to credit market as it provides collateral security. Wealthy households can build the houses of their dreams, but the less fortunate poor households might not be able to build quality houses. Considering its essential importance and basic prerequisite, housing has been established as a fundamental human right by international and national legal justifications and commitments, bringing awareness among nations to guarantee it through various programmes and policies. A civilized society must make sure that every one's housing needs are accomplished. Housing is an indicator of the standard of living of the population. Every nation's economic development largely depends on its housing stock. A person's privacy, self-worth, and opportunities to participate in society increase when they own a home. In addition, housing helps individuals to lead social and cultural lives and supports family life as well (Sridevi, 2015).

India has implemented various housing programmes since independence. However, housing shortage remains as a major problem and majority of the poor households in India live in precarious conditions. Housing shortage has significant impact on the well-being, quality of life and it deprives the household of their education, employment, economic growth, better health, and social status. In India rural areas lag behind urban areas in housing and related amenities. In the state of Kerala, the benefits of government interventions have not reached the people living in rural areas in its full capacity. According to the Census of 2011, a significant proportion of underprivileged and poor sections of society in Kerala do not have a reasonable shelter.

Poverty, lack of finance, high cost of building materials renders the rural poor incapable of living in safe and liveable houses. Housing finance is difficult especially for the rural poor people. The other vulnerabilities to the rural housing sector are deficit of infrastructure such as roads, drinking water and sanitation. Scarcity of land available to meet housing needs of the rural poor households aggravates the prevailing situation. Improved housing conditions not only enhance the standard of living and health of the people but also lowers the death and morbidity rates which would boost the economy. A healthy and comfortable lifestyle from adequate housing increases productivity which accelerates the pace of economic development.

Housing conditions and quality of housing have a well-established role in improving productivity and human capital. Good housing conditions help the poor to escape from the poverty trap.

1.2 Background of the Study

Rural areas in India are under distress due to the neglect from the policy makers right from the initial years of development. Physical infrastructure like houses and roads and social infrastructure like education and health had been a subject of neglect in rural areas of India. This derelict towards rural areas is reflected in the housing sector also. The housing shortage in rural areas were 43.1 million houses which is more than twice the number of urban housing shortage which was 18.18 million in 2011 (Government of India, 2011). Kerala has a better housing condition than the rest of the country both qualitatively and quantitatively which could be attributed to the high Human Development Index in the state (0.794). According to NITI Ayog Multidimensional Poverty Index 2023, Kerala has the least Multidimensional Poverty Index score (0.002) among the Indian states. The average size, quality, and investment per house in Kerala were better than in other parts of the country. However, the rural urban disparity persists in the state. As per Census of 2011, 4.72 per cent of the total rural households and 1.59 per cent of the total urban householdsin Kerala lived in temporary houses. The proportion of temporary houses in rural areas are more than double compared to urban areas, thus exhibiting the rural urban disparity.

In the state of Kerala, the issues of housing are complex, as it is more qualitative than quantitative. Data from Life Mission manifests that out of the total 4.32 lakh houseless families, 1.58 lakh are landless and houseless, 2.3 lakh have land but are houseless and 44,000 families live in dilapidated houses. (Government of Kerala, 2021). The various governments of Kerala had implemented innovative interventions in housing starting from land reforms, however housing is still a challenge in the rural areas. During the period from 1950 to 1970, Kerala government implemented centrally sponsored housing schemes, but from 1970 onwards central government handed over the responsibility of housing of the poor to the state government. Thus, the state embarked on implementing One Lakh Housing Scheme in 1972. In the 1970s Kerala experienced a housing boom mainly due to the gulf remittance and Kerala Land Reforms (Amendment) Act,1969. The housing boom failed to satisfy the housing needs of the poorer sections due to lack of effective public policies (Gopikuttan,1990). The housing boom later resulted in raising the cost of land, labour and building materials which had a detrimental effect on the housing of the rural poor. This ever-increasing price of land prevented rural poor from buying land and building a house. The earlier practice of providing mutual help for building is no longer practised nowadays. Even after government interventions, the socio- ethnic and economic groups who depended on the primary sector for livelihood are living in extremely poor-quality houses. Their habitats are characterised by overcrowding, lack of basic amenities and facilities such as drinking water and sanitation (Government of Kerala, 2017). Despite the state's progress in education and human development, the housing shortage remains a major problem in the rural areas of the state and the high density of population (859/sq. km) makes it worse. Many poor households in rural areas live in precarious conditions. It may also appear paradoxical that the government interventions in housing for the poor has not yielded the desired results in a state like Kerala which is considered as a unique model of social development all over the world. According to Socio-Economic Caste Census 2011data (hereafter SECC 2011), Palakkad has the highest deprivation rate (42.33 per cent)among the fourteen districtsof Kerala.The SECC 2011 also shows that Palakkad has 2.2 per cent of householdsliving in one room with kutcha walls and kutcha roof and 29 per cent of the landless households deriving major part of part of their income from manual casual labour which is highest in the state. This situation

warrants a study on the housing and financial conditions of the households in rural areas of the district of Palakkad. Besides this, the district of Palakkad has the highest number of Scheduled Caste population among all the districts of the state of Kerala. With this backdrop, the present study is undertaken.

1.3 Significance of the Study

Housing is an indicator of identity, social status and provides the basis for life satisfaction, employment and earning. Thus, housing reflects the well-being of the people. This study assesses the role housing has in the overall well-being of rural people. The factors which influence the quality of rural houses varies among every person, therefore the study aims to find out the factors which helps the rural poor to promote the quality of their houses. The current housing conditions in rural and urban India and Kerala are discussed based on selected indicators. Kerala has high population density (Census 2011) which demands more and efficient housing stock. The current study focuses on housing conditions of Below Poverty Line (hereafter BPL) households in rural areas of Palakkad district who lives in dilapidated and poor-quality houses.

Review of Literature

Detailed review of literature is given in the Second Chapter of the present study under the title of 'Analytical and Theoretical Review of Literature'.

1.4 Research Gap

The linchpin of the present study is the analysis on the physical and financial conditions of the housing in the rural areas of the district of Palakkad. The literature on housing, its problems, challenges, and issues are well studied and is rich in material. The studies which anchor on housing conditions and housing deprivations among the BPL households in the rural areas of Kerala are conspicuously few in the literature of housing despite the emphasis on policy circles. The current study fills the research gap found in the existing studies by focusing on the housing deprivation and the physical conditions of housing of the BPL households in the rural areas of the district of Palakkad.

1.5 Statement of The Problem

The studies reviewed revealed that rural areas of India have remained neglected while the urban areas were the focus centres for carrying out various government policies. Housing shortage has significant impact on the well-being and life satisfaction as it deprived the households of education, employment, economic growth, better health, and social status. However, the housing shortage in the state of Kerala has been reduced by public housing schemes which were performing better in terms of investments and tangible accomplishments. The foreign remittances and the resultant housing boom in Kerala during the 1970s had improved the standard of living of the households in rural areas of Kerala. Nevertheless, the housing boom failed to make an impact among the BPL households in rural areas of Kerala. The study is intended to make a particular case of the housing conditions of the BPL households in the district of Palakkad due to the reason that the housing conditions of the district of Palakkad is the most deprived district according to the Socio-Economic and Caste Census 2011 in terms of housing conditions. The housing problem in the state is more qualitative in nature which really affected the BPL households in the rural areas of Kerala. Poor housing conditions in Kerala are largely concentrated in social categories and groups such as Scheduled Castes (hereafter SC), Scheduled Tribes (hereafter ST), Fisher folk, Potters, and Artisans, majority of whom belong to the BPL category. The high density of population and lack of affordable housing forces the families to live in cramped spaces with inadequate ventilation and sanitation facilities. These problems require a scientific enquiry and an in - depth analysis. Therefore, the study raises the following research questions:

1. Is there any disparity between the rural and urban housing conditions in India and Kerala?
2. What is the current physical condition of housing and the financial condition of the BPL households in the rural areas of Palakkad and role in their well-being?
3. What are the factors affecting quality of rural houses among the BPL households in the rural areas and how does the quality of houses affect life satisfaction of the BPL households in the rural areas of Palakkad?

The first research question intends to study and compare the rural and urban housing conditions in India and Kerala. By exploring various housing indicators in the rural and urban areas, the difference between rural and urban housing conditions were assessed. It also helps to understand the rural housing conditions in general and the housing deprivations that are prominent in the rural areas.

The second research question is envisioned to study the current physical and financial conditions of the BPL households in the rural areas of the district of Palakkad and the role played by these factors in their well-being.

The third research question analyses the diverse factors affecting the quality of housing among the BPL households. Quality of housing is disparate among the households as it is influenced by cultural, socio-economic and regional specifications.

Based on the research questions the following three objectives are formulated

1.6 OBJECTIVES OF THE STUDY

1. To study the rural and urban housing conditions in India and Kerala.
2. To assess the physical conditions of housing and the financial conditions of households among BPL households in the rural areas of the district of Palakkad.
3. To analyse the factors affecting the quality of rural houses among BPL households in rural areas of the district of Palakkad.

1.7 HYPOTHESES OF THE STUDY

1. There exists significant difference between rural and urban housing conditions in India and Kerala.
2. Physical condition of housing among rural households has a positive effect in their overall well-being.
3. Financial condition of rural households has a positive effect in their overall well-being.
4. Quality of rural housing has a positive and direct effect on life satisfaction.
5. Quality of rural housing has a positive and direct effect on house satisfaction.
6. House satisfaction has a positive and direct effect on life satisfaction.

1.8 Theoretical Background of the Study

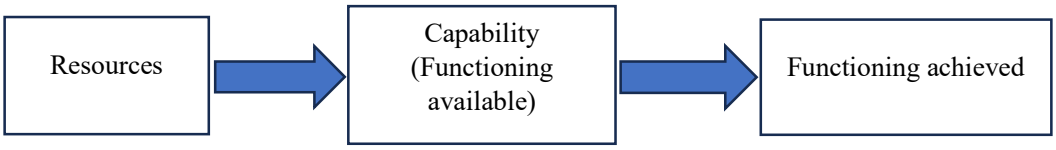
World Health Organization (hereafter WHO) recognizes that housing comprises of four associated components such as the house (the dwelling), the home (the social cultural and economic culture created by the household), the neighbourhood (or immediate housing environment) and the community (the population and services within the neighbourhood). Each of these components have a probable impact on physical, social, and mental health of the inmates and two or more of them can have even larger collective impact (Braubach, 2011). Poor and socially vulnerable people more probable to live in unsuitable or insecure housing, or to be denied housing altogether (Jacobs, 2011). Improving housing conditions support positive social outcomes, good health outcomes, improved educational outcomes, creation of jobs and investment. Inequality in the form of poor housing conditions and financial conditions translates in to inequality in well-being and quality of life. Capability theory of Amartya Sen is applied in this study as the theoretical frame work. Capability theory is an open-ended framework, and therefore named as "an approach" instead of "a theory (Kimhur, 2020)." It proposes that social arrangements should be primarily evaluated according to the extent of freedom people have to promote or achieve functioning they value (Alkire, 2002). The Capability Approach is defined by its choice of focus upon the moral significance of individuals' capability of attaining the kind of lives they have reason to value (The Internet Encyclopedia of Philosophy, 2022). The most distinctive feature of this approach is the focus on opportunity and the differentiation between what people are free to do (capabilities) and what they really do (functioning) (Dermot Coates, 2015). Sen's approach emphasized the significance of functioning (what a person does) and capabilities (what a person could achieve) where the freedom to achieve well-being is paramount (Dermot Coates, 2015). These capabilities reflect 'the person's freedom to lead one type of life or another' (Sen, 1992).

The well-being that people can attain is the primary focus of the capability approach. The fundamental ideas of "functioning" and "capability" are used to study the well-being of the people (The Internet Encyclopedia of Philosophy, 2022). Functioning are various things a person may value 'being and doing' such as getting enough nutrition (The Internet Encyclopedia of Philosophy, 2022). They should be

differentiated from the means employed to accomplish them (The Internet Encyclopedia of Philosophy, 2022). The term 'Capability' attribute to the range of valuable functioning that are feasible for an individual to achieve. Therefore, one's capability is a measure of their actual flexibility to select from a variety of functional configurations (The Internet Encyclopedia of Philosophy, 2022). The capability approach is generally conceived as a flexible and multi-purpose framework, rather than a precise theory of well-being. (Wells, 2013). The theory suggests capabilities as a means for assessing or contrasting deprivations and advantages of people rather than using resources and utility (Kimhur, 2020). The concepts of conversion factors, human diversity, agent-oriented view are the key features of Capability theory (Kimhur, 2020). The people with varying competencies can transform resources in to valuable opportunities (capability) or outcomes(functioning) (Kimhur, 2020). It also counts the heterogenous conditions of human beings and recognizes individual as an active agent of change rather than a passive recipient of dispensed benefits (Kimhur, 2020)

Fig.1.1

Conceptual Diagram Capability Theory



Source:The Internet Encyclopedia of Philosophy, 2022

Fig 1.1 explicates a simplified diagram of capability theory. The resources provide a possibility of a set of capabilities or opportunities. Individuals or households convert these resources into their valued functioning. The conversion factors represent the individual characteristics which affect the capabilities achieved. Here resources are not the indicators of how well the households are doing, but the outcomes in the form of the functioning they choose to achieve.

Capability approach argues that resources such as house, income and wealth acts as means for human well-being. The end goals of various policies and programmes should be the functioning's achieved by the individuals. Housing is a capability which allows a person to expand other capabilities like education, income, wealth, health and

social interactions. The emphasis should be on the capabilities that are generated with the resources. Households or individuals have different levels of expertise to convert their resources in to the functioning they value. The capability approach clearly states that human well-being should be the endpoint of all development.

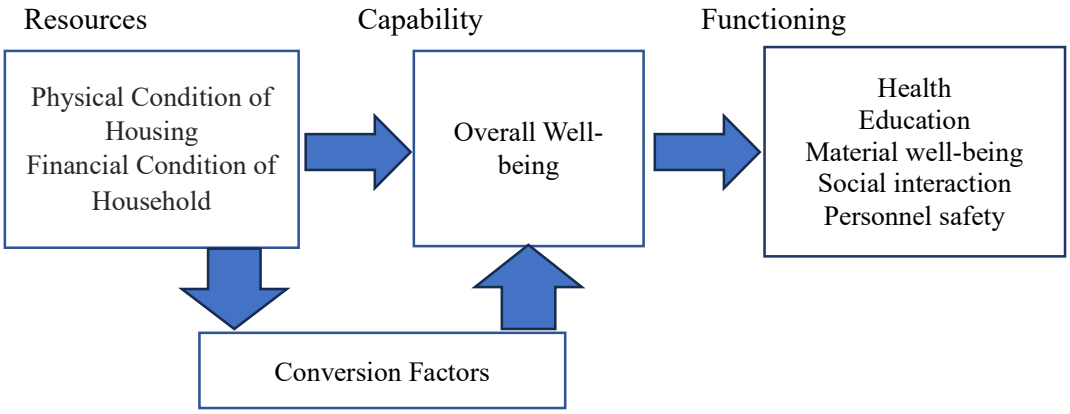
1.8.1 Theoretical Framework of the Study

The models used in this study are based on capability theory. The first model deals with the effects of physical and financial condition of housing on well-being while the second model deals with the effect of quality of rural housing on life satisfaction and housing satisfaction.

1.8.1.1 Model on the Effects of Physical and Financial Conditions of Housing on Well-being

The assessment of well-being based on capability theory is used in this Model. The resources available to a household are not the real indicators of well-being since each household is unique and their ability to convert resources in to well-being (functioning) vary from household to household (Sen 1999). In Capability approach framework for well-being, the physical and financial conditions of the household are conceptualized as a resource which in turn facilitates other five capabilities like health, education, material well-being, social interaction and personnel safety. These five capabilities are coined together under the umbrella term overall well-being.

Fig.1.2
Physical Condition of Housing and Financial Condition of Household



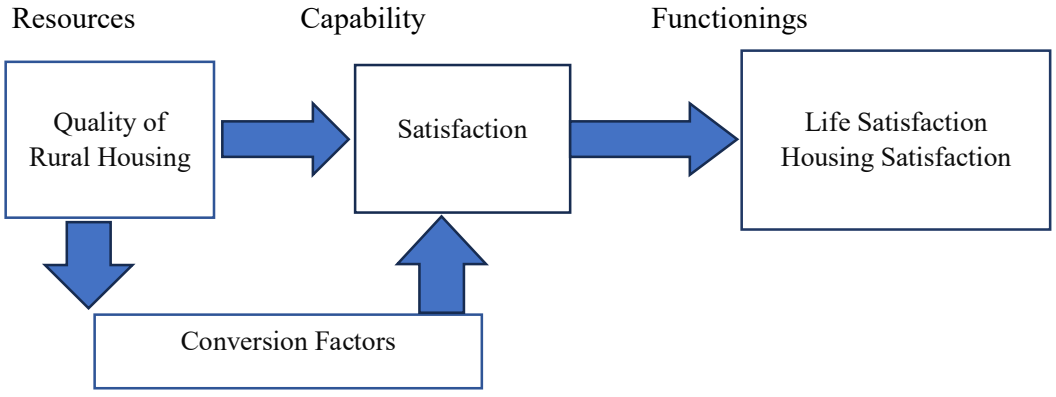
Source: Adapted version of capability theory

Figure 1.2 explicates the capability theory framework for physical and financial conditions of housing and well-being. Physical condition of housing is accessed by condition of roof, floor and wall, house design, water supply, latrine facilities and waste management. Financial condition of household is assessed by income, day to-day expenses, unexpected expenses, saving habits, financial security, budgeting practises, debt and assets. The conversion factors are community, age, gender, and marital status. The physical and financial condition of housing is a resource based on which the capabilities like health, education, material well-being, social interaction and personnel safety are attained.

1.8.1.2 Model of the Effect of Quality of Rural Housing on Life Satisfaction and Housing Satisfaction

The quality of housing indicators can be diverse based on different economic, social, and cultural circumstances among nations (Le Huong, 2016). The quality of a person's housing is a salient indicator of well-being which reflects on his overall satisfaction (Dermot Coates, 2015). The concepts of opportunity and autonomy are central and strongly linked within the capabilities approach (Dermot Coates, 2015). Here the Model considers the quality of rural housing as a capability based on which the households achieve the functioning in the form of life satisfaction and housing satisfaction.

Fig 1.3
Model of the Effect of Quality of Rural Housing on Life Satisfaction and Housing Satisfaction



Source: Adapted version of capability theory

Figure 1.3 explains the Model of the Effect of Quality of Rural Housing on Life Satisfaction and Housing Satisfaction based on capability theory. The quality of housing is assessed by condition of house, availability of services, overcrowding, safety and security, location, sanitation and external environment. Quality of rural housing is a resource and life satisfaction and house satisfaction are the functioning derived from quality rural housing

1.8.2 Conceptual Clarity

Various concepts in Economics which are in common use in literature like physical housing condition, financial condition, housing quality, well-being, life satisfaction and housing satisfaction are used in the current study. The clarifications and working definitions of these concepts are given in the preceding sections.

1.8.2.1 Physical condition of housing

Physical condition of housing refers to the conditions of roof, wall and floor, house design, water supply, latrine, kitchen and waste management of the house.

1.8.2.2 Financial Condition of Household

Financial condition of the household refers to how households manage their financial resources and make decisions. This includes income, assets, savings, debt and expenditure of the households.

1.8.2.3 Housing Quality

Housing quality refers to the degree that housing provides a healthy, safe and secure environment for the individual (Stas NZ, 2018). It includes condition of house, house design, availability of services, overcrowding, safety and security, location sanitation and external environment.

1.8.2.4 Rural Household

Rural household is any household living in the administrative area that was not classified as urban is treated as rural household.

1.8.2.5 Well-being

Well-being is a positive state experienced by individuals and families. It is a resource for daily life and is determined by social economic and environmental conditions. Well-being encompasses quality of life and the ability of people and societies to contribute to the world with the sense of meaning and purpose (WHO, 2021). Well-being is assessed by health, education, material well-being, personnel safety and social interaction.

1.8.3 Operational Definitions

1.8.3.1. Below Poverty Line (BPL) Households

Below Poverty Line (BPL) Households are households with Yellow Coloured Antyodaya Anna Ration Cards and Pink Coloured Priority Household Ration Card.

1.8.3.2 House

House is defined as any building or a part of the building used or recognised as a separate unit because it has separate main entrance from the road or common courtyard or staircase. It may be residential or non-residential. Only residential houses are included in the present study.

1.8.3.3 Household Head

Household head or the head of the household is a person who bears the responsibility for managing household affairs and takes decision on behalf of the members of the household.

1.8.3.4 Housing Condition

The housing condition is divided in to physical and financial conditions. The physical condition refers to the structure of the house and the living facilities in the house. The financial conditions include income, assets, savings, debt and expenditure of the households.

1.9 Research Methodology

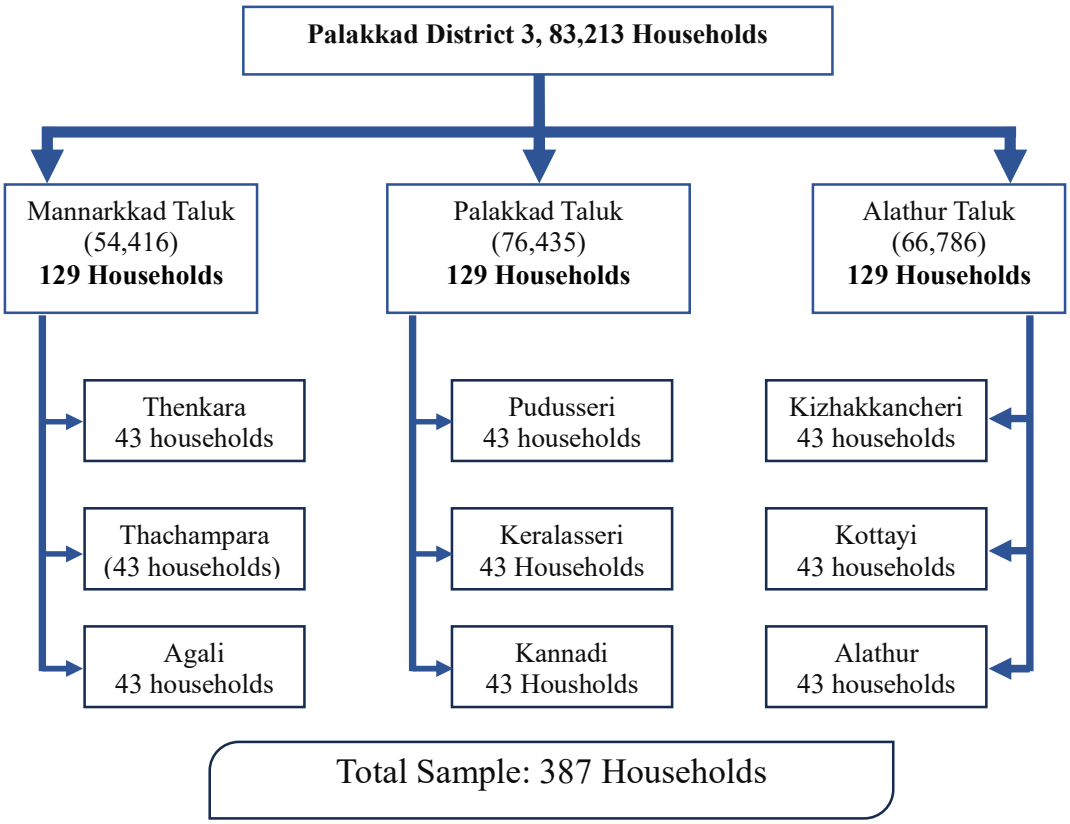
The study used both exploratory and descriptive methodology and primary and secondary data were collected for the analysis. The secondary data was collected from the Census years 1991 to 2011. The primary data was collected from the BPL households from the selected three taluks of Palakkad district with the direct personnel interview and a well-structured interview schedule.

1.9.1 Area of the Study

Study is confined to the rural areas of the district of Palakkad. The district of Palakkad is chosen for the study as it is the most deprived district in Kerala according to the SECC 2011. Total BPL households in Palakkad is 383213, which is 9.67 per cent of the total BPL households in Kerala. Three taluks Mannarkad, Palakkad, and Alathur are selected for the study.

1.9.2 Sample Design

Fig.1.4
Sample Design of the Study



1.9.3 Sampling Method of the Study

Multistage random sampling was used in the present study to select the sample. The sample taluks were selected by using stratified random sampling; the stratum being the number of the BPL households. The grama panchayaths were selected on the basis of stratified random sampling, the stratum being the number of BPL households. The number and sample of the households were selected on the basis of non-proportionate random sampling method.

1.9.4 Sample Size Estimation of the Study

Cohens table was used to estimate the sample size. It is frequently used in estimating the sample sizes for statistical testing. In this study the population is 383213 and as per the Cohens table, the size of the sample is 387 at 95 per cent of the confidence level and 5.0 per cent margin of error.

1.9.5 Interview Schedule of the Study

An interview schedule was carefully designed and structured for the collection of the primary data regarding housing condition and household finance. The interview schedule was standardized after the pilot survey to ensure the accuracy and clarity and made necessary corrections to ensure smooth collection of the primary data. The interview schedule was standardized using IBM SPSS software.

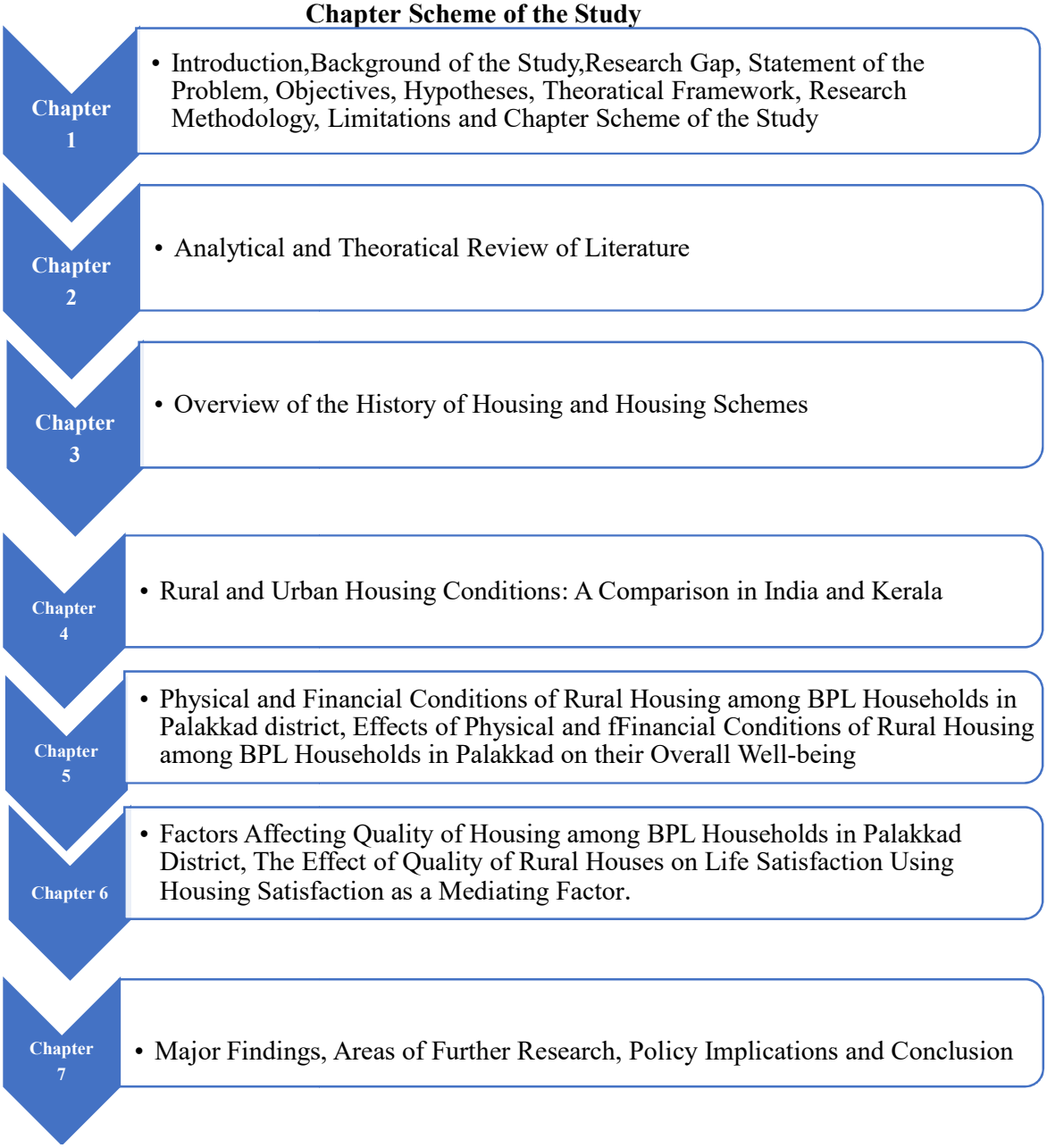
1.10 Limitations of the Study

The current study is limited to the rural BPL households in the district of Palakkad since the data is collected from the district of Palakkad only. The data was collected during the period of May 2022 to August 2022 which was the immediate post covid period. Consequently, the interview was conducted after following adequate precautions. So, it was difficult to do the house visit in the remote villages. The data was collected after awareness and training given to the household with the help of ward member or Accredited Social Health Activist.

1.11 Chapter Scheme of the Study

The study is organised in such a way that the entire study consists of seven chapters

Fig.1.5
Chapter Scheme of the Study



CHAPTER 2
REVIEW OF LITERATURE

2.1. Introduction

Housing is one of the fundamental needs for human well-being. Basic amenities in the micro environment of housing like type of building, drinking water, sanitation waste management are essential for maintaining the overall quality of human beings. A safe and secure house connects the household to the society and provides foundation for their daily activities. A home of one's own is necessary to achieve life goals such as quality of life, education and access to health care. Home is a physical asset which indicates the potential and capability of the household. A house provides not only economic security and status in society but also physical and mental strength and psychological base on which they can fall back while accessing other basic needs.

This study is on Physical and financial condition of housing among BPL households in the district of Palakkad. The review of literature of the present study examines the findings, analytical views, conclusions and suggestions regarding the housing conditions of the rural poor.

The reviews on housing conditions are discussed under the following headings

1. Reviews on housing conditions in India Kerala and Kerala
2. Reviews on physical and financial conditions of housing and their impacts on wellbeing
3. Reviews on factors affecting quality of housing in rural areas and their relation with housing satisfaction and life satisfaction.

2.2. The Concept of House

A "house" is defined "as a building or part of a building having a separate main entrance from the road or common courtyard or staircase, etc. used or recognised as a separate unit. It may be inhabited or vacant. It may be used for a residential or non-residential purpose or both (Census, 2011). "The United Nations Committee on Economic, Social and Cultural Rights (hereafter CESCR) has underlined that a shelter can be called adequate if it meets the minimum criteria of security of tenure, availability of services, materials, facilities and infrastructure, affordability, habitability, accessibility, location and cultural adequacy. Access to adequate housing

can be a precondition for the enjoyment of several human rights, including the rights to work, health, social security, vote, privacy or education (United Nation, 2000).

The emphasis of rural housing should be more and more on inclusiveness and on quality improvement. Housing sector has positive impact on overall standard of living of the rural people. There is also serious need to build a market based inclusive and sustainable housing finance system. The provision of shelter and hence the roof to every rural poor has been and will continue to be a major component of the poverty alleviation measures of the Government in times to come (Khushwaha, 2018).

2.3. Housing Conditions in India and Kerala

India remains primarily rural since three fourth of the population is still residing in the rural areas. Adequate rural infrastructure remains a grim challenge even today. Housing, basic amenities of water, sanitation and domestic energy along with village infrastructure such as roads, village water supply, electrification, drainage and livelihood infrastructure etc. are the prominent requirements in this regard (Government of India, 2011).Rural Development is one of the most important sectors for sustainable growth. India has the largest number of landless people in the world (over 500 million).According to SECC 2011, 30 per cent (53.7 million) of landless households derive a major part of their income from manual work. Despite the existence of several rural housing schemes operational since 1985, the national rural housing shortage was 40 million households and 90 per cent of this shortage was contributed by 'BPL' households. Over 13 per cent (23.7 million) of rural households live in one room with kutcha (mud/temporary) walls and roof(Housing and Land Right Network, 2016).

The estimates of the demand for housing in rural India made by the Working Group on Rural Housing for the Twelfth Five-Year Plan appointed by the Planning Commission measured housing shortages in rural India primarily in terms of the material of which roofs and walls were made. The Working Group estimated that the shortage of housing in rural India was of about 43 million housing units. Data from the Census of India 2011 explicates a much greater shortage of housing than estimated by the Working Group on Rural Housing of the Twelfth Five-Year Plan (Sing et al., 2010).

Rural areas of India in general are in great distress today because of continued neglect from the policy makers and scholars. Lack of public fund during the early planning era has compelled the policy makers to adopt the overarching philosophy of the growth pole theory, with the hope that the benefit of the urban-centric development will percolate into rural hinterland progressively. Unfortunately, that did not happen. Not only the physical infrastructure, but also social infrastructures such as education and health have remained ignored. Thus, the rural areas have been bypassed by the successive economic revolutions that have made India a vibrant economic superpower. Together with huge shortage, the condition of housing and availability of concerned amenities in rural areas are way behind the urban areas (Kumar et al., 2017).Rural development is an integrated concept of growth and poverty elimination which can be achieved by provision of basic infrastructure facilities in the rural areas like schools, health facilities, roads, drinking water, electrification and assistance to individual families and members of Self-Help Groups (hereafter SHG) who are in the category of BPL by providing productive resources through credit and subsidy (Chauhan, 2014).There are apparent geographical variations in access to latrine facilities across India; the clusters with high prevalence of open defecation are mostly located in eastern and central regions of the country (Mondall, 2022). A billion-plus population, immense diversity, heterogeneous territory, skewed nature of resource distribution, haphazard urbanization and industrial set up are widening the regional imbalance and rural–urban gap in India (Das and Mistri, 2013).

A major problem with rural housing is households living in temporary houses and congested conditions, leading to a higher housing shortage in rural India in 2012. There was also a shortage because of obsolescent houses. In addition, rural households were highly deprived when it came to basic amenities (Kumar, 2012).

Limited land supply, inadequate supply of skilled labour and information are important hinderances in the rural housing development in India. one finds little attempt at integrating rural housing programs with other existing schemes for providing drainage, drinking water, internal roads and electricity. One possible reason could be the absence of proper planning and development authorities in the rural areas. A comprehensive approach covering all the problems will provide a solution to this

(Bhide et al., 2009).Rural areas of the country not only lag the urban areas in every indicator but the gap is also widening, particular significance here is the record of high growth rate of the Indian economy during the past three decades that seems to have only inadequately benefitted the rural areas. This calls for renewed efforts in rural development and transformation. Increase in employment and income could contribute to better housing conditions but the latter also could contribute to economic development through better health, increased productivity as well as social dignity (Government of Kerala, 2017). Funding rural housing would necessarily begin with Central Government increasing its budget for capital subsidy Programme. Further the State Governments could be incentivized to increase their portion of share for Central allocations over and above certain minimum Central allocations. Still, considering that subsidy schemes are limited by budgetary allocation while the demand for rural housing is huge and is limited not only to BPL families, it is important to strengthen existing credit-related products and to introduce new products to cater to a wider spectrum of housing needs. Financial instruments that could facilitate both BPL and Above Poverty Line (hereafter APL) families to expand their houses, upgrade and repair the existing shelter and also mechanisms by which Panchayats could develop village infrastructure are required (Government of India, 2006).

Kerala faces the inadequacy or absence of certain facilities associated with the habitat and higher incidence of housing deprivation among SC and ST sections despite the formulation and implementation of several schemes. Other housing issues are higher occupancy rate in the high land regions and a higher percentage of houseless households in the seashore and highland regions (Kannan and Imran, 2016).

The government is playing the role of a facilitator but the poor households still perceive government as a provider expecting government to provide full financial assistance. The current housing schemes end up as financial burden and the beneficiaries construct their house with bare minimum facilities. Every second beneficiary household was found to be dissatisfied with the quality and structure of their houses. Their involvement in the construction process in terms of labour participation was meagre. Thus, the housing assistance in terms of partial financial

support was found to have failed to ensure adequate beneficiary participation (Gopikuttan, 2002).

In Kerala the poor and lower segments in the society very often do not get the necessary assistance for the actual construction and completion of houses. Though the poor manage to get support, projects often fail. None of the government programs succeeded in fully utilizing the capacities of beneficiaries. The difficulties in feasibility, acceptability and non- awareness of affordable technological options aggravates the housing problem. The policy measures for sustainable-affordable housing should give prime concerns in improving the self-reliance of households through consistent income and their accessibility to resources together with proper utilization of resources. (Nair et al., 2006).

The rural housing programs have a positive impact on the beneficiaries but departments should come forward to provide basic facilities like electricity, drinking water, road and drainage for making the scheme healthier (Swain, 2021). Generally, access to electricity and tap water is greater for the urban poor than the rural poor (Banerjee and Duflo, 2007). Guidance during the initial stages of construction (foundation stage) has been provided to the housing scheme beneficiary extensively, however, assistance in procuring construction materials and technical guidance in construction during the advanced stages of building has been very poor across states. Poor are no longer able to collect materials from common property to build a traditional house; nor do they have the capacity to construct a 'standard dwelling' with the partial financial support given by public agencies (Gopikuttan, 2002).

The house building materials like mud, clay, palm leaves, and coconut leaves, which had been in use for centuries, began to be looked down upon for their non-durability. Though technologies to improve the durability and strength of such materials are available, the rural poor are not aware of them. The major proportion of the rural households depended on contractors and sub-contractors for inputs and execution of their house construction work. Though they were the decision-makers, their involvement in the construction process was meagre. According to the study in association with Report on Rural Kerala (2016-2017), many of the houses started construction with the assistance of government from 1996 onwards are remain

incomplete due to various reasons. After undertaking the construction of houses with the assistance of government many families became indebted to various financial institutions (Government of Kerala, 2017).Major problem in rural housing is the number of households living in temporary houses and congested conditions, leading to a higher housing shortage in rural India. 90 per cent of the total rural housing shortage affects BPL families (Kumar 2014).

Lack of purchasing power, security of tenure of land, unclear titles of house property in rural areas, speculative land market, inflexible housing finance system, inappropriate planning and building regulations, lack of awareness about appropriate building materials and technologies, paucity of public funds and problems with the institutional framework in providing adequate support to low income segment households, are some of the constraints resulting in inadequate housing and habitat conditions for the poor and Economically Weaker Section (hereafter EWS) or Low Income Group (hereafter LIG) segments (Government of Punjab, 2008) . The cost overrun in house building is mainly due to insufficient subsidy, delay in fund disbursement leading to delay in construction and more expenditure and non-adherence to plinth area stipulations (Meenakshi, 2000). Linking housing microfinance like Bhavanasree with some productive (income generating) activity would be beneficial for enhancing the repayment capacity of the rural women. As peer group pressure is one of the major factors that enhance repayment of microfinance loans. Proper coordination and control of the beneficiaries under each Community Development Society (hereafter CDS) is needed to ensure repayment of housing loan (Manoj, 2010). The Percentage share of debts of the government beneficiary households was two to three times of the share of loans of the non-beneficiary households. The share of loans of beneficiaries from financial institutions was more than three times the share of the loans of the non-beneficiary households. Majority of the beneficiary households were in debt. Despite the financial support, high borrowing, and heavy debt burden, about 12 per cent of the beneficiary households live in unserviceable kutcha houses (Gopikuttan, 2002).Lack of affordable housing is one of the most critical issues facing rural communities in the State. In Kerala, rural housing is provided through various housing schemes of the Government. Affordable housing can be a better alternative to solve the housing problem for weaker section of the society by considering their requirements. A

significant portion of income for LIG and EWS is spent on the food, non-food essentials and house rent as seen from the preliminary survey (Kannan and Imran, 2016). So, for them it is difficult to save money for housing.

Thus, people of higher income level can better afford to purchase the new houses, because of their higher disposable surplus incomes. State government and implementing agencies should facilitate access to information on innovative technologies, materials, designs and methods, but this is clearly lacking. Rural people who are developed socially and economically reside in pucca houses, whereas rural poor people live in kutcha houses. The high cost of building materials, construction technology and skilled labour have forced them to live in kutcha houses, which lack some basic amenities. Therefore, it is necessary that a better housing scheme be planned and implemented to help the rural poor (Solanki, 1989).Majority of the poor had no source of funds other than government assistance in the form of grant. They expect grants and not loans. Given their experience of irregular employment and income, it is only natural that they do not have the capacity to repay loans (Gopikuttan, 2002). “Social housing” may thus be a more useful term to signify housing for lower income populations (Herda et al., 2017). The poor in Kerala continues to remain vulnerable because of the mismatch in the cash inflows and outflows (George, 2013). Period of construction and transportation cost of materials is lower in case of low-cost houses because these two factors are complimentary (Meenakshi, 2000).

Kerala is well ahead of India in terms of reducing housing deprivation. For example, houses without a private latrine facility in Kerala was around 5 per cent in Kerala compared to 53 per cent in all India in 2011. While 95 per cent of houses in Kerala was electrified by 2011 it was only 67 per cent in all India. The deprivation in housing condition is around five per cent for most indicators except access to drinking water (16%) and dependence on firewood for cooking (64%). Except cooking energy, Kerala is well placed to tackle the last mile problem. Despite the advantages city dwellers do not want to live in houses that in their perception may consist of modest building materials. Therefore, there are probably far more opportunities for the application of the sustainable building materials in rural areas, villages and small towns than in dense cities (Kulshreshtha et al.,2020).

2.4 Physical Conditions of Housing and the Financial Conditions of BPL Households and their Impacts on Well-being

Majority of the rural households had only basic physical conditions essential for housing, so the focus is on using cost effective technologies for modernizing the housing sector to increase efficiency, productivity, energy efficiency and quality. Technology would be particularly harnessed to meet the housing needs of the poor and specific requirements of `green' and sustainable housing (Government of Kerala,2007). Upgradation of existing decaying housing stock and extending the shelf life of the house improves the quality of living. All dwelling units need to have easy accessibility to basic services of sanitation, drinking water, power, waste disposal and social infrastructural facilities like education, health and transport to create adequate housing stock (Government of Kerala, 2011). Home ownership not only provides a place to live, but also provides for a greater sense of comfort, security and affluence. Property can be used as collateral to secure loans, provides rent free accommodation in retirement, and can provide children with an inheritance. It gives people a stake in the community in which they live, which in turn promotes social capital (Regeneris Consulting Limited, 2010).Ownership of a house also ensures the self-esteem and privacy of the individual and enhances the scope for participation in society. Housing also promotes a family life and facilitates a social and cultural life for the individual (Sridevi, 2015). The magnitude of the housing problem is viewed not in the context of existing housing stock, but in terms of the role of housing in the national economy. Better housing is essential for a better economic and social future, and it not only raises the levels of standard of living and health of individuals but also reduces the rate of mortality and morbidity. A healthy and commodious living acts as a stimulus to individuals for applying themselves with greater efficiency, energy and zeal to the tasks at hand and thereby help accelerate the pace of economic development (Varghese, 1980).

Housing is also an investment activity and provides impetus to economic growth. It has both forward and backward linkages. Because of its forward and backward linkages, even a small initiative in housing will propel multiplier effect in the economy through the generation of employment and demand. The growing population

pressure has been a concern to address various forms of housing deprivation particularly in developing countries, but meeting the housing needs of all families is a real challenge (Government of Kerala, 2017).

Housing poverty affects one's ability to be physically and mentally healthy, and economically and educationally productive. It affects one's capacity to access employment, and social relations. Therefore, formulating policies to tackle housing shortage must focus on expanding freedoms to enable people to function normally which includes access to employment, social security, access to housing loans, tenurial security, hygienic and disease-free surroundings, clean water and environment (D'Souza, 2019). Housing and building construction statistics has importance next to agriculture, construction is the major employment generator in the unorganized sector. Any statistics generated on this will be of great use for deciding the policy and programs of the government. A close watch in the movement of this sector is of national importance. Any movement in this sector has powerful multiplier effects on the economy, operating through the inter-sectoral linkages in the production system (Government of India,2013).Dwelling and living conditions impact health and educational attainment and are closely linked to household income generation and poverty. Their influence on health and education affects worker productivity and as a result is closely linked to economic growth and social and economic development. Education makes a difference in terms of dwellings and living conditions (Sevrani, 2014).

Housing condition is an important indicator of human welfare both from the point of individuals as well as communities. It has an instrumental value in so far as it affects the physical and mental health of the residents and through that in their ability to function in both economic and social spheres of life. It is also a symbol of dignity that affects in many social and economic interactions. For these reasons, housing has been considered as a necessity. That makes it one of the foundational characteristics in measuring the economic and social development of a country or its constituent parts (Kannan and Imran, 2016). The morbidity and mortality associated with poor housing is greatly reduced with the houses constructed as per standards and quality of life of the

people will improve so that they will enjoy healthy and meaningful life (Mendhe, 2015).

Housing is regarded as an 'engine of economic growth' and can give a big push to the economy through its strong 'backward' and 'forward' linkages with about 250 ancillary industries. A unit increase in the final expenditure on the construction sector would generate additional income in the economy, which would be almost five times as high as the direct income generated within the construction sector itself. Further, investment in housing has an employment multiplier effect of almost eight. This indicates that an additional unit of final expenditure in construction sector induces an overall employment generation in the economy by an extent that is eight times the direct employment generated in the construction sector itself (Government of India, 2013). Household assets represented all that were owned by the household and had money value. This included physical assets like land, buildings, livestock, agricultural machinery and implements, non-farm business equipment, all transport equipment, and financial assets like dues receivable on loans advanced in cash or in kind, shares in companies and cooperative societies, banks, national saving certificates and the like, deposits in companies, banks, post offices and with individuals. The All-India Debt and Investment Survey does not include crops standing in the fields and stock of commodities held by the household in the category of household assets. All claims against a household held by others were considered liabilities of the household (Government of Kerala,2012). Among productive assets, land is the one that many people in the rural surveys seem to own, although enormous country-to-country variation exists. Apart from land, extremely poor households in rural areas tend to own very few durable goods (Banerjee and Esther, 2007).Land and building were found to be the two major components of household assets. In the rural areas, land and buildings together, accounted for 87 per cent share in the total value of assets at the national level with land 63 percentage points and buildings 24 percentage points (Government of India, 2005). The Incidence of Indebtedness (hereafter IOI) and Average Amount of Debt (hereafter AOD) in rural Kerala are 39 per cent and ₹ 19,663 against national values of 27 per cent and ₹ 7,539 respectively. Majority of the rural poor households in Kerala are at various stages of indebtedness. According to Census 2011, out of the total 3620696 rural households in Kerala, households availing banking services is 73.9 per

cent, households owning radio is 29.7 per cent, households owning television is 76.8 per cent, households owning computer is 9.5 per cent. Households using telephone is 89.9 per cent, households using bicycle is 20.4 per cent. Households using scooter is 24.1 per cent, households using car/jeep/van is 10.2 per cent (Census, 2011).

Housing and housing amenities are major indicators to gauge human well-being of a country. Any statistics on the living conditions, as exemplified by the type of housing available, average space available to each person in the house, the basic civic amenities available to the household etc. will depict the overall socio-economic progress of the society (Government of India, 2011).

The type of materials used in the construction of roof and wall of a dwelling unit is taken as an indicator of quality of shelter. Eighty-six per cent of rural households in Kerala were lived in pucca structured dwelling Government of India, 2012).Even after governmental interventions in Kerala the social, economic, and ethnic groups depending on the primary sector for their livelihood are living in extremely poor-quality houses. Their habitats are characterized by overcrowding, lack of basic amenities and facilities such as drinking water and sanitation (Government of Kerala, 2017).

The understanding of housing quality not only focused on the physical aspects such as the internal and external structure of dwellings, but it also includes the aspects of the external environment, environmental sustainability, and social aspects as well as cost. Even though there are various perceptions and interpretation, the meaning of housing quality should not be separated from the concept of how to construct the better-quality living environment (Ali et at., 2018). According to the SECC (2011) data, out of the 76.99 lakh households in Kerala, 63.19 lakh (82.08%) live in rural areas. Out of the total rural households, 19.16 lakh (30.33%) rural households are deprived. The highest deprivation rate is seen in Palakkad (42.33%) followed by Thiruvananthapuram (38.36%) and Wayanad (36.33%) districts. And the lowest deprivation rate is seen in Ernakulum (20.30%), Kottayam (23.02%) and Kannur (24.25%) districts (Government of Kerala, 2017).

A recent systematic review highlights considerable evidence on the cost-effective health benefit of several housing interventions in several populations and

country settings. WHO cost–benefit analysis showed that improvements in water and sanitation access were cost-beneficial across all regions. People with cement floors reported improved satisfaction with housing, and reductions in self-assessed depression and stress scales (World Health Organization, 2018). Some people would dispose of their assets to raise funds for housing improvement. However, households which spent more than two to three times their gross annual income on housing, could not raise funds for repair or maintenance, which became essential after a few years of completion of construction. For want of repair and maintenance, housing quality went on deteriorating year after year (Kannan and Imran, 2016).According to UN Habitat Affordable housing is defined as "housing which is adequate in quality and location and does not cost so much that it prohibits its occupants from meeting other basic living costs or threatens their enjoyment of basic human rights" (United Nations, 2011). Access to land, resources and basic infrastructure is a prerequisite for affordable housing (Bhattacharya, 1994).

The debt burden of the household is defined as the amount owed by the households to others. However, a simplistic portrayal of the amount does not give an idea of the actual load of debt shouldered by the households. To get a clear picture, the economic status of the household and their repayment capacity should also be considered Indebted households tend to borrow for a variety of purposes with house renovation or construction, health care requirements and loan repayments topping the list (Asok et al., 2020). 'Affordability' was perceived to be the key problem in the housing sector, particularly for lower income groups. Affordability could be disaggregated into two parts – the high cost of providing housing (because of land and high construction costs) and the low-income levels that made this expense difficult to meet. At the time, the government chose the address this gap not by increasing incomes but by using large subsidies to 'reduce' the cost of housing, using direct price controls such as the Rent Control Act or extending loans on soft terms (Wardha, 1988).

Low-cost housing can become more accessible for low-income families if they are able to save in advance and can help in the construction of their own houses or incrementally upgrade their houses to minimize the construction costs or financial burden. A new development vision for low-cost housing includes a strong social aspect,

such as working together in groups or cooperatives (Bredenoord et al., 2020). Some of the measures which could help in reduction of construction costs are Single window approval for projects, subsidize construction costs, exemption on taxes and duties and granting guarantee on the loans (Government of India, 2012).

Eliminating damp and mouldy houses, and ensuring enough sanitary housing units to reduce overcrowding does not require millions of dollars of medical research, expensive drugs, or costly medical procedures. It simply requires an investment in the basic infrastructure of a community; an investment that not only will prevent a major public health problem but will also contribute to the economic well-being of the community and in the process ameliorate the other major and associated risk factor to health – low socioeconomic status (O'Nei, 2000). Damp housing has a detrimental effect on the physical health of adults and childrens. Furthermore, there was evidence that those living in damp houses had more emotional distress. The early exposure to an adverse living environment is likely to increase vulnerability to illness in later life-particularly to the chronic respiratory diseases (Stephen, 1987). Sanitation and hygiene practices in rural area are very dependent on the socio-economic status of the household to which one belongs. The main obstacle highlighted by the survey population is the lack of financial means, the population felt too poor to invest in latrines, especially improved latrine (Sinha, 2016). Better roads and available transport services enhance the delivery of various government services to the poor in the project areas. It also gives government officials the opportunity for timely and efficient monitoring of the progress of their programs for the poor. Thus, roads are critical as social arteries for the delivery of government services, penetration of ideas and cultures, and technology dissemination to poor people in the project areas (Asian Development Bank, 2002). Housing is an important site for and source of well-being and capabilities are a highly useful informational space for the evaluation of housing outcomes. The relationship between housing conditions and well-being is highly subjective and complex (Irving, 2021). Health and well-being of inmates are affected by their change in subjective housing experience, property quality and financial situation (Rolfe et al., 2020). Homeownership significantly improves Subjective Well Being (hereafter SWB) for low-income homeowners through the accumulation of housing wealth. Of the channels of housing wealth affecting SWB, the total house

value appreciation of owner-occupied households raises SWB notably (Zhang and Fang, 2019). Housing standards have a significant association with standard of living (Nagaraj et al.,2020).

The rural poor spent nearly all their income for food. Very few households had savings due to uncertainty in employment and income. Complete dependence on purchased food materials and food has affected the saving capacity of rural unskilled women workers. Lack of adequate savings affected poor people's capacity to effect timely maintenance and repairs of their houses (Gopikuttan, 2002). Inadequacy of cash assistance for construction has resulted in poor quality of house, non-fulfilment of requirements of the disaster-prone areas and debt trap on account of the beneficiaries having to borrow funds to complete the construction of a pucca house. Inadequate financial assistance results in houses not being completed in all respects. Sometimes the compromise results in a semi-pucca house. Most States also do not have any mechanism to provide technical support and guidance to the beneficiaries for construction of their houses (Government of India, 2006).Today, it is a topical issue that housing has to be comfortable, economical and reasonably maintainable, as well as architectonically expressive and compliant with the environment (Henilane, 2016). The poor and lower segments in the society very often do not get the necessary assistance for the actual construction and completion of houses. Though the poor manage to get support, projects often fail. None of the government programmes succeeded in fully utilizing the capacities of beneficiaries. The difficulties infeasibility, acceptability and non- awareness of affordable technological options aggravates the housing problem along with other aspects of sustainability. All these factors clearly point towards the need for an alternate approach based on appropriate technology innovations with improved implementation strategies for realizing the dream of "Housing for All" along with the development of a sustainable habitat (Nair and Gopikuttan, 2015).

Government should take initiatives to foster sustainable development through promotion of green buildings through incentives for eco-friendly housing and policy makers should incorporate green compliance as one of the essential conditions for regulatory clearance. Promotional activities in the form of training, capacity building programs, and workshops to be conducted by the government to promoting green

housing (Manoj, 2015). Modern earthen construction practices have a great potential to be used in low-cost housing in India. The availability of low-cost design options and access to building centers can provide necessary infrastructure for successful realization of mass housing. (Kulshreshtha, 2020).

The evaluation of the public housing schemes in Kerala advocates the importance of effective policies for making Sustainable housing accessible and affordable to the poor. The dissemination of technological innovations along with newer sustainable technological alternatives is also inevitable and contributes to affordable housing (Nair et al., 2006). Compromise is always necessary in designing shelters, specifically between cost, performance, durability, cultural appropriateness and building technologies. Considering sustainability in this complex scenario, which is often further constrained by resources and time, is inevitably challenging. However, it has a vital role to play in the wider wellbeing of the displaced (Alshawawreh et., 2020). Traditional settlements have been produced from existing sources, from readily available and transformable materials. They use the available resources to maintain thermal comfort without additional measures and thus carry sustainability principles (Usta et al., 2017).

Housing is not only a physical shelter but also plays a significant role in a person's physical, mental, and emotional health conditions with regards to the qualitative dimensions provided by the housing condition and the surrounding environment of the housing area. poverty, housing conditions, and quality of life are related to each other. The housing condition due to its strong association should be considered as an indicator of poverty (Zainal et al.,2012). Education and socioeconomic status have an impact on housing condition (Sudharani et al., 2015).Condition of individuals' homes affects their health in a significant manner, especially when these individuals get older (Aydin et al., 2020). The morbidity and mortality associated with poor housing is greatly reduced with the houses constructed as per standards and quality of life of the people will improve so that they will enjoy healthy and meaningful life (Mendhe, 2015). Physical facilities such as type of house, electricity connection, kitchen, toilet and bathroom, natural ventilation, natural light and space for livelihood activities among Pradhan Manthri Awas Yojana beneficiaries

in India has made significant impact on the well-being of the beneficiaries (Reddy et al., 2019).

2.5 Factors Affecting Quality of Housing in the Rural Areas and Their Relation with Housing Satisfaction and Life Satisfaction

Housing quality reflects the economic and social status of the individual household. The quality of houses in a region, on the other hand, is an indication of the economic status, social attitudes, and economic relations that exist there. Health, house construction, and home maintenance are inseparable because of their overlapping goals. Many highly trained individuals must work together to achieve quality, safe, and healthy housing. A house must contain certain facilities essential for health, security, comfort and nutrition. All beneficiaries of the right to adequate housing should have sustainable access to natural and common resources, safe drinking water, energy for cooking, heating and lighting, sanitation and washing facilities, means of food storage, refuse disposal, site drainage and emergency services (United Nations, 1991). Location has a major impact on occupants and the long-term desirability of housing. It is important to be aware from the outset how good it will be for residents, even if a developer or builder may have little influence over it (Thampuran and Sruthy, 2011).

The quality of individual houses is assessed primarily on the basis of materials used for their structure, residential space, facilities and amenities, and present condition. Quality of the house that anyone would be able to construct depends on his command over critical inputs such as land, materials, and labour. The focus of the state should be on providing sustainable houses for the poor, landless and marginalised sections (Government of Kerala, 2013). The understanding of housing quality not only focused on the physical aspects such as the internal and external structure of dwellings, but it also includes the aspects of the external environment, environmental sustainability, and social aspects as well as cost (Ali et al.,2018).

The emphasis primarily needs to be put on the observation of spatial and architectural characteristics and the definition of relevant parameters which could affect the quality of these factors such as location, physical comfort and visual identity. Each of these parameters should individually contribute to the quality of housing (Grozdanovic, 2014). Government to cut the overall cost in housing, built houses at

poor quality locations as land costs can be saved. But the finished houses will be highly undesirable with low chance for employment (Weiner et al., 2016). Policy dialogue at all levels should recognize the importance of secure land rights for sustained development, growth and peace. Promoting equitable access to land is crucial for social justice, political stability, rural development and peaceful co-existence (Lorenz, 2006).The affordability of land is another growing concern. The land price in Kerala is high which affects the affordability. For majority of Government housing schemes ownership of a minimum area of land is necessary. Unlike in developed market economies, housing quality in Kerala is not purely a function of current income and employment of the resident households (Gopikuttan, 2002). The average size of government-assisted houses was far lower than that of non-beneficiary houses. Own sources of drinking water facilities were absent in the majority (67%) of the beneficiary households. Wide differences in the relative quality of amenities existed as between sample beneficiary and non-beneficiary households. Relative quality of about 72 per cent of the beneficiary houses could be rated as inadequate or deplorable. The beneficiary households also spent more than three times their gross annual income for their houses (Gopikuttan, 2002). If a household must spend nearly all its income for food in order to keep alive, the proportion it can spend on housing is negligible, or even negative after feeding and clothing. Despite their low economic status, many of the beneficiary households aspire to construct large and quality houses. Modern building materials are often not affordable, yet traditional ones are viewed with contempt. Loss of self-reliance and traditional capacities, coupled with the inability to incorporate modern facilities, is a typical development problem that tends to lead to poverty. (Gopikuttan, 2002).

The important indicators for assessing housing quality in Kerala are materials and construction techniques, sustainability, aesthetics, concept, infrastructure, design and location (Thampuran and Sruthy, 2011).The morbidity and mortality associated with poor housing is greatly reduced with the houses constructed as per standards and quality of life of the people will improve so that they will enjoy healthy and meaningful life (Mendhe, 2015). The external environment of the house has positive influence on the resident's satisfaction towards living condition and quality of life (Backer et al., 2016). The housing quality indicators derived from analyzing previous housing quality

studies are dwelling unit architectural design characteristics, user comfort, housing site location and neighborhood, building services, construction quality and stability, economic aspects, building maintenance, and sustainability (Wimalasena et al., 2022).Satisfaction with housing is a significant component of broader life satisfaction and housing satisfaction itself can be decomposed into a series of individual components relating to dwelling characteristics, neighborhood quality and livability and community interaction. Also, certain physical attributes of dwellings are positively related to housing satisfaction (Coates et al.,2015).A host of variables belonging to housing and its environment including the sociodemographic attributes of residents exert significant influences on the level of residential satisfaction/ dissatisfaction which is however, culture and value specific (Mohit, 2014).

2.6 Summary

The chapter dealt with the review of literature of the study. The issues raised in the previous studies concentrated on housings and its problems and challenges. The present chapter devoted to the issues of housing conditions based on the objective set up of the study. The first set of reviews were based on the housing conditions in Kerala and India. The problems related to the housing in the rural Kerala affects the poor people. In Kerala, the rural urban gap is not as wide as in the all-India level. However, the housing conditions of SC and ST are in deprived condition in Kerala. The second set of reviews concentrated on the physical and financial conditions of housing. The studies reviewed found out that majority of the rural households had only basic physical conditions essential housing in Kerala. Physical conditions included the structural integrity of the shelter like the materials used for construction and living conditions. Considering the financial conditions, majority of the poor had no source of funds other than government assistance in the form of grant. The rural poor depend more on grants rather than loans. The third set of reviews were on the factors affecting quality of housing in the rural areas and their relation with housing satisfaction and life satisfaction. The studies reviewed found out that health, house construction and house maintenance are inseparable because these variables have overlapping goals. Satisfaction with housing environment is a strong predicator of subjective life satisfactionand is affected by an array of individual, housing and neighborhood attributes.

CHAPTER 3

OVERVIEW OF HOUSING AND HOUSING SCHEMES

3.1 Introduction

The previous chapter dealt in detail the findings of the existing literature based on the issues of the objectives of the study. The present chapter provides an overview of housing and housing schemes in India and Kerala. The human right to adequate housing, which is derived from the right to an adequate standard of living, is of central importance for the enjoyment of all economic, social and cultural rights. Its importance has been highlighted over the years by the United Nations, ever since the Universal Declaration of Human Rights in 1948, and reiterated by the World Bank, the Asian Development Bank, and the like. The obligation of States to take steps towards the realisation of the right to adequate housing for all is laid down in several international legally binding human rights instruments. They include the Universal Declaration of Human Rights, the International Covenant on Economic, Social and Cultural Rights, The Convention on the Rights of the Child and the non-discrimination provisions found in, of the Convention on the Elimination of All Forms of Discrimination against Women, and the International Convention on the Elimination of All Forms of Racial Discrimination. Article 21 of the Constitution of India which defines the protection of life and personal property encompasses the right to shelter and right to livelihood also which are integral to the dignified living of the individual. Housing is not included as an obligatory function of the state or the central government under the Constitution of India. There is related mention of 'economic and social planning' and 'welfare of labour' under the concurrent list of the Constitution of India, but housing is not explicitly included as a basic good. In India, governments both at the Centre and in the States recognise that provision of shelter to the people is a productive activity essential for human resource development. The National Housing Policy recognises that provision of shelter in the following terms. It (i) improves the quality of life of the poor, (ii) creates conditions for attainment of better health, hygiene and education, (iii) stimulates economic activity, (iv) enhances productivity, (v) creates employment opportunities, (vi) motivates savings, and (vii) promotes social justice.

3.2. Housing in India

Recognizing the importance of housing in the country as a basic human need, it has been one of the priorities of the Government of India right from the First Five Year Plan till date. Government has provided various fiscal incentives to promote housing on

both, the demand and supply sides. Since independence, many schemes have been launched under different names, with the focus continues to be on housing for the poor. The core of all the housing initiatives is to concentrate efforts on improvement of the housing conditions of industrial workers/economically weaker sections and of low-income groups, through housing schemes, involving an element of subsidy ranging from 20 per cent to 50 per cent. All the housing programs have resulted in the growth in the total housing stock (Government of India, 2013).

The general neglect of the rural areas also has its bearing on the rural housing sector. Currently, the housing shortage in the rural areas is more than 43 million houses. The shortage figures of the rural sector are more than twice that of the urban sector. Together with huge shortage, the condition of housing and availability of concerned amenities in rural areas are way behind the urban areas (Kumar and Anirudha, 2017).

In India, as per the Socio Economic and Caste Census (SECC)2011 total households in the country were 24.49 crore and total rural households were 17.97 crore. 0.9 per cent of total rural households in rural area did not own a house. According to SECC, households considered for deprivation is 10.74 crore. Land less households deriving major part of their income from manual casual labour constitute 38.36 per cent. The 2011 Census report further indicates that about 40.82 per cent of the total of 112 million rural households lives in one-room houses, 30.65 per cent in two-room houses and 13.51 per cent in three-room units or more. The percentage of houses having roof made of grass, straw and coconut/ palmyra leaves is about 33 per cent, mud and unburnt bricks 6.05 per cent and tents 4.22 per cent. Apart from this, in terms of quality of walling, 47.27 per cent of the total households have grass and straw walls and about 4 per cent have tent and cloth walls. Nearly 70 per cent of the rural houses are either unserviceable kutcha (9%) or serviceable kutcha (25%) or of semi-pucca (35%) category. Over 90 per cent of the rural houses have no provision for toilet. This suggests that there is a clear correlation between poverty and housing: a poor person either does not have a house or lives in an unserviceable kutcha house (Government of India, 2011).

According to the Working Group on Rural Housing 2011, the number of households and housing stock were 173.78 and 169.63 million respectively during

2012, leading to a shortage (households not having houses) of 4.15 million. The total rural housing shortage in 2012 worked out to 43.13 million bythe Working Group on Rural Housing for the 11th Five Year plan. The number of households living in temporary houses fell from 32.01 million (23.15% of households) in 2001 to 27.14 million (16.17% of households) in 2011, thereby suggesting an improvement in the housing situation over a period (Government of India, 2006).

According to the NSSO, 16.99 per cent of the rural households in India were living in temporary kutcha houses during 2008-09. Also, 6.5 per cent and 6.23 per cent of rural households were in a dilapidated condition (the rest in a good and liveable condition) in 2011 and 2001, respectively (Government of India,2012). Adequate and affordable rural housing must be promoted by the states by allowing more housing supply to eradicate shelter deprivation in rural India. Rural households were highly deprived when it came to basic amenities (Government of India, 2011).

3.3 History of Housing in India

In India, after independence the challenges on housing was high, due to large scale migration after the partition of the country. During the 1950s to 1960s the Central government resolved to take a lead in Urban sector housing, and brought out schemes like Subsidised Housing Scheme for Industrial Workers and Economically Weaker Sections (1952), Low Income Housing Scheme (1954), Subsidised Housing Scheme for Plantation Workers (1956), Slum Clearance and Improvement Scheme (1956), Middle Income Group (hereafter MIG) Housing Scheme (1959), Rental Housing for State Government Employees (1959), Village Housing Projects Scheme (1959), Land Acquisition and Development Scheme (1959), Rent Control Act (1961).The 1950s and 1960s were also a time of institution building. In these years the government constituted State Housing Boards, the Ministry of Works, Housing and Supply (now the Ministry of Housing and Urban Poverty Alleviation (hereafter MoHUPA), the Central Public Works Department (CPWD), the National Building Organisation (NBO) and the Town & Country Planning Organisation. The Village Housing Projects Scheme was launched in 1959 as a cohesive scheme for improving housing as well as infrastructure, wells and productivity in rural areas (Hingorani, 2011). Government played dominant role in providing LIG housing and housing was perceived as a welfare, not an economic activity. Affordability was addressed through extensive use of

subsidies. Responsibilities was slowly devolved to States, but funding came from the Centre.

In the 1970s to 1980s, Witnessed the emergence of institutions like Housing finance institutions such as the Housing and Urban Development Corporation (hereafter HUDCO) in 1970, the Housing Development Finance Corporation (hereafter HDFC) in 1977, and the National Housing Bank (hereafter NHB) in 1987 to mobilize savings and other resources for channelling investment in housing. The success of HDFC led to the emergence of several Housing Finance Companies (HFCs), either as private sector or joint ventures with the government, banks, or insurance company sponsorship. The devolution of responsibility to provide housing to LIGs and EWS from the Central government to the State governments and their housing boards also ushered in changes in the way these houses were financed. Residents were encouraged to invest in their houses (Wardha, 1988).The reliance on subsidies was increasingly reducing and the programs were designed to meet affordability levels of beneficiaries. Programs introduced during the 1980s gradually began to take a more holistic approach by integrating poverty alleviation programs with shelter programs (Hingorani, 2011).

The macroeconomic policies in India continued their bias toward rural areas, there was a growing recognition that urban poverty was different from rural poverty and that there was a distinction between urban and rural housing issues (Sahu et al., 2009). The schemes implemented during this programme were Provision of House Sites for Houseless Workers in Rural Areas (1971), Environmental Improvement of Urban Slums (1972), Scheme of Urban Low-Cost Sanitation for Liberation of Scavenger (1981), Indira Awas Yojana (1985), Night Shelter Scheme for Pavement Dwellers (1990). One of the most important developments of this period was the formulation of the 1988 National Housing Policy, which changed the course of housing programs in the 1990s by changing the role of government from a direct provider of finished housing, finance, or developed sites to that of a facilitator channelling private sector investment in housing and encouraging private-sector-led construction. The government's role was increasingly viewed as that of an organizer of a legal, regulatory, and financial framework within which housing could be developed and supplied by the private sector (Sahu et al.,2009).

In the post 1991- liberalization period the government of India was in the process of liberalizing the economy, which was also visible in its housing policies. These policies created larger role for the private sector. The major initiatives in this period were Nehru Rozgar Yojanas Scheme of Housing and Shelter Up gradation (1990), Urban Basic Services of the Poor (1990), National Slum Development Program (1996), Two Million Housing Program (1998), Valmiki Ambedkar Awas Yojana 2001, Jawaharlal Nehru National Urban Renewal Mission (2005). These housing schemes for poorer section, were Centrally Sponsored Schemes designed by the centre but required matching funds from state and local level governments and were supposed to be implemented by local bodies. The power distribution between the three levels of government (central, state, and local) realigned more broadly with the 74th Constitutional Amendment in 1992. (Hingorani 2011).Indira Awas Yojana (IAY) a component of Jawahar Rozgar Yojana became an independent rural housing programme in 1995-1997 onwards. The objective of IAYwas construction of free houses to the members of the scheduled castes scheduled tribes free bonded labourers in rural areas and non-SC/ST rural poor BPL households. The beneficiaries are selected by the BPL list approved by the Gramasabha.

While there was encouragement for the state government and municipalities to develop programs for addressing urban poverty and shelter issues, the central government was shifting its attention to more focused programs directed toward BPL households. In 2001, a Centrally sponsored program called Valmiki Ambedkar Awas Yojana (hereafter VAMBAY), was launched which entailed the construction and upgrading of houses for BPL households. The implementation was the responsibility of the state governments who were required to arrange land and organize debt (Hingorani, 2011). The financial share that states could obtain as a loan from agencies like HUDCO was in proportion to the size of their slum population (Mathur, 2009). The Two Million Housing Programme, launched in 1998, was a loan-based scheme aimed at facilitating the construction of two million houses every year using funding from HUDCO and HFIs (Hingorani, 2011). Urban-focused capital investment and urban reform program called Jawaharlal Nehru National Urban Renewal Mission (hereafter JNNURM) was launched in 2002. JNNURM marks the beginning of a serious attempt to engage the private sector in housing delivery, and for the first time allows the private sector to

undertake land assembly. A major program for slum dwellers and the urban poor, Rajiv Awas Yojana (RAY), was launched in 2011, with the preparatory phase during 2011–2013 and the implementation phase in 2013– 2022.

In June 2015, Housing for All 2022 policy has been introduced. Housing for All Mission aims to fully address the housing shortage by 2022. However, the initial budget allocation by the central government for the program for 2015–2016 is ₹ 40 billion, which is too small to have any major impact (Government of India, 2015), (Tiwari, 2016). As a part Housing for All 2022 policy, Pradhan Mantri Awaas Yojana Gramin (hereafter PMAY-G) and Pradhan Mantri Awaas Yojana Urban (hereafter PMAY-U) was introduced with an aim to provide affordable housing for all by 2022.Under PMAY-G, the world's largest housing programme for the rural poor, India aims to build 30 million houses for the rural poor for 2022 – which means building five million houses every year in rural areas. The new scheme replaced and restructured the IAY. Financial assistance is provided for construction of the houses. Under PMAY, the cost of the unit is to be shared between Central and State Governments in the 60:40 ratio in plain areas and 90:10 ratio for North Eastern and hilly states. United Nations Development Programme (hereafter UNDP) is committed to working closely with the government to help upscale rural housing for India's poor.In partnership with the MORD, UNDP, through the Governance and Accelerated Livelihoods (GOALS) project, helps promote affordable housing for the rural poor. The first component of this has been to provide beneficiary households with a wider range of choices in terms of housing designs, materials and construction technologies. These choices are tailored to local conditions, aim to enhance user benefits, and reduce the environmental footprint of housing.

3.4 Government Initiatives in Rural Housing

In 1957, the Government launched its first formal village housing scheme as a part of Community Development Movement. Later, the same village housing program was enlarged under National Rural Employment Guarantee Programme (hereafter NREGP). Construction of houses was taken up in 1980 followed by Rural Landless Employment Guarantee Programme (hereafter RLEGP) in 1983. Under RLEGP, IAY was launched in 1985-86 and later shifted under the Jawahar Rozgar Yojana (JRY) in April 1989. IAY finally became an independent scheme in 1996. IAY provides BPL

families in villages with cash subsidy to build their own dwelling units as per their own design and technology. The selection process is entrusted with the Gram Sabhas. The subsidy is given either in the name of the female member of the house or jointly in the name of husband and wife. 60 per cent of the funds from IAY are earmarked for SC and ST beneficiaries. The scheme presently provides for a subsidy of ₹ 70,000 in plain areas and ₹ 75,000 in hilly areas. Central Government contributes 75 per cent of the amount and the State Government pitches in with the residual 25 per cent. Housing shortage is ascertained based on the 2001 Census. District Rural Development Agencies (DRDAs) are used as fund routing agencies. The subsidy is given in 2-3 instalments linked to the progress of the work. The construction of the dwelling is the sole responsibility of the beneficiary. The Ministry of Rural Development, Government of India has revamped IAY scheme as Prime Ministers Awas Yojana –Grameen (PMAY-G) from 1st April 2016 in pursuance of achieving the goal "Housing for All by 2022". The Organization for Economic Cooperation and Development looks at Housing for All programme, which aims at providing affordable housing to all Indians by the year 2022, as a good way forward in reducing the housing shortage as it promotes ownership of house. Some states have their own housing program in existence even before the scheme introduced by Government of India. These schemes in addition to PMAY help the states to cover a larger number of beneficiaries.

3.5 Housing in Kerala

The housing situation in Kerala is far better than in the rest of the country. The focus of the state is on providing sustainable houses for the poor, landless and marginalised sections. Kerala is one of the most densely populated states among Indian States and highly vulnerable to natural disasters, the changing climatic dynamics, and global warming. Kerala is categorised as a Multi-hazard Zone State (Government of Kerala, 2019). The important agencies include Local Self Government Department (LSGD), Kudumbasree, Kerala State Housing Board, Kerala State Nirmithi Kendra (KESNIK), Kerala State Development Cooperation for Scheduled Caste and Scheduled Tribe, Kerala State Development Cooperation for converted Christians and recommended communities, Kerala State Cooperation Federation, Scheduled Caste and Scheduled Tribe Development, Fisheries Department, Co-operative Institutions, Non-governmental organisations likeCentre for Science and Technology for Rural

Development (costford) and Habitat technology group (Government of Kerala 2017).State contribution is ensured for the continuation of the existing State Housing schemes and Central schemes provide financial assistance for construction of houses for poor sections in urban and rural areas respectively. The State's plan funds for housing are spent through government and quasi-government agencies and concerned departments. These agencies and departments have provided assistance to construct around 2,57,572 houses during the period 2015-16 to 2019-20 (Government of Kerala, 2019) and around 1, 23,807 houses during the period 2019-20 to 2020-21 (Government of Kerala, 2020). Housing being a State Subject, it is the primary responsibility of State Governments to ensure housing for all. Kerala's people utilised the benefits of governmental housing schemes more effectively. Unfortunately, the benefits of state interventions do not seem to have reached fully, to the people living in rural areas (Government of Kerala, 2017).

3.6 History of Public Housing Schemes in Kerala

Kerala's giant strides in the public housing sector have been marked by many successful and innovative experiments involving social mobilization, making deep imprints on the development history of the State. The history of the public housing dates to 1950s with the village housing scheme implemented with the support of the Community Development Programme sponsored by Government of India (Kerala State Housing Policy, 2011). Later in 1971, M N One Lakh Housing Scheme (OLHS) was implemented for housing the landless and homeless agricultural labourers who were not benefitted from the land reform act. The central scheme of Rural House Sites cum Hut Construction scheme was converted in to One Lakh Housing Scheme to suit local conditions. Four cents of land was allotted to each beneficiary free of cost with funds mobilised from the public. Small houses with bare minimum amenities were built with beneficiary participation. The Kerala state housing board, launched a loan subsidy linked housing scheme Rajiv One Million Housing Scheme catering all sections of the society in the year 1991.The co-operative housing scheme in 1978 for the economically weaker sections was implemented by Kerala state housing board. The Subsidized Aided self-help housing scheme (SASH) for economically weaker sections was brought in the year 1984 with the cooperation of voluntary organisations. The SASH was

modified to Rehabilitation housing scheme in 1985 for Economically weak section (EWS)families with houses damaged by natural calamities.

In the year1996 the Total housing scheme was launched which was financed by HUDCO and organised by district panchayaths of Thrissur Kollam and Thiruvananthapuram districts. The technical help was provided by Costford, habitat technology group and Nirmithi Kendra. In the year 2008 the total housing scheme was enlarged to EMS total housing scheme with the local self-governments playing the lead role. The EMS total housing scheme was aimed to provide houses to all landless and houseless Below Poverty Line households. In the same year 2008 MN Laksham Veedu punarudharanapadhathi" was launched to rebuild or renovate the one lakh housing scheme houses built in the early 1970s (Government of Kerala, 2017).The housing schemes for SCs and STs were taken up in a major way integrated with the centrally sponsored employment generating schemes of NREP and RLEGP. Meanwhile, Kerala also launched many loan-subsidy linked housing programmes for EWS of the society through the Kerala State Housing Board. The Board implemented various land development schemes also aimed at the MIG apart from creating social infrastructure. A massive housing programme named Rajiv One Million Housing Scheme (hereafter ROMHS) catering to all the sections of the society was launched by the Board in 1991. It was followed by the Mythri Housing Scheme launched in 1996, targeting the housing needs of the EWS families with monthly income less than 1800 and own land. The thrust given for the housing of the poor by the Local Self Government institutions made substantial contribution in meeting the demand-supply gap in the housing sector. The Kerala State Nirmiti Kendra, which was established in 1987 pioneered many innovative experiments in the development of cost effective and environment friendly building technology. The total Housing Schemes implemented by District Panchayats in the districts of Thiruvananthapuram, Kollam and Thrissur had reasonable spread and reach. Indira Awas Yojana (IAY) a centrally sponsored programme was introduced in 1996, the objective of this scheme is to provide assistance for building house to people below poverty line living in rural areas who are houseless or has inadequate housing facilities (Commissionerate of Rural Development, 2024). The beneficiaries are selected through the Gramasabha. And the beneficiaries should own land required for the construction of the house. The design and type of house are determined by the peculiarities of the

region. Sanitary latrine and smokeless chullah are required to be constructed along with IAY. The Scheduled castes and Scheduled tribes are given 3,00,00 rupees and general category receive 2,00,000 as financial assistance for house construction. IAY is granted as Pradhan Manthri Awas Yojana-Grameen (PMAY-G) from 2016-2017 onwards (Commissionerate of Rural Development, 2024). Pradhan Manthri Awas Yojana-Grameen (PMAY-G) housing scheme is being implemented from 2016.

The Government of Kerala has a new welfare and ambitious mission in the state to solve the housing problems of the poor, such as Kerala LIFE - Here LIFEStands for "Livelihood, Inclusion, Financial Empowerment". Livelihood inclusion and financial empowerment (LIFE) Mission is being implemented in the state with the aim of Providing safe and decent homes to all homeless and landless people in Kerala(Government of Kerala, 2020).

As per the Census of 2011 there were 336 houses for every 1000 persons in Kerala while it was 273 houses in India as a whole. The average size, quality and per capita floor area of the residential houses of Kerala are also higher than that of the other states in India (Government of Kerala, 2020). The housing problem in the State affects the poor and socially marginalized.

The efforts for transfer of cost-effective building materials and technologies still need thorough intensified efforts to make inroads into the housing sector. The depletion of natural resources such as land, water, forest cover and energy are in an unbridled way(Government of Kerala, 2017).

The massive flood in 2018 affected 80 per cent (1,259) villages and 54 lakh people directly in the State. The flood displaced 14 lakh people, and 433 people lost their lives. The State experienced two consecutive floods and landslides in 2018 and 2019. The floods and landslides in 2018 caused extensive damage and losses to houses, roads of all type, railways, bridges, power supplies, irrigation, drinking water supplies, communications networks, and other infrastructure facilities in the State. The devastating flood and landslides in 2019 affected 1,030 villages in the State. It damaged 1,967 houses fully, 19,297 houses severely and lost or damaged beyond repair in the floods of August, 2018 2.16 lakh houses partially (flood hit and cleaned), a total of 17,623 houses were affected.

As per the Census of 2011, the average size, quality and investment per house were far higher in Kerala than in rest of India but a significant proportion among underprivileged and poor sections of society in Kerala still do not have a reasonable shelter. At the same time, it is seen that housing investment and building construction have turned out to be a major economic activity in the State. As a result, the average growth of housing units which was 16 per cent as against a population growth of 9.42 per cent during 1991-2001 increased to around 17 per cent 2001-2010 even when population growth declined to 4.86 per cent (Government of Kerala, 2020).

3.7 Housing Schemes for Rural Sector in Kerala

The major State government aided housing schemes for the EWS are the EMS Total Housing Scheme, Tribal Housing Scheme, New Suraksha Housing Scheme, schemes of SC & ST departments, Fishermen Housing Scheme, Bhavanasree, Asraya and MN Lakshamveedu Punar NirmanaPadhathi. Centrally sponsored housing schemes such as IAY, Valmiki Ambedkar Awas Yojana (VAMBAY), Integrated Housing and Slum Development Project (IHSDP), Basic Services to Urban Poor (BSUP), National Fishermen Welfare Fund (NFWF), Interest Subsidy scheme for Housing the Urban Poor (ISHUP) and Affordable Housing in Partnership (AHP) PMAY-LIFE programme are aimed at providing financial assistance for constructing houses to the poor and EWS in the State (Government of Kerala, 2017). Both the Central and State Governments have been trying to eradicate housing shortage by implementing several housing schemes. In Kerala average housing standards and quality are far better than the rest of the Indian States.

3.7.1 LIFE Mission Housing Scheme

The Government of Kerala has initiated the LIFE Mission in the year 2016 as a programme for addressing the issues of homelessness in the State. It is envisioned as a time-bound programme through a multi-pronged approach of addressing the ground level real issues. The Beneficiaries are the land less homeless households, households with incomplete or uninhabitable house, households with temporary houses in the outskirts, coastal area or plantation area. The Mission provides housing for the landless houseless-poor along with a comprehensive livelihood through skill development, leading to financial self-reliance and ensuring inclusive development. This mission

aims at the overall development of poor households. They should be able to earn their own livelihood, participate in social processes and take advantage of social welfare schemes, including financial services. The mission along with better housing facility, includes facilities for education skill development and self-employment training to promote the living standards of the poor. Apart from the completion of incomplete houses, the Mission is addressing restoration of existing dilapidated houses, financial support for constructing houses for those having own land, the landless-homeless beneficiaries of the state by rehabilitating them into apartment complexes (Government of Kerala, 2019). The financial support for building each house is rupees 4,00,000 for general and Scheduled tribes and rupees 6,00,000 for Scheduled tribes (Government of Kerala, 2020). When houses are constructed under LIFE Mission, 90 person days under Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) in rural areas and Ayyankali Urban Employment Creation Scheme (AUECS) in urban areas is spared for the construction of houses for LIFE Mission and Kudumbashree started women construction (Government of Kerala, 2020). The cost of construction materials is one of the most important issues faced by the beneficiaries of LIFE Mission. LIFE Mission planned for the distribution of materials at a rate as low as 20 to 60 per cent of their Maximum Retail Price. Electrical fittings, wiring material, paint, ceramic material, tap fittings, water tanks and cement are distributed to the beneficiaries at this low rate. The project is implemented be integrating housing schemes under various departments. A state level housing commission, headed by the chief minister and co-chaired by the minister for Local self-government has been constituted to implement the scheme. The life mission was carried out in three phases. In phase one the households with houses which built under previous housing schemes and remains incomplete are provided assistance to build their house. In the second phase the houseless with own land households are included and in the third phase houseless and land less households are included. (Life Mission, 2024).

3.7.2 Pradhan Mantri Awas Yojana-Gramin (PMAY-G)

The Ministry of Rural Development, Government of India has revamped the IAY scheme as Prime Minister's Awas Yojana –Grameen (PMAY-G) from 1st April 2016 in pursuance of achieving the goal "Housing for All by 2022". The identification and selection of the beneficiaries of PMAY-G is done through the Gram Sabha from

SECC 2011 list, based on the housing deficiency and other social deprivation parameters. As per the guidelines, an amount of ₹1.2 lakh is the total assistance for one beneficiary. The cost of unit (house) assistance is to be shared between Central and State in the ratio 60:40. The minimum unit (house) size enhanced from the existing 20 m^2 to 25 m^2 including a dedicated area for hygienic cooking. PMAY-G aims to provide a pucca house with basic amenities to all homeless households living in kutcha and dilapidated house in rural area by 2022. In the year 2018-19 and up to September 30, 2019 7356 and 787 houses were constructed respectively under the scheme PMAY (G). Completely PMAY, being a Centrally sponsored scheme, the unit assistance for house construction from Government of India is ₹72,000 and ₹1.5 lakh for rural and urban areas respectively (Government of Kerala, 2020). Construction of toilet has been made an integral part of the PMAY-G house. Provided through funding from Swachh Bharat Mission (G) or MGNREGA. The house would be treated as complete only after the toilet has been constructed. It has been mandatory that the beneficiary of PMAY-G would get wage component for 90 person days at the current rates with regard to the unskilled labour component for construction of the house under convergence with MGNREGA. Funds will be transferred electronically directly to the account of the beneficiary. The beneficiary would be facilitated to avail loan of up to ₹ 70000 for construction of the house which is optional. The scheme is also expected to generate employment in the rural areas, especially in the construction sector which is currently the second largest employers in India. In Kerala 120,000 rupees is being funded by central and state governments in the ratio of 60:40 under the PMAY(G) housing scheme. In Kerala 4,00,000 rupees is given to general category and Scheduled castes 6,00,000 rupees Scheduled tribe families living in tribal settlements. The excess amount is provided by three tier panchayaths and Scheduled caste and scheduled tribe department. Now the remaining amount is given as part of life mission. Under the, Mahatma Gandhi National Rural Employment guarantee scheme (MGNREGS) a maximum of 90 days of unskilled work is provided to the beneficiaries. The beneficiary is provided with schemes to assist in building toilet., drinking water, Electricity, fuel and waste management systems. A loan up to 70.000 can be availed by the beneficiary for construction of house. The selection of the beneficiaries is based on the

socioeconomic and caste survey 2011 (Local Self Government Department, Government of Kerala, 2024).

Every year MoRD will fix a target for the states and the same will be informed to the states. The period for completion of houses is 12 months from the date of the release of first instalment. The scheme is expected to boost job creation in rural areas.

3.7.3 Grihasree Housing Scheme

Grihasree Housing Scheme is being implemented by the KSHB Board from the year 2013-14 onwards with budgetary support by providing Government subsidy of ₹2 lakh/house for the construction of house with participation of NGO or voluntary agencies or philanthropic individuals in two cent or three cents of land owned by EWS or LIG beneficiaries. 407 houses in 2018-19 and 27 houses up to August 31st, 2019 were built under this scheme. A total of 3056 houses have been constructed under this scheme so far (Government of Kerala, 2019).

3.7.4 M.N. Laksham Veedu Punarnirmana Padhathi

Under the scheme, which is named "M.N. Laksham Veedu Punarnirmana Padhathi" financial assistance for the reconstruction of dilapidated twin houses into single units and reconstruction of single houses, is being implemented through the Board. The Government subsidy is ₹ 75,000 for General Category, ₹ 1,00,000 for SC Category and ₹ 1,25,000 for ST category. 50 per cent of the subsidy amount will be given by Kerala State Housing Board and the balance amount shall be met by the Local Self Government Departments.

3.7.5 Tsunami Rehabilitation Program

Kerala State Housing Board has been designated as nodal agency for the implementation of the Coastal Housing and Re-settlement Programs (CHRP). KSHB has constructed houses in the districts of Trivandrum, Malappuram, Kozhikode, Kannur and Kasargod.

3.7.6 Suraksha Housing Scheme

The scheme implemented by KSHB give financial assistance for the houseless EWS in both Urban and Rural areas limiting the government assistance to the vulnerable sections under the EWS group after strict scrutiny of their eligibility. Under this Scheme, assistance will be given to persons owning at least two cents of land to

construct a house by themselves. The scheme will have an option to associate Voluntary Agencies and NGOs to assist the construction (Vide GO(MS) No.9/2005/Hsg dated 21-3-2005). The capital subsidy from the State Government shall be ₹ 9000 per house and ₹ 2000 shall be the beneficiary or voluntary contribution. ₹ 19,000 will be construction loan for a building costing Rs.30,000. In cases where Voluntary Organizations are associated, they shall provide entire amount to the beneficiary or build the structure up to roof level and the government subsidy shall be disbursed. In this case no loan component is involved and beneficiary is fully free from repayment.

3.7.7 New Suraksha Housing Scheme

The KSHB in its meeting held on 16th July 2007 had approved a new financial pattern for Suraksha Housing Scheme and requested the government for sanction on 1st August 2007. In this scheme the construction cost of one house is taken as ₹ 1,00,000 (having a plinth area of 30m^2) against the present amount of ₹ 30,000 and the Government Subsidy as ₹ 25,000 against ₹ 9,000 (Government of Kerala, 2020).

3.8 Housing Shortage in Kerala

During the three decades from 1911, the growth rate in the number of houses almost kept pace with the population growth rates and thereafter the population growth exceeded the growth of houses till 1981. In the decade 1981-91, the index of houses exceeded the index of population. Number of houses per 1000 population remained at 178 in 1931 and 1941 and thereafter declined to 160 in 1971. During the decade 1981-91, it reached 282 houses per 1000 population (George, 2006). As per 2001 Census, the numerical shortage of housing in 2001 was estimated as 63,000 units, excluding the number of dilapidated houses. The total number of dilapidated houses as per the 2001 Census was 5.38 lakhs and another 4.5 lakh residential units were required for accommodating the newly formed households. According to the Census figures of 2001, while 51.8 per cent of households lived in permanent houses and 30 per cent in semi-permanent houses at the all-India level, corresponding figures in the State were 68 per cent and 21.60 per cent respectively. The projected requirement for the next five years were 10 lakhs (Government of Kerala, 2019). According to the general survey conducted in 2007, it was estimated that the projected demand was 10.84 lakh housing

units in the State. Based on this survey, the housing stock of the State was 69,85, 419 units and the current stock is estimated as 75 lakh residential units. The projected demand for the new population up to the end of the 12th Plan period is 6.5 lakhs. Apart from this there is a need for reconstruction of 5.5 lakh units of dilapidated houses. The State has to undertake the task of constructing 12 lakh housing units, of which around 60 per cent is meant for the EWS of the society. Considering an amount of ₹ 2 lakh for the construction of a residential unit, it is estimated that a total amount of ₹ 15000 crore is needed as investment in the Housing Sector for EWS and disadvantaged groups (Government of Kerala, 2019).

The survey analysis for 'LIFE Mission' explicates a total of 5, 04,967 homeless households in Kerala in which the district of Thiruvananthapuram was in the top most place, having 79,225 families of homeless people both landless and having land. Pathanamthitta has the least number of homeless both landless and with land (Government of Kerala, 2020). In Kerala the housing issues are more qualitative than quantitative. The problem of housing is a complex one in Kerala. As per data from LIFE Mission which is also accepted by the 13th plan working group report on housing, out of a total of 4.32 Lakh houseless families, 1.58Lakh are Land less and houseless, 2.3 Lakh have land but are houseless and landless, 2.3 Lakh have land but are houseless and 44000 houses are incomplete. Kerala achieved tremendous progress in housing and even introduced total housing scheme by the local self-governments. Unlike in other states, Kerala's people utilised the benefits of governmental housing schemes more effectively. Unfortunately, the benefits of state interventions do not seem to have reached fully, at least to the people living in rural areas particularly the tribal areas and in sea-shore (Government of Kerala, 2017).

Twelfth Five-Year Plan established by the Planning Commission of India to estimate the housing shortage in rural India which focussed only on the material used for roofs and walls was inadequate (Sing, 2010). Despite the implementation of many housing programmes, the housing shortage remains and ongoing urbanisation will add new pressures. Many households still live in precarious conditions. In 2015, about 40 million households faced housing shortages according to government estimates. Under the housing for all programme, the government aims to provide housing for all people by the year 2022. Housing finance is difficult, especially for low-income earners. A key

concern of the government is how to provide housing to the extreme poor (Organisation for Economic Cooperation for Development, 2019).

3.9 Housing Schemes among BPL Households

The 73rd and 74th constitutional amendments of 1994, Kerala introduced a three-tier system of local governance, with district panchayats, block panchayats, and village panchayats as the three tiers. Each village panchayat was further sub-divided into wards. From 1996 onwards, a massive exercise of decentralised planning, with village panchayats as the lowest tier, began, and one-third to one-fourth of State Plan funds were allocated to the local bodies. These local bodies were free to spend these funds within some broad guidelines issued at the State-level. The intensity of decentralised planning led to the emergence of new community relations changes in Kerala were in the background of its particular geographical setting, settlement pattern, and the legacy of land reform. In addition, traditional village hierarchies have been undermined by the spread and growth of powerful class-based movements of peasants and workers (Ramkumar, 2018).

The state governments, therefore, are to take steps towards the creation of the Panchayats and Municipalities and to endow them with "such powers and authority as may be necessary to enable them to function as institutions of self-government". Thus, Panchayats in rural areas, came into existence with an elected body to govern them. The Constitution stipulates that elections are to be conducted every five years, Grama Sabha or Ward Sabha must be constituted for wider participation of people. One-third of the seats are to be reserved for women, and a proportional reservation of seats for SC or ST is to be ensured (George, 2006). Local self-governments (LSGs) in Kerala have been actively involved in house construction since the participatory planning process was launched in 1996. LSGs through Municipalities and Panchayats support public or private or NGO or CBO sector participation in direct procurement of land for EWS groups which is necessary for housing construction. All the three tiers of Panchayats give top priority to housing projects for EWS (Bharati and Sriram, 2019). The responsibility of implementation of housing schemes to economically weaker sections, stands shifted to the Local Self Government Institutions in the State. The accomplishments of Kerala explicate that well-being of the people could be augmented

and social, political, and cultural conditions improved, even at low levels of income, provided there is appropriate public action (Ramachandran, 1997).

From 1970 onwards as part of the housing boom people started building houses with the readily available energy intensive materials, but majority of the population could not avail these due to financial restrictions. To cover the urgent housing demand Kerala government promoted cost effective construction techniques and innovative materials. But this cost effective and environment friendly technology also failed to meet the needs of beneficiaries (Gopikuttan, 2004). This may be due to inability of the poor in getting awareness, nonavailability of skilled labour and technical assistance. Also, the government intervention has aggravated the dependence and diminished the self-reliance of the rural poor (Gleaser, 1995). Getting public houses sanctioned itself is a laborious and tedious task. First, eligible applicants should get information about the scheme and the documents to be submitted with the time of application. Most of the households got the information through the local leaders of the mainstream political parties and rest through their friends and relatives. Second, the applicant should get relevant certificates from concerned offices to prove his or her eligibility. Three, title deeds of land and other original documents should be submitted to the concerned agencies. Housing assistance sanctioned after scrutiny and proper verification will be released in three or four instalments. To get each instalment released, the beneficiary should collect and submit stage certificates from the concerned authorities. Beneficiaries will have to pay several visits to the local offices of the housing finance agencies to get all the instalments released. Given the changed profile of casual workers and the uncertainty of employment opportunities, frequent visits to offices involve opportunity cost in terms of loss of work and wages. Opportunity costs of such visits are high during fair and busy seasons. Institutions and agencies providing housing assistance to EWS insist on beneficiary contribution in terms of materials and labour. In addition to the beneficiary contribution, the households were expected to mobilise the required materials and labour for the construction work, of course with the financial assistance of the agencies. However, several beneficiary households failed to command construction materials and labour in time. The partial financial support of government agencies is too inadequate to procure the materials needed for a standard house. All the beneficiary households had complaints about the uniform standards, strict conditions

and the rigid financing patterns of the housing assistance schemes. More than two-thirds of the sample households believed the government should not insist on type designs and minimum sizes, as is the practice today. Instead, the government should ensure supply of good quality building materials at affordable prices (Kannan and Imran, 2016).

Unlike in other parts of the country, being a State with high literacy rate the major proportion of public housing schemes in Kerala seemed to have reached the target groups. Nevertheless, the weakest sections have not received, by and large, the benefits of state intervention. Even those who could not improve their house quality and amenities due, probably mismatch between their needs and the public provision. 'Laksham Veedu' is Kerala's oldest housing project launched for the weaker sections of the society. It built one lakh houses (laksham in Malayalam) comprising a 240 sq. ft. house with a single roof separated by wall, shared by two families each. Worst felt problems faced by rural housing beneficiaries were delay in releasing the instalment causing delay in completion of the houses, inadequate funds, dependence on financial assistance do not get disbursed in a timely manner and beneficiaries complain of having to shell out bribes not only for allotment of houses but even for subsequent release of funds (Sridevi, 2015). The length of the period taken for completing house construction is a key indicator of the efficiency of policy implementation (Meenakshi, 2000). The beneficiaries should also take their own decision about the manner of construction of the houses. The active participation of beneficiary in the housing project like IAY will result in economy in cost, ensure quality of construction, lead to greater satisfaction and acceptance of the house by the beneficiary himself or herself (Tripathy, 2012). The households believed the government should not insist on type designs and minimum sizes, as is the practice today. Instead, the government should ensure supply of good quality building materials at affordable prices (Kannan and Imran, 2016). The nonbeneficiary households need not produce completion certificate at each stage and were free to design the plan, procure materials, and can determine the standard and quality of construction and the participation of family members in their construction process was high (Gopikuttan, 2002).

In IAY rural housing scheme it was found through experience that many poor people could not avail the benefit of the programme because of landlessness. Housing

benefit allocation should be based only on housing shortage and further that the housing shortage should be assessed only at the field level. Studies have recommended that it is desirable to evolve a practice at the level of Village Panchayat to enumerate actual shortage of houses and inferior houses that need replacement. Selection as well as allocation among Panchayats has been influenced by the political leaders. The vocal and active segments of beneficiaries influence the selection process because of the limited allotment under IAY. In the process, the poorest among BPL households are left out, and non-BPL families also get selected for the IAY houses. Many of the families had to bribe for selection by Panchayati Raj Institutions. To some extent the selection problem is related to the general problem of identification of BPL families on account of difficulties in defining the poverty line and developing the methodology to identify BPL families. Studies reveal that 50 to 90 per cent of beneficiaries are not satisfied with the grant-in-aid provided under the scheme (Government of India, 2006).

Housing schemes are meant for the rural poor and the socially deprived segments of the societies, their level of education is too low to understand the various provisions available. Hence, initially awareness could be created to these proposed beneficiaries and guidance could be extended on the various technological aspect of the house construction (Sridevi, 2015).

Even though there were different policy approaches over the years (1970 to 2000) for housing the poor in Kerala, they performed in a conventional way in practise rather than their innovative approaches in the concepts especially in the case of socio cultural and technological aspects. And this verifies the need for proper implementation strategies Along with this mismatch in the perceptions of Government and beneficiaries on the concept of housing programmes were clear and contributed to the failure of programmes (Nair and Gopikkuttan, 2005). PMAY-G has provided better housing condition to the beneficiaries by providing pucca houses. 80 per cent of the beneficiaries have invested additional funds for constructing their PMAY-G assisted houses. Considering physical facilities such as type of house, electricity connection, kitchen, toilet, bathroom, natural ventilation, natural light and space for livelihood activities. As a measurement on the overall objective well-being of the PMAY-G beneficiaries in comparison to those on the waiting list, it can be concluded that PMAY-G beneficiaries have the mean positive difference is 31.9 per cent in Madhya

Pradesh, 26.9 per cent in Odisha and 39 per cent in West Bengal. The study shows a significant difference between the PMAY-G beneficiaries and Comparison Group. (Reddy et al., 2019).

3.10 Summary

The overview of the 'housing' and the schemes for housing in India and Kerala revealed the overwhelming need for the re-structuring of the housing schemes and housing finance institutions in favour of the rural poor and BPL households. As per the SECS 2011, the households considered as deprived was 10.74 crore in India. The Census of 2011, further divulged that 40.82 per cent of the total of 112 million rural households in India lived in one-room tenements. During the decade of 1970 to 1980,housing finance institutions such as HUDCO, NHB, HDFC and HFCs were established. The devolution of the responsibility to provide housing to LIG and EWS from the Centre to the State governments and their housing boards ushered in changes in the entire housing finance in India. the most important housing schemes implemented during 1970-1990 were (a) Provision for House Sites for Houseless Workers in Rural Areas, (b) Environmental Improvement of Urban Slums, (c) Scheme of Urban Low-Cost Sanitation for Liberation of Scavengers, (d) Indira Awas Yojana and (e) Night Shelter Schemes for Pavement Dwellers. National Housing Policy of 1988 was formulated during this period. During the period from 1990-2022, the major initiatives in housing was the implementation of (a) Nehru Rozgar Yojana, (b) Urban Basic Services of the Poor, (c) National Slum Development Programme, (d) Two Million Housing Programme, (e) Valmiki Ambedkar Awas Yojana, (f) Jawaharlal Nehru National Urban Renewal Mission, (g) Rajiv Awas Yojana and (h) Housing for All Policy 2022 – Pradhan Mantri Awas Yojana- Gramin and Pradhan Mantri Awas Yojana -Urban. It is to be observed in the summary that the housing situations in Kerala is far better than that in the rest of the country. There are 20 public agencies supporting housing schemes in Kerala. Currently, 25 government and quasi-government agencies are involved in housing for the EWS in the state. Kerala State Nirmithi Kendra and COSTFORD are the premier agencies involved in the promotion of cost-effective and appropriate building technologies in Kerala. Housing schemes in Kerala were village housing scheme,MN One Lakh Housing Scheme, Rajiv One Million Housing Scheme,Indira Awas Yojana, Mythri housing scheme, The Subsidized

Aided self-help housing scheme (SASH),EMS Housing Scheme, MN One Lakh House Reconstruction Scheme, Tribal Housing Scheme, New Suraksha Housing Scheme, Schemes of SC/ST departments, Fishermen Housing Scheme, Bhavana Sree, Asraya, PMAY and LIFE scheme.

The Government of Kerala has a new welfare and ambitious mission in the state to solve the housing problems of the poor, such as Kerala LIFE - Here LIFE Stands for "Livelihood, Inclusion, Financial Empowerment," Livelihood inclusion and financial empowerment (LIFE) Mission is being implemented in the state with the aim of Providing safe and decent homes to all homeless and landless people in Kerala.

CHAPTER 4

RURAL AND URBAN HOUSING CONDITIONS IN INDIA AND KERALA

4.1 Introduction

The previous chapter discussed the history of housing in India and Kerala and described the rural housing schemes implemented in the state of Kerala. The current chapter is divided in to two parts. In the first part, a descriptive study of the selected indicators (Adequate Housing Index of the World Bank Group) of housing conditions in India and Kerala are examined. In the second part, an analysis on the housing conditions of rural and urban households of Kerala is undertaken. Housing is the basic requirement needed for human well-being. Various housing facilities like type of housing structure, tenure-status, quality and availability of drinking water and sanitation determines the quality of living of a household. Housing for the common man is an important step towards achieving social equality. So, providing housing facilities to the needy is a social responsibility. A house depicts the social economic and cultural background of the household. Housing and household data helps policymakers to initiate various programmes to improve the household quality of living.

Housing sector plays a major role in economic social, and civic development of a country by providing an opportunity for upliftment of every household. In India housing deprivation is one of the main problems which hinder the overall development of the people. Housing and related amenities are deficient in both rural and urban sectors in India. However, the policy makers focused more on urban areas which led to higher rural deprivation. In Kerala the rural- urban gap in housing is not as much as it is seen in the national level but invariably the gap existed. In this chapter the status or condition of rural and urban housing in India and Kerala is assessed using data obtained from Census during the years from 1991 to 2011. The rural India considerably lags behind urban India in terms of both quality and quantity of housing as well as amenities that are basic to a decent and dignified living (Kannan and Imran, 2016).

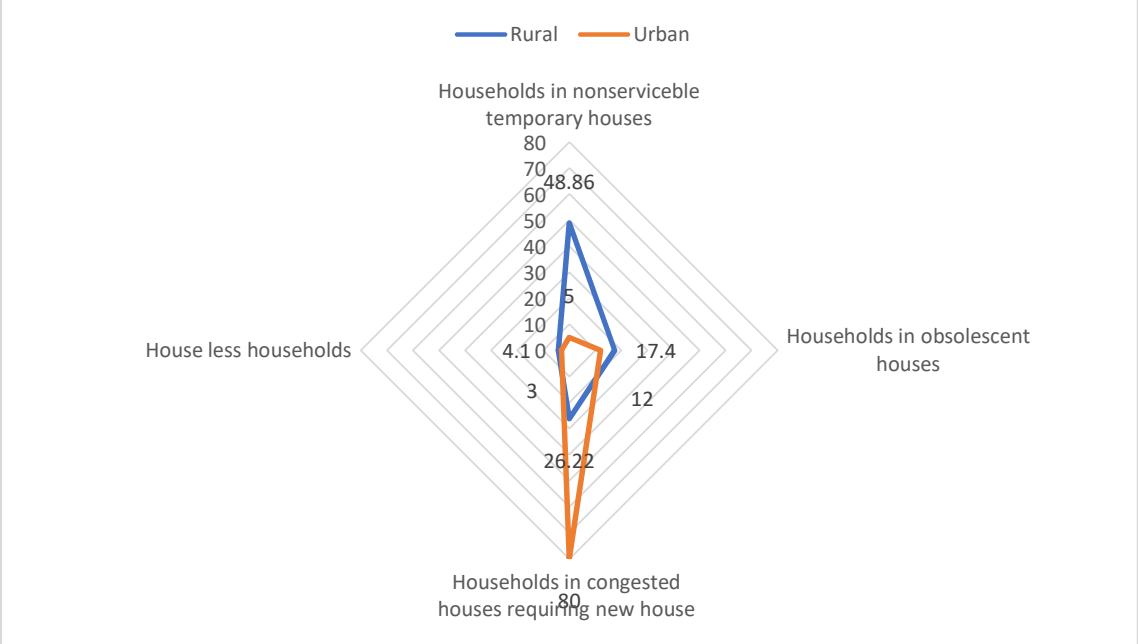
4.2 Housing Shortage in India

Housing shortage exists in a particular area or region when demand for housing exceeds the available supply. Housing shortage is the root cause for the high affordability of houses, overcrowding and homelessness. In India, one of the basic

requirements of a household, a safe and secure place to live with dignity remains unfulfilled for the majority of the poor. The rural India due to the high population, low income from the agrarian economy and lack of infrastructure bears the greater share of housing shortage. The urban India also has problems of high migrant population, high cost of housing and limited land availability which leads to urban housing shortage. The Task Force on Rural Housing for the 12th FYP estimated rural housing shortage for the period of 2012-2017 as 43.1 million (Government of India, 2012). The Task Force on Urban Housing for the 12th FYP estimated urban housing shortage for the period of 2012 as 18.18 million (Government of India, 2012).

Fig. 4.1

Housing Shortage in Urban and Rural India



Source: Report of the Technical Group on Urban Housing Shortage and Working Group on Rural Housing, 2012

Fig. 4.1 provides the data of housing shortage in urban and rural India estimated by Technical Group on Urban Housing Shortage. The housing shortage is estimated by adding households living in obsolescent or unacceptable houses, non-serviceable temporary houses, and houses with congested conditions and houseless households.

The households living in congested houses requiring a new house contributed maximum to the urban housing shortage covering 14.99 million (80%), households living in obsolescent houses comes next with 2.27 million (12%). Households living in non-serviceable temporary houses were 0.99 million (5 %) and households in homeless condition were 0.54 million (3%).

Half of rural housing shortage was contributed by households living in non-serviceable temporary houses which accounts to 20.2 million (48.86%). Households living in congested houses were 11.3 million (26.22%). Households living in obsolescent houses are 7.50 million (17.4%) and 4.1 million (9.51%) households were houseless.

The housing shortage in rural areas are far higher than the housing shortage in urban areas. The rural areas suffer from a heavy burden of housing shortage which comes around more than half of the urban housing shortage. All the four housing shortage parameters used shows a higher shortage in rural areas. The houseless households were only a small percentage of housing shortage in both rural (9.51%) and urban areas (3%). The type of housing shortage faced by rural and urban households are quite different. While rural households suffered housing shortage due to non-serviceable temporary houses which needed replacement, the urban households faced the problem of congestion which necessitates more dwelling units. In fact, availability of basic amenities and infrastructure in rural areas lag behind urban areas but the authorities neglect towards rural development continued.

4.3 Population, Houses and Households - A Study of the Census Data over the Census Years from 1991 to 2011

The definition of house as per the Census is a building or a part of a building, used or recognised as a separate unit because of having a separate main entrance from the road or common courtyard or staircase. It may be occupied or vacant. It may be used for residential or non-residential purpose or both (Census, 2011). Indian households use house for shelter, cooking. Leisure and rest. A Household is a group of persons who commonly live together and would take their meals from a common kitchen unless the exigencies of work prevented any of them from doing so. There may

be a household of persons related by blood or a Household of unrelated persons or having a mix of both.

4.3.1 Houses and Households in India

The rural and urban housing stocks underwent various changes over the years from 1991-2001 due to government policies, social changes, and economic growth. From the year 1991 to 2001, India's housing stock has increased to accommodate its growing population.

Table 4.1
Population, Houses and Households in India
(Figures in brackets are in Percentages)

		Total	Rural	Urban
1991	Population	846421039	622796324 (73.58)	215771612 (26.42)
	Households	151032898	111539448 (73.85)	39493450 (26.15)
	Residential Houses	147218489	108474825 (73.68)	38743664 (26.31)
	Average Household Size	5.5	5.6	5.3
2001	Population	1,02,87,37,436	742617747 (72.19)	286119689 (27.81)
	Households	193579954	137747384 (71.16)	55832570 (28.84)
	Residential Houses	18,70,63,733	13,50,51,268 (72.19)	5,20,12,465 (27.80)
	Average Household Size	5.3	5.4	5.1
2011	Population	1,21,08,54,977	83,37,48,852 (68.86)	37,71,06,125 (31.14)
	Households	249501663	168612897 (67.58)	80888766 (32.42)
	Residential Houses	244688900	166203921 (67.92)	78484979 (32.07)
	Average Household Size	4.8	4.9	4.6

Source: Census of the years 1991,2001 and 2011.

Table 4.1 describes the population, number of households, residential houses, and average household size for the Census years 1991, 2001 and 2011. The data is grouped into total, rural and urban houses. The rural population in the year 1991 was 622 million which rose to 742 million in 2001 and reached 833 million in 2011. The Urban population in 1991 was 215 million which is less nearly one third of rural population. In the Census year 2001, the urban population increased to 285 million and

reached 377 million in 2011. The rural population is more than twice the urban population in 2001 and 2011 Censuses. In 2011 Census, out of the 1210 million population in India, 833 million (68.8 %) people were living in rural areas whereas, only 377 million (31.2 %) lived in urban areas. The rural sector clearly had a higher burden of overpopulation which was the root cause for housing deprivation.

Among the 151 million total households in 1991, the rural households were 111.5 million (73.58%) and the urban households were 39.5 million (26.15%). The average household size for rural and urban areas were 5.6 and 5.3 respectively. The household size is an indicator of congestion in the house and the higher value explicates congestion in rural areas. The total number of households during the Census year 2001 was 193 million with 137 million (71.16%) rural households and 55million (28.84 %) urban households. The average household size in 2001 for rural and urban areas were 5.4 and 5.1 respectively. According to Census 2011 households in India was 249.5 million in which 168 million (67.58 %) was in rural India and 80.8 million (32.42%) was in urban India. The average household size was 4.9 and 4.8 persons respectively for rural and urban areas. The percentage of rural households were showing a decreasing trend from 1991(73.85 %) to 2011(67.58%). Rural India had two thirds of the total households in the country as against one third by urban India. During 1991,2001 and 2011 Census periods, rural household size was 5.6, 5.4 and 4.9 respectively, which was higher than the corresponding urban household size which was 5.3, 5.1 and 4.6 persons respectively. Although household size was decreasing over the years from 1991 to 2011 both in urban and rural areas, the rural urban gap remains the same.

There was a total of 147 million residential houses in India as per 1991 Census, out of which 108 million houses (73.68%) were in rural areas and 38.7 million (26.31%) houses were in urban areas. There was huge disparity between the rural and urban areas in terms of the number of houses. The total number of residential houses increased to 187 million in 2001 Census period. The number of rural and urban houses during the 2001 census was 135 million (72.19%) and 52 million (27.8%) respectively. In 2011 Census, the total number of rural houses decreased while urban houses increased to nearly half that of rural houses. Total residential houses in 2011 Census

were 244 million and among this 166 million (68%) belonged to rural households and 78 million (32%) belonged to urban households. Though the total number of rural houses are higher compared to the total number of urban houses, the rural households were deprived of the basic amenities like deficiency in clean drinking water, lack of cooking fuel, inadequate latrine, inadequate kitchen all of which adversely affected the socio-economic development of the individuals. The rural sector had been neglected throughout by the policy makers and the political will for rural housing upliftment did not take place.

In India, the percentage of rural houses are higher compared to urban houses. The percentage of rural houses began to fall from the Census year 1991 to the Census year 2011. There is an increase in the percentage of urban houses (from 26.69% in 1991 to 33.29% in 2011) but the percentage of rural houses was showing a declining trend (from 73.31% in 1991 to 66.71% in 2011. This is due to the rural to urban migration for better facilities, infrastructure, jobs, educational purposes and well-being. At this juncture it can be observed that the overall trend of the housing in the rural areas was declining.

4.3.2 Houses and Households in Kerala

Kerala is the third densely populated state of India with a high Human Developmental Index. The better socioeconomic back ground of the state is reflected upon its housing. The housing sector in Kerala from 1991 to 2011 had many significant changes that were impacted by government policies, economic policies, demographic changes, socioeconomic factors and infrastructure development. Both rural and urban housing underwent dynamic changes and increase in housing stock. The rich people among rural and urban households built big houses disproportionate to their household size and needs, due to which large number of houses remain vacant or unoccupied. The poor households on the other hand lives in dilapidated and congested houses. Majority (78.7%) of the rural poor are not able to build a durable house of their choice and some remain landless and houseless (Government of Kerala, 2022). The absence of a distinctive rural urban demarcation is a distinct characteristic of the state of Kerala. A rural urban continuum could be observed all over the state except for big cities. During the Census 2011 in Kerala there was a giant leap in urban population. This increase in

urbanisation was due to the increased movement of people from rural areas to the urban areas in search of better jobs, better and modern education, better infrastructure, better livelihood and overall well-being. The rural housing conditions in Kerala is better compared to the all-India level due to the active interventions by the government to improve rural housing.

Table 4.2
Houses and Households in Kerala
(Figures in Brackets are in Percentages)

		Total	**Rural**	**Urban**
1991	Population	2,90,98,518	21418224 (73.61)	7680294 (26.39)
	Households	5388235	4030870 (74.80)	1357365 (25.20)
	Residential Houses	5342305	4004690 (74.96)	1337615 (25.04)
	Average Household Size	5.3	5.2	5.4
2001	Population	31841374	23574449 (74.04)	8266925 (35.96)
	Households	6595206	4942550 (74.94)	16,52,656 (25.06)
	Residential Houses	6532021	4900050 (75.01)	16,31,971 (24.98)
	Average Household Size	4.7	4.7	4.8
2011	Population	33406061	17471135 (52.3)	1,5934926 (47.7)
	Households	7716370	4095674 (53.07)	3620696 (46.9)
	Residential Houses	7703616	4089523 (53.09)	3614093 (46.91)
	Average Household Size	4.2	4.2	4.3

Source: Census of the years 1991, 2001and 2011.

The table 4.2 depicts the total population of Kerala in 1991 was 29 million with 21.4 million (73.61%) rural population and 7.6 million (26.39%) urban population. In the Census year 2001, the state had 31 million total population with 23 million (74.04%) rural population and 8.2million (35.96%) urban population. The rural population in 2011 declined to 17 million (52.3%), whereas the urban population increased to 15million (47.7%) of the total 77 million.

In the Census year 1991, out of the 5.3 million of the total residential houses, 4 million (74.96%) residential houses were in rural area and 1.3 million (26.04 %) residential houses were in urban area. In the Census 2001 out of 6.5million total residential houses 4.9 million (75.01%) houses were in rural sector and 1.6 million

(24.98%) were in urban sector. The percentage of rural houses in Kerala was 74.96 per cent in 1991 but it fell to 53.09 per cent of the total houses in the year 2011. Among the total 77 million residential houses 40.9 million (53.09%) were in rural sector and 36 million were in urban sector. In Kerala the percentage of houses were more in the rural sector throughout the three Census periods namely 1991, 2001 and 2011. But like the national scenario the percentage of rural houses were decreasing and the percentage of urban houses were increasing from the Census year 1991 to 2011. During the 1991 and 2001 Census periods, the percentage of rural houses in Kerala was high (74.96% and 75.01%) compared to urban houses (26.04% and 24.98%) but rural houses decreased in the Census year 2011(52.22%). The percentage of rural population was also exhibiting similar change that is 73.61 per cent and 74.04 per cent in the Census years 1991 and 2001 respectively and subsequently declined to 52.3 percentage in Census 2011. This indicates that Kerala is undergoing rapid urbanisation, which is due to the slow development of the rural areas. People are forced to migrate to urban or semi-urban regions in search of better services income and infrastructure. In Kerala the rural households were 74.8 per cent and 74.9 per cent and urban households were 25.2 per cent and 25 per cent in 1991 and 2001 Census respectively. But in 2011 Census the rural households were 53.07 per cent and urban households were 46.09 per cent. This increase in urban households is due to the fast urbanisation in the state from the year 2001 onwards. In Kerala main reason for urban population growth was not by the concentration of population in the existing urban areas, but the increase in the number of urban areas and urbanisation of the peripheral areas of the existing major urban centres (Government of Kerala, 2012). Shifting of work force from agriculture sector to tertiary structure was the reason for high urbanisation in Kerala during 2011. Four districts in Kerala namely Idukki, Wayanad, Pathanamthitta, Palakkad shows low level of urbanisation (< 25%) in 2001 and 2011 Censuses.

4.4 Status of Housing in India Emphasising on Rural- Urban Disparity

Housing of the poor has ever remained as a problem in India, and of recent times it has worsened since India's population is in the late expanding stage. The poor housing conditions of the Indian households haunted and hindered the development of India right from the period of independence. In India where two thirds of the population

hails from rural areas, housing needs are unmet on a large scale. According to Census of 2011 among the 246.7 million households in India, 68 per cent were rural households and 32 per cent were urban households. The major share of housing deprivation in terms of houselessness, inadequate housing and lack of basic amenities have adversely affected the rural poor households. For each household, adequate house with basic amenities provided an opportunity to achieve various socioeconomic goals. This eventually led to the overall development of the area. The rural areas were lagging behind urban areas in safe drinking water, latrine facilities, availability of electricity, clean cooking fuel, infrastructure and other basic amenities, which indirectly leads to the poor housing in the area. Due to the lack of infrastructure, basic amenities, employment opportunities and utilities, rural poor are migrating to the urban regions in search of better living condition. This further led to the degradation of rural development. A decent house with basic amenities will facilitate education, economic opportunities and social upliftment of the household which would eventually lead to the regional development. This section discusses the rural urban disparity of housing conditions and basic amenities both in India and Kerala based on Census data 2001 and 2011.

The housing condition of a household comprises of the state of housing structure, number of rooms, access to basic facilities like drinking water, latrine and cooking fuel etc. The following parameters were used to examine the housing condition in India and Kerala.

1. Ownership of the house.
2. Number of dwelling rooms.
3. Source of light
4. Availability of latrine.
5. Drinking water- source and location
6. Type of house construction
7. Habitable condition of house
8. Cooking fuel

4.4.1. Ownership Status of Houses among Rural and Urban Households in India and Kerala

Home ownership provides security, freedom, financial benefits, self-esteem and overall satisfaction to the members of the household. The dwelling units of the

households are divided into own, rented and others. Indians have cultural inclination for own house since a house is meant to be passed down through generations. Possessing a house strengthens a household's attachment and commitment to the local society which helps in their socio-economic development. More than 90 per cent of rural households have own houses compared to urban households. This is partly due to the uncontrolled rural to urban migration for better opportunities. The houses of ruralpoor households are in poor condition and worn out that they are unable to serve the purpose of house as a capability for economic and social upliftment.

4.4.1.1. Ownership Status of Houses among Rural and Urban Households in India

According to 2011 Census, among 256.7 million households, 87 per cent households had own dwelling unit and 11 per cent live in rented houses. Own houses in rural and urban areas explicate a wide disparity among rural and urban areas. House ownership status in India was increasing over the years in both urban and rural areas but higher percentage of house ownership was found among rural households in comparison with urban households.

Table 4.3
Ownership Status of Households among Rural and Urban Households in India
(Figures are in Percentages)

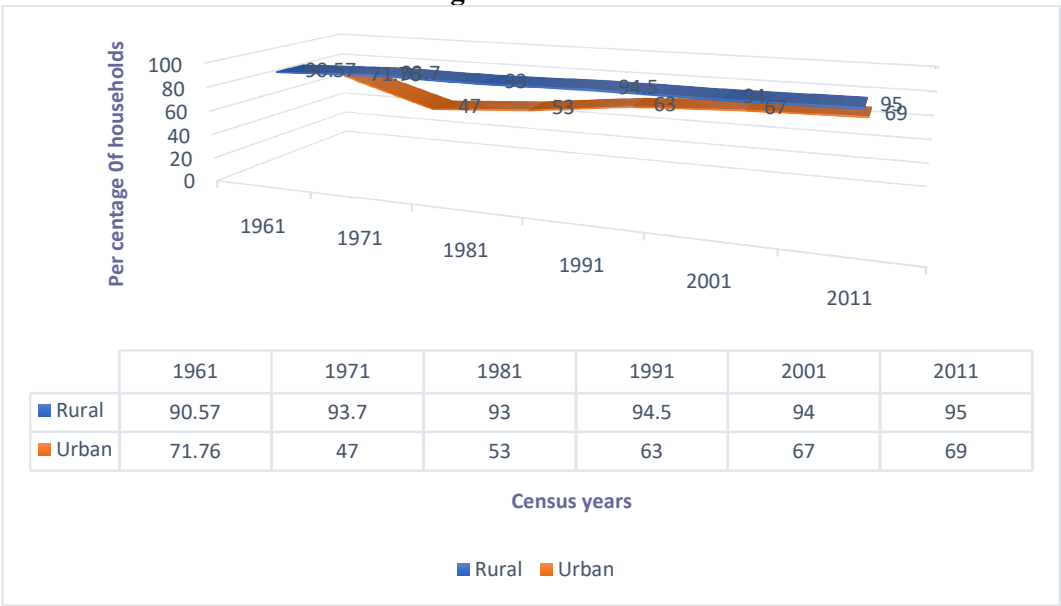
	2001		2011	
	Rural	Urban	Rural	Urban
Own	94	67	95	69
Rent	4	28	3	28
Any other	2	5	2	3
Total	100	100	100	100

Source: Census Reports of the years 2001 and 2011.

Table 4.3 gives the percentage of rural and urban households with own and rented houses during the Census years 2001 and 2011. The Census data of 2001 revealed that majority (94%) of the rural households were living in own dwellings, which is higher than the percentage of households with own houses in urban India (67%). The rural households in 2011 Census with own house were 95 per cent which was higher than 69 per cent of urban households with own houses. Rural households

with rental houses were 3 per cent which was less than 28 per cent urban rental households. In terms of ownership status, a higher percentage of self-owned homes were found in rural areas than in urban areas. In rural areas a house is considered as an asset and is the key to social status. On the other hand, the percentage of rental homes were higher in urban areas than in rural. The higher urban rental dwellings are due to the fact that a large share of urban population are migrants from rural sector. The rural poor households migrate to urban sector in search of better livelihood options, better infrastructure and better living conditions. Owning a house in India does not imply clear prosperity as it would in a developed country. In rural India higher percentage of owned houses are not in parallel with access to basic utilities (Kishore, 2016). On the contrary, in urban region a larger proportion of own houses and rented houses had basic utilities and access to infrastructure

Fig 4.2
Trend of Own Housesamong Rural and Urban Households in India



	1961	1971	1981	1991	2001	2011
Rural	90.57	93.7	93	94.5	94	95
Urban	71.76	47	53	63	67	69

Source: Censuses of the years 1961,1971,1981,1991,2001 and 2011

Fig. 4.2 explains the trend of the ownership status of the rural and urban houses from 1961 to 2011. The rural households with own houses were 90.57 per cent, 93.7 per cent, 93 per cent, 94 per cent and 95 per cent during the Census years 1961,1971,1981,1991,2001 and 2011 respectively. This data conveys that there is a steady increase in ownership status of houses during the Census years from 1961 to

2011. The urban households with own houses were 71.76 per cent 47 per cent, 53 per cent, 63 per cent, 67 per cent and 69 per cent during the Census years 1961, 1971, 1981 1991 2001 and 2011 respectively. The Census data on households with own houses in urban areas show a declining trend during the Census years from 1961 to 1971. Even though the rural and urban areas explicate increase in owned houses over the years, there is marked difference between the two. The percentage of rural households having own houses is higher than the percentage of urban households owning house in all the Census years from 1961 to 2011. This is due to the rural to urban migration for better living conditions and income. The poor landless workers in rural areas shift to urban areas due to poverty, low income, and unemployment (Hirway, 2016). The rural households which migrate to urban areas for better employment options and living conditions like health care, water supply and education constitute the majority of households living in rental houses. The rural to urban migration was exhibiting a progressive trend due to the lack of rural facilities. As per Census data rural to urban migration was 9.3 million in 1981, 10.6 million in 1991 and 14.2 million in 2001. The agrarian rural households are forced to migrate in search of jobs and better income due to the fall of agriculture and nonavailability of land in rural areas for cultivation. The increased number of rental houses in urban India reflects rural poverty. In rural areas the custom of passing the property to the next generation helps the poor to build the house as they do not have to bear the cost of land. Moreover, housing affordability is comparatively less in the rural areas. The rural poor household build houses using locally available materials. All these factors result in a higher percent of rural households with own house compared to urban households

4.4.1.2. Ownership Status of Houses among Rural and Urban Households in Kerala

In Kerala the scenario regarding owner ship of rural houses compared to urban houses were similar to the all-India picture. The proportion of households with own houses were higher in the rural areas compared to urban areas. Ownership of a house provides wealth, opportunities for income generation, security and housing satisfaction to the households. All households strive to live in own house in Kerala as the economic and social development of household is linked with homeownership.

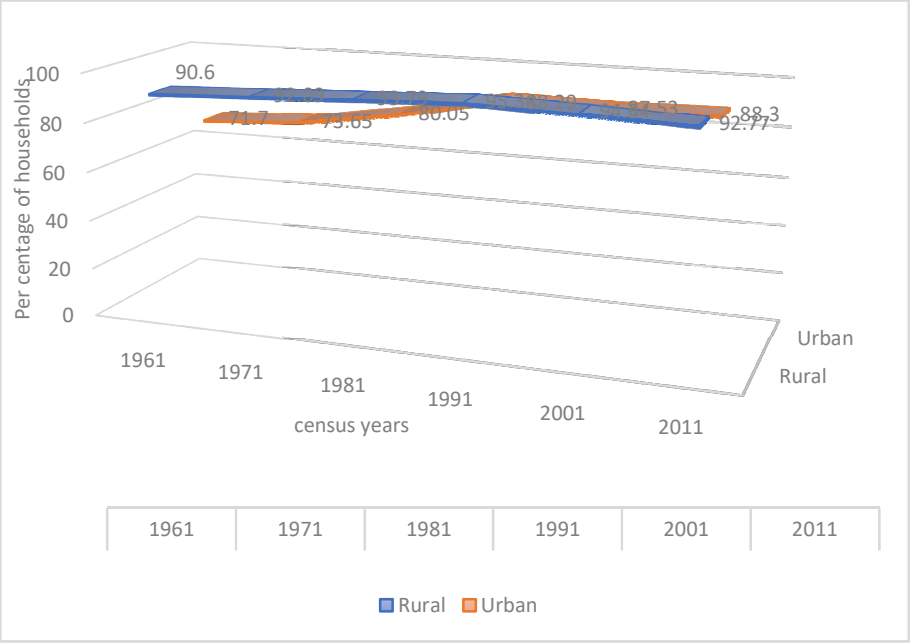
Table.4.4
Ownership Status of Households among Rural and Urban Households in Kerala
(Figures are in Percentages)

	2001		2011	
	Rural	Urban	Rural	Urban
Owned	94.34	87.54	92.8	88.3
Rented	3.3	10.20	4.9	10
others	2.36	2.26	2.3	1.7
Total	100	100	100	100

Source: Census Reports of the years 2001 and 2011.

Table 4.4 illustrates the percentage of own and rented houses among urban and rural households during 2001 and 2011 Census. It was found out that during the census of2002 94.34 per cent of the rural households in Kerala resided in owned houses which was higher than the 87.54 percentage of owned houses among urban households. Urban households with rented house (10.21%) were higher compared to rural households with rented house (3.3%). During 2011 Census rural households with own houses were 92.8 per cent which is higher than the percentage of urban households (88.3%). With respect to rented houses 4.9 per cent of total rural households were resided in rented houses where as 10 per cent of the urban households were lived in rented houses. The percentage change of rural households with own house from 2001 to 2011 indicated a decline of 1.6 per cent and urban households witnessed a growth of 0.86 per cent**.** This could be attributed to the rapid urbanisation of the state. More than 80 per cent of the rural and urban households in Kerala had own houses. In the Census of 2001 and 2011 households with own houses have higher percentage in rural areas compared to urban areas. The comparatively lower land cost in the rural areas and the availability of inherited plots for house construction are the causes for higher percentage of ownership status of houses in Rural areas.

Fig. 4.3
Trend of Own Houses among Rural andUrban householdsin Kerala



Source: Census Reports of 1961,1971,1981,1991,2001 and 2011

The trend of ownership status of rural and urban houses over the Census years from 1961 to 2011 is displayed in figure 4.2. The percentage of rural households with own houses in Kerala is higher than urban households throughout the period from 1961 to 2011. The percentage of rural households with own houses were 90.6 per cent, 92.09 per cent, 93.79 per cent, 95.34 per cent, 94.34 per cent and 92.77 per cent for the Census years 1961, 1971, 1981, 1991, 2001 and 2011 respectively. There has been a gradual increase in the percentage of the rural households with own houses from 1971 to 1991, but the percentage declined from 95.34 per cent in 2001 to 92.77 per cent in 2011. This could be attributed to the rapid urbanisation in Kerala. The percentage of the urban households with own house were 71.7 per cent, 73.65 per cent, 80.05 per cent, 88.29 per cent, 87.53 per cent and 88.3 per cent in the Census years 1961, 1971, 1981, 1991, 2001 and 2011 respectively.

There has been a sharp increase in the percentage of urban households with own houses during the Census years from 1961 to 1991. The rural urban gap in ownership status started declining from 1981 Census onwards. There was a gap of 18.9 per cent and 18.44 per cent between rural and urban households with own houses in the Census

years 1961 and 1971. The percentage gap subsequently fell to 13.74 per cent, and 7.05 percentage in the Census years 1981 and 1991. The difference was further reduced to 6.81 per cent during the Census year 2001 and further got reduced to 4.47 per cent during 2011 Census. The percentage of rural households with own houses were higher compared to urban households in all Census years.

4.4.2. Number of Dwelling Rooms of Houses among Rural and Urban Households in India and Kerala

The number of dwelling rooms of a house is a determinant of congestion in the house and quality of housing. The Census of India defines dwelling room as a space within a household that is specially used for living purposes. This includes rooms such as living rooms, bed rooms, kitchens, and other habitable places. The no of dwelling rooms for every house can vary depending on socioeconomic and cultural fabric of the household. The number of dwelling rooms of a house is a determinant of congestion in the house and quality of housing. Household overcrowding is a condition where the number of occupants exceeds the capacity of the dwelling space available, whether measured as rooms, bedrooms or floor area, resulting in adverse physical and mental health outcomes. Overcrowding is the result of a mismatch between the dwelling and the household which takes in to account dwelling space and household composition. A household is considered as living in overcrowded conditions if less than one room is available for each household (Organisation for Economic Cooperation and Development, 2019). Overcrowding is considered to be stressful to health and well-being across different cultures and aspects of life in low middle- and high-income countries. There is a direct association between overcrowding and adverse health outcomes, such as infectious disease and mental health problems. Overcrowding is associated with poor educational attainment and ill health. The houses are classified into no exclusive rooms, one room, two rooms, three rooms, four rooms, five rooms and six rooms and above. The Census defines a room as a space that should have four walls with a doorway with a roof over head and should be wide and long enough for a person to sleep in, that is, it should have a length of not less than two metres and a breadth of at least one metre, and two metres in height. A room, however, which is

used in common for sleeping, sitting, dining. Storing and cooking space should be regarded as a room**.**

4.4.2.1 Number of Dwelling Rooms of Rural and Urban Households in India

Despite numerous housing policies and schemes to cover the housing crisis which include overcrowding, obsolete houses and inadequate houses 11.3 million rural and 14.99 million urban households are living in congested dwelling units.

Table 4.5
Dwelling Rooms of Rural and Urban Households in India
(Figures are in Percentages)

	2001		**2011**	
	Rural	Urban	Rural	Urban
No Exclusive rooms	3.4	2.3	4.3	3.1
One Room	39.8	35.1	39.4	32.1
Two Rooms	30.2	29.5	32.2	30.6
Three Rooms	13.3	17.1	12.7	18.4
Four Rooms and Above	13.4	16	11.4	15.9
Total	100	100	100	100

Source: Census Reports of 2001 and 2011

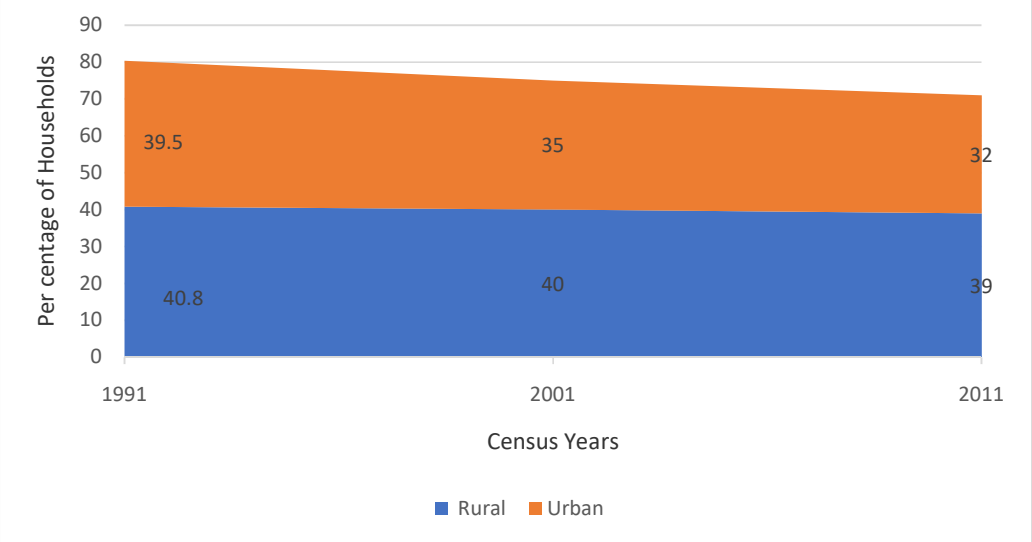
Table 4.5 describes the rural and urban households with their number of dwelling rooms. In the Census year 2001, 3.4 per cent of the rural households and 2.3 per cent of the urban households had no exclusive room for living. This data indicates that a higher proportion of rural households were living in congested dwellings. Among Indian households in 2001, 39.8 per cent of the rural and 35.1 per cent of the urban households had only one room for living, 30.2 per cent of the rural and 29.2 per cent of the urban households had house with 2 rooms. 13.3 per cent of the rural and 17.1 per cent of the urban households lived in house with 3 rooms. The proportion of households with one room and no exclusive room for living or in other words houses with space deprivation were more among rural households (43.2%) compared to the urban households. Moreover, to increase the disparity percentage of households with

four rooms and above were more among urban households (16%) compared to rural households (13.4%).

In the Census year 2011, 4.3 per cent of the rural and 3.1 per cent of the urban households had no exclusive room for living. Here 39.4 per cent of the rural and 32.1 per cent of the urban houses lived in one room houses. In 2011, 32.2 per cent of the rural and 30.6 per cent of the urban households lived in two room houses. Also 12.7 per cent of the rural and 18.4 per cent of the urban households lived in three room houses. The households living in houses with more than four rooms were 11.4 per cent in rural areas and 15.9 per cent in urban areas. The higher proportion of urban houses with more than four rooms indicates the poor conditions of rural houses.

In the Census years 2001 and 2011 number of houses with two rooms are found to be higher among rural households but the number of houses with three and four rooms are higher among urban households (Table 4.5). Average household size is more for rural household, but when it comes to the number of dwelling rooms, they lag urban households which is a clear indication of the congestion in rural houses. The rural poor households live in huts made of mud or government supplied houses made of brick or concrete with less floor area and only one or two small rooms.

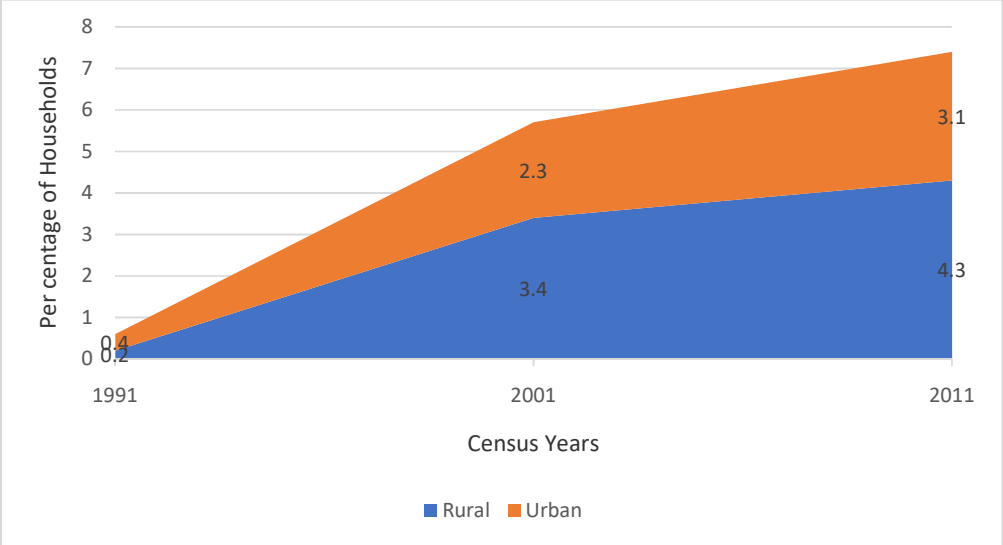
Fig 4.4
Trend of Rural and Urban Households with One Room for Dwelling in India



Source: Census Reports of 1991, 2001 and 2011

Figure 4.4 describes the trend of households with one room for living over the Census years 1991 to 2011. 1n the year 1991, 40.8 per cent of the rural households and 39.5 per cent of the urban households had one room for living. In 2001, 40 per cent of the rural households and 35 per cent of the urban households had one room for living. In 2011, 39 per cent of the rural and 32 per cent of the urban households had only one room for living. The urban households depicted a decreasing trend of one room for living whereas, the rural households exhibited a constant trend.

Fig 4.5
Trend of Rural and Urban Households with No Exclusive Room for Dwelling inIndia



Source: Census Reports of 1991, 2001 and 2011

Figure 4.5 narrates the percentage of households with no exclusive room for living in India from the year 1991 to 2011. In the year 1991 there were 0.4 per cent of the urban households and 0.2 per cent of the rural households with no exclusive room for living. In the year 2001, percentage of the rural households with no exclusive room for living increased to 3.4 per cent and that of the urban households to 2.3 per cent. In 2011, 4.3 per cent of the rural households and 3.1 per cent of the urban households did not have exclusive room for living displaying that the trend of the percentage of rural households with no exclusive room for living was higher than urban households in the Census years 2001 and 2011. Households with no exclusive room for living was increasing over the years among both rural and urban households.

The percentage of households with one dwelling room for living is higher among Indian rural households in the Census years 1991, 2001 and 2011.The households with no exclusive room were higher among rural households in 2001 and 2011 Census. This shows the persistent pattern of congestion among rural areas (Fig 4.3 and 4.4)**.**A low-income household lives in a small house, and the overcrowding due to increased household size makes the situation further worse by increasing congestion. The household congestion compromises the privacy, individual space, mental and physical well-being and productivity.

4.4.2.2 Number of Dwelling Rooms of Rural and Urban Households in Kerala

Despite the overall general development, pockets of housing deprivation such as overcrowding and congestion are present in all the villages in Kerala. Overcrowded human settlements which are equivalent to urban slums, with inadequate space and rooms are present in the rural areas of Kerala. The houses of rural poor are characterised by overcrowding and lack of enough private space (Gopikuttan, 2002).

Table 4.6
Rural and Urban Households with Number of Dwelling Rooms in Kerala
(Figures are in Percentages)

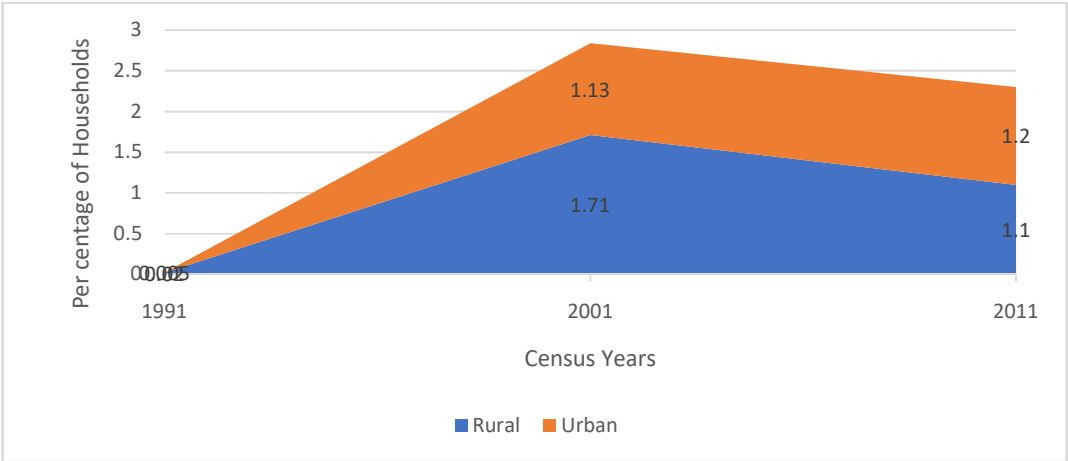
	2001		2011	
	Rural	Urban	Rural	Urban
No Exclusive Rooms	1.71	1.13	1.2	0.9
One room	11.58	9.05	8.1	6.3
Two rooms	27.72	23.7	26.7	23.3
Three rooms	27.12	27.87	32	32.4
Four rooms	17.71	20.05	20	21.4
Five rooms	7.91	9.63	7.2	8.6
Six rooms and above	6.24	8.9	4.8	7
Total	100	100	100	100

Source: Census Reports of 2001 and 2011

Table 4.6 describes the distribution of Kerala households with number of rooms in house. In the Census year 2001, 1.71 per cent of the rural households and 1.13 per cent of the urban households had houses with no exclusive rooms. 11.58 per cent of the rural households and 9.05 per cent of the urban households lived in one room house.

27.72 per cent of the rural households and 23.7 per cent of the urban households lived in two room houses. 27.12 per cent of the rural and 27.87 per cent of the urban households lived in houses with three room houses.31.86 per cent of the rural households and 38.58 per cent of the urban households lived in houses with four rooms and above. In the Census year 2011, 1.2 per cent of the rural households and 0.9 per cent of the urban households did not have an exclusive room in their house. 8.1 per cent of the rural households and 6.3 per cent of the urban households had one room houses for living, 26.7 per cent of the rural households and 23.3 per cent of the urban households lived in two roomed houses, 32 per cent of the rural and 32.4 per cent of the urban households lived in houses with three rooms. 20 per cent of the rural and 21.4 per cent of the urban households resided in houses with four rooms and above. In Kerala the rural households had a higher percentage of houses with no exclusive room, one room and two rooms for living both in Census 2001 and 2011. On the other hand, urban households had a higher percentage of houses with three and four rooms for living. Thus, it can be observed from the analysis that congestion in housing was very much evident in the rural areas of Kerala.

Fig 4.6
Trend of Rural and Urban Households with No Exclusive Room in Kerala



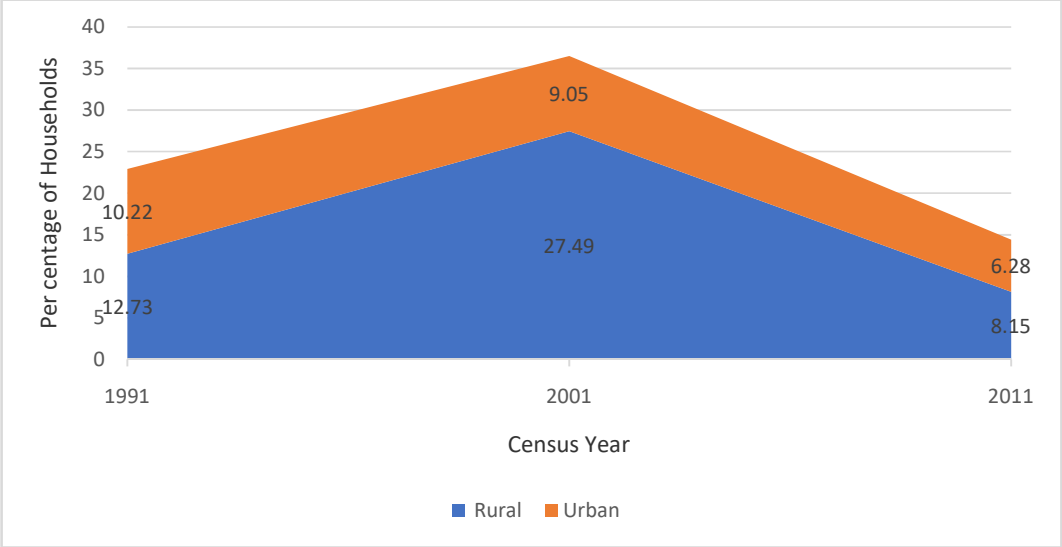
Source: Census Reports of 1991,2001 and 2011

Figure 4.6 explains the trend of the percentage of households having no exclusive room for living from the Census years 1991 to 2011. In the census of 1991, 0.02 per cent of the rural and 0.005 per cent of the urban households lived in houses with no exclusive

room for living. In the census of 2001,the percentage of rural households having no exclusive room for living increased to 1.71 per cent while it increased to 1.13 per cent among the urban households. In 2011 Census year the percentage of houses having no exclusive rooms decreased to 1.1 per cent among the rural households and 1.2 per cent among the urban households. At this juncture it can be observed that the rural – urban gap was persisting throughout the period of the 1991 to 2011.

Fig.4.7

Trend of Rural and Urban Households with One Room in Kerala



Source: Census Reports of 1991,2001 and 2011

Figure 4.7 explicates the trend of the percentage of households living in houses with one room for living. In the Census year 1991, 12.73 per cent of the rural households and 10.22 per cent of the urban households lived in one room houses. The rural urban disparity in 1991 Census further increased in 2001 Census. In 2001 Census 27.49 per cent of the rural households and 9.05 per cent of the urban households lived in one roomed house. The higher percentage of the rural households living in one room houses decreased to 8.15 per cent in 2011 Census but the rural urban disparity persisted withand no exclusive room were higher among the rural households which indicates that rural houses were deprived of adequate space in the house. It is to be noted here that the of rural houses in Kerala are too dense creating an unhealthy indoor environment. Which is substantiated in the existing literature.

4.4.3 Source of Lighting of the House among Rural and Urban Households in India and Kerala

Lighting of the house plays a key role in the economic, social, cultural and educational developments of a household. Main sources of lighting in India are electricity, kerosine, solar energy, and other oils. Rural households are deprived of quality source of light due to lack of complete electrification, whereas the urban dwellings are electrified almost completely. As per India Residential Energy Survey (IRES) 2020, nearly 97 per cent of the Indian households are electrified and those 2.4 per cent of the unelectrified households were mainly located in the rural areas (Agarwal and Sunil, 2020). Those without electricity resort to kerosine lamps, candles and lamps from other oils which are air polluting, dangerous, low in quality and costly. The costs of using fuel-based source of light like kerosine and non-rechargeable batteries may consume more than one third of the income of the poor household. Access to electricity empowers the household by providing opportunities for better health, education, economic progression, and recreation (Practical Action, 2010). The rural households of India lag urban households in availability of electricity which affected their well-being.

Table 4.7
Source of Lighting among Rural and Urban Households in India
(Figures are in Percentages)

	2001		2011	
	Rural	Urban	Rural	Urban
Electricity	44	88	55	93
Kerosine	56	12	43	6
Solar energy	0.28	0.24	0.5	0.2
Other oil	0.27	0.22	0.2	0.1
No Lighting	0.32	0.34	0.5	0.3
Total	100	100	100	100

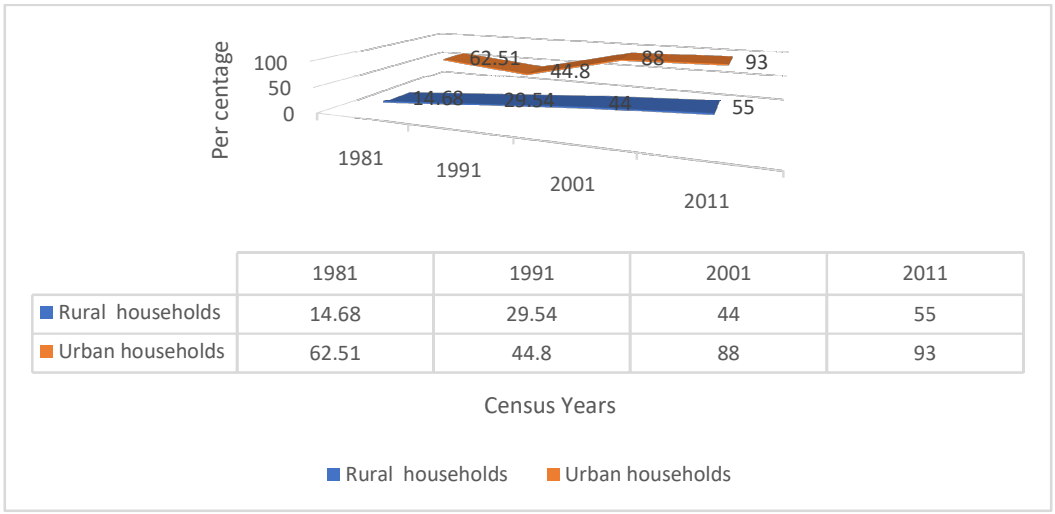
Source: Census Reports of 2001 and 2011

Table 4.7 explains the percentage of the rural and urban households using different sources of light. In the Census years of 2001 and 2011, more than 90 per cent of the rural households used electricity and kerosine as the source of light. In the Census 2001, 44 per cent of the rural households used electricity whereas about 88 per cent of the urban households were using electricity. 56 per cent of the rural households

usedkerosine as the source of light while only 12 per cent urban households used kerosine as the source of light. Electricity was the major source used by majority of the urban households whereas kerosine was the major source used by rural households in India**.** 0.28 per cent of the rural and 0.24 per cent of the urban households relied on solar power for light. 0.27 per cent of the rural and 0.22 per cent of the urban households used other oils as source of light.

In the Census year 2011, electricity was used as the source of light by majority of the rural and urban households. However, the rural urban gap was maintained even during 2011 Census with the 55 per cent of the rural households and 93 per cent of the urban households using electricity. 43 per cent of the rural households used kerosine for light whereas only 9 per cent of the urban households used kerosine. The use of kerosine as source of light during the years from 2001 to 2011 decreased to 6 per cent from 12 per cent among urban households where as among rural households it declined to 43 per cent from 56 per cent. Lack of electricity in rural households is one of the reasons for its poor socio-economic development compared to urban households.

Fig. 4.8
Trend of Electrification of Rural and Urban Households in India



Source: Census Reports of 2001 and 2011

Figure 4.8 elucidates the trend of the availability of electricity among the houses of rural and urban households. In the Census year 1981, 14.68 per cent of the rural

households and 62.51 per cent of the urban households had electricity connection. In the Census year 1991, the wide rural- urban disparity in electricity connection was reduced but it still persisted with 29.54 per cent among rural households and 44.8 per cent among urban households. In the year 2001, 44 per cent of the rural households and 88 per cent of the urban households had electricity connection. This further increased to 55 per cent and 93 per cent in rural and urban households respectively. Rural households and urban households depicted an increase in electrification over the years and yet the rural-urban disparity continued to exist. The rural-urban disparity in the percentage of electrification among Indian households for the Census years 1981, 1991, 2001, 2011 were 47.83 per cent, 15.26 per cent, 44 per cent, 33 per cent respectively. On account of prolonged negligence of rural areas there was deficiency of basic services and infrastructure which required electricity installation.

Table 4.8
Sources of Lighting among Rural and Urban Households in Kerala
(Figures are in Percentages)

	2001		**2011**	
	Rural	Urban	Rural	Urban
Electricity	65.5	84.38	92.1	97.19
Kerosine	33.8	15.12	7.4	2.81
Other Sources	0.7	0.5	0.5	0.1
Total	100	100	100	100

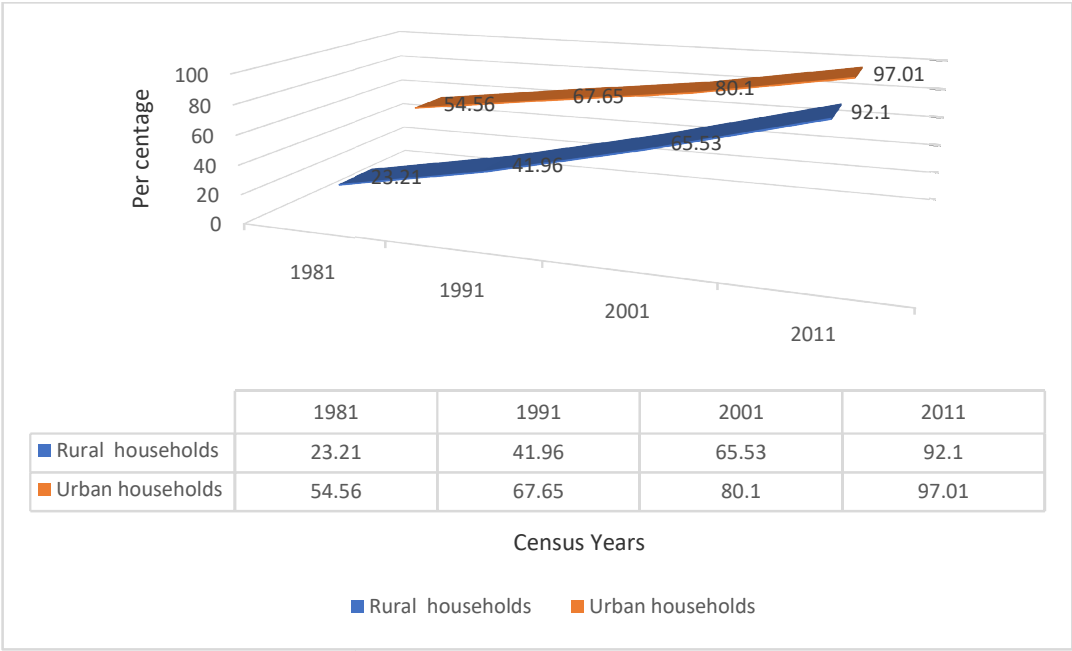
Source: Census Reports of 2001 and 2011

Table 4.8 elucidates the different sources of lighting used by the rural and urban households in the Census years 2001 and 2011. Electricity and kerosine were the predominant sources of light used in Kerala. More than 90 per cent of the rural as well as the urban households in 2011 used electricity as the major source of light. In the Census year 2001, 65.5 per cent of the rural households and 84.38 per cent of the urban households used electricity as the source of lighting. With regard to use of kerosine as source of lighting, 33.8 per cent of the rural households and 15.12 per cent of the urban households used kerosine for lighting. When rural and urban households were compared, higher percentage of the urban households used electricity whereas higher percentage of the rural households used kerosine. This finding of the present analysis

points out to the observation that there was a clear evidence of fuel deficiency in rural households.

In 2011 Census, the 92.1 per cent of the rural households used electricity with an increase in the use of electricity from 2001Census. The urban households using electricity was higher (97.19%) in 2011Census in comparison with rural households. 7.4 per cent of the rural households and 2.81 per cent of the urban households used kerosine as the source of lighting. A higher proportion of rural households used kerosine as the source of lighting in comparison to urban households.

Fig. 4.9
Trend of Electrified Rural and Urban Households in Kerala



	1981	1991	2001	2011
Rural households	23.21	41.96	65.53	92.1
Urban households	54.56	67.65	80.1	97.01

Source: Census Reports of 1981, 1991, 2001 and 2011

Figure 4.9 depicts the trend of the use of electricity by the rural and the urban households from 1981Census to 2011 Census. In the year 1981, 23.21 per cent of the rural households and 54.56 per cent of the urban households had electricity connection. The availability of electricity increased in 1991 to 41.96 per cent among the rural households and 67.65 per cent among the urban households. However, the rural urban gap was persisting. The households with electricity connection further increased in 2001 to 65.53 per cent among the rural households and to 80.1 per cent among the urban households. In the year 2011 electricity connection rose to 92.1 per cent among

the rural households and to 97.01 per cent among the urban households. Rural and urban gap in the availability of electricity was small compared to the national level but the rural areas were lagging behind urban areas in all four Census periods. The rural urban disparity in electricity was 31.35 per cent, 25.69 per cent, 14.57 per cent, 4.91 per cent in 1981,1991, 2001 and 2011 respectively.

4.4.4 Availability of Latrines among the Rural and Urban Households in India and Kerala

Sanitation is defined as the "safe management of human excreta, including its safe confinement treatment, disposal and associated hygiene related practices"(Government of India, 2018). Preventing open defecation by constructing individual household latrines are a primary step in achieving proper sanitation. According to the Census of India, households had water closet latrine, pit latrine, and other type of latrine. Majority (70.3%) of the households especially rural households did not have latrine. They relied on open defecation or public toilets for relieving themselves. In rural areas, open defecation is a traditional behaviour that is culturally and socially accepted. Lack of awareness of the economic, social and health benefits of proper sanitation practices and high costs refrains poor households from building a toilet. Government of India implemented Total Sanitation Programme in 1999 to achieve open defecation free rural India and where individual household latrine was a major component of Total Sanitation Programme. In 2012 Nirmal Bharath Abhiyan with a goal of access to better sanitation facilities to rural areas improved the sanitation in rural areas and has benefited the rural households by increasing social status and dignity, improved health, increase in productivity, poverty alleviation, decreased school dropouts, improved water quality, privacy, safety and comfort. India has made rapid progress in ending open defecation across the country, which significantly impacted improving water, sanitation, and hygiene (hereafter WASH). In 2015, nearly half of the population of around 568 million people suffered from the indignity of defecating in fields, forests, bodies of water or other public spaces due to a lack of access to toilets. India alone accounted for 90 per cent of the people in South Asia and half of the 1.2 billion people in the world that defecated in the open. Open defecation has historically been most prevalent among the poorest citizens in the cities or the countryside. To

tackle the problem of open defecation, Central government launched the programme Swatch Bharath Mission in the year 2014. The programme led to the construction of over 10 crore individual household toilets and 6 lakh villages were declared free from open defecation. Swatch Bharath Mission Gramin (hereafter SBM-G) which focussed on providing individual household latrines led to significant economic, environmental and health impacts on rural households(Government of India, 2023). Poor sanitation hindered national development because workers were suffering from illnesses and living shorter lives, producing, and earning less, and unable to afford education and stable futures for their children. Inadequate water, sanitation and hygieneservices in India's health facilities contributes to the high neonatal mortality rate, which is currently 24 deaths per 1000 live births (United Nations, 2011).

4.4.4.1 Availability of Latrine among Rural and Urban households in India

India has a long-standing history of improper sanitation. Open defecation and contamination of water bodies which led to various waterborne diseases is a major health and economic issue faced by the rural population in India. Lack of adequate toilets for households is the prime reason for open defecation. The toilets bestow a household's hygiene as well as dignity. All the studies reviewed substantiate the finding that the availability of latrines is more common in urban areas than in rural areas. In rural areas economic, social, cultural and behavioural patterns promote open defecation which minimises their need for individual household toilets. Lack of sufficient toilets among rural households makes them prone to adverse health conditions due to unhygienic environment. Globally, India has the largest number of people of about 594 million which is close to half the population of the country, who practises open defecation. The Swatch Bharath Mission launched in 2014, an extensive programme to eliminate open defecation resulted in 500 million people and over 6,30,000 villages to become open defecation free.

Table 4.9

Latrines in the Houses among Rural and Urban households in India

(Figures are in Percentages)

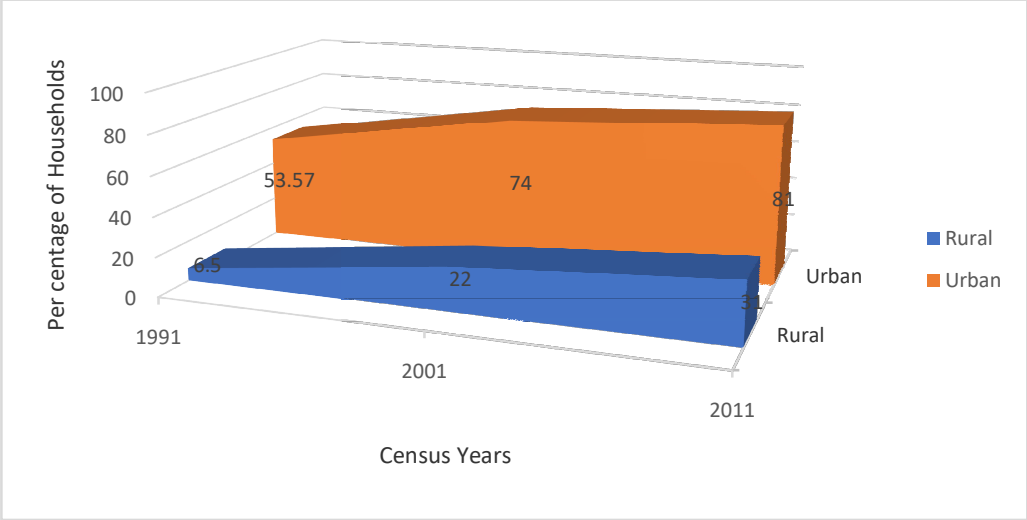
	2001		2011	
	Rural	Urban	Rural	Urban
Water Closet	7.1	46.1	19.4	72.6
Pit Latrine	10.3	14.6	10.5	7.1
Other Latrine	4.5	13	0.8	1.7
No Latrine	69.3	26.3	78.1	18.6
Total	100	100	100	100

Source: Census Reports of 2001 and 2011

Table 4.9 describes the type of latrines used by Indian households which depicts the wide disparity among rural and urban households. According to the Census of the year 2001, 69.3 per cent of the rural households did not have latrine whereas 26.3 per cent of the urban households were devoid of latrine. This elucidates that of the households in rural areas practised open defecation. Water closet latrine was used by 46.1 per cent of the urban households but only 7.1 per cent of the rural households used it. Pit latrine was used by 10.3 per cent of the rural households and 14.6 per cent of the urban households. 4.5 per cent of the rural households and 13 per cent of the urban households used other types of latrines. There was wide disparity between urban households and rural households in the availability of latrine. As per 2011 Census the rural-urban gap in the availability of toilets widened. 78.1 per cent of the rural household did not have own latrines whereas 18.6 per cent of the urban households did not own a latrine. The percentage of rural households without latrine increased by 8.8 percentage point. On the other hand, urban households without latrine declined by 7.7 percentage point. Among rural households 19.4 per cent of the households owned water closet latrine. But on the contrary, 72.6 per cent of the urban households owned water closet latrine. Pit latrine was used by 10.5 per cent of the rural households and 7.1 per cent of the urban households. Other types of latrines were used by 0.8 per cent of the rural households and 1.7 per cent of the urban households. The rural urban disparity was quite striking in 2011 Census also.

Fig.4.10.

Trend of Availability of Latrine in the Rural and Urban Households of India



Source: Census Reports of 1991, 2001 and 2011

Figure 4.10 explicates the availability of latrine in the households of India in rural and urban areas over the Census years 1991,2001 and 2011. 1n 1991, 6.5 per cent of the rural households and 53.57 per cent of the urban households had latrine. The households with latrine increased to 22 per cent in rural areas and 74 per cent in urban areas. The percentage of houses with latrines increased further in 2011 Census to 31 per cent among the rural households and 81 per cent among the urban households. The rural-urban gap in the toilet facility was persisting through the years. The rate of progression of sanitation facilities for rural sector was not in par with the urban sector.

4.4.4.2 Availability of Latrine in theRural and Urban Households of Kerala

Kerala has achieved open defecation free status but the toilets in Kerala especially in rural Kerala are in poor condition. The Total Sanitation Campaign in Kerala was coordinated and monitored by Kerala Total Sanitation and Health Mission. In 2004 Government of Kerala launched Clean Kerala Mission providing technical support and fund to Local governments. Later Suchitwa Mission started in 2008 which aimed to ensure that all rural and urban families to have access to toilets by building individual household latrines and community sanitary complexes. Suchitwa Mission is

the nodal agency for implementing Swatch Bharath Mission in rural as well as urban areas.

Table 4.10
Latrines in the Houses among Rural and Urban households in Kerala
(Figures are in Percentages)

	2001		2011	
	Rural	Urban	Rural	Urban
Water Closet	62	74.8	59.1	75.3
Pit Latrine	12.8	11.8	34	21.9
Other Latrine	6.6	6.2	2	0.3
No Latrine	18.7	8	6.8	2.6
Total	100	100	100	100

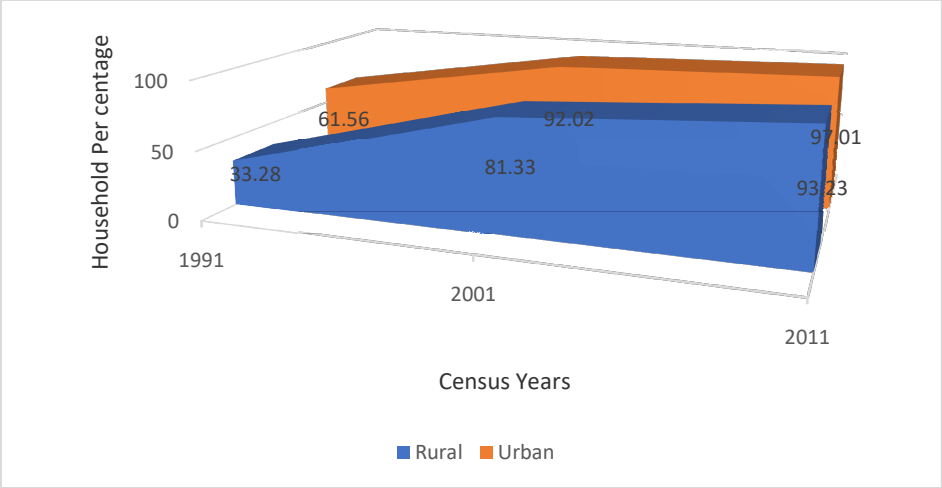
Source: Census Reports of 2001 and 2011

Table 4.10 manifests the different types of latrines used in Kerala during Census years 2001 and 2011. In the Census year 2001 water closet latrine was used by 62 per cent of the rural households and 74.8 per cent of the urban households. Pit latrine was used by 12.8 per cent of the rural households and 11.8 per cent of the urban households. Other types of latrines were used by 6.6 per cent and 6.2 per cent by the rural households and the urban households respectively. There were 18.7 per cent of the rural households with no latrine facility and 8 per cent of the urban households with no latrine facility. In the Census year 2011, 59.1 per cent of the rural households and 75.3 per cent of the urban households used water closet latrine. Pit latrine was used by 34 per cent of the rural households and 21.9 per cent of the urban households. Other types of latrines were used by 2 per cent of the rural households and 0.3 per cent of the urban households. 6.8 per cent of the rural households and 2.6 per cent of the urban households did not have latrine facility.

In Kerala a higher percentage of the urban households used water closet latrine as compared to rural households. The households with no latrine were more among the rural households. The rural household's achievements in proper sanitation practices were lagging behind the urban households. This adversely affected the overall development of the household.

Fig. 4.11

Trend of Availability of Latrine among Rural and Urban households in Kerala



Source: Census Reports of 1991, 2001 and 2011

Figure 4.11 explicates the availability of latrine in the households of Kerala in rural and urban areas over the Census years 1991, 2001 and 2011. 1n 1991, 33.28 per cent of the rural households and 61.56 per cent of the urban households had latrine. The households with latrine increased to 81.33 per cent in rural areas and 92.02 per cent in urban areas during the Census year 2001. The percentage of houses with latrines increased further in 2011 Census to 93.23 per cent among the rural households and 97.01 per cent among the urban households. The rural-urban gap in the availability of latrines in the households of Kerala was much below the national level. In Kerala, the percentage gap in the availability of latrine during the Census year 1991 was 28.28 percentage point. The percentage gap further declined to 10.69 percentage point and 3.78 percentage point during the Census years 2001 and 2011 respectively. Howsoever the gap continued to exist. Even though latrine facilities were available, the condition of the same were below par in the rural households of Kerala. Most of the latrines in the rural areas did not have tap water facilities, leading to unhygienic conditions. The rural households also had to face the problem of water scarcity because of which they had to store water for toilet usage, washing dishes, washing clothes and for bathing. The Panchayaths provided drinking water either one time a day on daily basis or on alternate days to most of the rural households. This reveals that in Kerala in spite of the

progression in sanitation facilities in rural areas was not in par with the urban areas with respect to the conditions.

4.4.5 Drinking Water – Source and Location among Rural and Urban Households in India and Kerala

Drinking water is one among the crucial primary needs of a household. Access to safe and adequate drinking water is essential for the overall socio-economic development of the household as well as it is pivotal in maintaining a healthy household environment. Safe drinking water has a direct effect on the economy of household, health of the household members and child mortality and morbidity.

The sources of drinking water for both the urban and rural households are tap water, hand pump, tube well, well, tank, pond, lake, river and canal. Majority (80%) of the households relied on well, tap tube well and hand pump for their use. The water from tap water, tube well and hand pump were taken as safe sources which ensures quality drinking water. The sources of drinking water, the availability of safe drinking water and the location of drinking water are discussed below.

4.4.5.1 Sources of Drinking Water for the Rural and Urban Households in India

The availability of safe drinking water powers the economy by erasing the economic burden of waterborne diseases. India is affected by extreme water depletion and faces the challenge of the fast rate of ground water depletion. When a household do not have the availability of water within the premises of the houses, it will indirectly affect the education of children and productivity of the household. Less than 49 per cent of rural population in India was using safely managed water. Safely managed drinking water is improved water supply located in premises and available when needed and free of contamination.

Table 4.11
Sources of Drinking Water among Rural and Urban Households in India

(Figures are in Percentages)

	2001		2011	
	Rural	Urban	Rural	Urban
Tap	24.3	68.7	30.9	70.6
Hand Pump	43.2	16.2	43.6	11.8
Tube Well	5.7	5.1	8.28	8.9
Well	22.2	7.7	13.3	6.2
Tank Pond Lake	1.3	0.3	1.06	0.4
River Canal	1.3	0.2	0.84	0.2
Spring	0.9	0.2	0.71	0.2
Others	1	1.5	1.36	1.7
Total	100	100	100	100

Source: Census Reports of 2001 and 2011

Table 4.11 gives a vivid explanation of the various sources of drinking water for the urban and the rural households in the Census years 2001 and 2011. In the Census year 2001, 24.2 per cent of the rural households and 68.7 per cent of the urban households used tap water for drinking purpose. Handpump as a source of drinking water was used by 43.2 per cent of the rural households. It was used by only16.2 per cent of the urban households. More than double the proportion of the rural households (22.2%) used well in comparison with the urban households (7.7%). Tube well water was used for drinking by 5.7 per cent of the rural households and 5.1 per cent of the urban households. The other sources like tank, pond, lake, river canal and spring were used for drinking water by 4.5 per cent of the rural households and 2.2 per cent of the urban households. As per Census 2011, 30.9 per cent of the rural households and 70.6 per cent of the urban households used tap water for drinking. 43.6 per cent of the rural households and11.8 per cent of the urban households used handpump water for drinking purpose. 8.28 per cent of the rural households and 8.9 per cent of the urban households used tube well for drinking water.13.3 per cent of the rural households and 6.2 per cent of the urban households used well water for drinking. The other sources

like tank, pond, lake, river, canal and spring were used for drinking water by 3.9 per cent of the rural households and 2.5 per cent of the urban households.

The main sources of drinking water in India are tap water, hand pump, well and tube well. The urban areas showed a decline in the use of hand pump and an increase in the use of tube well. On the other hand, rural areas showed a decline in the use of well water and an increase in the use of tube well over the period from 2001 to 2011(Table 4.17). The urban households have a greater availability of safe drinking water due to their access to tap water. As per 2001 and 2011 Census more than double urban households in proportion with rural households used tap water for drinking.

4.4.5.2 Sources of Drinking Water for the Rural and Urban Households in Kerala

Geographically Kerala has plenty of water resources and is one of the few states which experiences both north east and south west monsoon. However, due to large special and temporal variation in the rainfall system the abundance of water resources in one season leads to shortage in the next season. Moreover, the undulating topography with steep terrain coupled with deforestation and sand mining results in the decline of ground water recharges, surface soil erosion in watersheds, sedimentation in rivers and drought in summer. Availability of safe drinking water is still a daunting problem for the state of Kerala (Government of 2013). Demand for water is rising due to rapid population growth, urbanisation, agriculture, industry and the energy sector. Scarcity of safe drinking water has effects on the overall health and economic progression of the society. In Kerala the main sources of drinking water are well, tap water and tube well. There has been an increase in use of tube well both in urban and rural areas since the Census years 2001 and 2011. However well remains as the major source of drinking water in Kerala.

Table 4.12
Sources of Drinking Water among Rural and Urban Households in Kerala
(Figures are in Percentages)

	2001		2011	
	Rural	Urban	Rural	Urban
Tap	13.9	39.9	26.52	36.43
Hand Pump	1.18	1.02	0.43	0.63
Tube Well	1.8	2	3.49	3.93
Well	77.2	56	70.13	61.48
Tank Pond Lake	1	0.2	1.21	0.17
River Canal	0.7	0.1	0.35	0.07
Spring	2.5	0.1	2.58	0.07
Others	1.8	0.9	2.71	1.42
Total	100	100	100	100

Source: Census Reports of 2001 and 2011

Table 4.12 explains the source of drinking water for urban and rural regions for the Census year 2001 and 2011.There was an increase in use of tube well both in urban and rural areas since the Census years 2001 and 2011, but well remains the major source of drinking water in Kerala.

As per 2001 Census 77.2 per cent of the rural households and 56 per cent of the urban households used well as a source of drinking water. 13.9 per cent of the rural households and 39.9 per cent of the urban households used tap water for drinking. It was analysed that 2.98 per cent of the rural households and 3.02 per cent of the urban households used hand pump and tube wells for drinking water. It was further analysed that six per cent of the rural households and 1.3 per cent of the urban households depended on water from tank, pond, lake, river, canal, spring and other sources for drinking.

As per 2011 Census, well water was used for drinking purpose by 70.13 per cent of the rural households and 61.48 per cent of the urban households. Tap water was used for drinking by 26.52 per cent of the rural households and 36.43 per cent of the urban households. 3.92 per cent of the rural and 4.56 per cent of the urban households

used hand pump and tubewell for drinking water. A high density of wells was present in Kerala which is a clear indication of the dependence on ground water by the people of Kerala. The ground water levels have declined due to high dependence. A higher proportion of rural households used well water for drinking purpose.

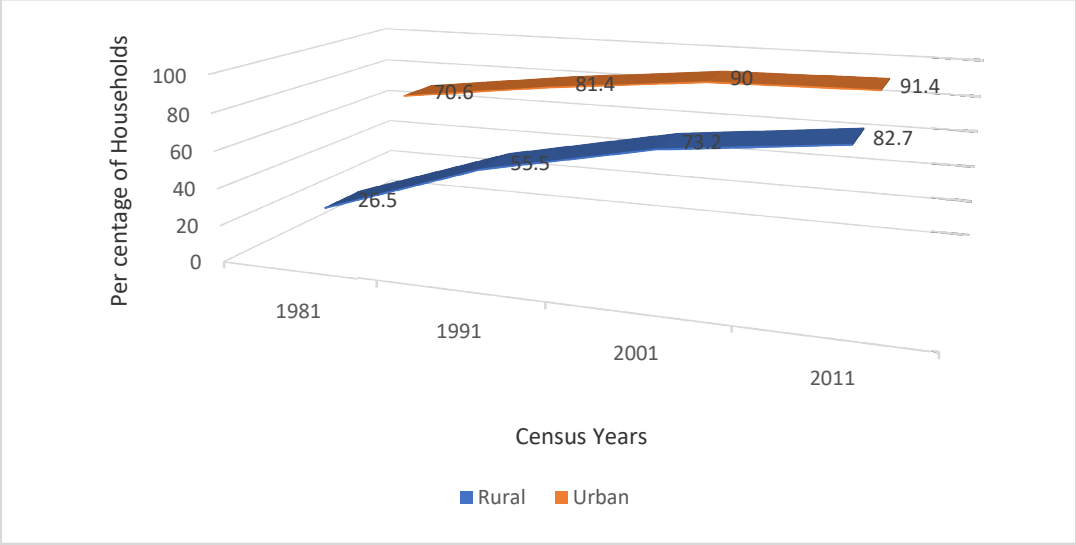
4.4.5.3 Safe Drinking Water among Rural and Urban Households in India

Safe drinking water ensures healthy living and well-being of households. United Nations Sustainable Development Goal 6.1 aimed to provide universal and equitable access to safe and affordable drinking water to all by 2030. The main impediment in reaching this goal was the sheer rural urban gap in safe drinking water supply. Bringing safe drinking water to every household was a challenge to India especially in the rural areas.

Joint Monitoring Programme 2017 has developed a simple improved and non-improved classification and a new ladder to divide source of drinking water into safely managed, basic limited, un-improved and no service. Improved water source is a source with design which prevents contamination. Un-improved sources are sources which do not protect against contamination and they are river, ponds and lakes. Government of India started Jal Jeevan Mission and Har Ghar Jal Project in 2019 to ensure safe drinking water to all rural households.

Ensuring safe drinking water to all households is a significant challenge in India. The rural households lag urban households in the availability of safe drinking water.

Fig.4.12
Trend of Safe Drinking Water among Rural and Urban Households in India



Source: Census Reports of 1981, 1991, 2001 and 2011

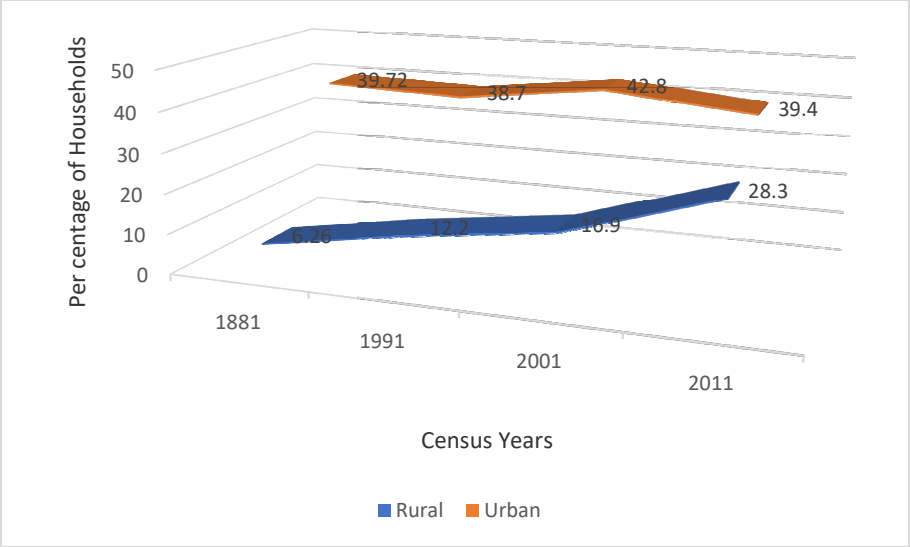
The availability of safe drinking water in India was steadily increasing over the years, but the rural urban gap was still persisting even in the Census data of the year 2001 (Figure 4.12). The rural urban gap in safe drinking water was 49.10 per cent in 1981 and was 8.7 per cent in the year 2011. Even though there was narrowing of the difference, there was considerable gap even after 30 years. The rural areas were deprived of safe drinking water which affected the well-being of the households and socioeconomic progression of the households.

4.4.5.4 Safe Drinking Water among Rural and Urban Households in Kerala

Safe drinking water remains out of reach for more than 65 per cent of the households in the State. Only 29.3 per cent of the houses in the State were serviced by the tap water supply network and just 34 per cent gets safe water supply which is 52 per cent less than the national average and 57 and 59 per cent less than the neighbouring states like Andhra Pradesh and Tamil Nadu respectively. The rural-urban gap was also widening, total urban population getting safe water to the total population has been reduced from 42.85 per cent in 2001 to 39.4 per cent in 2011.

Fig 4.13

Trend of Safe Drinking Water among Rural and Urban Households in Kerala



Source: Census Reports of 1981, 1991, 2001 and 2011

In Kerala the rural urban gap was persisting in the availability of safe drinking water. A higher percentage of urban households had access to safe drinking water since majority of rural households rely on well for drinking water. In the Census year 1981 the gap was 33.46 per cent and in 2011 the gap got reduced to 11.10 per cent (Fig 4.13).

4.4.5.5 Location of Drinking Water among Rural and Urban Households in India

Access to safe drinking water in India varies significantly across different regions and communities. While urban areas generally have better access to treated and piped water supply systems, rural areas often rely on groundwater, hand pumps, or community wells, which may not always be safe or reliable. Several government initiatives, such as the National Rural Drinking Water Programme (NRDWP) and the Jal Jeevan Mission (JJM), aim to provide safe drinking water to all households in India. These programs focus on improving infrastructure, promoting water conservation, and ensuring water quality testing and treatment. In urban areas, drinking water is typically supplied through municipal water supply systems, which draw water from surface water sources like rivers, lakes, or reservoirs, and treat it before distribution. However,

challenges such as water contamination, leakages in distribution systems, and inadequate infrastructure can still exist in many urban areas. Though progress has been made in improving access to drinking water in India, ensuring universal access to safe and reliable drinking water remains a significant challenge, particularly in remote rural areas and informal urban settlements.

Table 4.13
Location of Drinking Water among Rural and Urban Households in India

	2001		2011	
	Rural	Urban	Rural	Urban
Within Premises	29	65	35	71.2
Near the Premises	52	25	43	21
Away From the Premises	19	9	22	8
Total	100	100	100	100

Source: Census 2001 and 2011

Table 4.14 describes the location of drinking water in India among rural and urban households. 29 per cent of the rural and 65 per cent of the urban households in the Census year 2001 had access to drinking water with in their premise. Here the rural-urban gap was 36 per cent and the same gap was persisting in the Census year 2011. This vividly express that the development in rural areas were static.

4.4.5.6 Location of Drinking Water in Kerala among Rural and Urban Households

In Kerala, like in many other states in India, the availability and access to drinking water can vary based on factors such as urbanization, infrastructure development, and natural resources. Kerala has made significant strides in providing access to safe drinking water to its population through various government initiatives and community-based projects. In urban areas of Kerala, drinking water was typically supplied through municipal water supply systems. These systems often draw water from the surface water sources like rivers, lakes, or reservoirs and treat it before distribution to households and businesses. In rural areas, the situation can be different. Many rural communities in Kerala relied on groundwater sources such as wells, boreholes, or hand pumps for their drinking water needs. However, the quality and quantity of groundwater can vary, and some areas may face challenges such as contamination or depletion of groundwater resources. The Kerala government has

implemented programs to address these challenges and improve access to safe drinking water across the state. Initiatives such as the Kerala Rural Water Supply and Sanitation Project (KRWSSP) aim to provide sustainable water supply systems to rural communities, including those in remote areas. Community participation and involvement are also emphasized in many water supply projects in Kerala, with local communities playing a role in decision-making, management, and maintenance of water supply infrastructure. At this juncture it has to be observed that though Kerala has made progress in ensuring access to safe drinking water, continued efforts are needed to address challenges such as water quality, sustainability, and equitable access, particularly in rural and marginalized communities.

Table 4.14
Location of Drinking Water among Rural and Urban Households in Kerala
(Figures are in Percentages)

	2001		2011	
	Rural	Urban	Rural	Urban
Within Premises	69.1	78.93	72.9	83.8
Near the Premises	17.39	13.64	16.3	11.5
Away From the Premises	13.49	7.42	10.8	5.2
Total	100	100	100	100

Source: Census Reports of 2001 and 2011

Table 4.14 exhibits that 69.1 per cent of the rural and 78.9 per cent of the urban households, during the Census year 2001, had access to drinking water within their premises. Here the rural-urban gap was almost 10 per cent but this gap has increased to 10.9 per cent in the Census year 2011.72.9 per cent rural households have access to drinking water in their premises, whereas 83.3 per cent urban households have access to drinking water with in their premises. The proportion of households with drinking water with in their premises are higher among urban households. When the data on proportion of households having drinking water away from premises rural households show a higher percentage. In the census year of 2001, 13.49 per cent rural households and 7.42 urban households have drinking water away from the premises. In the census year 2011, 10.8 per cent rural households and 5.2 per cent urban households have drinking water source away from the premises. This shows that the rural areas have more challenges than the urban areas in providing drinking water.

4.4.6 Structure of House among Rural and Urban Households in India and Kerala

The socio-economic, cultural, climatic and geographical factors play a crucial role in deciding the types of rural house. There is a marked difference between the houses built in rural and urban regions, which is mainly due to the socio-economic disparity. The availability and cost of building material is an important factor which increases the rural-urban difference in housing. Rural areas have more houses built with low cost and low strength materials like mud, bamboo, and unburnt bricks. Rural households built houses with regionally available materials like wood, bamboo, grass, mud and stone. These types of houses need to be built or repaired frequently or yearly which eventually affected the socioeconomic progression of the household. The economic inequality of rural and urban areas was reflected in their housing too. Reducing rural housing shortage and improving quality of housing is an important component of the poverty alleviation strategy of the government (Government of India, 2021). The type of house structure, the material of house construction and the condition of houses for living are discussed here. The houses are divided into pucca and kutcha houses based on their material. Pucca houses were built with durable materials like cement, concrete, burnt bricks and stone whereas, kutcha houses were made of bamboo, mud, grass, reed, thatch, straw, reeds and unburnt bricks. Kutcha houses were more in rural areas and informal urban settlements. Households living under kutcha houses were more prone to natural calamities, lack of essential amenities and lack of security. On the other hand, households residing in pucca houses had better living conditions, higher asset value and a strong and stable shelter. Pucca house was also associated with better financial condition and acceptability in the society.

Cement houses have positive impacts on socioeconomic status and gender inequalities of the households. Cement houses help to wipe out socio-economic differences among groups and uproot the marginalised to the mainstream. Cement provided fast, feasible, strong and long-lasting solution to the housing crisis in India. Housing programmes like IAY and PMAY promoted use of cement as building material. Pucca houses required less maintenance work which decreased the workload of womenfolk and eventually led to women empowerment. Poor rural households

found it difficult to build a cement house due to financial constraints (Menon, 2023). The cost of building materials comprised more than 75 per cent of total house construction cost among low-income households.

4.4.6.1 Type of Housing Structure among Rural and Urban households in India

The Censuses of 2001 and 2011 have classified the houses as permanent, semi-permanent and temporary based on the material used to build the roof and wall. (a) Permanent houses: Houses in which both wall and roof were made of permanent materials like burnt bricks, GI sheets or other metal sheets, stone or cement. Roof may be made of tiles, slate, shingle, corrugated iron, zinc or other metal sheets, asbestos cement, bricks, lime, and stone. (b) Semi-permanent houses: Houses in which either wall or roof was made of permanent materials and the other was made of temporary material. (c) Temporary houses: Houses in which both wall and roof were made of materials which have to be replaced frequently. Wall may be made of grass, leaves, reeds, bamboo, mud, un-burnt bricks, or wood Roof may be made of grass, leaves, bamboo, thatch, unburnt bricks or wood. (d) Serviceable temporary houses: Temporary houses in which walls were made of mud, un-burnt bricks or wood. (e) Non serviceable temporary houses: Temporary houses are houses in which wall was made of grass, leaves, reeds or bamboo.

The shortage of houses in rural India was mainly due to the temporary obsolete houses. The number of permanent and the temporary houses increased among the rural and the urban households during the years 2001 to 2011 period. There was improvement in housing over the years but the rural-urban difference was continuing.

Table 4.15
Type of housing structure among Rural and Urban Households in India
(Figures are in Percentages)

	2001		**2011**	
	Rural	Urban	Rural	Urban
Permanent	41	79.2	51.36	84.28
Semi-permanent	35.8	15.5	31.48	11.6
Temporary	23.2	5.3	16.16	3.18
Temporary Serviceable	14.8	3.3	9.67	1.92
Temporary Non-serviceable	8.4	2	6.48	1.25
Total	100	100	100	100

Source: Census Reports of 2001 and 2011

The table 4.15 describes the rural and the urban households living in permanent, semipermanent and temporary types of houses in the Census years 2001 and 2011. The Census year 2001 exhibited the type of housing structure or material used in house construction among the rural and the urban households of India, indicating that that there was remarkable difference between them and that the rural households were lagging far behind the urban households. The urban households possessed a higher percentage of permanent houses (79.2%) compared to the rural households (41%). Rural areas had higher percentage of households living in semi-permanent houses with 35.8 per cent compared to the 15.5 per cent of the urban households living in semi-permanent houses. It was analysed that 23.2 per cent of the rural households were living in temporary houses compared to 5.3 per cent of the urban households, living in temporary houses. It was evident from the data that the housing condition in the rural areas of Kerala was backward or poor.

In the Census year 2011, the rural households having permanent houses increased to 51.36 per cent, while the permanent houses among the urban households increased to 84.28 per cent. The rural households living in semi-permanent houses fell to 31.48 whereas the urban households living in semi-permanent houses rose to 11.6 per cent. While only 3.18 per cent of the urban households lived in temporary houses, the percentage of the rural households who lived in temporary houses were 16.16 per cent. The rural-urban variation was high with respect to households living in temporary houses.

As per 2001 and 2011 Censuses, the rural households in India owned a higher percentage of semi-permanent and temporary structured houses in comparison with urban households. However urban households owned a higher percentage of permanent houses. The rural deprivation in housing was quite evident from this data.

Table 4.16
Material of Houses construction Among the Ruraland Urban Households in India
(Figures are in Percentages)

	2001		2011	
	Rural	Urban	Rural	Urban
Material Used for Walls				
Grass/Thatch/Bamboo/Wood/Mud	5.27	3.71	2.04	1.19
Plastic/Polythene	0.268	0.24	6.51	0.32
Mud Unburnt Brick	27.05	14	15.05	7.54
Wood	1.29	1.8	0.86	0.97
Stone	33.01	34.96	23.5	25.6
G.I./Metal/Asbestos	0.48	0.38	0.17	0.17
Burnt bricks	28.48	41.42	53.54	60.62
Concrete	2.95	2.77	2.81	2.91
Any other material	1.28	0.72	1.33	0.58
Material of Roof construction				
Grass/Thatch/Wood/Mud, etc	27.7	7	20	4.6
Plastic/Polythene	0.4	0.8	0.6	0.6
Tiles	37.6	19.7	28.7	13.7
Burnt brick	5.6	5.6	7.2	5.4
Stone/Slate	7.3	7.8	8.9	7.9
G.I./Metal/Asbestos	9.8	16.1	15.9	15.9
Concrete	11	42.5	18.3	51.9
Any Other Material	0.6	0.6	0.37	0.4
Material of Floor Construction				
Mud	70.3	16.7	62.6	12.2
Wood/bamboo	1	0.6	0.7	0.4
Burnt bricks	2.3	3.2	2.3	2.4
Stone	4.6	8.9	6.2	12.2
Cement	19.3	49.6	24.2	45.8
Mosaic/Floor Tiles	2.3	20.3	3.7	25.9
Any Other Material	2.3	0.7	0.2	1

Source: Census Reports of 2001 and 2011

Table 4.16 Classifies households based on the material used to build wall, roof and floor of their houses. The percentage of rural and urban households with different materials used to build wall, roof and floor for the Census years 2002 and 2011 are explained in table 4.25. The materials used to build walls are burnt brick, stone, mud/unburnt brick, grass, thatch, bamboo, wood, mud and concrete. As per Census year 2001, 5.27 per cent of the rural households had built houses with walls made of grass, thatch, bamboo whereas only 3.71 per cent of the urban households had houses built with walls made of grass, thatch, bamboo. Only 0.268 per cent of the rural households had houses with walls made of plastic/polythene and 0.24 per cent of the

urban households had houses with walls made of plastic/polythene. It was analysed that 27.05 per cent of the rural households used mud and unburnt brick for building walls of their houses. However, only 14 per cent of the urban households used mud and unburnt brick for building walls. 1.29 per cent of the rural households lived in houses with wall made of wood whereas 1.8 per cent of theurban households lived in houses with wooden wall. 33.01 per cent of the rural households had houses with wall made of stone whereas 34.96 per cent of the urban households had stone walled houses. 0.48 per cent of the rural households and 0.38 per cent of the urban households lived in houses with walls made of G.I./Metal/Asbestos Sheets. 28.48 per cent of the rural households and 41.42 per cent of the urban households used burnt brick for building wall. 2.95 per cent of the rural households had concrete walled house whereas 2.77 per cent of the urban households had concrete walled houses. 1.28 per cent of the rural households and 0.72 per cent of the urban households built houses with walls made of other materials.

During the census year 2011, in the rural areas 2.04 per cent of the households had houses with walls made of grass, thatch, bamboo whereas among the urban households only 1.19 per cent households had houses with walls made of grass, thatch and bamboo. 6.51 per cent of the rural households build house wall with plastic or polythene whereas only 0.32 households in urban areas build house wall with plastic or polythene. 15.05 per cent of the rural households reside in mud and unburnt brick walled houses while only 7.54 per cent of the urban households had houses built with mud and unburnt brick wall. 0.86 per cent of the rural households lived in house wall with wood whereas 0.97 per cent of the urban households lived in houses with wooden wall. 23.5 per cent rural households had house with wall made of stone whereas 25.6 urban households lived in stone walled houses. Only 0.17 per cent of the rural households and 0.17 per cent of the urban households occupied houses with walls made of G.I./Metal/Asbestos Sheets. 53.54 rural households and 60.62 urban households used burnt brick for building wall. 2.81 per cent of the rural households had Concrete walled house and 2.91 per cent of the urban households had concrete walled houses. Majority (70.3%) of the rural households lived in house with walls made of stone, burnt brick followed by mud and unburned brick whereas many of the urban households had house wall made of stone and burnt brick. The higher per cent of use of mud and unburnt brick for building wall in the rural areas compared to urban areas depicts their

socioeconomic backwardness. The rural households face difficulty in buying costly materials to build walldue to poverty.

In the Census year 2001, among the 137.74 million of the total rural households and 55.83 million of the total urban households, 27.7 per cent of the rural households and 7 per cent of the urban households had houses with roof made of grass, thatch, bamboo, wood, and mud. Only 0.4 per cent of the rural households and 0.8 per cent of the urban households had roof made of plastic and polythene materials and 37.6 per cent of the rural households and 19.7 per cent of the urban households lived in houses with roof made of handmade and machine-made tiles. 5.6 per cent of both the rural and urban households built houses with roof made of burnt brick. It was further analysed that 7.3 per cent of the rural households and 7.8 per cent of the urban households occupied houses with stone/slate and 9.8 per cent of the rural households and 16.8 per cent of the urban households occupied houses with roof made of G.I. metal, asbestos sheets. 11 per cent of the rural households and 42.5 per cent of the urban households lived in houses with roof made of concrete. 0.6 per cent of the rural and urban households had houses with roof made of any other materials. Majority of the rural households lived under tiled roof in comparison with majority of urban households live under concrete roof. This disparity underlines the lack of economic progression in the rural areas.

In the Census year 2011, 20 per cent of the 167.83 million rural households and 4.6 per cent of the78.86 million urban households lived in houses with roof made of grass, thatch, bamboo, wood, mud with rural households having higher percentage.0.6 per cent of both urban and rural households lived in houses with roof built of plastic and polythene. It was analysed that 28.7 per cent of the rural households and 13.7 per cent of the urban households had houses with roof made of tiles with rural areas having a higher percentage. Further it was analysed that 7.2 per cent of the rural households and 5.4 per cent of the urban households lived in houses with roof made of burnt brick and 8.9 per cent of the rural households and 7.9 per cent of the urban households lived in stone/slate roofed houses. The study explored that 15.9 per cent of the rural households and 15.9 per cent of the urban households occupied houses with roof made of G.I. Metal, asbestos sheets and 18.3 per cent of the rural households and 51.9 per

cent of the urban households lived in concrete roof houses depicting a stark difference between the two. Majority of the urban households had houses with concrete roof in comparison with rural houses with roofs made of grass thatch and tiles.

In the year 2001, 70.3 per cent of the rural households and 16.7 per cent of the urban households lived in mud floored houses. Only one per cent of the rural households and 0.6 per cent of the urban households lived in houses with wood or bamboo floor. Burnt brick floors were present in 2.3 per cent of the rural households and 3.2 per cent of the urban households.4.6 per cent of the housesamong the rural households and 8.9 per cent of the houses among the urban households had floors made of stone. The proportion of cement floored houses were 49.6 per cent among the urban households whereas, it was only 19.3 per cent among the rural households and 2.3 per cent of the rural households and 0.7 per cent of the urban households lived in houses with floors made of any other material. The rural households lagbehind the urban households in having cement floored houses. The urban households also had higher proportion of houses with mosaic or tile floors in comparison with rural households. The rural households have higher proportion of mud floored houses and lower proportion of cement floored houses compared to urban households.

The data of the Census year of 2011 explicated that there was a decrease in mud floored houses both in urban and rural areas, but the proportion of houses with mud floor was still high among rural households and that 62.6 per cent of the rural households and 12.2 per cent of the urban households lived in mud floored houses. It was further analysed that 0.7 per cent of the rural households and 0.4 per cent of the urban households had houses with floor made of wood or bamboo and 2.3 per cent of the rural households and 2.4 per cent of the urban households had houses with floor made of burnt brick. A higher (12.2%) percentage of the urban households had stone floors compared to 6.2 per cent of the rural households with stone floors. From 2001 to 2011 period, the percentage of houses with cement floor increased. However, the rural urban difference still persisted. A higher (45.8%) percentage of the urban households had cement floored houses whereas only 24.2 per cent of the rural households had cement floors. In the Census year 2011, households with mosaic or floor tiles as floor material were higher among the urban households in comparison with the rural

households. 25.9 per cent of the urban households lived in mosaic or tile floored houses whereas only 3.7 per cent of the rural households lived in mosaic or tile floored houses.

4.4.6.2 Type of Housing Structure among Rural and Urban Households in Kerala

The housing structure in Kerala is diverse and influenced by various factors including geography, climate, culture, and socioeconomic factors. Significant proportion among underprivileged and poor sections in rural areas do not own a proper house. In rural areas, tiled roof houses are common. These houses are typically single-story structures with sloping roofs made of clay tiles. They often have open verandas and courtyards and are well-suited to Kerala's climate. With urbanization and modernization, there has been a shift towards concrete and brick houses, especially in urban areas. These houses are often multi-story structures with reinforced concrete frames and brick walls.

Table 4.17
Type of Housing Structure among Rural and Urban Households in Kerala
(Figures are in Percentages)

	2001		2011	
	Rural	**Urban**	**Rural**	**Urban**
Permanent	64.6	78.87	79.24	88.41
Semi-permanent	23.97	14.46	16.04	9
Temporary	11.38	6.59	3.22	1.83
Temporary- Serviceable	6.88	3.46	1.36	0.73
Temporary non-serviceable	4.5	3.12	1.86	1.09
Total	100	100	100	100

Source: Census Reports of 2001 and 2011

The Table 4.17 explains the proportion of the rural and urban households having permanent, semi-permanent, and temporary houses. The Census of 2001 with regard to Kerala explained that 64.6 per cent of the rural households had permanent houses while the urban households had a higher percentage of permanent houses (78.87%). The temporary houses were higher among the rural households with 11.38 per cent whereas the percentage of temporary houses among urban households were only 6.59 per cent. The semi-permanent houses were also higher among rural households with 23.97 per cent as compared to 14.46 per cent of the households in rural areas.

In the Census year 2011, the percentage of permanent houses were higher among urban households (88.41%) and lower in rural households with 70.24 per cent. The percentage of temporary houses were higher among rural households(3.22%)compared to the 1.83 per cent in urban households. The semi-permanent houses were also higher in rural households with 16.04 per cent and lower in urban households with 9 per cent. The rural and urban disparity in Kerala is similar to all India level. The percentage of temporary and semi-permanent houses are more among the rural households whereas the permanent houses were more among the urban households. Thus, rural housing deprivation was present in both the Census of 2001 and 2011.

Table.4. 18
Material of House Construction Among the Rural and Urban Households in Kerala
(Figures are in Percentages)

	2001		2011	
	Rural	Urban	Rural	Urban
Material Used for Walls				
Grass/Thatch/Bamboo/Wood/Mud	12.65	3.92	11.9	2.7
Plastic/Polythene	0.26	0.35	0.3	0.3
Mud Unburnt Brick	39.72	12.78	30.5	9.3
Wood	0.93	0.88	0.8	0.5
Stone	10.46	6.73	13.6	14.4
G.I./Metal/Asbestos	0.37	1.37	0.5	0.9
Burnt Bricks	34.21	68.02	40	63.5
Concrete	1.16	5.72	1.7	7.2
Any Other Material	0.23	0.23	0.6	0.6
Grass/Thatch/Wood/Mud, etc	11.5	5.73	3.1	2.1
Material of Roof Construction				
Plastic/Polythene	0.9	0.8	0.9	0.5
Tiles	59.4	46.66	43.4	32.7
Burnt Brick	0.1	0.17	0.3	0.3
Stone/Slate	0.2	0.17	0.9	0.7
G.I./Metal/Asbestos	4.8	4.3	12.2	5.5
Concrete	22.5	41.42	39.1	58
Any Other Material	0.7	0.74	0.2	0.2
Material of Floor Construction				
Mud	28.57	11.78	13.67	5.18
Wood/Bamboo	0.09	0.08	0.069	0.06
Burnt Bricks	0.75	0.92	0.34	0.36
Stone	0.94	0.66	2.64	4.95
Cement	61.83	66.7	64.84	57.43
Mosaic/Floor Tiles	6.99	18.09	17.07	29.54
Any Other Material	0.83	1.76	1.37	2.48

Source: Census Reports of 2001 and 2011

Table 4.18 describes the materials used to build houses by the rural and urban households in Kerala during 2001 and 2011 Census periods. In 2001 Census 12.65 per cent of the rural households had built houses with walls made of grass, thatch and bamboo while only 3.92 per cent of the urban households built houses with walls made of grass, thatch, bamboo. 0.26 per cent of the rural households lived in houses with walls made of plastic or polythene whereas 0.35 per cent of the urban households lived in houses with walls made of plastic or polythene. 39.72 per cent of the rural households used mud or unburnt brick walled houses while only 12.78 per cent of the urban households had houses with wall made of mud and unburnt bricks. 0.93 per cent of the rural households lived in houses with wall made of wood whereas 0.88 per cent of the urban households lived in houses with wooden wall. 10.46 per cent of the rural households had built houses with wall made of stone while 6.73 per cent of the urban households had built stone walled houses. 0.37 per cent of the rural households and 1.37 per cent of the urban households had houses with walls made of G.I./Metal/Asbestos Sheets. 34.21 per cent of the rural households used burnt brick for building wall but on the other hand 68.02 per cent of the urban households used burnt brick for building wall. Only 1.16 per cent of the rural households lived in concrete walled houses whereas 5.72 per cent of the urban households lived in concrete walled houses. 0.23 per cent of the rural households and urban households had houses with houses with walls made of any other material. Majority (39.72%) of the rural households lived in houses with walls made of mud or unburnt brick and burnt brick walled houses whereas majority (68.02%) of the urban households lived in houses with wall made of burnt brick.

In 2011 Census 11.9 per cent of the rural households had built houses with walls made of grass, thatch and bamboo while only 2.7 per cent of the urban households built houses with walls made of grass, thatch and bamboo. 0.3 per cent of the rural households and urban households lived in houses with walls made of plastic or polythene. 30.5 per cent of the rural households had houses with walls made of mud or unburnt brick while only 9.3 per cent of the urban households had houses with wall made of mud and unburnt bricks. 0.8 per cent of the rural households lived in houses with wall made of wood whereas 0.5 per cent of the urban households lived in houses with wooden wall. 13.6 per cent of the rural households had built houses with wall

made of stone while 14.4 per cent of the urban households had built stone walled houses. 0.5 per cent of the rural households and 0.9 per cent of the urban households had houses with walls made of G.I./Metal/Asbestos Sheets and 40 per cent of the rural households used burnt brick for building wall but on the other hand 63.5 per cent of the urban households used burnt brick for building wall. Only 1.7 per cent of the rural households lived in concrete walled houses whereas 7.2 per cent of the urban households lived in concrete walled houses and 0.6 per cent of the rural households had houses with walls made of other materials.

In 2001 and 2011, majority (68.02% and 63.5%) of the urban households lived in houses with wall made of burnt brick. In 2001 and 2011, majority (39.72% and 30.5%) of the rural households lived in houses with wall made of mud or unburnt bricks. Though the percentage of rural households living in houses with walls made of burnt brick increased in 2011, a significant percentage of rural households were living in houses with walls made of mud or unburnt bricks. Thus, it is evident that housing deprivation is high among the rural households and that the rural houses lag behind urban houses in terms of strong and durable wall.

It was analysed that among the 4.9 million total rural households and 1.6 million total urban households, 11.5 per cent of the rural households and 5.73 per cent of the urban households occupied houses with roof made of grass, thatch, bamboo, wood and mud. 0.9 per cent of the rural households and 0.8 per cent of the urban households used plastic and polythene materials for making roof and 59.4 per cent of the rural households and 46.66 per cent of the urban households occupied houses with roof made of tiles. 0.1 per cent of the rural households and 0.17 per cent of the urban households lived in houses with roof made of burnt brick. 0.2 per cent of the rural households and 0.17 per cent of the urban households occupied houses with roof made of stone or slate. 4.8 per cent of the rural households and 4.3 per cent of the urban households owned houses with roof made of G.I., metal and asbestos sheets. 22.5 per cent of the rural households and 41.42 per cent of the urban households lived in concrete roof houses. 0.7 per cent of the rural households and 0.74 per cent of the urban households built houses with roof made of other materials.

During the Census year 2011, 3.1 per cent of the rural households and 2.1 per cent of the urban households occupied houses with roof made of grass, thatch, bamboo, wood and mud. Only 0.9 per cent of the rural households and 0.5 per cent of the urban households used plastic and polythene materials for constructing roof. 43.4 per cent of the rural households and 32.7 per cent of the urban households occupied houses with roof made of tiles. 0.3 per cent of the rural and urban households lived in houses with roof made of burnt brick and 0.9 per cent of the rural households and 0.7 per cent of the urban households occupied houses with roof made of stone or slate and 12.2 per cent of the rural households and 5.5 per cent of the urban households owned houses with roof made of G.I., Metal and Asbestos sheets. It was further analysed that 39.1 per cent of the rural households and 58 per cent of the urban households lived in concrete roofed houses and 0.2 per cent of the rural and urban households built houses with roof made of other materials.

The analysis made in the study found out that among the 4.9 million total rural households and 1.6 million urban households in Kerala, during the Census period of 2001, 28.57 per cent of the rural and 11.78 per cent of the urban households had mud as the material of floor.A larger percentage of the urban households in comparison with the rural households used mosaic or tiles as floor material and 6.99 per cent of the rural and 18.09 per cent of the urban households had tiled floor. Mud is used as floor for houses among 28.57 per cent of the rural houses and 11.78 per cent of the urban houses. Wood or bamboo was used by 0.09 per cent of the rural households and 0.08 per cent of the urban households. Burnt bricks was used as floor for 0.75 per cent of the rural households and 0.92 per cent of the urban households. Stone floor was used by 0.94 per cent of the rural and 0.66 per cent of the urban households.

As per Census 2011 in Kerala 64.84 per cent of the rural households and 57.43 per cent of the urban households had cement floor. Mosaic or tiles were used as floor by 17.7 per cent of the rural households and 29.54 per cent of the urban households. During the Census 2011, 13.67 percentage of the rural households had floor made of mud whereas among the urban households only 5.18 per cent of the houses had mud floor. The percentage of houses with mud floor was high among rural households than urban households.

In the year 2001, 28.57 per cent of the rural households and 11.78 per cent of the urban households lived in mud floored houses. Only 0.09 per cent of the rural households and 0.08 per cent of the urban households lived in houses with floor made of wood or bamboo. Floors made of burnt bricks were present in 0.75 per cent of the rural households and 0.92 per cent of the urban households and 0.94 per cent of the rural households and 0.66 per cent of the urban households had houses with floors made of stone. It was further analysed that 61.83 per cent of the rural households and 66.7 per cent of the urban households lived in houses with floors made of cement. Mosaic or floor tiles were present in 6.99 per cent of the rural households and 18.09 per cent of the urban households and 0.83 per cent of the rural households and 1.76 per cent of the urban households lived in houses with floors made of any other material.

During the year 2011, 13.67 per cent of the rural households and 5.18 per cent of the urban households respectively lived in mud floored houses. Only 0.069 per cent of the rural households and 0.06 per cent of the urban households lived in houses with floor made of wood or bamboo. Floors made of burnt bricks were present in 0.34 per cent of the rural households and 0.36 per cent of the urban households.2.64 per cent of the rural households and 4.95 per cent of the urban households had houses with floors made of stone. It was further analysed that 64.84 per cent of the rural households and 57.43 per cent of the urban households lived in houses with floors made of cement and 1.37 per cent of the rural households and 2.48 per cent of the urban households lived in houses with floors made of other materials. Mosaic or floor tiles were present in 17.07 per cent of the rural houses and 29.54 per cent of the urban houses. The rural households lagged the urban households in cement floored houses. In the urban houses a higher proportion of houses were made with mosaic/tile floors in comparison with rural houses in both the Census years 2001 and 2011while a higher proportion of mud floored houses among rural households in comparison with urban households. The rural urban disparity was also evident in the case of material of floor between the rural and the urban households highlighting the backwardness of the rural households.

4.4.7 Habitable Condition of House–A Comparison of Urban and Rural Houses in India and Kerala

The classification of housing conditions in to good, liveable and dilapidated were done based on the Census data of the years 2001 and 2011. Good houses are those houses which do not require any repairs and are in good condition. Liveable houses are those houses which require minor repairs. Dilapidated houses are those houses showing signs of decay or those breaking down and require major repairs or those houses decayed or ruined and are far from being in conditions that can be restored or repaired.

Table.4. 19
Habitable Conditions of Houses of Urban and Rural Households in India
(Figures are in Percentages)

	Good		**Liveable**		**Dilapidated**	
Year	Rural	Urban	Rural	Urban	Rural	Urban
2001	44.89	64.03	49	32	6.23	3.63
2011	45.90	68.44	48	29	6.52	2.8

Source: Census Reports of 2001 and 2011

Table 4.19 describes that as per 2001 Census, 44.89 per cent of the rural population had good condition houses whereas the urban sector had a higher percentage good condition house (64.03%), whereas dilapidated houses had a higher per cent in the rural areas (6.23%) compared to the urban sector (3.63%).

In 2011 Census the rural sector had 45.90 per cent of the households with good condition houses but the urban sector had 68.44 per cent of good condition houses. The percentage of households with dilapidated houses in the rural areas was 6.52 per cent and was higher compared to the urban sector (2.88%) with a percentage point change of 3.64.

The percentage change in good condition of houses from 2001 to 2011 for total households in India was 5.7 per cent, among the rural households, it was 2.2 per cent and for the urban households, it was 4.41per cent. The rate of growth of good condition houses was higher among the urban households (4.41%) compared to rural households (2.2%). During the 2011 and 2001 Census Reports, the percentage of dilapidated houses were more in rural sector, whereas the percentage of good condition houses were more in urban sector.

Table.4.20
Habitable Condition of among Rural and Urban households in Kerala
(Figures are in Percentages)

	Good		Liveable		Dilapidated	
Year	Rural	Urban	Rural	Urban	Rural	Urban
2001	52.81	64.85	38.19	29.45	8.99	5.7
2011	61.01	72.4	32.55	23.67	6.37	3.93

Source: Census Reports of 2001 and 2011

Table 4.20 explicates that during the Census period of 2001 in Kerala 52.82 per cent of the houses were in good condition which was lesser compared to the percentage of the urban households with 64.67 per cent in good condition houses and a percentage point change of 8.84. Percentage of households with dilapidated houses in the rural sector was 8.99 per cent which was higher than the households living in dilapidated houses among the urban sector (5.66%). 2011 Census had 61 per cent of the rural households with good condition houses in Kerala but among the urban households 72.40 per cent had good condition houses and thus the urban sector was in a better position. The percentage of households living in dilapidated houses in Kerala during Census 2011 is 6.4 per cent which is higher compared to the percentage of urban households with good condition houses (3.93%). The percentage change in good condition of houses from 2001 to 2011 for total households was 18.78 per cent, for the rural households it was 15.48 per cent and for the urban households it was 11.95 per cent. The rate of growth was 15.48 per cent among the rural households which was higher compared to the urban households (11.95%). In Kerala percentage of good condition houses were more in urban areas compared to rural areas in both the Census periods of 2001 and 2011.On the other hand, rural houses had a greater number of dilapidated houses**.**

4.4.8 Type of Cooking Fuel Used by Urban and Rural Households in India and Kerala

Traditionally the households in rural India and Kerala used firewood, crop residue and cow dung cake as the primary cooking fuel. Solid cooking fuels like firewood, crop residue and cow dung cake produce environmental pollution and is associated with detrimental effects on the health of household members. The rural households, owing to their financial constraints to buy LPG as well as easy availability

of bio fuels use solid fuels which will eventually lead to health problems, environmental pollution, work absenteeism, low income and decrease in productivity.

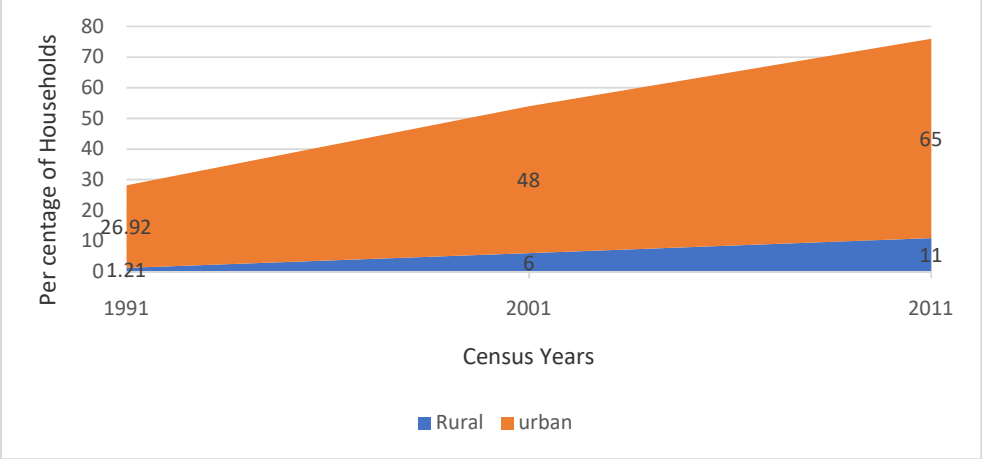
Table 4.21
Type of Cooking fuel among Rural and Urban Households in India
(Figures are in Percentages)

	2001		2011	
	Rural	**Urban**	**Rural**	**Urban**
Firewood, Crop residue, Cow dung cake and Charcoal and Lignite	91	31	86.52	26
Kerosene	2	19	1	7
LPG	6	48	10	65
Biogas	0.46	0.39	0.4	0.4
Electricity	0.12	0.3	0.1	0.1
Any other	0.6	0.8	1.04	0.16
Total	100	100	100	100

Source: Census Reports of 2001 and 2011

Table 4.21 describes that during 2001 and 2011 Census periods,all over India 91 per cent and 86.52 per cent of the rural households used firewood and crop residue as fuel in comparison with 31 per cent and 25 per cent of the urban households. At this juncture it can be observed thatthe rural areas were deprived of the healthy and environment friendly options for cooking compared to the urban areas. The rural-urban disparity continued from 2001 to 2011. 4 per cent urban households and 6 per cent rural households. The use of LPG for cooking was gradually increasing in both urban and rural areas, but the rate of increase is faster in urban sector. It was further analysed that 6 per cent of the rural households and 48 per cent of the urban households used LPG in the year 2001 with rural back lagging.In the year 2011, 10 per cent rural households and 65 per cent of urban households are using LPG. Majority of the urban households (65%) started using LPG by the year 2011 whereas, among the rural households only 10 per cent was using LPG as the cooking fuel. This clearly points out the backwardness of rural sector.

Fig 4.14
Use of LPG as Cooking Fuel among Rural and Urban Households in India



Source: Census Reports of 2001 and 2011

Figure 4.14 explicate that a higher percentage (26.92%) of the urban households compared to rural households (1.21per cent) used LPG for cooking in 1991 and the percentage change between urban households and rural households in LPG usage was 25.71 per cent. In the census of 2001, the rural urban disparity is 42 percentage change. Thewide rural-urban disparity became worse in 2011 Census with a change of 54 percentage. Rural households prefer firewood since it is widely available and at low cost.

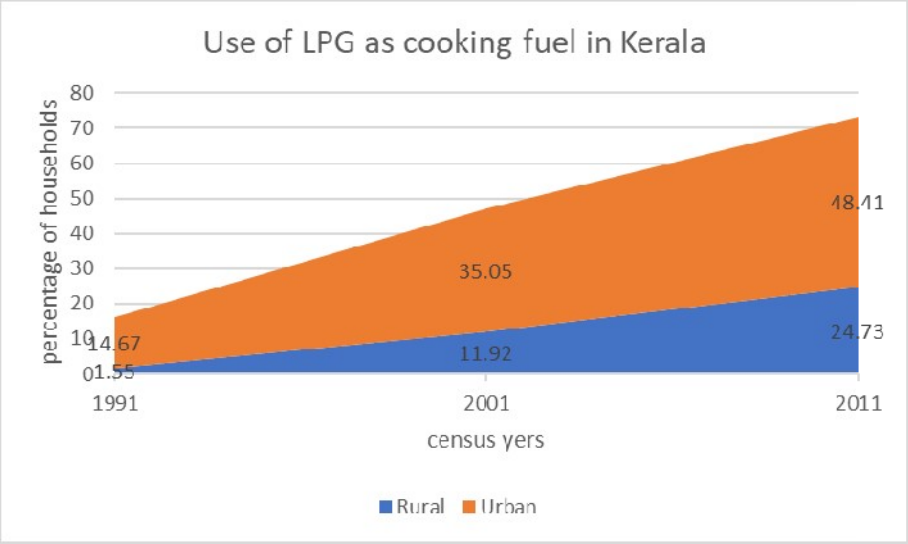
Table 4.22
Type of Cooking fuel among Rural and Urban Households in Kerala
(Figures are in Percentages)

	2001		2011	
	Rural	**Urban**	**Rural**	**Urban**
Firewood, Crop residue and Cow dung cake	86	59.38	74.07	50.12
Kerosene	1	4.05	0.2	0.52
LPG	12	36.06	24.73	48.41
Biogas	0.71	0.9	0.66	0.6
Electricity	0.08	0.13	0.03	0.05
Any other	0.092	0.08	0.02	0.05
Total	100	100	100	100

Source: Census Reports of 2001 and 2011

Table 4.22 depicts the type of cooking fuel used by rural and urban households in Kerala. In the Census year 2001, 86 per cent of the rural households used firewood as cooking fuel whereas only 59.38 per cent of the urban households used firewood as cooking fuel. LPG is used as cooking fuel by 36.06 per cent of the urban households whereas only 12 per cent of the rural households used LPG as cooking fuel. According to the Census of 2011, the use of firewood as cooking declined to 74.07 per cent and 50.12 per cent among the rural and urban households respectively. The use of LPG as cooking fuel increased to 24.73 per cent and 48.41 per cent among the rural and urban households respectively. The proportion of households using LPG as cooking fuel is higher among the urban households compared to the rural households. On the contrary the proportion of households using firewood is higher among the rural households compared to the urban households. In Kerala majority of the rural households used firewood as the main fuel for cooking. Rural households used both LPG and firewood for cooking, but they predominantly used firewood as a fuel for cooking and used LPG in a reserved manner. Even if a rural household has LPG connection, they use other solid fuels and try to save LPG as much as they can. This is partly due to the easy availability of the firewood and the cost of the LPG which is difficult to be met by the rural poor.

Fig 4.15
Use of LPG as Cooking Fuel in among Rural and Urban Households in Kerala



Source: Census Reports of 2001 and 2011

Figure 4.15 depicts the trend of using LPG as a cooking fuel over the Census years 1991 to 2011. In 1991, 1.55 per cent of the rural households used LPG whereas 14.67 per cent of the urban households used LPG. The rural-urban gap was 13.21 percentage. This gap persisted throughout the 1991, 2001 and 2011 Census years. During the Census year 2001, 11.92 per cent of the rural and 35.05 per cent of the urban households used LPG for cooking. Here the rural-urban gap was 23.13 which was greater than the previous Census gap. In the Census year 2011 the rural households using LPG was 23.7 per cent and urban households using LPG was 48.41per cent. The rural-urban gap in using LPG was 24.71 per cent. The rural-urban gap in using LPG persists throughout and it was also showing a progressive increase which points to the fact that rural households were not showing progressive development in using clean cooking fuel compared to the urban households.

4.5 Summary of the Chapter

The chapter made an analysis of the secondary data of the Censuses of the period 1991, 2001 and 2011, on the rural and urban housing conditions in India and Kerala. The first part of the chapter analysed the shortages of houses in India. Among the urban households in India during the year 2012, the shortages in houses were 80 per cent and the households living in obsolescent houses came up to 12 per cent. Urban households living in non-serviceable temporary houses were found out to be 5 per cent and the houseless urban population was analysed to be 3 per cent. In the case of shortages in rural housing, the population who did not have houses were analysed to be 9.51 per cent. Rural households living in obsolescent houses were found to be 17.4 per cent. In the second part of the analysis on the number of houses in India, the study found that there was a total of 147 million residential houses in India. As per 1991 Census, out of which 73.68 per cent were in the rural areas and 26.32 per cent were in urban areas. Total number of residential houses in India increased to 187 million during 2001 Census period. It was analysed that during 2001 Census period, total number of rural houses decreased to 27.8 per cent. It was also analysed that during the Census period of 2011, total number of houses were found out to be 244 million and among this 68 per cent were in rural areas and 32 per cent were in urban areas. In the case of the analysis on the number of houses in the state of Kerala during the Census

periods of 1991, 2001 and 2011, majority of the houses (74.96 %, 75.01 %, and 53.09 %) were in rural areas. In the case of the status of the houses, the urban-rural disparity was vividly evident in the analysis of All India data and in the case of the state of Kerala. The study found out that the rural and urban differences in the housing related facilities were significant in Indian scenario whereas the rural and urban discrepancy was comparatively less in Kerala. Ownership status of the houses, number of dwelling rooms, availability of electricity, availability of safe drinking water, materials used for the construction of houses, habitable condition of houses and the type of cooking fuel were the parameters discussed in the chapter. The rural households prefer to build their houses with low cost, less durable and poor strength materials due to their low income and lack purchasing power. It was found out that rural households were deprived of electricity, latrines, safe drinking water, permanent materials for construction of houses, good housing conditions and cooking fuel (LPG). These deprivations had ripple effects on the overall well-being of the households as well as socio-economic and cultural development of the society.

CHAPTER-5

PHYSICAL AND FINANCIAL CONDITIONS OF HOUSING AMONG BPL HOUSEHOLDS IN THE RURAL AREAS OF THE DISTRICT OF PALAKKAD

5.1 Introduction

The previous chapter covered the study of the rural and urban housing conditions in India and Kerala based on secondary data in detail and concluded that there existed a wide gap in housing between rural and urban households. This chapter describes the second objective of the study which is to assess the physical and the financial conditions of housing among BPL households in the district of Palakkad based on the primary data collected for the study. Analysis of primary data is carried out using the attributes for physical and financial conditions and well-being. Three sample taluks Alathur, Mannarkad, and Palakkad were selected from Palakkad district for the study. Three Grama panchayaths were selected randomly from each of these Taluks. Alathur, Kottayi and Kizhakkancheri Grama panchayaths were selected from Alathur Taluk. Agali, Thachampara and Thenkara were selected from Mannarkkadu Taluk. Kannadi, Keralassery and Pudusseri were selected from Palakkad Taluk.

5.2 The Profile of the Study Area

The district of Palakkad is well known for its rich heritage, historical monuments, palmyras, paddy fields and the mesmerizing beauty of western ghats. It is the largest district in Kerala which is located at the foot of western ghats, bounded by the district of Coimbatore Tamilnadu in the east, in the north and north-west by the district of Malappuram and south by the district of Thrissur. Palakkad was known as ‘palakkattusseri’ in the past. Etymologists trace the word ‘palakkad’ from ‘palanilam’ meaning dry area and ‘kadu’ meaning forest. Palakkad has a long history dating back to the paleolithic period. The district housed the capitals of two kingdoms, named Palakkad and Kollengode. At the very beginning, the place was ruled by Perumal rulers after which many rulers came and ruled Palakkad. The defeat of the Great Ruler Tipu in 1792 paved the way for the British rule. British rulers merged Palakkad to the Malabar district of Madras presidency. However, after India’s independence Palakkad became part of Madras state. Palakkad as a separate district came into existence on 1st January 1957.

Geographically the district lies at 10º79l N Lattitude 76º 65E Longitude and 94 m altitude. The district is divided into two natural divisions the mid land and high land

based on the physical features. The mid land region consists of valleys and planes. The eastern region district has high mountains, extensive ravines and dense forest. The western ghat mountain ranges dominate the district. The entire area lies either in the midland (8080 meters) or in the highland (above 80 meters). Land slopes up from west to north and north east to south. The altitude varies between 15 meters in the west and 2500 meters in the northeast which contain high mountain peaks, long spurs, extensive dense forests, and tangled jungles. The continuous hundred-kilometer mountain stretch and western ghats bordering the region is broken in Palakkad forming 32 km long Palghat gap which connects Kerala with the rest of the country. The climate of the district is greatly affected by this gap as it enables the north east winds to blow right up to the cost throughout the breadth of the gap. The planes are so fertile and productive that the district is considered the granary of Kerala. The climate of the district is tropical dry and wet climate. Most of the rainfall happens in Monsoon season. Actual rainfall in the district was 2004.4 mm in the year 2021-2022 (Indiastat.com, 2023).

The district of Palakkad is known as the rice bowl of Kerala because of its vast stretches of paddy field and primarily agricultural economy. Rubber is the main crop in hilly regions. The district is a major center for export of mangoes and tamarind. The major agricultural crops were paddy, tapioca, banana, plantain, coconut, arecanut, cashew, vegetables and tubers. Gross cropped area in the district was 272195 hectares and Gross District Value Added in the year 2021-2021 was 47728 crores. The distinct climate and the cultural and commercial characteristics are largely influenced by the western ghats and Palakkad gap. The longest river in Kerala, Bharathapuzha originates from the highlands of Palakkad district and flows throughout the entire district. Many small and medium rivers which are tributaries of Bharathapuzha are present in the district. The important rivers are Gayathripuzha, Kannadipuzha, Kalpathipuzha, Thoothapuzha, Bhavanipuzha and Kunthipuzha.

The Palakkad district with 11.53 per cent of the total geographical area of the state accommodates 8.41 per cent of the Kerala population. It is the largest district among the fourteen districts in Kerala with 4476 square kilometers area, where the rural areas comprise of 4082 square kilometers (Census, 2011).

Table 5.1

Demography of the District of Palakkad

Total Population	2809934
Male Population	1359478
Female Population	1450456
Sex Ratio	1067
Rural Sex Ratio	1068
Urban Sex Ratio	1063
Total Urban Population	676810 (24.1 %)
Total Rural Population	2133134(75.9 %)
Total SC Population	433098
Total ST Population	40145
Total Number of Households	530416
Urban Households	366741
Rural Households	163675
Growth Rate	7.39 %
Total Literacy Rate (per cent)	89.31%
Urban Literacy Rate	92.4 %
Rural Literacy Rate	88.31%
Male Literacy Rate	93.1%
Female Literacy Rate	85.79%
Density of Population	627

Source: Census 2011

Table 5.1 describes the demography of the district of Palakkad. The total population in the district as per 2011 Census was 28,09934 out of which 5,31804 was urban population and 22,78130 was rural population. The male and female population were 13,59478 and 14,50456 respectively. Total SC and ST population were 4,33098 and 40,145 persons respectively. The total number of households in the district were 5,30416, comprising of 163675 rural and 366741 urban households. The district has a population density of 627 inhabitants/s.km. The population growth rate for the period 2001-2011 was 7.39 per cent. The sex ratio of Palakkad district was 1067 (females for every 1000 males) and the rural sex ratio was 1063 and urban sex ratio was 1068. The higher sex ratio in urban areas showed the development of urban areas over rural areas. The literacy rate of the district was 89.3 per cent which included literacy rate of 88.3 per cent for the rural areas and 92.5 per cent for the urban areas. The Palakkad district has the second lowest position in literacy rate next to Wayanad (Census, 2011). Literacy rate of rural areas in Palakkad (88.31%) falls behind urban areas (92.4%). As per the Census of 2011, the major religion in the district was Hindu with 66.76 per cent

of the total population. The principal language of the district was Malayalam with 93.71 per cent speaking the same. Tamil speaking population comprises of 4.82 per cent of total population.

Table 5.2
Distribution of Religions in Palakkad

Religion	Percentage
Hinduism	66.76
Muslim	28.93
Christianity	4.07
Others	0.04
Total	100

Source: Census Report of 2011

The table 5.2 depicts the distribution of various religions among the people of the district of Palakkad. It can be observed here that the general trend of the distributions of religions is followed in the case of the present study. Hindus are the majority with 66.76 per cent followed by 28.93 per cent of Muslims and 4.07 per cent of Christians. It is to be noted here that 0.04 per cent of the BPL households did not want to disclose the status of their religious faith.

Palakkad district has 2 Revenue Divisions 6 Taluks and 157 revenue villages. Mannarkkad is the largest Taluk and Alathur is the smallest Taluk. There are seven Municipalities, 13 Block Panchayaths and 88 Village Panchayaths in the district.

Table 5.3
Administrative Units of Palakkad District

Revenue Divisions	2
Taluks	6
Revenue Villages	156
Block Panchayath	13
Grama Panchayaths	88
Municipalities	7
District Panchayath	1
Assembly Constituencies	13
Parliament Constituencies	2

Source: Government of Kerala, 2022

Table 5.3 explicates the administrative units in the Palakkad district. They are two Revenue divisions and six Taluks namely Palakkad, Pattambi, Alathur, Chittur, Ottappalam and Mannarkkad. 88 Grama Panchayaths, 13 Block Panchayaths and 156 villages are present in the district. Palakkad also has seven Municipalities. The district has 13 Assembly constituencies and two parliament constituencies. The district headquarters is situated at Palakkad town.

5.2.1 BPL Households in the District of Palakkad

This study has selected BPL households based on their allocation of ration cards through Public Distribution System. The households with Priority Household cards (Pink) and Anthyodaya Anna Yojana cards were selected as BPL households for the study.

Table 5.4
Number of BPL Households in Palakkad District

Sl.No.	Taluk Supply Office	AAY Cards	PHH cards	BPL Households
1	Alathur	5218	61568	66786
2	Chittur	9618	58854	68472
3	Mannarkad	16812	37604	54416
4	Ottappalam	5901	52606	58507
5	Palakkad	6991	69444	76435
6	Pattambi	5037	53560	58597
	Total	**49577**	**333636**	**383213**

Source: Government of Kerala, 2022

Table 5.4 describes the number of BPL households in the district of Palakkad. Palakkad has 3,83,213 BPL households which comprises of Priority Household and Anthyodaya Anna Yojana categories of public distribution system. These households are the poor and poorest of the poor households selected by the PDS in order to ensure food security. Palakkad Taluk has the highest number of BPL households with 76,435 households and Mannarkkad Taluk has lowest number of BPL households with 54,416 BPL households.

Fig 5.1

Map of India and the State of Kerala- Highlighting the 14 Districts of Kerala

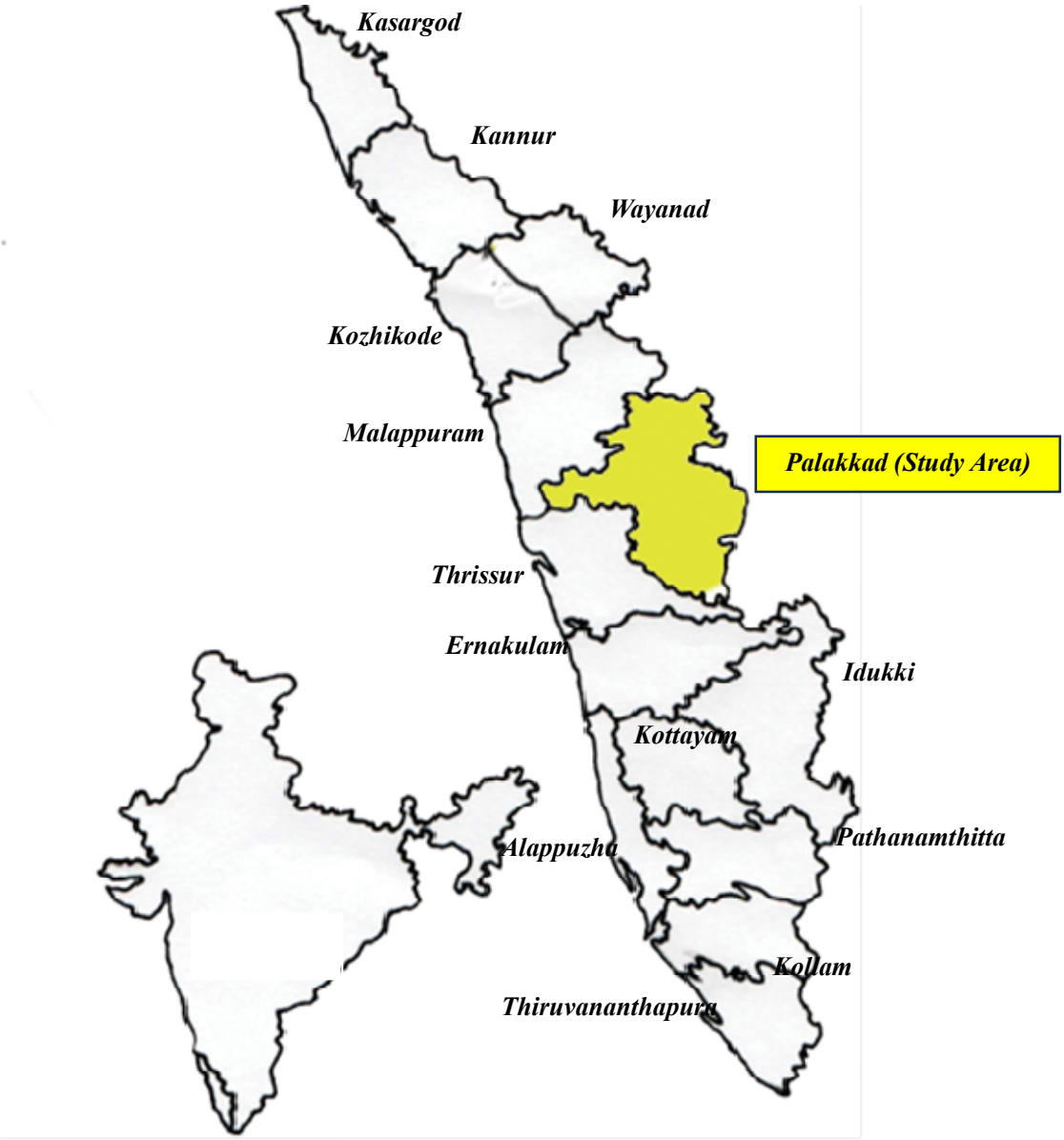


Fig.5.1 depicts the map of India and Kerala and Palakkad is one of the fourteen districts of Kerala.

5.3 Taluks in Palakkad

Palakkad district have six Taluks namely Alathur, Chittur, Palakkad, Maanarkkad, pattambi and Ottappalam. The three Taluks Alathur, Palakkad, and Mannarkkad are selected for this study.

5.3.1 The Taluk of Alathur

Alathur is predominantly a rural taluk with majority of the population hailing from rural areas. Total area of Alathur Taluk is 571 square kilometers. The Taluk has 4,44,995 population, out of which 4,18,275 belong to rural areas and 26,720 belong to urban areas. Alathur has a population density of 779 persons per square kilometer. There are about 1,03,356 households in Alathur Taluk which includes 6,096 urban households and 97260 rural households. There are 30 villages in Alathur Taluk.78.22 per cent of the total population is literate in Alathur Taluk among this male literacy is 82.58 per cent and female literacy is 74.09 per cent.The sex ratio is 1058.

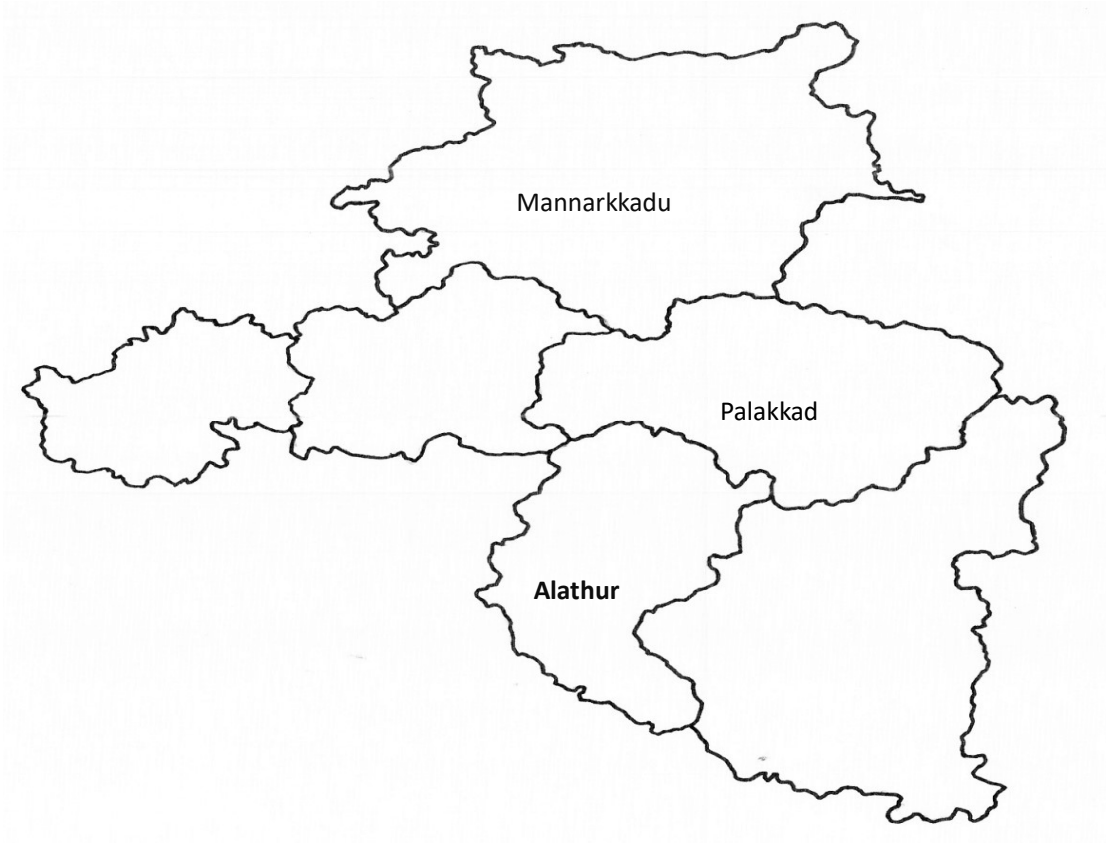
5.3.2 The Taluk of Mannarkadu

Mannarkkadutaluk is the largest taluk in Palakkad district with 1209 square kilometers of total area including 1178.38 square kilometres of rural area and 33.01 square kilometers of urban area. This taluk has a population of 3,83,394 out of which urban population is 34,849 while rural population is 3,49,554. The population density is 318 per square kilometer. There are 83,248 households including 7371 urban households and 75,867 rural households. There are 25 villages and one town in Mannarkkad Taluk. 77.83 per cent of Mannarkkadu Taluk are literate out of which 79.91 per cent males and 75.87 per cent females are literate. The sex ratio is 1063.

5.3.3 The Taluk of Palakkad

The Palakkad Taluk has a total population of 6,12,116 out of which urban population is 2,93,533 while rural population is 3,18,583. There are 1,44,585 households in Palakkad Taluk including 69637 urban households and 74948 rural households. There are 26 villages in Palakkad Taluk. 80.98 per cent of the people of Mannarkkadu Taluk are literate out of which 84.34 per cent are male persons and 77.75 per cent of the female persons were literate. The sex ratio is 1048.

Figure 5. 2
District of Palakkad- Highlighting the Taluks Selected for the Study



5.4 Socio-Economic Status and Housing Characteristics of Rural BPL Households in Palakkad.

Palakkad is primarily an agricultural economy. Majority of the rural population depend on agriculture for their livelihood. According to SECC 2011 data, 63.59 lakh (82.02%) rural households in Kerala 19.16 (30.33%) are deprived and the highest deprivation rate in Kerala is seen in Palakkad (42.33%).

5.4.1 Demographic Profile of Rural BPL Households in Palakkad

In demographic profile, religion, community, type of family, number of family members, gender, age and marital status of household head and education of household are discussed.

5.4.1.1 Religion and Community

In Palakkad 66.76 per centof the population belongs to Hindu religion. The district of Palakkad has the highest percentage of SC population in Kerala which is 13.29 per cent. ST constitute 10.10 per cent of the total population in Palakkad (Census, 2011).

Table 5.5
Religion and Community
(Figures in the Parentheses are in Percentages)

Religion /Community	SC	ST	OBC	General	Total
Hindu	164 (42.7)	50 (13.02)	110 (28.64)	14 (3.64)	338 (88.02)
Muslim	0	0	40	0	40 (10.41)
Christian	0	0	6 (1.56)	3 (0.78)	9 (2.34)
Total	164	50	156	17	387

Source: Primary Data

Table 5.5 describes the religious composition of sample BPL households. Among the 387 BPL households,338 (88.02%)households belong to Hindu religion and 40 (10.41%) households belong to Muslim religion and 9 (2.34%) households are from Christian community. Among the 338 households who belong to the community of Hindus, 164 households (42.7%) are SC, 50 households (13.02%) are ST, 110 households (28.64%) are from OBC and 17 households (4.42%) are from general category.

5.4.1.2 Type of Family, Ration Card and Number of Members in the Family

Family is the fundamental unit of every society. The family fulfills the essential needs of its members. Two types of family are joint family and nuclear family. The family environment largely varies based on the nuclear and joint family type (Binuraj and Chitra, 2022). A ration card is an official document issued by the civil supplies department of the state government to financially weak households. As per the National Food Security Act 2013 (NFSA 2013) the eligible households can buy rice and other essential commodities at a subsidized rate. The ration card is also used by poor households to avail various services from the governments. In Kerala four different categories of ration cards are issued with four different colours. a) AAY-Anthyodaya Anna Yojana card is a yellow-colored card issued to the poorest of the poor households with no stable income. They are granted 35 kilograms of food grains every month. b) PHH- Priority Household Card is a Pink colored card and the households holding this card are entitled to 5 kilograms of food grains per member

every month and can buy food grains at a subsidized price. The pink card PHH category covers the remaining poor people who are not covered by AAY. c) Non-Priority state subsidy card is blue in colour. d) Non -Priority non subsidy card is white in colour. The households with yellow and pink colored ration cards were included in the study. The study has taken 387 households from a total of 3,83,213 yellow coloured Anthyodaya Anna Yojana ration card holders and pink coloured Priority Household card holders from BPL households.

Table 5.6
Type of Family and Ration Card
(Figures in Parentheses are in Percentages)

	Pink	**Yellow**	**Total**
Nuclear	272	42	314 (81.1)
Joint	65	8	73 (18.9)
Total	337 (87.08)	50 (12.92)	387 (100)

Source: Primary Data

Table 5.6 describes the type of family and the type of ration card. The study found out that 314 (81.1%) households are nuclear family and 73 (18.9%) households are living as joint family. Nuclear family is a family with husband-and-wife pair living with their married or unmarried children. A joint family is a larger family unit that consists of the direct and extended family members. The higher number of nuclear families in the sample is in parallel with the changing social norm in the state of Kerala and 337 households (87.08%) have pink ration cards and 50 households (12.92%) have yellow ration card. This explicates 12.92 per cent households in the sample are poorest of the poor. Among the 50 yellow card holders 42 households were from nuclear family and 8 households were from joint family.

Table 5.7
Number of Household Members and Ration Card Type

Number of Household Members	**1-3**	**4-6**	**7-9**	**10-12**	**More than 12**	**Total**
Pink	102	205	23	4	3	337
Yellow	3	41	6	0	0	50

Source: Primary Data

Table 5.7 lists the number of members in each of the 387 households. Among 337 pink ration card holders, 102 households have 1-3members, 206 households have

4-6members. 23 households have 7-9members. 4 households have 10-12 members and three households have more than 12 members. Among the 50 yellow ration card holders 3 households have 1-3 members and 41 households have 4-6 members and six households have 7-9 members.

5.4.1.3 Gender, Age and Marital Status of Household Head.

According to Fourth National Family Health Survey, 76 per cent of households are headed by males in Palakkad. Female headed households are more prone for economic and social marginalization compared to male. The housing conditions and financial conditions depend on the main earning member of the household. 46,55,191 (73.67%) and 409621 (72.7%) rural households are male headed households in Kerala and Palakkad respectively.

Table 5.8
Gender, Age and Marital Status of Household Head
Source: Primary Data

Marital Status	Married		Unmarried		Widower/Widow		Divorce		Grand Total
Age/Sex	Male	Female	Male	Female	Male	Female	Male	Female	
20 - 30 years	3	0	1	0	0	0	0	0	4
30-40 years	44	6	3	0	1	2	0	0	56
40-50 years	100	8	1	1	0	5	1	1	117
50-60 years	105	3	1	0	2	9	0	1	119
60-70 years	778	2	0	0	2	7	0	0	89
More than 70	2	0	0	0	0	0	0	0	2
Total	330	19	6	1	5	23	1	2	387

Source: Primary Data

Table 5.8 explains the characteristics of the households with gender, age and marital status. 330 household heads were married men and 19 household heads were married females. Six unmarried males, one unmarried female and one divorced male and two divorced females were household heads. Five widowers and 23 widows were household heads. 325 household heads were in the age group of 40 – 70.

5.4.1.4 Education of Rural Households

Education plays a pivotal role in the progress of the family. An educated person is more beneficial to his family and society compared to an illiterate person.Kerala has a high literacy rate but pockets of illiteracy are present in the tribal areas,socially marginalized households, households in coastal areas and tribal settlements. Palakkad district has second lowest literacy rate (89.31%) in Kerala (Government of Kerala 2017).

5.4.1.4.1 Educational Qualification of the Household Head

Educational qualification of the household head plays an important role in the overall well-being of the family. Literacy rate in rural Palakkad was 88.31 per cent which was one of the lowest literacy rates in the state of Kerala. This finding of the analysis made in the present study corroborates with the finding of the existing literature in housing in the district of Palakkad.

Table 5.9
Educational Qualification of the Household Head

Educational Qualification	Number of Household Head	Percentage
Illiterate	16	4.13
Literate	18	4.65
Lower primary	101	26.09
Upper primary	119	30.75
High school	55	14.21
SSLC	71	18.35
Higher secondary	7	1.81
Total	387	100

Source: Primary Data

Table 5.9 depicts the educational status of sample household heads which states that 34.87 per cent of the household heads have education below lower primary level which included 4.1 per cent illiterate household heads. The educational status of thesample household heads was 16 (4.1%) illiterate, 18 (4.65%) literate, 101 (26.09%) lower primary, 119 (30.75 %) upper primary 119(30.75%) high school, 55 (14.21%) SSLC

and higher secondary 78 (20.16%). Household heads whose educational status is below primary level are 174 (45%). This depicts the poor education status of the rural household heads.

5.4.1.4.2 Highest Educational Qualification among the Household Members

A household may have a few numbers of well-educated members who helps in the well-being of the family. All members take part in decision making of and other common activities of the family, so an educated member helps in bringing a positive change.

Table 5.10
Highest Educational Qualification among the Household Members

Qualification	Number of Household Member	Percentage
Illiterate	7	1.8
Literate	15	3.9
Lower primary	13	3.4
Upper primary	32	8.3
High school	5	1.3
SSLC	142	36.7
Higher secondary	102	26.4
Degree/Diploma	65	16.8
Post graduate	6	1.6
Total	387	100

Source: Primary Data

Table 5.10 gives the list of highest educational qualification among the household members. The highest educational status among household members for individual households were7 (1.8%) illiterate, 15 (3.9%) literate, 13 (3,4%) lower primary, 32 (8.3%) upper primary, 5 (1.3%) high school, 142 (36.7%) SSLC, 102 (26.4%) higher secondary, 65 (16.8%) degree/diploma and six post graduate (1.6%). The poor rural households found it difficult to send their children for higher education due to the financial burden. Further, the youngsters prefer to find a job immediately

after tenth or twelfth. Only 65 households and six households respectively have members with degree or post graduate degree respectively.

5.4.1.4.3 Number of Degree Holders among Adults Above 20 Years

In a family the parents may be uneducated, but their children may be well educated and they help their parents. Illiterate parents have children with graduate degrees. The better housing conditions may play a role in the education of the children by providing them a place to study and conduct other academic as well as creative activities. Among the sample households the house provides them with a safe place for leisure and rest, which has proved to be an important factor in overall development and healthy upbringing of the children.

Table 5.11
Degree Holders among Adult Members

Number of members	Number of Adult Member	Percentage
0 Members	330	85.3
1 Member	48	12.4
2 Members	8	2.1
3 Members	1	0.3
Total	387	100

Source: Primary Data

Table 5.11 describes the number and percentage of sample households with degree holders among adult members above 20 years of age. In the 387 sample households 330 (85.3%) households have no adult member with a degree. 48 (12.4%) households had one member with degree education. 8 (2.1%) households had two members with degree education. Only one (0.3%) household have three members with degree as their education. 330 households do not have a member with degree as their education, which exhibits the relation between poor housing condition and educational outcome which is an expression of the lack of higher education among the households considered for the study.

5.4.2 Physical Condition of Houses among BPL Households

The physical condition of housing like condition of wall, roof and floor, kitchen, availability of drinking water, toilet facility and road access are considered in

the present section. Deprivations in housing will eventually lead to poor physical and mental health, work absenteeism, poor education and poverty. Majority of the BPL households in the study sample had poor physical conditions of housing like leaked roof, cracked wall, unplastered / partially plastered floor, poor house design, improper windows without window frame and poor ventilation. These conditions play a major role in the well-being, life satisfaction and housing satisfaction of the household.

5.4.2.1 Predominant Material of Wall

Wall of a house is an important structure which adds strength to the house. Wall is made of permanent materials, semi-permanent and temporary materials. Properly built wall provides security and safety to the household. The poor people build wall to their houses based on their financial condition. Some of the poor households cannot afford concrete or brick wall, so they build houses with mud or thatch which has less strength compared to the former. A wall with poor strength will fail to give protection to the household, which results in poor well-being of the entire household.

Table 5.12
Predominant Material of Wall
(Figures in Parentheses are in Percentages)

State of the Material	Concrete	Burnt brick	Unburnt brick	Stone	Mud	Asbestos	Plastic/ Polythene	Thatch/ Grass	Total
Very Poor	3	4	5	2	60	2	2	3	81(20.93)
Poor	23	51	30	39	9	0	0	0	152(39.28)
Below Average	70	3	3	3	2	0	0	0	81(20.93)
Average	58	1	0	0	0	0	0	0	59(13.44)
Good	9	0	0	0	0	0	0	0	9(2.3)
Very Good	5	0	0	0	0	0	0	0	5(1.29)
Excellent	0	0	0	0	0	0	0	0	0
Total	168(43.4)	59(15.2)	38(9.8)	44(11.4)	71(18.3)	2(0.5)	2(0.5)	3(0.8)	387

Source: Primary Data

Table 5.12 classifies the condition of wall of the house of sample households in to very poor walled houses(20.93%),poor walled houses(39.28%), below average walled houses(20.93%), average wall houses(13.44%), good wall houses(2.3%), very good walled houses(1.29%) and not a single house has excellent condition wall. The type of material used to build wall are concrete (43.4%), burnt brick(15.2%), unburnt brick (9.8%), stone (11.4%), mud (18.3%), asbestos (0.5%), plastic/polythene (0.5%), thatch/grass (0.8%)**.** 78 (20.15%) households are living in houses with wall made of poor strength material. Among the sample houses 37 houses had cracked walls which includes 12(32.43 %) concrete houses, 9(24.32%) brick walled houses and 8(21.62%) mud walled houses.Crack in the wall compromises the integrity of the wall by allowing water and moisture inside the wall.

5.4.2.2 Predominant Material of Roof

Kerala is the state having heavy rainfall and hotsummer and the roof should protect the residents from these harsh climatic conditions. The traditional Kerala houses have sloped roof to allow easy drainage of rain water. A well-built roof provides protection against adverse weather conditions, pest infestations health hazards and other threats. A poorly maintained roof modern houses have terraced roofs or curved roofs. Due to the high cost of concrete roofs, rural poor people tend to build their houses with tiles, thatch and asbestos. It was further analyzed that 108 (29.9%) households have asbestos or tile roofed kitchen as an extension to concrete main building. 154 (39.79%) Tile roof houses are poorly maintained and leaks heavily in the rainy season and 71(18.35%) of concrete roof houses also reports leaking due to improper construction techniques. 96 (24.8%) of the concrete roof houses have cracks over the roof due to lack of proper maintenance.

Table 5.13
Predominant Material of Roof
(Figures in Parentheses are in Percentages)

Status of Material	Concrete	Tiles	Metal	Asbestos	Plastic /Polythene Sheet	Grass/Thatch	Total
Very Poor	5	56	6	11	3	4	86 (22.22)
Poor	61	98	1	1	0	0	160(41.34)
Below Average	59	14	0	0	0	0	73(18.36)
Average	27	8	0	0	0	0	35(9.04)
Good	15	0	0	0	0	0	15(3.87)
Very Good	15	3	0	0	0	0	18(4.65)
Total	182(47.0)	179(46.25)	7(1.8)	12(31.07)	3 (0.7)	4 (1)	387

Source: Primary Data

Table 5.13 classifies the houses into seven categories based on the condition of roof. 86(22.22%) houses have very poor condition roof,160 (41.34%)houses have poor condition roof, 73(18.36%) houses have below average roof, 35(9.04%) houses have average condition roof, 15(3.87%) houses have good condition roof, 18(4.65%) houses have very good condition roof. A properly maintained roof is essential get protection from the heavy monsoon in Kerala. 205(52.97%) houses have roofs with leakage during the monsoon season. Among the 67 newly built houses and houses built within the last 5 to 10 years had leakages of roof. The leakage of these newly built houses is due to poor construction techniques. A house with leaked roof fails to give complete protection from the torrential down pour during rainy season, which affects the overall well-being of the family.

5.4.2.3Predominant Material Floor

Floor is the last main structure of the house constructed by the household. 56 households have concrete houses with mud floor. 47 households have cement floors for the main hall and the kitchen. By the time the poor household reaches the floor construction stage of a modern house, they face financial constraints and finds it difficult to continue the work, so they try to do the flooring part by part later. 30 housesin the present study had tiled floor or plastered cementin the main hall and cement floor is not plastered for the rest of the house.

Table 5.14
Predominant Material of Floor
(Figures in the Parentheses are in Percentages)

Status of Material	Tiles	Cement Plastered	Stone	Cement Not Plastered	Mud	Total
Very Poor	0	0	1	17	20	36(9.3)
Poor	0	0	2	93	11	69(17.83)
Below Average	3	0	0	28	16	68(7.57)
Average	4	0	1	41	0	104(26.87)
Good	25	0	0	3	0	64(16.53)
Very Good	9	0	1	0	0	46(11.88)
Total	41(10.59)	112(28.94)	5(1.3)	182(47.02)	47(12.14)	387

Source: Primary Data

Table 5.14 explains the predominant materials used for the floor of the houses of the BPL households considered for the study. It was found out that 10.59 per cent of the households had partially tiled floor and 47.02 per cent of the households had floor plastered with cement. It was also analyzed that 28.94 per cent of the households had floor made of cement and not plastered properly. The study also found out the pathetic situation of 12.14 per cent of the households who had house floor made of mud and cow dung. At this juncture, it can be concluded that regarding the condition of the floor of the houses,9.30 per cent of the households were very poor,17.83 per cent of the households were poor, 17.57 per cent had below average condition,26.87 per cent had average condition, 16.53 percent were in good condition and 11.88 per cent in very good condition. This finding of the study corroborates with the findings of the existing literature.

5.4.2.4 Living Area of the House

Living area of a residential house is the total floor area of the house in square feet where the members of the house can move freely. Adequate living space enhances the comfort and well-being of the household members.

Table 5.15
Living Area of the House Based on Community
(Figures in the Parentheses are in Percentages)

Area of the House	SC	ST	OBC	General	Total
<400 square feet	54(32.92)	37(74)	57(36.53)	10(58.82)	158(40.82)
400-500 square feet	62(37.80)	12(24)	79(50.64)	4(23.52)	157(40.57)
500-600square feet	28 (17.07)	1 (2)	18 (11.53)	2 (11.76)	49(12.66)
>600 square feet	2((1.21)	0	2(1.28)	1(5.88)	5(1.29)
Total	164(100)	50(100)	156(100)	17(100)	387

Source: Primary Survey

The data in Table 5,15 reveals that 32.9 per cent of the SC households and 74 per cent of the ST households, 36.53 per cent of the OBC households and 58.82 per cent of the general category households live in houses with living area less than 400 square feet. Here the ST households depict a higher proportion of houses with living area less than 400 square feet. It was analysed that 37.8 per cent of the SC households, 24 per cent of the ST households, 50.64 per cent of the OBC households and 23.52 per cent of the general category have living area of 400-500 square feet. The study further found out that 17.07 per cent of the SC, 2 per cent of the ST, 11.53 per cent of the OBC, 11.76 per cent of the general community live in houses with total living area between 500-600 square feet and 1.21 per cent of the SC households and 1.28 per cent of the OBC and 5.88 per cent of the general category households live in houses with total living area of more than 600 square feet. The study thus reveals that ST communities in the district of Palakkad has the lowest size of houses in terms of the square feet of the houses considered. At this juncture it is suggested that special attention should be devoted to this situation at the policy circle.

5.4.2.5 Age of the Houses and Leakage of the Roof

The general problem encountered by the households of BPL category are lack of finance to renovate their houses or build a new house, which results in these poor families living in old dilapidated houses for a long time. These houses have damaged roof, broken windows and doors, irregular and dusty floor, 'high steps' (which are unsafe), leakage from the roof, cracked walls, kitchen with no proper outlet for the

smoke, inadequate ventilation, lack of space and dark indoors. It was also observed that these houses had extensions built to accommodate the extending family. The inmates in these old houses are vulnerable for respiratory diseases, infectious diseases due to overcrowding, depression and waterborne diseases like diarrhea. It was also observed that newly built houses had leaky roofs due to poor construction or due to poor maintenance. The households spend very less proportion of their income for maintaining their house. It can be observed here that there is a strong trend among the BPL households that maintenance of their houses is the responsibility of the government.

Table 5.16
Age of House and Leakage from Roof
(Figures in the Parentheses are in Percentages)

Age of House (in years)	Leakage from Roof (in Numbers)		Total
	Yes	No	
<5	20	47	67(17.31)
5-10	60	46	106(27.39)
10-15	37	50	87(22.48)
15-20	22	13	35(9)
20-25	10	9	19(4.9)
25-30	20	8	28(7.2)
>30	36	9	45(11.63)
Total	205(52.97)	182(47.03)	387

Source: Primary Data

Table 5.16 describes the age of houses and leakage from roof of the houses, it was analyzed that 17.31per cent houses were less than 5 years old,27.39 per cent houses had 5 to 10 years age, 22.48 per centhouses had 10-15 years of age and 11.63 per cent houses are more than 30 years of age. It was also analyzed that new houses had leakages of the roofs due to the poor construction of the houses. It was found out that 52.97 per cent of the houses had leakages from the roof. Leakages of the roof of the houses were more for the newly built houses rather than the comparatively old houses.It was found that 20.8 per cent of the newly built less than 5year old houses had leakage of the roofs. Among the houses which are more than 20 years old, 71.73 per cent houses have leakage from roof. Poor maintenance of the houses was observed for the old houses.

5.4.2.6 Latrine Facility

Proper sanitation is essential for the overall health of the household. It is a common feature that toilets are attached to the houses in Kerala. However, it is a known fact that majority of the rural BPL households in Kerala do not have toilets attached to their houses, especially the houses built for the Tribal communities of Kerala. It was found out that common toilets were built for the ST hamlets. Having toilet near the house within the premises ensures dignity and privacy of the household. A water closet toilet and access for clean water for washing is one of the primary needs of the family.

Table 5.17
Latrine Facility

Latrine Facility	Number of households	Percentage
Attached Toilet	55	14.2
Toilet Within the Premises	321	82.9
No Toilet	11	2.8
Total	387	100

Source: Primary Data

Table 5.17 explains the percentage of households with toilet facility, among the 387 sample households 2.8 per cent households had no proper toilet for relieving themselves. Among 376 houses with toilet 14.2 per cent houses had toilet attached with house and 82.9 per cent households had toilet within the premises. Only 2 (0.5%)houses had water supply with tap water to the toilet. All other toilets do not have proper water supply inside. Broken doors for toilets, which is difficult to use were found in 44 (11.36%) houses.

5.4.2.7 Separate Kitchen

A separate room for kitchen is important for adequate housing. A separate room for cooking prevents pollution inside the house. Poor households, due to lack of space use a single room for cooking, eating and sleeping. Sometimes the same room is converted into study room too. Rural houses with one or two rooms for living have no facility of independent kitchen are deprived of a hygienic space for the preparation and storage of food. There is also high chance of fire accidents since cooking area is used for other purposes like sleeping.

Table 5.18
Separate Kitchen

Kitchen	Number of Houses	Percentage
Separate Kitchen	258	66.7
No Separate Kitchen	129	33.3
Total	387	100

Source: Primary Data

Table 5.18 gives the number of households with separate kitchen and the number of households with 'no separate' kitchen. 258(66.7%) households had separate kitchen for cooking and 129(33.3%) households had no separate kitchen for food preparation. 210 (54.26%) households used the kitchen for cooking food, dining and sleeping. The kitchen is just a room with little facilities for cooking for 51(13.17%) households. Only 71(18.34%) houses had pipe water supply inside the kitchen, the others must carry the utensils outside for washing or carry water inside the kitchen. 98(25.32%) houses had built kitchen as an additional extension to the house, so that they need to climb down to the kitchen. Lack of water supply to the kitchen prevents frequent handwashing which is essential for Sanitation. At this juncture, it can be observed that 33.3 per cent of the BPL households are deprived of separate kitchen.

Table 5.19
Water Supply to Kitchen

	Number of Household	Percentage
Pipe Water Supply in Kitchen	71	18.3
No Pipe Water Supply in Kitchen	316	81.7
Total	387	100

Source: Primary Data

Table 5.19 describes the pipe water supply to kitchen. It was analyzed that 71 (18.3%) houses have pipe water supply in kitchen and 316(81.7%) houses have no pipe water supply to the kitchen. Lack of proper water supply affects the health and well-being of the members of households. It was observed that even those households who have wells in their premises were not able to supply water to the kitchen due to the poor financial condition

5.4.2.8 Water Scarcity and Source of Drinking Water

Safe and continuous water supply is pivotal in providing a healthy living. A house is considered deprived if there is no proper water supply. Infact, women are the

primary sufferers of water scarcity. Cooking washing and collecting water for drinking is primarily the domain of women in our society. The Water supply is not continuous in some rural areas like Alathur, Agali, Kannadi and Pudusseri. Water supply is through the public taps provided by the panchayath. In areas where water is very scarce 282(72.87%) households collect water in containers and store it as it comes once in two days in some areas.

Table 5.20
Scarcity of Water

Status of Water Scarcity	Number of Households	Percentage
No Scarcity	105	27.1
Scarcity During Specific Periods	77	19.9
Scarcity Throughout the Year	205	53
Total	387	100

Source: Primary Data

In table 5.20 it was analyzed that seasonal water scarcity was found in 19.9 per cent of the households.Throughout the year water scarcity is present in 107(27.6%) rural households.Water scarcity was noticed as a problem in the Panchayaths of Alathur, Pudusseri, Kannadi and Agali. Water was supplied by the concerned authorities of the Panchayaths. The households used to get water once in two days or three days. Water used to be stored in big containers kept close to the house. Long plastic pipes were connected to the public water supply tank and the connected water pipes deliver water to each house. These plastic pipes are connected directly to the kitchen, In Kerala usually people depend on well for drinking water. Safe drinking water ensures healthy living for the whole family.

Table 5.21
Source of Drinking Water

Source of Drinking Water	Number of Households	Percentages
Well	107	27.6
Pipe Water	244	63
Bore Well	35	9
Pond	1	0.3
Total	387	100

Source: Primary Data

Table 5.21 explains the data on sources of drinking water of sample households. The well is used as the principal source of drinking water by107(27.6%) rural households. Pipe water is used by 244 sample households. 35 households use borewell for the purpose of drinking water. One household take water from the pond.

5.4.2.9 Road Access to House

Road access to the house is an important variable that determines the quality of the house and the re-sale price and value of the house increases if it has proper access to road. Kerala State Financial Enterprises (KSFE), National Banks, Private Banks and other financial institutions sanction loans to build if only there is proper access to roads to the area of the house plot. Proper road connectivity to the 'house' is given due relevance in this study.

Table 5.22
Road Access to House

Road Access to House	Number of Houses	Percentage
No Proper Road to House	15	3.9
Walkable Road	68	17.6
Road Where Only Two Wheelers can Go	71	18.3
Autorickshaw can Pass	70	18.1
Four-Wheeler can Pass	162	42.1
Total	387	100

Source: Primary Data

Table 5.22 describes the road access to the house from main road. 15 (3.9%) houses have no proper road. Walkable road to the house is present for 68 (17.6%) households. A road with access to two wheelers is used by 71(18.3%) households. Road with access to Autorickshaw is present in 70 (18.1%) households and access to four-wheeler is present in 162 (42.1%) households.

5.4.2.10 Waste Management

Proper disposal of waste is very important for the health of the family as well as for the public. In Kerala the 'Haritha Keralam Misson', 'Suchitwa Mission' and 'Clean Kerala Campaign' are actively participating in plastic waste disposal. The local self-government selects a group called 'Haritha Karma Sena' who collects non-biodegradable plastic waste from all houses and take it to shredding units for recycling.

In rural areas poor households have very low awareness regarding the hazards of nonbiodegradable waste.

Table 5.23
Waste Management
(Figures are in Percentages)

Methods of Waste Management	Percentage of Households
Waste Water	
Open Flow to Backyard	80.9
Collected in Tank/ Covered Pit	19.1
Bio-degradable Solid Waste Management	
Compost	15
Disposing in Open Area/ Backyard	85
Non-biodegradable Waste	
Collected by Haritha Karma Sena	76.5
Disposing in the Backyard	6.5
Burning	17.1
Total	**100**

Source: Primary Data

Table 5.23 describes the methods of waste management by rural households. Waste water was allowed to flow to open areas or one's own backyard by 313 (80.9%) households while only 74 households collected waste water in tank. Five households released waste water to the road in front of their house. The waste water disposal was a problem for poor rural households. This could be due to their financial constraints to make a tank for waste disposal or lack of space around the house. Biodegradable waste like the kitchen waste were made into compost by 58 (15%) households and the rest of the households 313 (80.9%) disposed it in open land which was a threat to public health. Non-biodegradable waste like plastic was given to Haritha Karma Sena by 296 (76.5%) households. 25 (6.5%) households just threw their plastic waste away in to their own backyard and 66 (17.1%) households burnt plastic and disposed it. This data reveals that rural households were not well aware of the ill effects of their improper waste disposal habits. Ninety households were not giving non-biodegradable waste to Haritha Karma Sena even after the authorities were actively intervening in waste disposal. At this juncture it can be observed that waste management still remains as a real issue where in the attention of the policy makers and local bodies are sought after.

5.5 Analysis of Physical Condition of Houses and Financial Condition of Households

Having discussed in detail the physical and financial condition of rural BPL households the study moves into the application of the statistical tool of one sample 't' test. The physical condition of the households includes condition of the structure of the house like wall roof and floor, kitchen, house design, age of the house, road access and basic amenities like water supply, latrine facility and waste management. Financial condition includes income, financial security, budgeting practices savings, expenses and assets.

5.5.1 Physical Condition of House

Physical conditions of housing were measured with the help of scaling technique using 7-point Likert scale. 'One sample t test' was used here to determine whether the population mean was different from the designated value 4. The mean value of the sample population is less than the designated value 4, thus it proved that the physical condition of houses among BPL rural households were very poor.The physical condition of housing of sample population are below the average level which means the mean of sample population for physical condition of housing is less than the specified mean value 4.

Table 5.24
Physical Condition of Housing

Physical Conditions	N	Mean	Std Deviation	t value	P value
Condition of Roof	387	2.45	1.291	23.617	<0.001**
Condition of Floor	387	2.61	1.276	21.439	<0.001**
Condition of Wall	387	2.41	1.142	27.467	<0.001**
House Design	387	1.79	0.922	47.145	<0.001**
Water Supply	387	2.41	0.943	33.194	<0.001**
Latrine Facility	387	2.79	0.975	24.495	<0.001**
Kitchen Facility	387	2.22	1.094	32.068	<0.001**
Waste Management	387	1.48	0.786	63.038	<0.001**

Source: Primary Data
Mean significance @ 5%
** Significant P Value

Table 5.24 describes 'one sample t test' of physical conditions of housing. It explicates the number of samples, the mean and standard deviation of the 't' value and 'P' value of physical conditions of housing among BPL households. The null hypothesis is rejected at 5 per cent level of significance while comparing the sample population mean with the hypothesized value 4. There is statistically significant difference between the mean of sample population and the value 4. Since the 'P' value is significant and mean value is less than 4 it is concluded that housing conditions among BPL households in Palakkad is poor. The poor housing condition fails to provide poor people with social and economic well-being which is essential for them to thrive. Further the study attempts to find out the effect of household characteristics onphysical condition of housing using 'independent t test' and ANOVA (Table 5.25).

Hypothesis

H: "There is significant difference in physical condition of housing among male headed and female headed households".

The mean and standard deviation of the physical condition of housing among male headed households were2.3818 and 0.64003 respectively. The mean and standard deviation of the physical condition of housing among female headed households were2.1528 and 0.60648respectively.This explains that there are significant differences in housing condition between these groups. The 't' value is2.269 and 'P' value is 0.024. which depicts that the difference is statistically significant. Thus, the hypothesis is Accepted.

Hypothesis

H: "There is significant difference in physical condition of housing among nuclear family and joint family."

The mean and standard deviation of the physical condition of housing among nuclear family are 2.3949 and 0.63832. The mean and standard deviation of the physical condition of housing among joint family are 2.2055 and 0.62686. This vividly explains that there are differences between the nuclear family and the joint family in physical condition of housing. The 't' value and 'P' value are 2.292 and 0.022 respectively. Thus, the hypothesis "There is significant difference in physical condition

of housing among nuclear family and joint family" is accepted. It clearly indicates that when the size of the family is small, the members of the households can enjoy better living conditions.

Hypothesis

H: "There is significant difference in physical condition of housing between households with the age of the household head less than 60 years age and more than 60 years of age".

The mean and standard deviation of the physical condition of housing among households with the age of the household head less than 60 years are 2.4722 and 0.65995 respectively. The mean and standard deviation of the physical condition of housing among households with the age of the house hold head more than 60 years 2.3361 and 0.63534. The 't' value and 'P' value are 0.496 and 0.620 and the 'P' value is not significant. Thus, the hypothesis "There is significant difference in physical condition of housing between households with household head whose age is less than 60 years and more than 60 is rejected".

Hypothesis

H: "There is significant difference in physical condition of housing among Priority Households (Pink Ration Card) and Anthyodaya Anna Households (Yellow Ration Card)".

The mean value and standard deviation for physical condition of housing among Priority Households (Pink Ration Card) are 2.4067 and 0.65856 respectively. The 't' value is 4.206 and 'P' value is <0.001. Thus, the hypothesis is accepted.

Hypothesis

H: "There is significant difference in physical condition of housing among households with below primary educated household heads and household heads with above primary education".

The mean value and standard deviation for physical condition of housing among households with below primary educated household heads are 2.3956 and 0.66408 respectively. The mean value and standard deviation for physical condition of housing

among households with above primary educated household heads are 2.1604 and 0.43914. The 't' value is 2.368 and 'P' value is < 0.001 which is significant. So, the hypothesis "There is significant difference in physical condition of housing among the household heads with below primary educated household head and households with above primary educated household head" is accepted.

Hypothesis

H: "There is significant difference in the physical condition among the households belonging to different religious groups".

The mean value and standard deviation for physical condition of housing among Hindu households are 2.0411 and 0.67884 respectively. The mean value and standard deviation for physical condition of housing among Muslim households are 2.0000 and 0.58946. The mean value and standard deviation for physical condition of housing among Christian households are 2.0429 and 0.53048. The 't' value is 0.068 and 'P' value is 0.934. Thus, the hypothesis "There is significant difference in the physical conditions of houses among households belonging to different religious groups" is rejected. Thus, the study proves that there is no difference in the physical housing conditions of households based on their religious faith.

Hypothesis

H: "There is significant difference among the physical condition of houses among the households with different marital status of the household heads".

The mean value and standard deviation for physical condition of housing among the married household heads are 2.3597 and 0.66190. The mean value and standard deviation for physical condition of housing among households with unmarried head are 2.2214 and 0.88299. The mean value and standard deviation for physical condition of housing among the widow headed households are 1.9446 and 0.59146. The mean value and standard deviation for physical condition of housing among the widower headed households are 2.0200 and 0.69065. The mean value and standard deviation for physical condition of housing among the divorced heads of households are 1.8267 and 0.59003. The 't' value is 2.872 and 'P' value is 0.023. So, the hypothesis "There is

significant difference in the physical condition of houses among households with the different marital status of household head" is accepted.

Hypothesis

H: "There is significant difference in the physical condition of housing among the households belonging to different communities"

The mean value and standard deviation for physical condition of housing among SC households were 2.3540 and 0.67435 respectively. The mean value and standard deviation for physical condition of housing among ST households were 1.9231 and 0.59131. The mean value and standard deviation for physical condition of housing among OBC householdswere 2.4114 and 0.62694. The mean value and standard deviation for physical condition of housing among other community households are 2.4271 and 0.48984respectively. The 'F' Factor is 7.459 and 'P' value is <0.001 Thus, the hypothesis "There is significant difference in the physical conditions of houses among households belonging to different religious communities" is accepted. Thus, the study proves that there is difference in the physical conditions of housing among households based on community.

Hypothesis

H: "There is significant difference in the physical condition of housing among the households with different total household income ranges"

The mean value and standard deviation for physical condition of housing among households with total monthly income ranges of ₹1000-₹5000 are 1.8804 and 0.51691 respectively. The mean value and standard deviation for physical condition of housing among households with total monthly income ₹5001-₹10000 are 2.2343 and 0.77670. The mean value and standard deviation for physical condition of housing among households with total monthly income ₹10001-₹15000 are 2.3231 and 0.81491. The mean value and standard deviation for physical condition of housing among households with total monthly income ₹15001-₹20000 are 2.2857 and 0.70951respectively. The 'F' Factor is 11.112 and 'P' value is <0.001 Thus, the hypothesis "There is significant difference in the physical conditions of housing among households with different total

household income" is accepted. Thus, the study proves that there is difference in the physical housing conditions of households based on their total monthly income.

Table 5.25
Physical Condition of Housing by Household Characteristics

	Household Characteristics	N	Mean	Std Deviation	F ratio/t value	P Value
Gender of Household Head	Male	342	2.3818	0.64003	2.269	0.024
	Female	45	2.1528	0.60648		
Type of Family	Nuclear	314	2.3917	0.63782	2.343	0.020
	Joint	73	2.1980	0.62806		
Age of Household Head	Age less than 60	328	2.4722	0.65995	0.496	0.620
	Age More Than or Equal to 60	59	2.3361	0.63534		
Education	Household Head Education Below Lower Primary	135	2.1741	0.57141	4.160	<0.001 *
	Household Head Above Lower Primary	252	2.4521	0.65415		
Ration Card	Pink Ration Card	337	2.4067	0.65856	4.206	<0.001 **
	Yellow Ration Card	50	2.0075	0.32870		
Religion	Hindu	337	2.0411	0.67884	0.068	0.934
	Muslim	40	2.0000	0.58946		
	Christian	10	2.0429	0.53048		
Community	Scheduled caste	167	2.3540	0.67435	7.459	<0.001 **
	Scheduled tribe	50	1.9231	0.59131		
	OBC	158	2.4114	0.62694		
	Others	12	2.4271	0.48984		
Marital Status	Married	349	2.3597	0.66190	2.872	0.023
	Unmarried	7	2.2214	0.88299		
	Widow	23	1.9446	0.59146		
	Widower	5	2.0200	0.69065		
	Divorce	3	1.8267	0.59003		
Total Income of Household	₹1000- ₹5000	227	1.8804	0.51691	11.112	<0.001 **
	₹ 5001- ₹10000	114	2.2343	0.77670		
	₹10001- ₹15000	42	2.3231	0.81491		
	₹15001- ₹20000	4	2.2857	0.70951		

Source: Primary Data

Mean significance @ 5%

** Significant P Value

5.5.1.1 Post Hoc Analysis of Physical Condition of Housing Based on Community

The post hoc test is done to assess the significance of difference between pairs of group means of physical condition of housing based on community.

Table 5.26
Post Hoc Table of Physical Condition of Housing Based on Community

Community (I)	Community (J)	Mean difference (I-J)	Standard Error	P value
SC	ST	0.43094*	0.10515	0.000
	OBC	-0.05735	0.07239	0.858
	Others	-0.07304	0.19494	0.982
ST	SC	-0.43094*	0.10515	0.000
	OBC	-0.48829*	0.10584	0.000
	Others	-0.50398	0.20968	0.078
OBC	SC	0.05735	0.07239	0.858
	ST	0.48829*	0.10584	0.000
	Others	-0.01569	0.19532	1.000
Others	SC	0.07304	0.19494	0.982
	ST	.50398	.20968	.078
	OBC	.01569	.19532	1.000

Source: Primary Data

Mean significance @ 5%

** Significant P Value

The Table 5.26 describes the data of Turkeys Honest Significance (Turkey HSD) Post hoc test and explains the multiple pairwise comparisons of physical condition of housing of Scheduled Caste households, physical condition of housing of Scheduled Tribe households and physical condition of housing of Other Backward Class households. Significant mean difference of 0.43094 with p value <0.001 is reported between physical condition of housing of Scheduled Caste households and physical condition of housing of Scheduled Tribe. Significant mean difference of 0.48829 with p value <0.001 is reported between physical condition of housing of Other Backward Class (OBC) households and physical condition of housing of Scheduled Tribe households.

5.5.1.2 Post Hoc Analysis of Physical Condition of Housing Based on Marital Status of Household Head

Turkeys Honest Significance (Turkey HSD) Post hoc test of physical condition of housing based on marital status of household head is done to test the pair wise multiple comparison of means of households with married, unmarried, widow, widower household head. Household with married household head shows significant comparison Household with widow household head.

Table 5.27
Post Hoc Table of Physical Condition of Housing Based on Marital Status of Household Head

Marital status(I)	Marital status(J)	Mean Difference(I-J)	Std. Error	P value
Married	Unmarried	0.13831	0.25273	0.982
	Widow	0.41518*	0.14253	0.031
	widower	0.33974	0.29820	0.786
	Divorce	0.53308	0.38388	0.635
Unmarried	Married	-0.13831	0.25273	0.982
	Widow	0.27686	0.28579	0.869
	widower	0.20143	0.38766	0.985
	Divorce	0.39476	0.45687	0.910
Widow	Married	-0.41518*	0.14253	0.031
	Unmarried	-0.27686	0.28579	0.869
	widower	-0.07543	0.32668	0.999
	Divorce	0.11790	0.40641	0.998
widower	Married	-0.33974	0.29820	0.786
	Unmarried	-0.20143	0.38766	0.985
	Widow	0.07543	0.32668	0.999
	Divorce	0.19333	0.48350	0.995
Divorce	Married	-0.53308	0.38388	0.635
	Unmarried	-0.39476	0.45687	0.910
	Widow	-0.11790	0.40641	0.998
	widower	-0.19333	0.48350	0.995

Source: Primary Data

Mean significance @ 5%

** Significant P Value

Multiple pair wise comparisons show a mean difference of 0.41518 between physical condition of household with married household head and physical condition of household with widow household head with a significance of 0.031 (Table 5.27).

5.5.1.3 Post Hoc Analysis of Physical Condition of Housing Based on Total Monthly Income

The Turkeys Honest Significance (Turkey HSD) Post hoc test for physical condition of housing Based on the total monthly income Given in Table 5.28. Multiple pairwise comparisons of means of physical conditions of housing among households with monthly household income ranges of₹1000- ₹ 5000, ₹5001- ₹10000, ₹ 10001- ₹15000 are done for post hoc test.

Table 5.28
Post Hoc Table of Physical Condition of Housing Based on Total Monthly Income

Income (I)	Income (J)	Mean difference (I-J)	Standard Error	P value
₹1000-₹ 5000	₹ 5000-₹ 10000	-0.35391*	0.07356	<0.001**
	₹ 10000-₹ 15000	-0.44270*	0.10764	<0.001**
	₹ 15000-₹ 20000	-0.40529	0.32323	0.593
₹5000-₹10000	₹ 1000-₹ 5000	0.35391*	0.07356	<0.001**
	₹ 10000-₹ 15000	-0.08879	0.11568	0.869
	₹ 15000-₹ 20000	-0.05138	0.32600	0.999
₹10000-₹ 15000	₹ 1000-₹ 5000	0.44270*	0.10764	<0.001**
	₹ 5000-₹ 10000	0.08879	0.11568	0.869
	₹ 15000-₹ 20000	0.03741	0.33534	1.000
₹15000-₹20000	₹ 1000-₹ 5000	0.40529	0.32323	0.593
	₹ 5000-₹ 10000	0.05138	0.32600	0.999
	₹ 10000-₹ 15000	-0.03741	0.33534	1.000

Source: Primary Data

Mean significance @ 5%

** Significant P Value

Multiple pair wise comparisons reveal significant difference of 0.35391 in means of physical conditions of housing between households with monthly household income ranges of ₹1000-₹ 5000 and ₹ 5000-₹10000 with p value <0.001. A significant mean difference of 0.44270 was found in physical conditions of housing between

households with monthly household income ranges ₹1000- ₹5000 and ₹10000-₹15000 with p value <0.001. The test Explicates significant differences in mean between households with monthly household income ranges ₹1000-₹5000, ₹5000-₹10000 and ₹10000-₹15000.

5.5.2 Financial Condition of Household

Financial condition of the household is defined in this study on the basis of how the households use their wealth to achieve their daily requirements.Financial condition of the household is defined in this study on the basis of how the households use their wealth to achieve their daily requirements. The household's total income, savings, assets, how the household cover un expected expenses, the feeling of financial security among the members, debt, family budgeting practice, financial stability and saving habit. A household's financial position can affect the consumption levels and in turn affect the well-being of the family. The average Indian households have 84 per cent of its wealth in land and other physical goods 11 per cent in gold and the residual 5 per cent in financial assets (Reserve Bank of India, 2017).Financial condition of the household is defined in this study on the basis of how the households use their wealth to achieve their daily requirements.

Financial conditions of housing were measured with the help of scaling technique using 7-point Likert scale. One sample t test is used to determine whether the population mean is different from the designated value 4. It tests whether the mean of sample population for financial condition of housing equals the specified mean value 4. If the mean value of the sample population is less than the designated value 4, it proves that financial condition among rural households is very poor.

Table 5.29
Financial Conditions of Households

Financial Conditions	N	Mean	Std Deviation	t value	P value
Total Income	387	2.57	1.190	23.618	<0.001**
Unexpected Expenses	387	2.10	0.955	39.163	<0.001**
Expenditure	387	1.74	0.729	61.086	<0.001**
Saving habit	387	1.63	0.905	51.506	<0.001**
Financial Security	387	1.70	0.807	56.097	<0.001**
Budgeting Practices	387	1.74	0.778	57.036	<0.001**
Total Debt	387	1.90	0.892	46.335	<0.001**
Total Assets	387	2.55	1.180	24.160	<0.001**

Source: Primary Data

Mean significance @ 5%

** Significant P Value

Table 5.29 describes 'one sample t test' of financial conditions of housing. It explicates the number of samples, the mean and standard deviation of 't' value and 'P' value of physical conditions of housing among BPL households. The null hypothesis is rejected at 5 per cent level of significance while comparing the sample population mean with the hypothesized value 4. There is a statistically significant difference between the mean value of sample population and the value 4. Since the 'P' value is significant and mean value is less than 4 it is concluded that financial conditions among BPL households in Palakkad was poor. The effect of financial condition of household on gender, age and educational status of household head are analyzed in the succeeding section. Independent t tests are used to test the effect of gender, age and education on financial conditions of housing.

Table 5.30

Financial Conditions and Household Characteristics

Household Characteristics		N	Mean	Std Deviation	F ratio/t value	P Value
Gender of Household Head	Male	342	2.0351	0.48138	5.159	0.003
	Female	45	1.6473	0.41231		
Type of Family	Nuclear	314	2.0044	0.49693	1.118	0.264
	Joint	73	1.9332	0.45882		
Age of household head	Age Less Than or Equal to 60	328	1.9848	0.49546	1.147	0.292
	Age More Than 60	59	2.0192	0.47308		
Education	Household Head Education Below Lower Primary	135	2.0558	4.8338	3.98	<0.001 **
	Household Head Above Lower Primary	252	1.8556	4.6618		
Ration card	Pink Ration Card	337	2.4114	0.61818	4.257	<0.001 **
	Yellow Ration Card	50	2.0075	0.32870		
Religion	Hindu	338	1.9949	0.67884	0.674	0.510
	Muslim	40	1.9938	0.58946		
	Christian	9	1.8125	0.53048		
Community	Scheduled Caste	167	2.0621	0.47566	14.79	<0.001 **
	Scheduled Tribe	50	1.5825	0.41696		
	Other Backward Caste	158	2.0357	0.47070		
	others	12	2.0833	0.42751		
Marital status	Married	349	2.0251	0.48236	5.216	<0.001 **
	Unmarried	7	1.8214	0.64087		
	Widow	23	1.6198	0.37035		
	Widower	5	1.5500	0.14215		
	Divorce	3	1.8750	0.76035		
Income	₹1000-₹5000	227	2.1849	0.49438	39.580	<0.001 **
	₹5000-₹10000	114	2.5731	0.73640		
	₹10000-₹15000	42	2.6696	0.74991		
	₹15000-₹20000	4	2.500	0.84779		

Source: Primary Data

Mean significance @ 5%

** Significant P Value

In the study, the head of the household is a person who controls the maintenance of the household or the chief supporter who exercises the authority to run the household (United Nations,1991). The characteristics of the household head have a role in the financial and social conditions of the household (Jeyenes, 2002). Gender of the household head is assumed to have an important role in the financial condition of household as in the normal situation.

Hypothesis

H: "There is significant difference in financial condition of housing among male headed and female headed households".

The mean and standard deviation for male headed households are 2.0351 and 0.48138 respectively. The mean and standard deviation for female headed households are 1.6473 and 0.41231. This explicates that male headed households are in a better financial condition than female headed households in rural Palakkad among BPL households. The 't' value is 3.402 and 'P' value is 0.003 and 'P' value is less than 0.05 and it is statistically significant. Thus, the hypothesis "There is significant difference in financial condition of housing among the male headed and female headed households" is accepted. The gender bias in poverty is due to the income disparity based on the gender, more employment options for male persons and the social taboos and hindrances experienced by female persons. (Gangopadhyay et al., 2004).

Hypothesis

H: "There is significant difference in financial condition of housing among Nuclear family and Joint family".

The mean and standard deviation for nuclear family households are 2.0044 and 0.49693. The mean and standard deviation for joint family households are 1.9332 and 0.45882. The 't' value is 1.118 and 'P' value is 0.2640. 'P' value is more than 0.05. So, the hypothesis is statistically not significant. Thus, the hypothesis "There is significant difference in financial condition of housing among Nuclear family and Joint family" is rejected. There is no significant difference in financial condition of housing among nuclear family and joint family. In Kerala, because of the high Human Developments Index, nuclear as well as joint family provides equal opportunities for females to

participate in jobs (Soumya Dhanaraj, 2018). Thus, there is no significant difference in financial conditions of joint and nuclear families.

Hypothesis

H: "There is significant difference in financial condition of housing between households with household head age less than 60 years age and more than 60 years of age."

The mean and standard deviation for household head with age less than 60 years are 1.9189 and 0.49546 and for more than 60 years of age are 2.0063 and 0.47308. The 'P' value is 1.147and 't' value is 1.147. The 't' value is >0.05. So, the hypothesis "There is significant difference in financial condition of housing between households with household head age less than 60 years age and more than 60 years of age." is rejected. According to Indian law a person above sixty years of age is considered as a senior citizen.

Hypothesis

H: "There is significant difference in financial condition of housing among households with below primary educated household head and households with above primary educated household head."

The mean and standard deviation for below primary educated households are 2.0558 and 4.8338. The mean and standard deviation for above upper primary educated household head headed households are 1.8556 and 4.6618. The 't' value is 4.257 and 'P' value is <0.001. 'P' value is less than 0.05. So, the hypothesis "There is significant difference in financial condition of housing among households with below primary educated household head and households with above upper primary educated household head" is accepted.

Hypothesis

H: "There is significant difference in financial condition of housing among Priority Households (Pink Ration Card) and Anthyodaya Anna Households (Yellow Ration Card)."

The mean and standard deviation for priority Pink Ration Card households are 2.4114 and 0.61818. The mean and standard deviation for Anthyodaya Anna Yellow Ration Card households are 2.0075 0.32870. The 't' value is 4.257 and 'P' value is <0.001. 'P' value is less than 0.05. So, the hypothesis "There is significant difference in financial condition of housing among priority households (Pink Ration Card) and Anthyodaya Anna Households (Yellow Ration Card)." is accepted. Ration cards are allotted to households based in their financial condition. Yellow Ration Cards are issued to poorest of the poor households and Pink Ration Cards are given to the rest of the rural poor.

Thus, it is statistically tested that there is difference in the financial conditions.

Hypothesis

H: "There is significant difference in financial condition of housing among households belonging to different religious groups".

The mean and standard deviation for financial condition of housing among Hindu Households are 2.0411 and 0.67884. The mean and standard deviation for financial condition of housing among Muslim households are 2.0000 and 0.58946. The mean and standard deviation for financial condition of housing among Christian households are 2.0429 and 0.53048. The 'F' factor is 0.068 and 'P' value is 0.934, which is higher than 0.05. So, the hypothesis "There is significant difference in financial condition of housing among households belonging to different religious groups" is rejected.

Hypothesis

H: "There is significant difference in financial condition of housing among households belonging to different Communities".

The mean and standard deviation for financial condition of housing among SC households are 2.0621 and 0.47566. The mean and standard deviation for financial condition of housing among ST households are 1.5825 and 0.41696. The mean and standard deviation for financial condition of housing among OBC households are 2.0357 and 0.47070. The 'F' factor is 14.71 and 'P' value is <0.001, which is less than

0.05. So, the hypothesis "There is significant difference in financial condition of housing among households belonging to different communities" is accepted.

Hypothesis

H: "There is significant difference in financial condition of housing with different marital status of the household heads".

The mean and standard deviation for financial condition of housing among married household heads are 2.0251 and 0.48236. The mean and standard deviation for financial condition of housing among households with unmarried head are 1.8214 and 0.64087. The mean and standard deviation for financial condition of housing among widow headed households are 1.6198 and 0.37035 The mean and standard deviation for financial condition of housing among widower headed households are 1.5500 and 0.14215. The mean and standard deviation for financial condition of housing among households with divorced heads are 1.8750 and 0.76035. The 'F' factor is 5.216 and 'P' value is <0.001, which is less than 0.05. So, the hypothesis "There is significant difference in financial condition of housing among households with different marital status of house" is accepted.

5.5.2.1 Post Hoc Analysis of Financial Condition of Housing among Households Belonging to Different Communities

The Turkeys Honest Significance (Turkey HSD) Post hoc test for financial condition of housing among households belonging to communities was done to assess the significance of difference in means. Table 5.31 displays the Post hoc table showing multiple pairwise comparisons and difference in means of financial condition of housing between households belonging to scheduled castes and scheduled tribes, other backward castes, and other communities.

Table 5.31
Post Hoc of Financial Condition of Housing Among Households Belonging to Different Communities

Community(I)	Community(J)	Mean difference (I-J)	Standard Error	P value
SC	ST	0.47963*	0.07499	<0.001**
	OBC	0.0264	0.05162	0.956
	Others	-0.02121	0.13902	0.999
ST	SC	-0.47963*	0.07499	<0.001**
	OBC	-0.45323*	0.07548	<0.001**
	Others	-0.50083*	0.14953	0.005
OBC	SC	-0.0264	0.05162	0.956
	ST	0.45323*	0.07548	<0.001**
	Others	-0.04761	0.13929	0.986
Others	SC	0.02121	0.13902	0.999
	ST	0.50083*	0.14953	0.005
	OBC	0.04761	0.13929	0.986

Source: Primary Data

Mean significance @ 5%

** Significant P Value

A significant mean difference of 0.47963 for financial condition of housingwas revealed between households belonging to scheduled tribes and scheduled castes with p value <0.001 which is less than 0.005. The pair wise multiple comparisons show significant difference of 0.45323 in group means between financial condition of housing of scheduled tribes and other backward castes with p value <0.001 which is less than 0.005. The test also reveals a significant difference in means of 0.50083 between financial condition of housing of scheduled tribes and financial condition of housing of other communities with p value 0.005.

5.5.2.2 Post Hoc Analysis of Financial Condition of Housing with Different Marital Status of the Household Heads

The Least significant difference (LSD)Post hoc test for multiple pair wise comparisons between group means for financial condition of housing of households with married, unmarried, widow, widower, and divorce heads were done. The post hoc table shown in table 5.32 reveals the significant differences of financial condition of housing with different marital status of the household heads.

Table 5.32
Post Hoc Table of Financial Condition of Housing with Different Marital Status of the Household Heads

Marital status(I)	Marital status(J)	Mean Difference (I-J)	Std. Error	P value
Married	Unmarried	0.20369	0.18290	0.799
	Widow	0.40533*	0.10314	0.001
	widower	0.47511	0.21580	0.181
	Divorce	0.15011	0.27780	0.983
Unmarried	Married	-0.20369	0.18290	0.799
	Widow	0.20165	0.20682	0.866
	widower	0.27143	0.28054	0.870
	Divorce	-0.05357	0.33062	1.000
Widow	Married	-0.40533*	0.10314	0.001
	Unmarried	-0.20165	0.20682	0.866
	widower	0.06978	0.23641	0.998
	Divorce	-0.25522	0.29411	0.909
widower	Married	-0.47511	0.21580	0.181
	Unmarried	-0.27143	0.28054	0.870
	Widow	-0.06978	0.23641	0.998
	Divorce	-0.32500	0.34990	0.886
Divorce	Married	-0.15011	0.27780	0.983
	Unmarried	0.05357	0.33062	1.000
	Widow	0.25522	0.29411	0.909
	widower	0.32500	0.34990	0.886

Source: Primary Data
Mean significance @ 5%
** Significant P Value

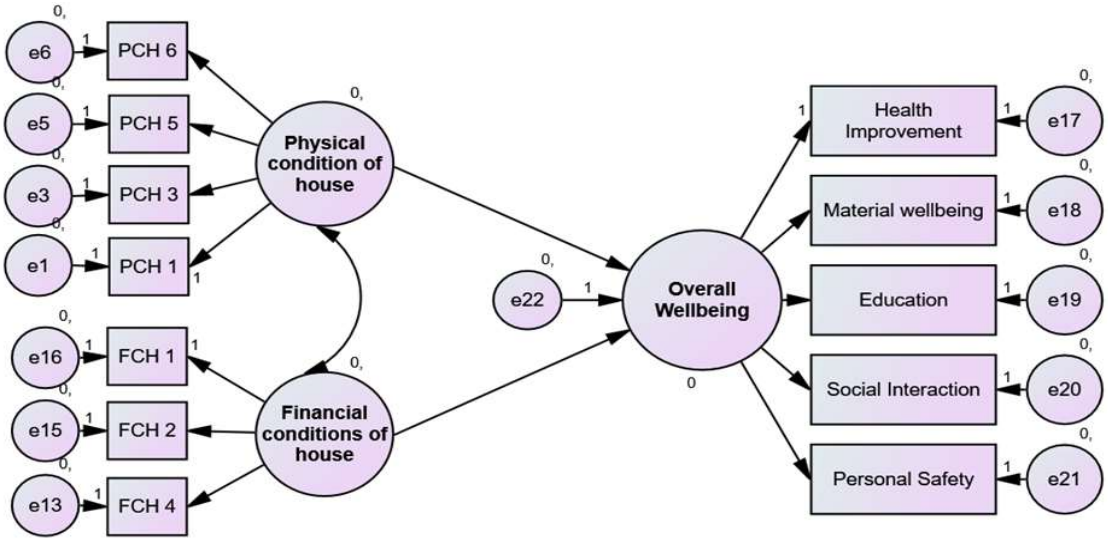
The post hoc test after multiple paired comparisons reveals a significant difference of 0.40533 in means of financial condition of housing between households with married head and households with widow head with p value 0.001which is less than 0.05.

5.5.3 The Effects of Physical and Financial Conditions of Rural Housing among BPL Households in Palakkad on their Overall Well-being

This section explores the effects of physical and financial conditions of rural housing among the BPL households on the overall well-being, such as health improvement, quality of life, education, social interaction, and personal safety. The Covariance Based Confirmatory Factor Analysis (CB-CFA) and Structural Equation

Modelling (SEM) methodologies were employed to achieve this. Covariance Based Confirmatory Factor Analysis is used to establish various validity and reliability of the study instrument (CB-CFA). The final part involves validating the Structural Equation Modelling (SEM). In addition, an introduction to SEM procedures is provided here. The approaches of Covariance-Based Confirmatory Factor Analysis (CB-CFA) and Structural Equation Modelling (SEM) were used with the IBM SPSS AMOS Graphics 21 software package.

Fig 5.3
Hypothesized Conceptual Model for the Effects of Physical and Financial Conditions of Rural Housing among BPL Households in Palakkad on their Overall Well-being



Source: Primary Data

The figure 5.3 explains the Hypothesized Conceptual Model for the effects of physical and financial conditions of rural housing among BPL households in Palakkad on their overall well-being.

The physical conditions of housing are condition of roof (PCH1), condition of wall (PCH 3), condition of kitchen (PCH5) and house design (PCH 6) and the financial conditions are income (FCH1), expenses (FCH2) and Savings (FCH4). The effects of these physical and financial conditions of housing on overall wellbeing of the household in health improvement, material well-being, education, social interaction, and personal safety are analysed in this structural equation model.

5.5.3.1 Co-variance Based Confirmatory Factor Analysis for the Reliability and Validity for the Research Instrument

Confirmatory Factor Analysis (hereafter CFA) is a sort of factor analysis that is commonly used in the field of statistics to conduct social research. It is used to ensure that a researcher's perception of what a construct is like corresponds to how that construct is measured. CFA is a statistical procedure that examines how well measured variables reflect a variety of distinct "constructs." It is a multivariate approach. Methods for Exploratory factor Analysis (hereafter EFA) and CFA are fairly similar. In contrast, in EFA, the data is simply examined to determine how many factors are required to describe the data. Each of the measurable variables is connected to each of the latent variables in exploratory factor analysis. When conducting CFA, researchers may determine how many factors must be present in the data, as well as which measurable variable is connected to which hidden variable. The measurement hypothesis may be proven to be true or incorrect using a method known as confirmatory factor analysis, or CFA for short.

5.5.3.1.1 Criteria of the CB-CFA Models for Final Reliability and Validity

In CFA, it is crucial to determine both the concept validity (Convergent and Discriminant Validity) and the parameter reliability (Composite Reliability). CFA is a statistical technique used to confirm that a set of observed variables has the anticipated factor structure. CFA enables the researcher to examine the link between observable variables and their latent constructs (Suhr, 2009). The criterion must demonstrate significant validity and reliability. These instruments are used for measuring model evaluation:

(1) Composite Reliability (CR)

(2) Construct Validity - Convergent and Discriminant Validity

Composite Reliability (CR) is a measure of the reliability of the overall construct. The value range is from 0 to 1. Composite reliability levels over 0.70 are deemed acceptable (Hair et al., 2010). Values less than 0.6 imply internal

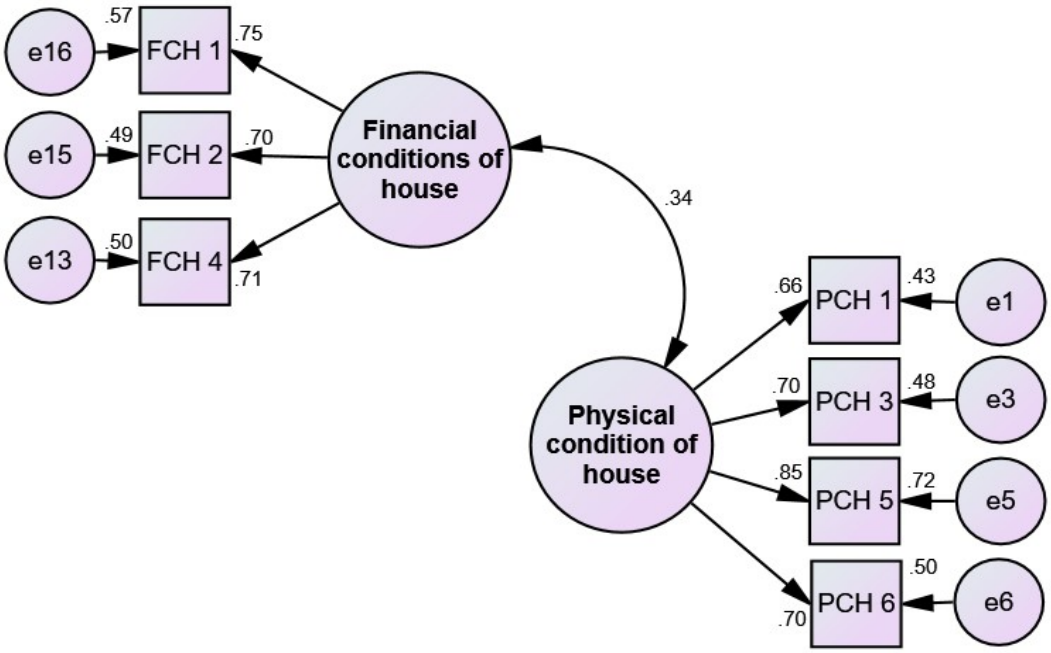
inconsistency. Two approaches include construct validity: convergent validity and discriminant validity.

a) Convergent Validity - the components of a concept that act as indicators or observable variables must converge or share a significant amount of variance. According to Hair et al., convergent validity problems imply that the observable variables do not effectively characterise the latent component. (2010). The Average Variance Extracted (hereafter AVE) is a more conservative measure of convergent validity than CR, according Malhotra et al (2001).

The AVE was used to establish convergent validity in this study. Using normalised factor loadings, the AVE value is calculated. The AVE cutoff value is greater than 0.5. Item factor loadings are another indication of convergent validity provided by Hair et al. (2010). (Hair et. al., 2010). The standardised factor lording cutoff value for showing item validity is more than 0.5 in this study. (2010) Convergence is good if both the standardised factor loadings and AVE values are greater than 0.5.

b) A concept with high discriminant validity catches things that no other concept does. If the discriminant validity test does not produce the anticipated results, it suggests that the variables are substantially associated with variables from other constructs, suggesting that the latent variable is better characterised by factors other than its own observable variables. In the present study an evaluation on the discriminant validity using the conservative Fornell and Larcker (1981) criteria was undertaken. The latent variable's correlations are compared to the square root of AVE. Each construct's AVE should have a square root larger than the association of its latent variable to other constructs. This approach may be used to prove discriminant validity.

Fig. 5.4
Confirmatory Factor Analysis for Physical and Financial Conditions of the Rural BPL Households Constructs



Source: Primary Data

Figure 5.4 explains the CFA for physical and financial condition of rural housing among BPL households. The AVE cutoff value is greater than 0.5. The standardised factor loading cutoff value for depicting item validity is more than 0.5. Thus the convergence validity is good.

Table 5.33
Model Fit Indices for CFA Model of Financial and Social Conditions of the Rural BPL Households Constructs

ATTRIBUTES	CMIN/DF	P-VALUE	GFI	AGFI	CFI	RMSEA
Study model	1.983	0.000	0.998	0.981	0.999	0.016
Recommended value	Acceptable fit [1-5]	Greater than 0.05	Greater than 0.9	Greater than 0.9	Greater than 0.9	Less than 0.08
Literature support	Hair et al., (1998)	Barrett (2007)	Hair et al. (2006)	Hair et al. (2006)	Hu and Bentler (1999)	Hair et al. (2006)

Source: Primary Data

Table 5.33 explains the model fit indices of CFA model in terms of minimum discrepancy function by degrees of freedom divided, chi squared p value, goodness of fit index, adjusted goodness of fit index, comparative fit index and root mean square error of approximation. For a model to be considered valid, the ratio of Chi-square to degrees of freedom must be smaller than 5. In this instance, the result is 1.983, which is significantly less than the stated top limit. The RMSEA score of 0.016 is significantly lower than the allowed threshold of 0.08. In addition, all three fit indices, GFI, AGFI, and CFI, are more than 0.9, with 1.0 indicating an exact match. Consequently, the model fits well and may be utilized to further research.

Table 5.34
Final Reliability and Validity of CFA Model for Financial and Physical Conditions of the Rural BPL Households Constructs

Factors of financial and social conditions of the rural BPL houseeholds constructs	Item code	Factor loading	Cronbach's Alpha Final	AVE	Composite Reliability
Financial conditions of household (FCH)	FCH 1	0.75**	0.75	0.52	0.76
	FCH 2	0.70**			
	FCH 4	0.71**			
Physical condition of house (PCH)	PCH 1	0.66**	0.81	0.53	0.82
	PCH 3	0.70**			
	PCH 5	0.85**			
	PCH 6	0.70**			

Source: Primary Data

*** indicates significant at 1% level*

Table 5.34 explains the Reliability and Validity of CFA Model for financial and Physical conditions of the rural BPL household's constructs. The final All factor loadings are more than 0.5, showing the constructs' item validity, as seen in the table above. After thorough data gathering, the researcher conducted the Cronbach's Alpha test of reliability. Cronbach's Alpha values greater than 0.8 indicate that the variables used to measure the construct are trustworthy. All the Composite Reliability scores for the constructs are more than 0.8, suggesting that their internal consistency reliability is excellent. In addition, the Average Variance Extracted (AVE) values exceed the suggested level of >0.5. This leads to the conclusion that there is strong convergence among all constructs. All parameters are within the necessary range. Thus, the data may be used for further analysis and model development.

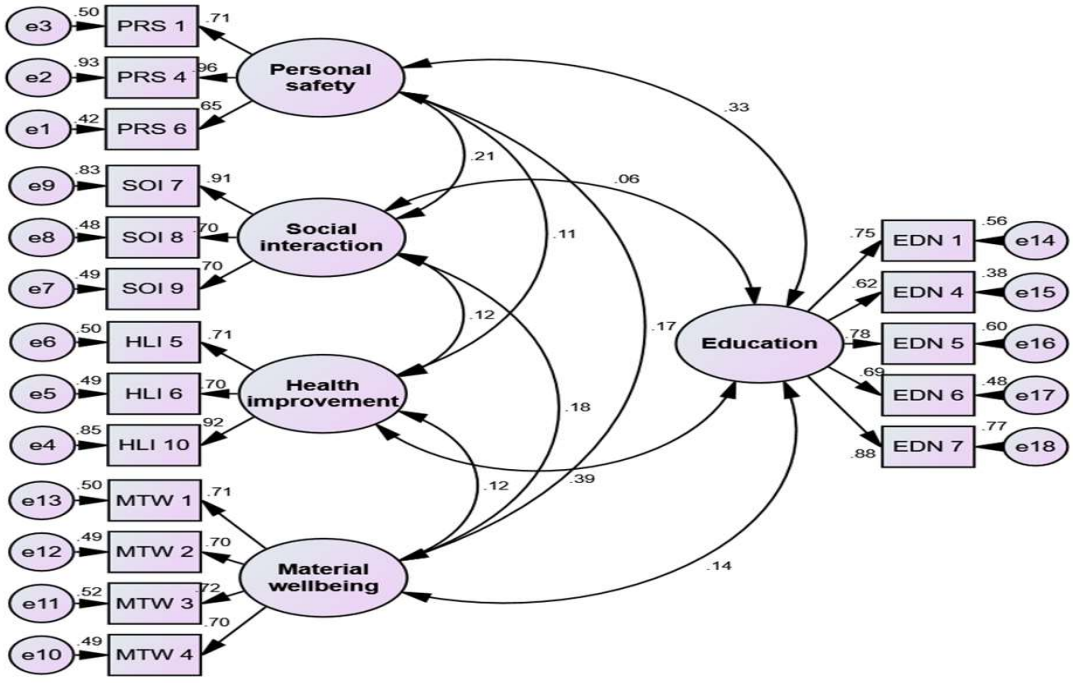
Table 5.35
Discriminant Validity among the Factors of
Financial and Social Conditions of the Rural BPL Households Constructs

Constructs	FCH	PCH
FCH	(0.72)	
PCH	0.34	(0.73)

Source: Primary Data

Table 5.35 explicates the discriminant validity among the factors of financial and social conditions of the rural BPL household's constructs. To establish that there is no correlation between the various constructs, the square root of the Average Variable Extractor (AVE) scores must be greater than the correlation values of the latent variable. Thus table 5.35 demonstrates that there is no relationship between the dimensions and confirms the discriminant validity between these two variables.

Figure 5.5
Confirmatory Factor Analysis of Factors of Overall Well-being of Rural BPL Households



Source: Primary Data

Figure 5.5 exhibits the CFA of factors of overall well-being. The factors of personnel safety are falls due to house design (PRS1), occurance of pests and incects inside the house (PRS 4) and security threat due to inadequate doors and windows (PRS6). Factors of health improvement are practices to minimise smoke from firewood (HLI5), ventilation and space(HLI6) and hand washing (HLI7) . Factors of social interaction are neighbourhood cooperation for conducting functions (SLI7),Neighbourhood cooperation for mental support (SLI8) and neighbourhood cooperation for solving disputes (SLI9). Meterial well-being factors are financial stability (MTW1), acceptance in society (MTW2), standard of living (MTW3) and Job oppurtunities (MTW4). The factors on education are overall development of children (EDN1), extracurricular activities of children (EDN4), skill of children(EDN5), confidence of children (EDN6) and expectaction about the future of children (EDN7).

Table 5.36
Model Fit Indices for CFA Model of Factors of Overall Well-being of Rural BPL Households

ATTRIBUTES	CMIN/DF	P-VALUE	GFI	AGFI	CFI	RMSEA
Study model	3.923	0.000	0.971	0.940	0.984	0.052
Recommended value	Acceptable fit [1-5]	Greater than 0.05	Greater than 0.9	Greater than 0.9	Greater than 0.9	Less than 0.08
Literature support	Hair et al., (1998)	Barrett (2007)	Hair et al. (2006)	Hair et al. (2006)	Hu and Bentler (1999)	Hair et al. (2006)

Source: Primary Data

The table 5.36 explains the model fit indices of CFA model in terms of minimum discrepancy function by degrees of freedom divided, chi squared p value, goodness of fit index, adjusted goodness of fit index, comparative fit index and root mean square error of approximation. A model's Chi-Square to degrees of freedom ratio should be less than 3,923, which is well below the maximum allowable value. The RMSEA score is 0.052, which is well below the 0.08 threshold. GFI, AGFI, and CFI are all more than 0.9, where 1.0 indicates a perfect match. Consequently, the model may be investigated further.

Table 5.37
Final Reliability and Validity of CFA Model for Overall Well-being of Rural BPL Households

Factors of Overall Well-being	Item Code	Factor Loading	Cronbach's Alpha Final	AVE	Composite Reliability
Personal Safety (PRS)	PRS 1	0.71**	0.81	0.62	0.82
	PRS 4	0.96**			
	PRS 6	0.65**			
Social Interaction (SOI)	SOI 7	0.91**	0.81	0.60	0.82
	SOI 8	0.70**			
	SOI 9	0.70**			
Health Improvement (HLI)	HLI 5	0.71**	0.81	0.61	0.82
	HLI 6	0.70**			
	HLI 10	0.92**			
Material Well-being (MTW)	MTW 1	0.71**	0.80	0.50	0.80
	MTW 2	0.70**			
	MTW 3	0.72**			
	MTW 4	0.70**			
Education (EDN)	EDN 1	0.75**	0.85	0.56	0.86
	EDN 4	0.62**			
	EDN 5	0.78**			
	EDN 6	0.69**			
	EDN 7	0.88**			

Source: Primary Data

*** denotes significant at 1% level*

As demonstrated in table 5.37, all factor loadings above the indicated cut-off level of 0.5, confirming item validity. The present study utilised Cronbach's Alpha following data collection. Cronbach's Alpha values over 0.8 indicate the reliability of the construct's variables. The Composite Reliability, which is more than 0.8, demonstrates that all constructs have high internal consistency reliability. The recommended threshold of >0.5 is surpassed by AVE measurements. Therefore, high convergence can be projected. All prerequisites have been met, therefore the data may be analysed and modelled.

Table 5.38
Discriminant Validity among the Overall Well-being Constructs

Constructs	PRS	SOI	HLI	MTW	EDN
PRS	(0.79)				
SOI	0.21	(0.77)			
HLI	0.11	0.12	(0.78)		
MTW	0.17	0.18	0.12	(0.71)	
EDN	0.33	0.06	0.39	0.14	(0.75)

Source: Primary Survey

Table 5.38 demonstrates that there is no association between the constructs, establishing discriminant validity for the overall well-being factors.

5.5.3.2. CO-VARIANCE BASED STRUCTURAL EQUATION MODELING

5.5.3.2.1 Co-variance Based Structural Equation Modelling techniques

A form of statistical analysis known as structural equation modelling (hereafter SEM) investigates the ways in which various structures are connected to one another. This method is a combination of Factor Analysis and Multiple Regression Analysis. This approach was favoured by many researchers since it allowed them to determine in a single investigation how many different factors were interdependent. Endogenous variables, also known as dependent variables, and exogenous variables are used in this analysis the majority of the time (independent variable). An approach known as covariance-based SEM is one that may be used to evaluate hypotheses as well as analyse a structural theory regarding a phenomenon. The CB-CFA and SEM analyses in this investigation were carried out with the help of the IBM SPSS AMOS 21 software package. This section explains the process of constructing a SEM for the BPL households in Palakkad. This model will explain the influence that the physical and financial conditions of rural BPL households in Palakkad have on the overall well-being of those households. In light of this, the following hypotheses are going to be investigated in considerable detail.

Table 5.39
The Hypotheses for Model Building

Hypotheses No.	Hypotheses of Model Building
SM.H1	Physical condition of the rural housing among BPL household has a positive effect on their overall well-being
SM.H2	Financial condition of the rural housing among BPL household has a positive effect on their overall well-being

SM.H1 to SM.H2 indicates Structural Model Hypotheses

Figure 5.6 Tested Research Model for the Effects of Physical and Financial Conditions of Rural Housing among BPL Households in Palakkad on their Overall Well-being

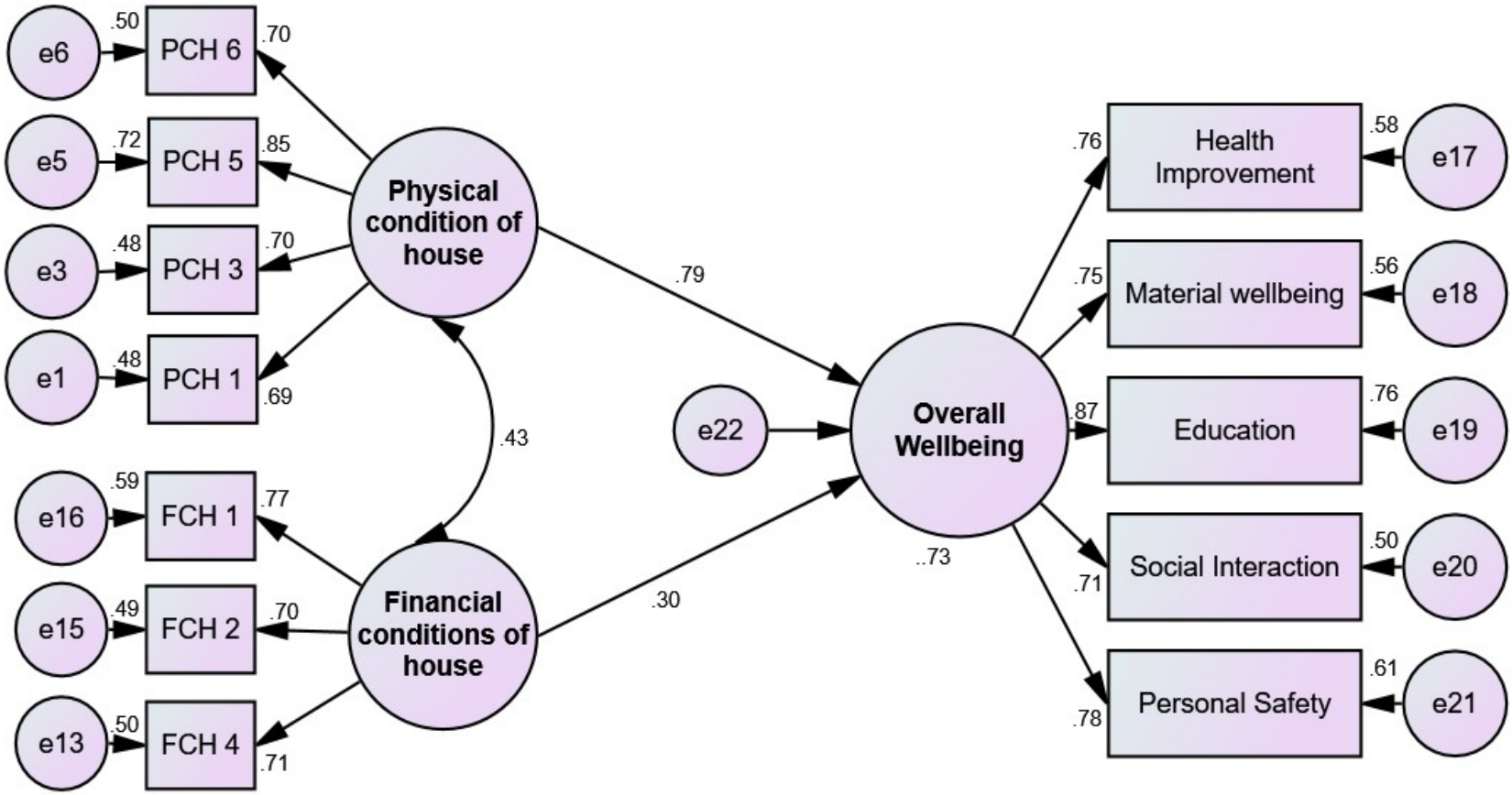


Table 5.40
Model Fit Indices for Structural Equation Model

MODEL	CMIN/DF	P-VALUE	GFI	AGFI	CFI	RMSEA
Study model	4.456	0.000	0.934	0.909	0.968	0.062
Recommended value	Acceptable fit [1-5]	Greater than 0.05	Greater than 0.9	Greater than 0.9	Greater than 0.9	Less than 0.08

A model's Chi-square must have a ratio that is less than 5 to the number of degrees of freedom it contains. In this specific instance, 4.456 is well inside the maximum permissible range of values. The RMSEA was calculated to be 0.62, which is lower than the requirement of 0.08. When compared to 1.0, which denotes an exact match, GFI, AGFI, and CFI are all larger than 0.9. So, SEM works (Table 5.40).

5.5.3.2.2 Results of Path Analysis and Hypotheses Testing

Path analysis is an approach in SEM to explain correlations within the defined factors. Here path analysis examines casual relationships between variables overall well-being physical and financial conditions of housing.

Table 5.41
Values of Path Analysis and R^2 for the Structural Equation Modelling

Constructs Path Index			Standardized Co-efficient (Beta)	R^2 Value	Critical Ratio	P value
Overall Well-being	←	Physical condition	0.79	0.73	12.76	<0.001**
Overall Well-being	←	Financial condition	0.30		5.98	<0.001**

Source: Primary Data

*** indicates significant at 1% level*

Hypothesis

H: "Physical condition of the rural housing among BPL household has a positive effect on their overall well-being".

The standardised beta coefficient of physical condition of the rural housing of BPL households in Palakkad and their overall well-being is 0.79, indicating a partial influence of physical condition of the rural housing of BPL households in Palakkad and their overall well-

being. The projected positive sign suggests increases in influence, and overall well-being would increase by 0.79 for every unit of standard deviation increase in physical condition of the rural housing of BPL households in Palakkad. At the 1 per cent level, this coefficient value is significant. It demonstrates that the better physical condition of the rural housing of BPL households in Palakkad will leads to their overall well-being such as health improvement, education, quality of life, social interaction and personal safety.

Hypothesis

H: "Financial condition of the rural housing among BPL household has a positive effect on their overall well-being".

The standardised beta coefficient of the financial condition of the rural housing of BPL households in Palakkad and their overall well-being is 0.30, which indicates that there is a partial influence of the financial condition of the rural housing of BPL households in Palakkad and their overall well-being. The positive sign that is forecasted explicates that there would be increases in influence, on the overall well-being which will grow by 0.30 per cent as every unit of standard deviation that sees an improvement in the financial conditions of rural housing for BPL people in Palakkad. This coefficient value becomes significant when applied to a level of 1 per cent. It illustrates that an improvement in the financial condition of BPL households in rural housing in Palakkad would lead to an overall increase in their well-being, including improvements in their health, education, quality of life, interaction with other people, and personal safety.

5.5.3.2.3 Explanations of R^2 values

The value of R2 reveals that there is a coefficient of determination of 0.73 per cent for the general welfare of BPL households located in rural areas of Palakkad. On the basis of this statistic, it is possible to draw the conclusion that the physical and financial conditions of rural BPL households in Palakkad are responsible for explaining 73 per cent of the variation in overall well-being. This value leads to the conclusion that other independent variables, in addition to these independent constructs, the physical and financial conditions of the rural BPL households in Palakkad, are important for predicting the overall well-being of the rural BPL households in Palakkad. These independent constructs can only account for around 75 per cent of the variance in overall well-being. The remaining 27 per cent could be explained.

Table 5.42
Result Summary of Hypothesis Testing

Hypotheses No.	Hypotheses of the Model Developed	Result of Hypotheses Testing
SM.H1	Physical condition of the rural housing among BPL household has a positive effect on their overall welling	***Supported***
SM.H2	Financial condition of the rural housing among BPL household has a positive effect on their overall welling	***Supported***

SM.H1 to SM.H2 indicates Structural Model Hypotheses

5.6 Summary of the Chapter

The chapter accomplished research under two headings- analysis of physical condition of houses and financial condition of households and the effects of physical and financial conditions of rural housing among BPL households in Palakkad on their overall well-being. At the initial part of the chapter a descriptive study was done based on primary data of the rural BPL households from the district of Palakkad. The study empirically proved that the poor physical conditions of the rural households have significant relations with gender, education and marital status of the household heads. Household characteristics like total income of household, community and type of family also affects the physical condition of housing. The financial condition of households also depicted the similar trend. The gender, educational status and marital status of the household head explicated a significant effect on the financial condition of rural BPL households. Community of household exhibited a significant relation with financial condition of household. There should be proper emphasis on providing education and employment opportunities to the rural poor households along with appropriate interventions in housing from the authorities. In the second part of the chapter structural equation model was used to explore the effects of physical and financial conditions of rural housing among BPL households in Palakkad on their overall well-being. The SEM model proved that physical and financial conditions of the rural BPL household have a positive effect on their overall well-being. Physical and financial conditions of the rural BPL households in Palakkad, are important for predicting the overall well-being of the rural BPL households in Palakkad. The rural households need a multifaceted approach to accomplish a better life. There should be employment opportunities for financial uplifting and interventions in housing by government to ensure adequate housing conditions and infrastructure development for the overall well-being of the rural BPL households of the district of Palakkad.

CHAPTER 6

FACTORS AFFECTING QUALITY OF RURAL HOUSES AMONG BPL HOUSEHOLDS IN RURAL AREAS OF PALAKKAD DISTRICT

6.1 Introduction

In the previous chapter the physical and financial conditions of housing in Kerala were analysed and concluded that the physical and financial conditions of rural houses were poor. The present chapter deals with the third objective of the study which is to analyse the factors affecting quality of rural houses among the BPL households in the rural areas of the district of Palakkad. As analysed in the previous chapter, majority of the rural households live in inadequate shelters, which falls short of the criteria expected for a healthy and progressive society. The poor housing quality of rural houses are reflected in house structure, kitchen, availability access to safe drinking water, waste disposal sanitation, electricity, drainage and approach roads. There is a plethora of reasons behind low quality of rural houses, which includes the aspects of life satisfaction and house satisfaction. Quality of rural housing is multidimensional and consists of the building material and present condition of house, house design, availability of services, overcrowding, safety and security, location, sanitation, external environment

6.2 The Determinants of Housing Quality

A household living in a house built with strong materials does not mean that that they are have a good quality house. The housing is more than a physical shelter. When housing quality is measured, it includes all the facilities and services needed for human well-being and satisfaction. Housing quality is a broad and multifaceted concept, due to the different viewpoints on this, the parameters determining housing quality differs among different populations. A poor household considers house as a symbol of social status and it plays a role in their total well-being and life satisfaction. The housing quality is assessed by analysing various subjective and objective indicators. (Kesar et al., 2022). In this study the quality of rural houses are determined the variables type of building materials and present condition of house, house design, availability of services, overcrowding, safety and security, location, sanitation, external environment.

6.2.1 Type of Building Materials and Present Condition of House

Type of building materials and present condition of the house play a vital role in deciding the quality of rural housing. Here building materials used for wall, roof and floor of the houses are described. Some houses are built with low quality building materials which affects the health of the family members. Building materials which are not strong fails to

protect the household from the heavy rains during monsoon. Lack of proper maintenance leads to leakage of roof during the rainy season. Concrete houses which were built under government scheme have attached shed behind the house which they use mainly as their kitchen or separate room. The roof used for this shed is usually asbestos or metal. The poor households have limited financial resources to do timely maintenance work on their house, so their houses deteriorate during time. Water leaks in the roof and low basement level leads to damp moist interiors which will destroy the house further and leads to many ill effects in health like respiratory diseases.

6.2.1.1. Material Used for Wall Construction

The households use concrete, burnt brick, unburnt brick, stone, mud, asbestos, thatch, grass, plastic and polythene for building the wall. Most of the rural BPL households who built their houses recently with government aid were concrete houses.

Table 6.1
Material Used for Constructing Wall
(Figures in Percentages)

Material Used for Constructing Wall	SC	ST	OBC	General	Total
Concrete	38.32	78	37.34	50	43.4
Burnt Brick	17.96	2	17.72	8.33	15.2
Unburnt Brick	11.97	0	10.13	16.66	9.8
Stone	08.98	14	13.29	8.33	11.4
Mud	20.95	6	18.99	16.66	18.3
Asbestos/Thatch/Grass Plastic/Polythene	1.79	0	2.53	0	1.80
Total	43.15	12.91	40.82	3.12	100

Source: Primary Data

Table 6.1 describes the material used to build wall by the sample households. Among the 387 sample households 43.4 per cent households have built their houses with concrete wall, 15.2 per cent has burnt brick wall, 9.8 per cent has unburnt brick wall, 11.4 per cent stone wall, 18.3 per cent has mud wall and 1.8 per cent has Asbestos/Thatch/Grass Plastic/Polythene wall. Among the 167 SC households 38.32 per cent have concrete wall, 17.96 per cent burnt brick wall, 11.97 per cent has unburnt brick wall, 8.98 per cent have stone wall, 20.95 per cent has mud wall and 1.8 per cent has Asbestos/Thatch/Grass Plastic/Polythene wall. Among the 50 ST households 78 per cent concrete, 2 per cent burnt brick 14 per cent stone and 6 per cent mud houses were present. Among 158 OBC households 37.34 per cent concrete, 17.72 per cent burnt brick, 10.13 per cent have unburnt

brick wall, 13.29 per cent stone,18.99 per cent mud, 2.53 per cent Asbestos/Thatch/Grass Plastic/Polythene materials were used for building wall of the house. Among the general category 50 per cent concrete, 8.33 per cent burnt brick, 16.66 per cent unburnt brick, 8.33 per cent stone and 16.66 per cent mud materials were used for building wall.

6.2.1.2. Material Used for Roof Construction

A well-constructed roof offers protection from rain and protects the household members from harsh weather conditions. The houses built with semi-permanent and temporary materials has to be maintained frequently, otherwise the house will be damp and moist. The poor households are unable to do the repair work to their roof when necessary due to lack of finance. The materials for roof used by BPL households in Palakkad district are Concrete, Tiles, Metal, Asbestos, Plastic, Polythene, Grass and Thatch.

Table 6.2
The Materials Used for Roof Construction
(Figures are in Percentages)

Material for Roof	SC	ST	OBC	General	Total
Concrete	46.10	74	41.14	25	47
Tiles	47.30	22	51.26	66.66	46.3
Metal	1.19	4	1.27	8.33	1.8
Asbestos/ Plastic/Polythene/ Grass/Thatch	5.39	0	6.33	0	4.9
Total	43.15	12.91	40.82	3.12	100

Source: Primary Data

Table 6.2 describes the materials used for roof by the BPL households in the Palakkad district. Among the 387 sample BPL households 47 per cent concrete roof houses, 46.3 per cent tiled roof houses, 1.8 per cent metal roof houses and 4.9 per cent asbestos plastic, polythene, grass and thatch material roofed houses were present. Among 167 SC households, 46.1 per cent built concrete roof houses, 47.3 per cent used tiles for roof, 1.19 per cent built roof with metals and 5.39 per cent households used asbestos, plastic, polythene, grass and thatch. Among the 50 ST households 74 per cent built concrete roof, 22 per cent used tiles for roof and 4 per cent used metal materials used for roof construction. Among 158 OBC households 41.14 per cent built concrete roof, 51.26 per cent built roof with tiles, 1.27 per cent used metal for roof construction, 6.33 per cent used asbestos, plastic, polythene, grass and thatch materials for constructing roof. Among the 25 general community households 25 per cent had concrete roof, 66.66 per cent tiled roof and 8.33 per cent had metal plastic and

aluminium sheets were for roof construction. It was noticed during the survey that the house roofs were not maintained well and that tiled houses had leakages and the tiled houses had plastic coverings over certain areas of roofs by which it was tried to prevent the leakage. One concrete house had the whole front portion of the roof rebuilt due to the use of poor construction materials.

6.2.1.3 Material Used for Floor Construction

A well-built floor is essential for the cleanliness of the house. The floor is built by mud, cement, cement not plastered, cement, stone and tiles.

Table 6.3
Material for Floor
(Figures are in Percentages)

Material for Floor	SC	ST	OBC	General	Total
Mud	14.37	8	4.65	0.25	12.1
Cement	27.54	36	11.11	1.29	28.9
Cement plastered	44.91	52	19.63	1.55	49.61
Stone	1.20	0	0.51	0	1.3
Tiles	5.98	0	4.90	0	8.01
Total	43.15	12.91	40.82	3.12	100

Source: Primary Data

Table 6.3 describes that, among the 387 sample BPL households 12.1 per cent had mud floor, 28.9 per cent had cement floor, 49.61 per cent had Plastered cement floor, 1.3 per cent had stone floor, 8.01 per cent had tile floor. It was also noticed that there were mud floored houses which were not maintained well. The houses with cement floor had damp and moist due to lower basement level of the house. The households used to put tiles in certain portion of the floors only and the plastering would be done in a step-by-step manner.

Table 6.4
Housing Condition
(Figures in the Parentheses are in Percentages)

Housing Condition		Below Average Condition	Above Average Condition
Roof	Permanent	240(62.01)	128(33.07)
	Temporary	19(4.90)	0
Wall	Permanent	209(54)	100(25.83)
	Temporary	68(17.57)	10(2.58)
Floor	Cement, Stone	160(41.34)	180(46.51)
	Mud	47(12.14)	0
Electrification		127(32.81)	260(67.18)

Source: Primary Data

Table 6.4 describes housing condition of the sample houses. The condition of the sample houses was divided in to two groups depending on their present status and grouped in to above average and below average group. Considering the permanent and temporary nature of roofs, regardless of the material 62.01 per cent of the permanent houses and 4.90 per cent of the temporary houses were below average condition which signalled their poor quality. Among the permanent houses 62.01%were in below average condition and only 33.07 per cent of the houses were in above average condition. The condition of all the temporary roofs were below average. Among the 309 houses with permanent walls, 54 per cent were below average housing condition and 25.83 per cent were above average housing condition. Out of the 78 houses with temporary wall, 17.57 per cent houses were below average condition and 2.58 houses were above average condition. Regardless of the material, 52.48 per cent of the houses had below average condition floor while 46.51 per cent of the houses had above average condition. The status of the electrification of the houses exhibited comparatively better standard. It was further found out that 67.18 per cent of the houses had their electrification status as 'above average' condition.

6.2.2 Housing Design

A house which is designed according to the need of the household provides satisfaction to them and serves to make their lives better. The way house is constructed also defines the quality of the house. The house whose interior is too dark and damp decreases the quality of living. Houses which do not have enough windows and other outlets do not provide proper ventilation which leads to severe health problems like asthma and cough. It was also observed that houses had windows, but these windows did not have window panes and closed completely with plastic sheets, so the rooms were dark and poorly ventilated.

Table 6.5
Housing Designs
(Figures in Brackets are in Percentage)

House Designs	Above Average	Below Average
Ventilation	118(30.49)	269(69.50)
Kitchen	152(39.27)	235(60.72)
Separate Area for Food Storage and Eating	81(20.93)	306(79.06)
Area for Children to Study/ Area to Rest or Leisure	108(27.90)	279(72.09)
Lighting Inside the House	127(32.81)	260(67.18)
Toilet and Bathroom	90(23.25)	297(76.74)
Ease of Mobility Inside the House	123(31.78)	264(68.21)

Source: Primary Survey

The study analysed that 69.50 per cent of the designs of the rural BPL households were poor in quality that there was no proper ventilation for these houses. It was found out that majority (69.50%) did not have proper ventilation while 30.49 per cent had comparatively good ventilation facility. 40.2 per cent rural BPL households live in houses with total area less than 400 square feet. The conditions of the kitchens of majority (69.50%) of the households were below 'average'. It was further analysed that 39.27 per cent of them had kitchen facilities with minimum standard. Considering other facilities of the houses such as separate area for food storage, dining, study area for children, space to take rest and spend leisure time were less among the rural BPL houses. An average minimum standard could only be found among 20.93 per cent and 27.90 per cent of the houses respectively. It was further found out that a significant portion (76.74%) of the houses were deprived of toilets and bathrooms with adequate standard. It was also observed that 67.18 per cent of the houses had no proper lighting within the houses. It was also observed that electrification was partial in majority of the houses. Considering the condition of 'ease of mobility' inside the house, the same trend was noticed, i.e., 68.21 per cent of the houses had only below average facility (Table 6.5).

In majority of the houses, kitchen was built as an outside extension of house with very small space for cooking and cleaning. Majority of the houses had gas connection but they predominantly used firewood for cooking which polluted the air inside the house. It was also observed that only few houses had kitchen sink inside the kitchen and only two houses had water tap inside the kitchen. Water supply within the premises is limited in majority of the houses, so they did not have continuous water supply in the kitchen. Majority of the households collect water in big plastic bins and used it for domestic uses. Majority of the houses had steps which was too high and were not constructed properly. This makes it difficult for the inmates to move around especially female persons to move in and out the kitchen for collecting water or doing their households chores.

6.2.3 Availability of services

Quality of a house is determined by access to workplace, hospitals, schools, marketplace, government institutions like panchayat, ration shop, post office, bank and bus stop. Proximity to public services like schools and hospitals also determines the quality of housing. People tend to live in houses which are near schools and hospitals. Lower income households are also stricken by racial disparity which forces them to live in remote areas where the infrastructure is very poor. Ease of Availability of various infrastructure services like bus

stop, post office, school, bank, hospital, market and place of worship determines the quality of housing. Availability of services is considered satisfactory if four of the above-mentioned infrastructures are easily accessible from the house. 32.9 per cent households have satisfactory availability of services.

6.2.4 Over Crowding

One of the major problems which affects the quality of rural housing is lack of adequate space in the building. Overcrowding in the house will deprive the members of their privacy and comfort. Household crowding is a condition where the number of occupants exceeds the capacity of the building space available, whether measured as rooms bedrooms or floor area resulting in adverse physical and mental health outcomes. A person is considered living in overcrowded household if he does not have at its disposal a minimum number of rooms equal to i) one room for the household, ii) one room per couple in the household, iii) one room for a person aged more than 18 years or more, iv) one room per pair of single people of the same gender between 12 and 17 years of age, v) one room for each single person between 12 and 17 years of age and not included in the previous category vi) one room per pair of children under 12 years of age. Overcrowding in the house is measured by person per room ratio and by Likert scale questions regarding overcrowding in the house.

6.2.5 Safety and Security

The members of the households can enjoy and make use of their living space only if they have full rights over their land. Security of tenure protects families from eviction or displacement to other places. Families spend their lifetime savings in houses since they spend more time in the house. It is customary that people build their houses in own land. Some of the inherited houses have multiple families owning the same house. Such households do only minimum maintenance on the house since they do not have a sense of belonging to their house and land. It was analysed that majority of the households had houses on their own land. Properly built windows and doors ensure safety of the house as well as prevents pests from entering the house. It was observed that the doors were made of poor-quality materials instead of strong and durable material. The doors over the back side were very poorly built and were insecure. The back door of 35 per cent of the sample houses were made of poor-quality materials. The windows were fully covered with plastic sheets since it had no window panes. The electricity connection was not properly done which affected the personal safety of the members. Improperly built doors and windows failed to protect the households from pests.

6.2.6 Location

Better access to the house is important for the household members to move around. It also allows the members to easily transport various items needed for their daily life. Poor families living in areas without proper road finds it difficult to transport heavy commodities to their house. Moreover, it is extremely difficult for aged and sick patients to move out of their house. They must walk for miles to reach the road. For rural poor walking some distance to reach their houses is not a big issue but it becomes a problem when they must take a seriously ill or bedridden persons to hospital or a person with disability wants to go out for work. It was also reported by the medias of Kerala that a pregnant woman who was sick was carried in palanquin made from bamboo sticks to reach nearby hospital which was five kilo meters away from the house.

Table 6.6

Accessibility to House from Main Road

Accessibility	Number of houses	Percentage
No road	15	3.9
Walkable road	68	17.6
Road with Two-Wheeler Access	71	18.3
Road with Auto Access	70	18.1
Road with Four-Wheeler Access	163	42.2

Source: Primary Data

Table 6.6 describes the condition of the road connecting houses to the main road. 15 rural houses in the study had no proper road to reach their houses. They had to walk through the backyards or front site of their neighbours to reach their houses. 68 households had walkable roads to reach their houses but it was not easy for a two-wheeler drive through the road since the road was poorly maintained. 71 households had road with two-wheeler access and 70 households could reach their houses in auto from the main road. 163 houses had four-wheeler access to their houses. The type of access affected the house construction cost also, because the materials for the construction had to be carried manually to the construction site.

6.2.7 Sanitation

Sanitation includes the availability of drinking water, toilets, bathrooms and waste disposal facilities. 11 households did not have a proper toilet and 205 households had water

scarcity throughout the year. Households in the areas of water scarcity collected water and used to keep it in large containers to use it for two or three days.

6.2.8 External Environment

The house must be in a land with liveable and clean environment. The external environment of the house adds more comfort to those who live inside it. If a house is surrounded by garbage and waste water it will affect the health of the family. A house with clean surroundings and plants increases the ambience and the house will be more acceptable. 18.8 per cent households built houses in less than or equal to three cents of land.80.9 per cent household disposes waste water and 85 percentage households disposes wet household waste directly to backyard or surrounding area.

Quality of housing were measured with the help of scaling technique using 7-point Likert scale. One sample t test is used to determine whether the population mean is different from the designated value 4

Table 6.7
Quality of Housing

Housing Quality	N	Mean	Std Deviation	t value	P value
Building Materials	387	2.27	1.038	42.99	0.000**
House Design	387	1.83	0.940	38.305	0.000**
Availability of Services	387	2.80	1.325	41.587	0.000**
Over Crowding	387	2.86	1.662	48.28	0.000**
Safety and Security	387	2.56	1.473	39.13	0.000**
Location	387	1.93	1.480	42.19	0.000**
Sanitation	387	2.54	1.306	38.309	0.000**
External Environment	387	2.30	1.178	45.12	0.000**

Source: Primary Data
Mean significance @ 5%
** Significant P Value

If the mean value of the sample population is less than the designated value 4, it proves that quality of housing among rural households is poor. Here the mean value is less than 4 and the p value is <0.001. Thus, through statistical test of the tool, 't' test it is proved that the quality of housing is poor (Table 6.7).

6.3 Factors Affecting Housing Quality

The independent 't' test is used to analyse factors affecting Quality of housing like the age, education, marital status and gender of the household head, type of family, family assets and the type of ration card, religion community, and total income of household

Table 6.8
Factors Affecting the Quality of Housing

Factors	Household Characteristic	N	Mean	Std Deviation	F ratio/t Value	P Value
Gender of Household Head	Male	342	2.3936	0.51337	2.901	0.004
	Female	45	2.1583	0.49656		
Type of Family	Nuclear	314	2.3857	0.63782	8.094	0.005
	Joint	73	2.2810	0.62806		
Age of Household Head	Age less than or equal to 40	57	2.3659	0.77866	0.958	0.328
	Age more than 40	330	2.3682	0.79752		
Education of the Household Head	Household Head's Education Below Primary	135	2.6500	0.68993	2.032	0.053
	Household Head's Education Above Lower Primary	252	2.8194	0.82026		
Type of Ration Card	Pink Ration Card	337	2.8064	0.80183	3.023	<0.001 **
	Yellow Ration Card	50	2.4525	0.52846		
Religion	Hindu	338	2.760	0.79026	1.397	0.249
	Muslim	40	2.7313	0.71866		
	Christian	9	2.3625	0.62208		
Community	Scheduled Caste	167	2.4066	0.53531	2.928	0.034
	Scheduled Tribe	50	2.1692	0.53825		
	Other Backward Caste	158	2.3945	0.49278		
	Others	12	2.3576	0.42879		
Marital status	Married	349	2.3958	0.51537	2.544	0.039
	Unmarried	7	2.1964	0.74602		
	Widow	23	2.1540	0.46896		
	Widower	5	1.9417	0.30702		
	Divorce	3	2.0694	0.52759		
Total income of household	₹1000- ₹5000	225	2.1696	0.37494	35.904	<0.001 **
	₹5001- ₹10000	115	2.5876	0.53651		
	₹10001- ₹15000	43	2.788	0.61456		
	₹15001- ₹20000	4	2.8346	0.63217		

Source: Primary Data

The analysis on the factors affecting the quality of housing is made in this section, as given in Table 6.8. The factors that affect the quality of housing most were (a) type of ration card and (b) the income of the households, as the 'P' value is significant at 0.001 level in the't' test applied in the study. The income of the household is the most important factor that determines the quality of the 'house' that they build or buy. If a person has above average income, he or she can buy or build a 'good quality' house. Another factor that affects the quality of the house as analysed in this study is the type of ration card the households have. This ultimately goes back to the aspect of the income of the households. As already

mentioned in the study, 'Yellow Ration Card' holders are the weakest sections of the society and are termed as 'very poor' by the Public Distribution System and the Civil Supply Department. In the present study 50 households were yellow Card holders.

6.3.1 Housing Quality and Gender of Household Head

The major burden of providing the household a good quality house falls on the shoulders of the household head who is the decision maker in the family. Generally, in Kerala men hold the position of household head, however some women adorn this position due to conditions like divorce, death of husband, disease and alcoholism. Women are socially vulnerable compared to men because of low income, multiple responsibilities and restrictions imposed by the society. independent 't' test is used to analyse the occurrence of difference in housing quality among male headed and female headed households.

Hypothesis

H: "There is significant difference in quality of housing among male headed and female headed households".

The mean and standard deviation of male headed households in quality of housing is 2.3936 and 0.51337 respectively and female headed households is 2.1583 and 0.49656. 2 respectively. The quality of housing among both male headed and female headed households are poor but female headed households are poorer. The 'p' value is <0.005 and t value is 2.901 which is statistically significant. Thus, the hypothesis "There is significant difference in quality of housing among male headed and female headed households" is accepted.

6.3.2 Quality of Housing and Type of Ration Card

The ration card is allotted to poor households based on their financial conditions. Civil Supplies department of the Kerala government issues ration card to poor households based on their financial conditions. Yellow Anthyodaya Anna card is given to the most economically backward households. Pink Priority households are in a financially better position compared to yellow card holders. The housing quality of pink card holders, since they have more income and financial stability is better in comparison with yellow card holders.

Hypothesis

H: "There is significant difference in quality of housing among priority households (Pink Ration Card) and Anthyodaya Anna households (Yellow Ration Card)".

The mean and standard deviation of pink ration card households in quality of housing is 2.8064 and 0.80183 respectively and yellow ration card households is 2.4525 and 0.52846 respectively. The quality of housing is more among the pink card households. The 'P' value is <0.001 and 't' value is 3.023 which is statistically significant. Thus, the hypothesis "There is significant difference in quality of housing among priority households (Pink Ration Card) and Anthyodaya Anna households (Yellow ration card)" is accepted. The Yellow card holders are financially deprived and this reflects in their low housing quality.

6.3.3 Quality of Housing and Community

There is a wide disparity in quality of housing between socially marginalised communities like SC, ST and other communities like OBC. The concept of living and culture of ST are very much different from other communities. During the survey many ST houses had domestic animals like cow and goat tied inside one of the rooms and the inmates are accustomed to that practice. ST members are living as a closed community and they describe their living place as "ooru" and the houses were built by the authorities for them to live. These houses were built in close succession and the people living in these houses lack privacy.

The households are divided in to SC, ST, OBC and others. The SC and ST communities are socially and economically backwards compared to the other communities, this reflects in their housing quality also. ST members tend to live together with houses built side by side and it is called 'ooru'. Among ST houses many houses have animals tied inside the house and the interiors are dark without proper ventilation since the windows are covered with cloth or plastic sheet.

Hypothesis

H: "There is significant difference in quality of housing among households belonging to different communities".

The mean and standard deviation for housing quality among SC households are 2.4066 and 0.5331. The mean and standard deviation for housing quality among ST households are 2.1692 and 0.5385. The mean and standard deviation for housing quality among OBC households are 2.3945 and 0.49278. The mean and standard deviation for housing quality among other communities are 2.3576 and 0.49278. The F factor is 2.928 and the p value is 0.034 which is <0.001. Thus, the hypothesis "There is significant difference in quality of housing among households belonging to different communities" is accepted.

The Turkeys Honest Significance (Turkey HSD) Post hoc test is given in table 6.9. The table provides multiple paired comparisons of grouped mean for housing quality among SC households, ST households and OBC households.

Table.6.9
Post Hoc Table for Housing Quality based on Community

Community(I)	Community(J)	Mean difference (I-J)	Standard Error	P value
SC	ST	0.23748*	0.08316	0.023
	OBC	0.0122	0.05725	0.997
	Others	0.04901	0.15417	0.989
ST	SC	-0.23748*	0.08316	0.023
	OBC	-0.22528*	0.0837	0.037
	Others	-0.18847	0.16582	0.667
OBC	SC	-0.0122	0.05725	0.997
	ST	0.22528*	0.0837	0.037
	Others	0.03681	0.15446	0.995
Others	SC	-0.04901	0.15417	0.989
	ST	0.18847	0.16582	0.667
	OBC	-0.03681	0.15446	0.995

Source: Primary Data
Mean significance @ 5%
** Significant P Value

A significant mean difference of 0.23748 in housing quality exists between SC households and ST households with 'p' value 0.023which is less than 0.005. A significant mean difference of 0.22528 in housing quality was revealed by the test between ST households and OBC households with 'p' value 0.057 which is less than 0.005.

6.3.4 Quality of Housing and Income of the Household

Financial capability is the driving force to build a house or to do maintenance work in the house. Households with poor income spend their money on food, clothes and entertainment. The left-over income is very small which will not be sufficient to buy or build a good quality house.

Hypothesis

H: "There is significant differences in the quality of housing with the different levels of income". The mean value and standard deviation are 2.1696 and 0.3749 respectively. The 'P' value of the't' test is 0.001 which is significant. Income of the household is an important factor which determines the quality of housing. Therefore, the hypothesis "There is

significant differences in the quality of housing with the different levels of income" is accepted. It is thus, analysed that the quality of housing highly depends up on the income of the household, the better will be the quality of the houses they buy or build.

The Turkeys Honest Significance (Turkey HSD) Post hoc test for Quality of housing Based on the total monthly income of the household is explicated in Table 6.10. The multiple paired comparisons of means of quality of housing of households with different total monthly income ranges shows that the households with total monthly income ranges ₹1000- ₹5000, ₹5000- ₹10000 and ₹10000- ₹15000 shows significant differences.

Table 6.10
Post Hoc Table of Quality of Housing Based on the Total Monthly Income of the Household

Ranges of Income	Income	Mean Difference	Std Error	P Value
₹1000- ₹5000	₹5000- ₹10000	-0.40886*	0.05300	0.000
	₹10000-₹15000	-0.62662*	0.07755	0.000
	₹15000- ₹20000	-0.68144*	0.23286	0.019
₹5000- ₹10000	₹1000- ₹5000	0.40886*	0.05300	0.000
	₹10000- ₹15000	-0.21776*	0.08333	0.046
	₹15000- ₹20000	-0.27258	0.23485	0.652
₹10000- ₹15000	₹1000- ₹5000	0.62662*	0.07755	0.000
	₹5000- ₹10000	0.21776*	0.08333	0.046
	₹15000- ₹20000	-0.05482	0.24158	0.996
₹15000- ₹20000	₹1000- ₹5000	0.68144*	0.23286	0.019
	₹5000- ₹10000	0.27258	0.23485	0.652
	₹10000- ₹15000	0.05482	0.24158	0.996

Source: Primary Data
Mean significance @ 5%
** Significant P Value

A significant difference of 0.40886 in means of quality of housing exists between households with total monthly income ranges of₹1000- ₹5000 and ₹5000- ₹10000with p value <0.001. A significant difference of 0.62662 exists in means of quality of housing between households of total monthly income range ₹1000- ₹5000 and ₹10000- ₹15000 with p value <0.001. The test reveals households with income range ₹10000- ₹15000 and ₹5000- ₹10000 shows a significant mean difference of 0.21776 in quality of housing with p value 0.046 which is <0.05. A significant difference of 0.68144 in means of quality of housing

between households of total monthly income range ₹1000- ₹5000 and ₹15000- ₹20000 with p value <0.001. The test reveals households with total monthly income ranges of₹1000- ₹5000, ₹5000- ₹10000, ₹10000- ₹15000 and ₹5000- ₹10000 and explicates significant difference in means.

6.3.5 Quality of Housing and Assets

To assess the relationship between quality of housing and assets of the households Chi-square test is applied. The result of the Chi- square test is explicated in table 6.11. Assets such as Vehicles, Washing Machine, Fridge, Television and Gold in the form of 'saving' are considered here. Since the study is done for the BPL households, other aspects of assets like land, bank deposits, investments in the form of bonds, shares and debentures are not taken into consideration

Table 6.11
Quality of housing and Assets

Assets	Yes/ No	Housing Quality (Below Average)	Housing Quality (Above Average)	Total	Chi Square Result
Vehicle bike	Yes	91	67	158	Value = 9.297
	No	166	63	229	df =1 p= 0.002
Fridge	Yes	50	84	134	Value = 18.448
	No	187	66	253	df =1 p=<0.001*
Washing Machine	Yes	3	13	16	Value = 15.066
	No	254	118	372	df =1 p=<0.001*
Television	Yes	199	113	321	Value=4.977
	No	58	17	75	df =1 p=0.026
Gold Savings	Yes	49	43	92	Value = 17.575
	No	208	87	295	df =1 p= 0.004

Source: Primary Survey

The households with better income and better living conditions reside in good quality houses. Majority (53.74%) of the households do not have assets like gold in the form of savings. The common asset owned by the majority of the households are Television. It was found out that 321(82.94%) rural households own television, whereas 75 households do not own even Television. 158 (40.82%) rural households own bike, which is commonly used by the male members in rural households for reaching their worksite. Fridge is owned by 34.62 per cent of the households. It was observed that the households who own Television and fridge have better quality houses and was also analysed that 4.13 per cent of the households owned

washing machines and these households also had above average quality of houses. Further, it was analysed that 23.77 per cent of the households had gold in the form of ‘saving’.

The analysis done by statistical tools independent ‘t’ test and andchi square test proved that education, marital status and gender of the household head, type of family, total assets and the type of ration card, community, and total income of household are the factors affecting Quality of housing.

6.4 The Effect of Quality of Rural Houses on Life Satisfaction Using Housing Satisfaction as a Mediating Factor

Housing satisfaction of a person depends on multiple factors like quality of house, affordability of house, owner ship of house, neighbour hood charecteristics and other sociodemographic charectistics. In this section the effect of quality of rural houses on life satisfaction is analysed. Here the housing satisfaction is used as a mediation factor between Quality of Rural Houses and Life Satisfaction.

6.4.1 Life Satisfaction

A household’s life satisfaction is an aggregate of various domains of satisfaction like housing, health status, financial condition, job, leisure and environment (Praag et al., 2003). The indicators of life satisfaction among poor households in India are socioeconomic status, financial capabilities, housing,health status, family structure, social support, amount of social interactions, and the surrounding social environment in which they live and interact. Housing is one of the main factors which determines a family life satisfactionin. Life satisfaction in this study is measured by a composite score of seven point Likert scale questions on family, living conditions and life. Life satisfaction measures how people evaluate their life as a whole. (Yun, 2023)(Roudenska, 2023)(Su et al., 2022) and (Lorie and Sonija, 2001). Life satisfaction is assessed by a composite score of seven point Likert scale, self reported questions based on Dieners Satisfaction with Life Scale(SWLS). The satisfaction with life scale was developed to assess satisfaction with people’s life as a whole. The scale does not assess satisfaction with specific life domains, such as health , house , finance etc, but allows to integrate these domains in whatever way they choose (Diener and Pavot, 1993). The SWLS focuses on assessment of conscious evaluative judgement of life by using a person’s own criteria. In this self assessment instrument the household as a whole are required to indicate how much they agree or disagree with each of the five items on a seven point rating scale ranging from strongly agree to strongly disagree (Diener, 1984).

6.4.2 Housing Satisfaction

The feeling of fullfillment that arises from achieving what one needs or wishes in a home is housing satisfaction or residential satisfaction. Residential satisfaction is subjective and varies among populations regions and communities. The residential satisfaction is also considered as a persons perception of quality of life (Mohit, 2014). Here we are measuring only the housing charecteristics of residential satisfaction.Privacy in the residence, security, Facilities for members, space in the dwelling unit, hygiene, comfort in the house and Exernal environment (Abidin et al., 2019) are used to measure housing satisfaction.

The questions used for assessing the degree of satisfaction with the existing housing was measured by seven-point likert scale questions assessing the degree of satisfaction with the present housing. Poor housing satisfaction affects the physical and psychological health of the family there by decreasing housing satisfaction. Households spend a significant proportion of their time, energy and income over the house expecting to fullfill their desires. Eventually the quality of their house is reflected up on their housing satisfaction and life satisfaction.The current section examine the role that hosuing satisfaction plays as a mediator in the relationship between qualiy of rural houses and life satisfaction. The IBM SPSS AMOS Graphics 21 software package was utilised for the development of the mediation model, and the bootstrapping approach was employed for the purpose of evaluating the significance of the mediation in the model.

6.4.3 Mediation Analysis- An Overview

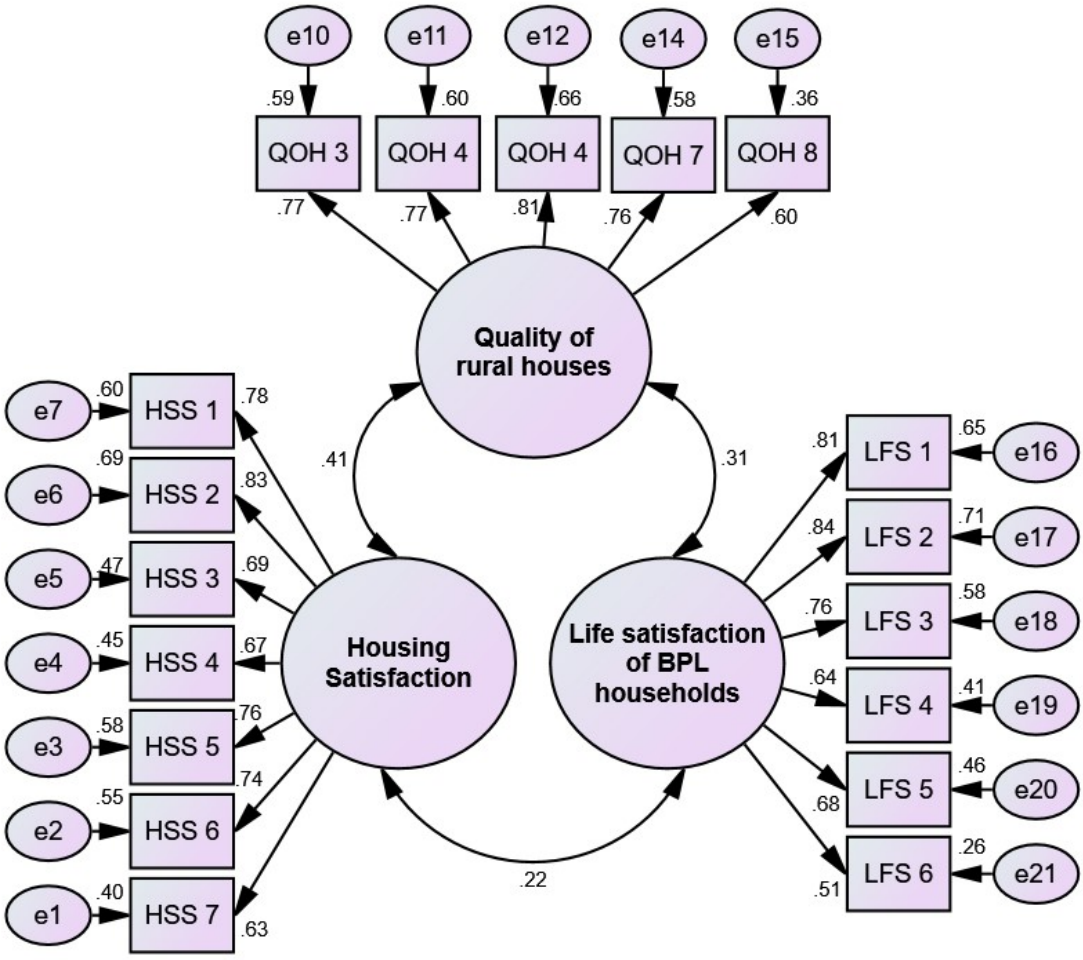
A mediation model is a form of statistical model that includes a third hypothetical variable known as a mediator variable in order to discover and explain the mechanism or process that underpins an observed association between an independent variable and a dependent variable. This is performed by including the independent variable as one of the model's variables (also a mediating variable, intermediary variable, or intervening variable). A mediation model proposes that the independent variable impacts the mediator variable, which then influences the dependent variable, rather than a direct causal link between the independent variable and the dependent variable. In other words, rather than directly influencing the independent variable, the mediator variable effects the dependent variable. As a result, the mediator variable's job is to provide light on the nature of the relationship that exists between the independent variable and the dependent variable. The purpose of mediation analysis is to get a better understanding of a previously established link by

analysing the mechanism or process by which one variable influences another variable via a mediator variable.

Quality of rural houses is the independent variable in this study, life satisfaction is the dependent variable, and housing satisfaction is the mediating variable. The bootstrapping method was used to assess the model for evidence of a mediation effect, often known as an indirect influence. The effect of quality of rural houses on life satisfaction of BPL households in Kerala using housing satisfaction as a mediating factor. The bootstrapping method was utilised to test the significance of the model's mediation function. The mediation model was developed using covariance-based structural equation modelling and the IBM SPSS AMOS Graphics 21 software package.

Figure 6.1:

Confirmatory Factor Analysis for the Mediating Model Constructs



Source: Primary Data

6.4.3.1 Confirmatory Factor Analysis for the Reliability and Validity (Measurement Model)

Table 6.12
Model Fit Indices for Confirmatory Factor Analysis for the Mediation Model

ATTRIBUTES	CMIN/DF	P-VALUE	GFI	AGFI	CFI	RMSEA
Study model	3.101	0.000	0.968	0.984	0.992	0.021
Recommended value	Acceptable fit [1-5]	Greater than 0.05	Greater than 0.9	Greater than 0.9	Greater than 0.9	Less than 0.08
Literature support	Hair et al., (1998)	Barrett (2007)	Hair et al. (2006)	Hair et al. (2006)	Hu and Bentler (1999)	Hair et al. (2006)

The ratio of minimum discrepancy to degrees of freedom is used as a measure of fitness in this mediation model. The ratio of Chi-Square to degrees of freedom needs to be less than 5 for a model to be considered valid. In this case, the value is 3.101, which is quite a bit lower than the suggested upper limit. The Root Mean square Error of Approximation (RMSEA) score of 0.021 is far below the threshold value of 0.08 for the RMSEA. Also, all three fit indices—the Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), and Comparative Fit Index (CFI) —are greater than 0.9, where 1.0 means an exact fit. As a result, the model fits well and can be used for further research(Table 6.12).

The observed variables of Quality of Rural Houses (QRH) are condition of house (QOH3), habitability (QOH4), security (QOH5), sanitation (QOH7), and external environment (QOH8). The observed housing satisfaction variables are Privacy in the residence (HSS1), security (HSS2) facilities for members (HSS3), space in the dwelling unit (HSS4), hygiene (HSS5), comfort in the house (HSS6) and external environment (HSS7). The observed life satisfaction variables are ideal life (LFS1), decent living conditions (LFS2), satisfaction with life (LFS3), provision of important things in life (LFS4), performance of children (LFS5) and outlook for future (LFS6).

Table 6.13
Final Reliability and Validity of CFA Model for Factors of Mediation Model

Factors in the Mediation Model	Item Code	Factor Loading	Cronbach's Alpha Final	AVE	Composite Reliability
Quality of Rural Houses (QRH)	QOH 3	0.77**	0.85	0.56	0.86
	QOH 4	0.77**			
	QOH 5	0.81**			
	QOH 7	0.76**			
	QOH 8	0.60**			
Housing Satisfaction (HSS)	HSS 1	0.78**	0.89	0.53	0.90
	HSS 2	0.83**			
	HSS 3	0.69**			
	HSS 4	0.67**			
	HSS 5	0.76**			
	HSS 6	0.74**			
	HSS 7	0.63**			
Life Satisfaction of BPL Households (LFS)	LFS 1	0.81**	0.85	0.51	0.86
	LFS 2	0.84**			
	LFS 3	0.76**			
	LFS 4	0.64**			
	LFS 5	0.68**			
	LFS 6	0.51**			

Source: Primary Data

*** indicates significant at 1% level*

Table 6.13 explains that all of the factor loadings are higher than the cut-off value of 0.5, which proves the item validity of the constructs. The present study used the Cronbach's Alpha reliability test after collecting full scale data. The final Cronbach's Alpha values are greater than 0.8, which means that the variables used to measure the construct are reliable. All of the constructs have Composite Reliability scores that are higher than 0.8. This means

that they have high levels of internal consistency reliability. Also, the Average Variance Extracted (AVE) values are higher than the >0.5 threshold value that is recommended. This leads to the conclusion that there are significant levels of convergence in all constructs. All the parameters are within the required range, so the data can be used to analyse and build models

Table 6.14
Discriminant Validity among the Factors of Mediation Model

Constructs	QHS	HSS	LFS
QHS	(0.75)		
HSS	0.41	(0.73)	
LFS	0.31	0.22	(0.71)

Source: Primary Data

Numbers in parentheses reflect the square root of the AVE scores, which must be greater than the values of the latent variable correlation in order to prove that there is no link between the various constructs. The table 6.14 clearly explains that there is no correlation between the constructs and supports the discriminant validity of the mediator variables.

6.5 Construction of a Mediation Model and Hypothesis Formulation

Life satisfaction tries to define the overall view of a person's life as a whole. here in this study the overall life satisfaction of the household is evaluated and correlated with the housing satisfaction and housing quality. Households who experience housing difficulties are less satisfied with their life than those who do not (Hu, 2022). On the other hand, residential satisfaction/housing satisfaction is a multidimensional concept based on the evaluation of a person regarding their dwelling place. The residential satisfaction is influenced by many personnel characteristics like socioeconomic status, personality and life satisfaction.

Fig 6.2
Connections between Housing Satisfaction, Life Satisfaction and Housing Quality

Housing satisfaction, life satisfaction and housing quality are all interconnected. This model explores the complex interconnections between housing satisfaction life satisfaction and housing quality (fig.6.2). In the present study a conceptual model was built to explain the relationship between housing quality and life satisfaction with housing satisfaction as the mediating factor. It serves as the foundation for the entire SEM analysis, guiding the formulation of hypothesis, selection of variables, and the specification of relationship among the constructs. It outlines the theoretical framework and the expected relationship among the independent and dependent variables. The conceptual model given in figure 6.2 hypothesise that the relationship between relationship between housing quality and life satisfaction is mediated by intermediate variable housing satisfaction and specifies the pathways of relationships. Based on the conceptual model the following hypothesis is developed.

Mediation effect hypothesis 1

H. Quality of rural house has positive and direct effect on life satisfaction.

Mediation effect hypothesis 2

H. Quality of rural house has positive and direct effect on housing satisfaction

Mediation effect hypothesis 3

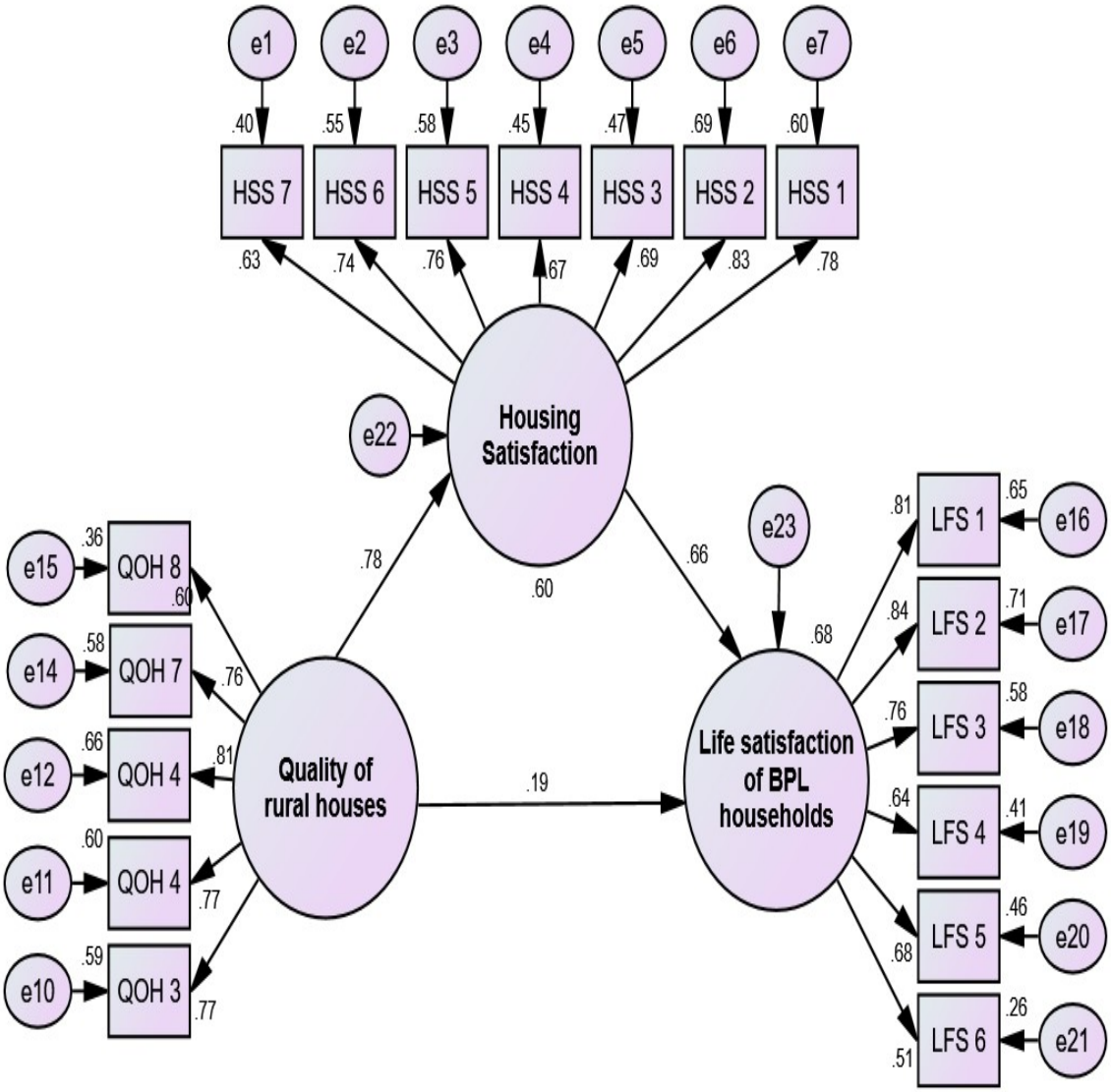
H.Housing satisfaction has positive and direct effect on life satisfaction.

Mediation effect hypothesis 4

H.Housing satisfaction has a mediating role in the relationship between quality of rural houses and life satisfaction.

Fig 6.3

Mediation Model which Measures the Indirect Relationship Between Quality of Rural Houses and Life Satisfaction of BPL Households via Housing Satisfaction



Source: Primary Data

Table 6.15
Fit Indices for Testing the Moderating Model

ATTRIBUTES	CMIN/DF	P-VALUE	GFI	AGFI	CFI	RMSEA
Study model	2.542	0.000	0.985	0.961	0.992	0.021
Recommended value	Acceptable fit [1-5]	Greater than 0.05	Greater than 0.9	Greater than 0.9	Greater than 0.9	Less than 0.08
Literature support	Hair et al., (1998)	Barrett (2007)	Hair et al. (2006)	Hair et al. (2006)	Hu and Bentler (1999)	Hair et al. (2006)

Source: Primary Data

The Chi-Square to degrees of freedom ratio should be less than 5 for an appropriate model. In this case, the result is 2.542, which is well inside the specified maximum limit. The RMSEA score is 0.021, which is much lower than the suggested minimum threshold of 0.08. Furthermore, the GFI, AGFI, and CFI values are greater than 0.9, where 1.0 indicates an identical match. As a result, the mediation model appears to be a good fit (Table 6.15).

Table 6.16
Path Values of Direct Effects in the Mediation Model

Construct	Path	Construct	Estimate	S.E	C. R	P-value	Result
Life satisfaction	←	Quality of rural houses	0.19	0.028	3.12	<0.001**	Significant
Housing satisfaction	←	Quality of rural houses	0.78	0.031	14.24	<0.001**	Significant
Life satisfaction	←	Housing satisfaction	0.66	0.036	12.35	<0.001**	Significant

Source: Primary Data

** denotes significant at 1% level

Figure 6.16 depicts the direct and positive relationship between quality of rural houses and life satisfaction, quality of rural houses and housing satisfaction, and there is positive and direct relationship between housing satisfaction and life satisfaction. It can be observed that

quality of rural houses has a positive and significant effect on the life satisfaction with a path value of 0.19, quality of rural houses has a positive and significant effect on the housing satisfaction with a path value of 0.78, and housing satisfaction has a positive and significant effect on the life satisfaction with a path value of 0.66. Standardized regression coefficients are the values that are associated with each path, and they indicate the amount of change that occurs in the dependent construct in response to a change in the independent variable that is equal to one standard deviation unit. This change in the independent variable is what causes the standardised regression coefficients to be calculated. The following table contains a listing of the values that are connected to the various paths that can be taken.

Table 6.17

Result Summary of the Hypotheses Testing (direct effects) in the Mediation Model

Construct	Path	Construct	Hypotheses	Result
Life Satisfaction	←	Quality of rural houses	Quality of rural house has positive and direct effect on life satisfaction.	**Supported**
Housing Satisfaction	←	Quality of rural houses	Quality of rural house has positive and direct effect on housing satisfaction.	**Supported**
Life Satisfaction	←	Housing satisfaction	Housing satisfaction has positive and direct effect on life satisfaction.	**Supported**

Source: Primary Data

Table 6.17 Shows the result summary of the hypothesis testing in the mediation model. The hypothesis quality of rural house has positive and direct effect on life satisfaction is supported. The quality of rural house has positive and direct effect on housing satisfaction is supported. The housing satisfaction has positive and direct effect on life satisfaction is supported

Table 6.18
Mediating Testing in the Model (direct and indirect effect paths) Using Bootstrapping Procedure

Independent construct	Mediation construct	Dependent construct	Direct effect	Indirect effect (Mediation effect)	Result
Quality of rural houses	Hosing satisfaction	Life satisfaction of BPL households	0.19**	0.51**	**Partial mediation**

Source: Primary Survey

** denotes 1% significant level; Indirect effect values are computed through bootstrapping procedure with 5,000 bootstrap samples

Table 6.18 reveals that the direct and positive effect of quality of rural houses and life satisfaction and indirect and positive effect of quality of rural houses and life satisfaction of BPL households via housing satisfaction. The bootstrapping (5000 bootstrap samples) approaches, together with the IBM-SPSS-AMOS Graphics -21 software package, are utilised in this investigation to examine the mediating effects of various pathways. In spite of the fact that the direct influence that they have on one another is still rather significant, the results of the mediation test suggest that the mediated effect is only partially present. Here, the partial mediation implies that there is not only a significant relationship between the mediator (housing satisfaction) and the dependent variable (life satisfaction), but also some direct relationship between the independent (quality of rural houses) and dependent variable (life satisfaction).

The statistical findings indicate that quality of rural houses directly enhances the life satisfaction of the BPL households in rural areas of Palakkad district. In addition to this, quality of rural houses increases the housing satisfaction, which in turn increases the life satisfaction of the BPL households in rural areas of Palakkad district. It proves that increased house satisfaction is another important factor contributing to the life satisfaction of the BPL households in rural areas in Palakkad district, in addition to the quality of rural housing. In order for BPL households to have a higher level of life satisfaction regarding the quality of their housing, it is necessary for such households to be satisfied with their housing facilities. If there is a considerable rise in the housing satisfaction of BPL households in rural areas of

Palakkad district, there would be an increase in the overall life satisfaction of these households.

6.6 Summary

The purpose of this chapter was to meet the third objective of the study, which was to find out the factors affecting the quality of rural housing. Firstly, the role of household head characteristics like gender, marital status, and education of the household head as well as the household characteristics like total income, community, type of family, assets and type of ration card in the housing quality were found to be statistically significant. Secondly, the studyevaluated the role of housing satisfaction as a mediator in the relationship between the quality of housing and life satisfaction. According to the results of the mediation test, there is an influence that is both positive and partially mediating between the quality of housing and overall life satisfaction. The significance of the mediation effect was confirmed using the bootstrapping techniques and the IBM-SPSS-AMOS-21 software package, which were used to evaluate the mediation effects of various pathways. The bootstrapping procedures used 5000 bootstrap samples. This study found out that the housing quality is a multifactorial problem and needs a personalised solution. Each household has its own unique hurdle to cross when they plan to build a house. The policy makers and programme implementers should consider the above factors affecting housing quality before initiating any new programme.

CHAPTER 7

MAJOR FINDINGS RECOMMENDATIONS AND CONCLUSION

7.1 Introduction

"Housing is stability, housing is dignity, housing is absolutely necessary critical infrastructure". Raphel Warnock

The need for housing started right from the evolution of human civilisation. The studies reviewed have revealed that two third of the Indian population and half of the population of the state of Kerala reside in rural areas. However, the housing needs of the rural households are unmet and the inadequate housing of the poor in rural areas hinder the community from achieving a healthy, progressive and efficient living. The social behaviour and well-being of the households are greatly affected by the housing. House is not just four walls and roof to provide shelter but, new dimensions of adequate habitat in terms of efficiency and utility are needed for economic development and well-being. The rural households in Kerala with low socioeconomic status have to live in poor condition houses. Lack of housing facilities like good condition houses, safe drinking water, proper water drainage system, approach road, water supply to kitchen, sufficient space, adequate ventilation, protection against rain and poor accessibility affects the lives of rural households.

The rural areas lag behind urban areas in infrastructure and development which affects the housing sector also. The households in rural areas have poor physical condition of housing and poor financial condition which is reflected in their well-being. The house which has profound influence on the well-being of the households, plays as a fulcrum in controlling the lives of rural poor. The poor rural houses are deprived of many facilities which negatively affects their well-being. Adequate house should be considered as a fundament right of every individual where the government should play an active role in facilitating the household to build it. Kerala has achieved tremendous achievements in the housing sector over the years starting from 1950 Land Registration Act and One Lakh Housing Scheme to Life Mission. From 1970 onwards building construction and investment in housing has become the major economic activity in the state. Even though the governments in all times are making interventions to tackle the problem of housing the poor and under privileged sections in the society are still living in poor quality houses. The housing problem in the state is mainly qualitative not quantitative. The housing conditions and financial conditions of the rural households have impacts on the overall well-being of the households.

7.2 Major Findings of the Study

The present research work made an in-depth analysis on housing conditions of rural BPL households in the district of Palakkad. Three objectives were set forth for the study and they are presented here.

1. To study the rural and urban housing conditions in India and Kerala
2. To assess the physical and financial conditions of housing among rural BPL households in Palakkad
3. To analyse the factors affecting the quality of rural housing among rural BPL households in the district of Palakkad.

7.2.1 Rural and Urban Housing Conditions in India and Kerala

The secondary data was taken from Census Reports of 2001 and 2011 to study the rural and urban housing conditions in Kerala and India.

- Rural population is higher than urban population in India over the years 1991, 2001, 2011. In 2011 rural population in India (833 million) was twice the urban population (377 million). The burden of overpopulation was clearly over the rural sector, which is analysed as the root cause for housing deprivation. Rural Indian households were twice (168 million) the number of urban Indian households (80 million). The percentage of rural houses were depicting a decreasing trend from 1991 (73.31%) to 2011 (66.71%). This may be due to the rural to urban migration for better facilities.
- Rural population in Kerala has declined from 21.4 million in 1991 to 17 million in 2011 whereas, urban population in Kerala had increased form 7.6 million to 15 million. The percentage of rural houses in Kerala was 74.96 in 1991 but it fell to 53 .09 per cent in 2011 and on the other hand, urban households in Kerala increased from 26.4 per cent to 47 per cent. In Kerala the percentage of residential houses were more in the rural sector throughout the three Census periods, but like the national scenario the percentage of rural houses were decreasing and the percentage of urban houses were increasing from 1991 to 2011. This indicates that Kerala was undergoing rapid urbanisation, which was due to the slow development of the rural areas. People were forced to migrate to urban or semi-urban regions to in search of better services, income and infrastructure.
- Home ownership status in India has increased over the years in both urban and rural areas. The rural households with own houses were increased from 1961 to 2011

Census years. The percentage of households who own a house was higher for rural households compared to the urban households in all Census Reports from 1961 to 2011. This was due to the rural custom of land inheritance and practise of low-cost house construction.

- The proportion of households with own houses were higher in the rural areas compared to urban areas in Kerala. The percentage of households with own houses in Kerala was higher than urban households throughout the Census period 1961 to 2011. This portrayed a gradual increase from the Census year 1971 to the Census year 1991, but from 1991 onwards the percentage of rural households with own houses decreased from 95.34 per cent to 92.77 per cent in 2011. This was due to the rapid urbanisation in Kerala. The rural-urban gap in ownership decreased from 1981 Census onwards. During 1961 there was a difference of 18.9 per cent between rural and urban households. The difference reduced to 4.4 per cent during the Census year 2011.
- In the Census year 2001, 3.4 per cent of the rural households and 2.3 per cent of the urban households in India had no exclusive room for living and 39.8 per cent of the rural and 35.1 per cent of the urban households had only one room for living. In the Census year 2011, 4.3 per cent of the rural and 3.1 per cent of the urban households had no exclusive room for living and 39.4 per cent of the rural and 32.1 per cent of the urban households lived in one room houses. The proportion of households with one room and no exclusive room for living; that is houses with space deprivation were more among rural households (43.7%) compared to the urban households. The households living in houses with more than four rooms were13.4 per cent and 11.4 per cent in the rural areas for 2001 and 2011 Censuses respectively and 16 per cent and 15.9 per cent in the urban areas for 2001 and 2011 Censuses respectively. The rural-urban disparity with higher proportion of rural households with inadequate living space is proved by the data.
- In Kerala during the Census years 2001 and 2011, 1.71 per cent and 1.2 per cent of the rural households respectively lived in houses with no exclusive rooms and on the other hand 1.13 per cent and 0.9 per cent of the urban households lived in houses with no exclusive rooms. During the Census years 2001 and 2011, 11.58 per cent and 8.1 per cent of the rural households respectively and 9.05 per cent and 6.3 per cent of the urban households respectively, lived in one room houses. The percentage of households with houses having four bedrooms and above for the Census periods 2001 and 2011 were 31 per cent and 32 per cent for the rural households respectively and

32.4 per cent and 38.58 per cent for the urban households respectively. The rural households had a higher percentage of houses with no exclusive room and one dwelling room for living both during the Census periods of 2001 and 2011. On the other hand, the urban households had a higher percentage of houses with three rooms and four rooms for living.

- In India, During the Census period 2001, only 44 per cent of the rural households used electricity but during the same period 88 per cent of the urban households were using electricity. Along the same period 56 per cent of the rural households used kerosine as their source of lighting whereas only 12 per cent of the urban households used kerosine as the source of lighting. In the Census year 2011, 55 per cent of the rural households and 93 per cent of the urban households used electricity and 43 per cent of the rural households used kerosine for lighting while only 9 per cent of the urban households used kerosine. A higher proportion of the urban households had electricity connection than the rural households whereas a higher proportion of the rural households used kerosene as the source of lighting than the urban households. Therural-urban disparity in the percentage of electrification among Indian households is evident from the data
- In Kerala, During the Census year 2001, 65.5 per cent of the rural households and 84.38 per cent of the urban households used electricity as the source of lighting. Regarding the use of kerosine as the source of lighting, 33.8 per cent of the rural households and 15.12 per cent of the urban households used kerosine. During the 2011 Census period, 92.1 per cent of the rural households and 97.19 per cent of the urban households used electricity. A higher proportion of rural households use Kerosine as the source of lighting compared to urban households Thus the study has analysed that there was clean fuel deficiency among rural households.
- In India, as per the Census of 2001, 69.3 per cent of the rural households and 26.3 per cent of the urban households did not have latrine and water closets was used by 46.1 per cent of the urban households but only 7.1 per cent of the rural households used water closet latrine. As per 2011 Census, in India, 78.1 per cent of the rural household did not have own latrine whereas 18.6 per cent of the urban households had own a latrine and 19.4 per cent of the households owned water closet latrine. On the contrary, 72.6 per cent of the urban households owned water closet latrine. Thus, the study found out that there was a large rural-urban disparity in the case of latrine facility.

- In the state of Kerala, a higher percentage of the urban households used water closet latrine compared to the rural households and the rural households lacked proper latrine facilities. As per the Census 2001 in Kerala, water closet latrine was used by 62 per cent of the rural and 74.8 per cent of the urban households. The rural households with no latrine facility were 18.7 per cent and 8 per cent of the urban household had no latrine facility. In the Census 2011, 59.1 per cent of the rural households and 75.3 per cent of the urban households used water closet latrine, moreover 6.8 per cent of the rural and 2.6 per cent of the urban households did not have latrine facility. The rural households in Kerala lags behind urban households in latrine availability.
- The urban households in India had a greater availability of safe drinking water due to their access to tap water. In the Census year 2001, 24.2 per cent of the rural households and 68.7 per cent of the urban households used tap water for the purpose of drinking. As per 2001 and 2011 Censuses more than double the urban households in proportion with the rural households used tap water for drinking. As per Census 2011, 30.9 per cent of the rural households and 70.6 per cent of the urban households used tap water for drinking. The rural urban disparity exists in availability of safe drinking water in India.
- In Kerala the main sources of drinking water are well, tap water and tube well. As per 2001 Census, 13.9 per cent of the rural and 39.9 per cent of the urban households used tap water for drinking. As per 2011 Census, tap water was used for drinking by 26.52 per cent of the rural and 36.43 per cent of the urban households. Major source of drinking water for rural households in Kerala is well water. Thus, rural households have shortage of safe drinking water.
- The housing shortage in rural India was mainly due to the temporary obsolete houses. The urban households shared a higher percentage of permanent houses (79.2%) compared to the rural households (41%). Rural areas had higher percentage of households with semi-permanent houses, having 35.8 per cent compared to the 15.5 percentage of the urban households. The rural households who lived in temporary houses were 23.2 per cent compared to 5.3 per cent of the urban households. During the Census period of 2011, only 51.36 per cent of the rural households had permanent houses compared to 84.28 per cent of the urban households. The rural households living in semi-permanent houses were 31.48 per cent whereas only 11.6 per cent of the urban households had semi-permanent houses. The rural urban variation was high

with respect to temporary houses, with 3.18 per cent urban households living in temporary houses and 16.16 per cent rural households living in temporary houses. As per 2001 and 2011 Censuses, the rural households in India owned a higher percentage of semi-permanent and temporary structured houses in comparison with the urban households but the urban households owned a higher percentage of permanent houses. Thus, the study found out that there was rural deprivation in housing.

- It was found out that during 2001 and 2011 Census periods in India, the dilapidated houses were more in rural areas than in urban areas.The dilapidated houses in the rural sector were 6.2 per cent whereas it was just 3.63 per cent in the urban areas. The percentage of households with dilapidated houses in rural areas was 6.52 per cent and was higher compared to the urban sector (2.88%) with a percentage change of 3.64.
- The Census of 2001 with regard to Kerala vividly explained that 64.6 per cent of the rural households had permanent houses while the urban households had a higher percentage of permanent houses (78.87%).In the Census year 2011, the percentage of permanent houses were higher among urban households (88.41%) and lower in rural households with 70.24 per cent. The percentage of temporary and semi-permanent houses are more among the rural households whereas the permanent houses were more among the urban households. Thus, rural housing deprivation was present in housing in Kerala
- In the census years 2001 and 2011 The rural urban disparity was also evident with respect to of material of floor, wall and roof used for house construction highlighting the backwardness of the rural households both in India and Kerala. The rural households opt for low cost and less durable building materials due to their low income and lack of purchasing power.
- In India rural areas were deprived of the healthy and environment friendly options for cooking compared to the urban areas. The rural-urban disparity continued from the Census period of 2001 to 2011. It was found out that 1.21 per cent of the rural households and 26.92 per cent of the urban households used LPG during the Census period 1991 with a rural-urban gap of 25.71 per cent but during the Census period of 2011 the rural-urban gap widened to 54 per cent. Majority of the urban households (65%) were using LPG by the year 2011, whereas, among the rural households, it was only 11 per cent.
- In Kerala, during the Census period of 2001, 11.92 per cent of the rural and 35.05 per cent of the urban households used LPG for cooking. The rural-urban gap was 23.13.

In Kerala, during the Census period of 2011, 23.7 per cent of the rural households used LPG as cooking fuel whereas it was analysed that 48.4 per cent of the urban households used LPG as cooking fuel during the same period. The rural households were deprived of clean cooking fuel compared to urban households

7.2.2 Housing Conditions among BPL Households in the District of Palakkad

As per the objective set up of the study, the analysis on the housing conditions of the BPL households is the second objective of the study. The analysis was carried out with the data obtained through primary survey. In the first part of the analysis, a brief socio-economic profile was undertaken. In the second part of the analysis, the effects of physical and financial conditions of rural housing among the BPL households on the overall well-being, such as improvement in health, material well-being, education, social interaction and personal safety were analysed using the Covariance Based Confirmatory Factor Analysis (CB-CFA) and Structural Equation Modelling (SEM). The physical and financial conditions of the rural BPL households in Kerala were considered for predicting the overall well-being of the rural BPL households in Kerala.

- Among the Hindus, 42.7 percent households were SC, 13.02 per cent households were ST, 28.64 per cent households were OBC and 4.42 per cent households belonged to the general category.
- It was analysed that 85.27 per cent of the household heads were married men,4.9 per cent were married women, 1.5 per cent were unmarried male, 5.94per cent were widows and 0.5 per cent were divorced female persons.
- It was found out that 4.1 per cent of the household heads were illiterate and 34.88 percent household heads have below primary education. It was also found out that only 12.4 per cent of the households had at least one member with a degree. It was found out that poor housing condition had close association with low level of education.
- The first physical condition analysed was the condition of the 'wall of the houses'. It was found out that 20.9 per cent of the houses had 'very poor conditioned' walls and 39.27 per cent of the houses had 'poor conditioned' walls. It was observed that not a single house had an excellent wall for the houses. Thus, in general the physical

condition of the wall of the houses were not up to the standard. It was analysed that 43.4 per cent of the households had concrete walls for the houses.

- Secondly, the condition of the 'roofs of the houses' was analysed. It was found out that 22.22 per cent of the houses had 'very poor conditioned roofs', 41.34 per cent had 'poor conditioned roofs' and 18.86 per cent had 'below average conditioned roofs'. It was further analysed that 52.97 per cent of the houses had leakages of the roofs. It was also observed that newly built houses also had leakages.
- The third physical condition of the houses analysed was the 'floor of the houses'. The study analysed the that 12.14 per cent of the households had their house floors made of mud and cow dung. The conditions of floor of 9.81 per cent were very poor and 27.39 per cent had poor condition floorings. The study also found out that 47.02 per cent of the households had floor plastered with cement and 10.59 per cent of the households had partially tiled floors.
- The study further analysed the 'age of houses'. It was found that 17.31 per cent of the houses were less than five years old, i.e., they were newly built houses and 20.8 per cent of the newly built houses had leakage of the roofs. Among the houses which are more than 20 years old, 71.73 per cent houses have leakage from roof. Poor maintenance of the houses was observed for the old houses.
- Thelatrine facility was analysed and it was observed that only 14.2 per cent have attached latrine and 82.9 per cent households have toilet within the premises. It was further found out that2.8 per cent households have no proper latrine facility and only 0.5 per cent of the households have tap water supply to the toilet.
- The other physical conditions examined and analysed by the study were separate kitchen for cooking, pipe connection to the kitchen, drinking water facilities to the houses, access to road and waste management. It was analysed that 33.3 per cent of the houses had no separate kitchen for cooking, and 81.65 per cent of the houses had no proper water supply to the houses and to the kitchen. There was water scarcity among 72.87 per cent of the households. The source of drinking water for 63 per cent of the households were pipe water. There was no proper road to the house for 15 percent of the households. It was found out that the waste water was not properly disposed by 80.9 per cent of the households and the biodegradable solid waste was also disposed in the open area by 85 percent of the households. Plastic waste was disposed by throwing in the backyard by 6.5 percent of the households.

- . The variables analysed under the physical conditions were the structure of the houses such as Condition of Roof, Condition of Floor, Condition of Wall, House Design, Water Supply, Latrine Facility, Kitchen Facility and Waste Management. Statistical tool of 't' test was applied to test whether the physical conditions of the houses were statistically significant. The mean value of the sample population was less than the designated value 4 and proved that the physical condition of houses among the rural BPL households were poor.
- The statistical tool of 't' test was applied to test the financial conditions of the rural BPL household. The financial conditions considered were (a) total income, (b) unexpected expenses, (c) expenditure, (d) saving habits, (e) financial security (f) budgeting practices (g) total debt and (h) total assets. The 't' test proved that the financial conditions among the rural BPL households in the district of Palakkad was poor, since the mean value was less than 4.
- The statistical analysis by independent 't' test and ANOVA among the rural BPL households proved that gender, marital status and education of household head, type of family, type of ration card, community and total monthly income of the household has significant effect on the Physical condition of household.
- The statistical tools independent 't' test and ANOVA among the rural BPL households proved that gender, marital status and education of household head, type of ration card, type of family, community and total monthly income of the household has significant effect on the financial condition of the household.
- Study also applied Covariance Based Confirmatory Factor Analysis (CB-CFA) and Structural Equation Modelling (SEM) to test the effects of physical and financial conditions of the rural BPL households on the overall well-being. The Structural Equation Model applied in the study statistically proved that physical conditions of the rural housing andfinancial conditions of the rural housing among the BPL household had a positive impact on their overall well-being. The physical and financial conditions of rural BPL households in were responsible for explaining major share (73%)of the variation in overall wellbeing such as health improvement, education, material well-being, social interaction, and personal safety.

7.2.3 Factors Affecting the Quality of Rural Housing among BPL Households

- The study analysed material used for house construction and found out the that 18.3 per cent mud wall houses and 1.8 per cent Asbestos/Thatch/Grass Plastic/Polythene wall houses, 1.8 per cent metal roof houses,4.9 per cent asbestos plastic, polythene, grass and thatch material roof houses and 12.14 per cent mud floor houses were present. Further, 4.90 per cent houses have temporary roof and 20,37 per cent houses have temporary wall.
- It was observed that 69.50% houses lack proper ventilation and 67.18 per cent of the houses had no proper lighting. Also,40.2 per cent rural BPL households live in houses with total area less than 400 square feet.
- Quality of rural houses are determined the variables type of building materials and present condition of house, house design, availability of services, overcrowding, safety and security, location, sanitation, external environment. The study proved by independent t test and chi square test that education, marital status and gender of the household head, type of family, total assets and the type of ration card, community, and total income of household are the factors affecting Quality of housing.
- The age of the household heads played a significant role in determining the quality of rural housing. The mean of the quality of housing among household heads less than 60 years was higher in comparison with that of household heads more than 60 years of age.It was found out that education of the heads of the household had a significant role in the quality of rural housing. The quality of housing was better for the houses of the household heads with above primary levels of education.
- The study found out that the quality of housing varied between the ‘Pink Card holders’ and ‘Yellow Card holders’. The ‘Yellow Card holders’ are financially deprived and this reflected in the quality of the houses they live. The quality of housing was better for the 'Pink card' holders since they have more income and financial stability was better in comparison with the 'Yellow card' holders.
- There were significant differences in the quality of housing among the households belonging to different communities. The quality of houses of the STs were ' very poor' followed by the SCs.Quality of rural houses are determined the variables type of building materials and present condition of house, house design, availability of services, overcrowding, safety and security, location, sanitation, external environment. The study

proved by independent t test and chi square test that education, marital status and gender of the household head, type of family, total assets and the type of ration card, community, and total income of household are the factors affecting Quality of housing.

- The mediation model was developed using Covariance-Based Structural Equation Modelling, to analyse the effect of quality of rural houses on life satisfaction of BPL households in Palakkad using housing satisfaction as a mediating factor. The statistical findings indicated that the quality of rural houses directly enhanced the life satisfaction of the BPL households in Palakkad. It proved that increased housing satisfaction is another important factor contributing to the life satisfaction of the BPL households in Palakkad, in addition to the quality of rural housing. For BPL households in Palakkad to have a higher level of life satisfaction regarding the quality of their housing, it is necessary for such households to be satisfied with their housing facilities

7.3 Contributions of the Researcher

The major thrust of the present study was to analyse the physical and financial conditions of the housing, the quality of housing and the factors affecting the quality of houses among the rural BPL households in the district of Palakkad. The study further analysed the conditions of housing in the areas of health, social interactions, education, personal safety and material wellbeing. The study brought out the fresh finding that the physical conditions of the housing of 52.97 per cent of the rural BPL households were very poor. The rural BPL houses were poorly maintained. It was analysed that 33.33 per cent of the houses did not have “separate kitchen”. The rural BPL houses lacked access to clean drinking water, latrine facilities, cooking fuel, power availability and permanent house building materials. The study explicates that gender, marital status and education of household head, type of family, type of ration card, community and total monthly income has significant effect on the Physical condition house of BPL households in the rural Palakkad. The factors with significant effect on the financial condition of the house hold are gender, marital status and education of household head, type of ration card, community and total monthly income.

The present study applied the statistical tools of‘t’ test, ANOVA and Structural Equation Models. The application of SEM to test the effect of housing conditions on the overall well-being such as improvement in health, material well-being, education, social interaction and personal safety analysed that the physical and financial conditions of rural BPL households in Palakkad was responsible for explaining 73 per cent of the variations

in the overall well-being. The quality of housing was affected by the age of the household head, the education of the household head, community of the households, gender of the household head, type of family, marital status of the household head, asset owned by the household head and income of the household head. The effect of the quality of housing of rural BPL households on life satisfaction of BPL households in Palakkad was analysed using housing satisfaction as a mediating factor. The study found out that there was a direct and positive relationship between the quality of rural houses and life satisfaction, quality of rural houses and housing satisfaction and that there was positive and direct relationship between housing satisfaction and life satisfaction.

7.4 Areas of Further Research

- A comparative study could be undertaken in the area of sanitation among the rural and urban BPL households.
- A study on the evaluation of domestic waste management programmes implemented by the Local Self Government among rural BPL households using the same methodology can be undertaken in the near future.
- A study on the economic sustainability of low cost strong and durable housing with available technology can be conducted.
- Studies on financial sources for house construction among rural BPL households emphasizing the role of the local self-governments can be undertaken.
- Studies on 'community housing' for rural BPL households could be undertaken.

7.5 Policy Implications

Housing is one of the primary needs of a citizen and the government has the obligation to provide adequate housing to the people. The following policy recommendations can successfully tackle the challenges of housing sector in the future.

- The present study invites the kind attention of the policy makers in Kerala to make necessary changes in the qualifying criteria for provision of housing scheme allotment and so, it should not be denied to those who deserve it.
- The households should have a say in the design of their house since each family's requirements are unique. The Authorities should provide more manpower into the housing scheme department so that every household can build house according to their needs especially the designs of the houses rather than making it uniform.
- Government should provide separate plans and policies for vulnerable people like ST communities. The houses are built in tribal settlements, but the marginalisation

of the communities persist since they areliving in settlements which have no proper accessibility of infrastructure. Their access to the mainstream society is limited.

- ❖ Government should start long term plans for housing schemes like encouraging poor households to save money for house construction and then allotting the housing scheme.
- ❖ The authorities should improve rural infrastructure like roads schools and other institutions simultaneously with housing programmes.
- ❖ Vulnerable people like Physically Handicapped, Differently Abled and Destitutes need more help in comparison with the general public. The government should provide technical help, raw material and manpower for these people who are incapable of building a house by themselves.
- ❖ The findings of the present study brought out that the quality of the newly built houses under various schemes were very poor. The policy makers and the authorities in the Local Self Governments should take care to check the quality and certify it before allotting it to the rural poor and needy.

7.6 Conclusion

"Affordable housing isn't a benefit; it's a right and the foundation of a just society".

UN World Habitat

The physical and financial conditions of housing among rural BPL households and the factors affecting the quality of rural housing were analysed in the present study. The variables analysed under the physical conditions were the structure of the houses such ascondition of roof, condition of floor, condition of wall, house design, water supply, latrine facility, kitchen facility and waste management.The variables analysed in the financial conditions were income, financial security, budgeting practices, savings, expenses, assets and debts. The most important finding of the study was that the housing conditions of rural BPL households in the district of Palakkad were "very poor". The study proved that gender, marital status and education of household head, type of family, type of ration card, community and total monthly income has significant effect on the Physical condition of household. The study found out that gender, marital status and education of household head, type of ration card, community and total monthly income has significant effect on the financial condition of the house hold.The study also investigated the effects of physical and financial conditions on the

well-being of rural BPL households in the district of Palakkad. Physical and financial conditions of the rural BPL households were taken as important variables to predict the overall well – being of the rural BPL households in Palakkad. The variables analysed under the quality of housing were type of building materials and present condition of house, house design, availability of services, overcrowding, safety and security, location, sanitation and external environment. The study brought out the fresh finding that the factors affecting the quality of rural housing were the education gender and marital status of the household head, community, type of family, type of ration card assets owned by the household and total income of the household. The study further found out that there was direct and positive relationship between the quality of houses and life satisfaction, quality of rural housing and housing satisfaction and that there was a positive and direct relationships between housing satisfaction and life satisfaction. The study thus concludes by suggesting that the Government of Kerala should take enough steps to ensure good quality for the houses built under various schemes to improve the life satisfaction through housing satisfaction.

BIBLIOGRAPHY

Bibliography

Abidin, N. Z, Mohamad Isa Abdullah, Noraliza Basrah and Muhammad Nazim Alias. (2019). Residential Satisfaction: Literature Review and A Conceptual Framework. *IOP Conference Series: Earth and Environmental Science, 385 (1) 012040.* doi:10.1088/1755-1315/385/1/012040. IOP Publishing Ltd.

Agarwal, Shalu and Sunil Many. (2020). State of Electricity Access in India - Insights from the India Residential Energy Survey. New Delhi: Council on Energy Environment and Water.

Ali, Maimon, Norhafizah Abdul Rahman and Izham Ghani. (2018). Interpreting the Meaning of Housing Quality Towards Creating Better Residential Environment. *Environment-Behaviour Proceedings Journal, 3(8).*doi: 10.21834/e-bpj. v3i8.1414.

Alshawawreh, Lara, Franceso Pomponi, Bernardino D'Amico, Susan Snaddon and Peter Guthrie. (2020). Qualifying the Sustainability of Novel Designs and Existing Solutions for Post-Disaster and Post-Conflict Sheltering. *Sustainability 12(3),890.* doi:10.3390/su12030890.

Asian Development Bank. (2002). Impact of Rural Roads on Poverty Reduction: A Case Study-Based Analysis. Operations Evaluation Department, IE-68.

Asok, A. R, Rakkee Thimothy, SwathyMohnan, Bibin Thambi and Ramshad M. (2020). Indebtedness among Rural Poor in Kerala. Kochi: Centre for Socio-economic and Environmental Studies, 2-67.

Ayin, Erdal, Juan Palacios, Nils Kok and Piet Eichhoitz. (2020). The Impact of Housing Conditions on Health Outcomes. *Real Estate Economics,* 49(1). doi:10.1111/1540-6229.12317.

Backer, Aniza Abu, Nurhayati Abdul Malek, Mohamad Abdul Mohit, Rosniza Othman and Aliyah Nur Zafirah Sanusi. (2016). Housing Space Quality towards Quality of Life: A Case Study of Double Storey Terrace Houses. *MATEC Web Conference, The 4th International Building Control Conference, 66, 00083*. doi:10.1051/matecconf/20166600083.

Banerjee, Abhijit V. and Esther Duflo. (2007). The Economic Lives of the Poor. *Journal of Economic Perspectives*, 21 (1), 141–168. doi: 10.1257/jep.21.1.141.

Bhanja. (2008). Implementation of IAY Issues and Achievements: A Nationwide Study. Hyderabad: National Institute of Rural Development, 34-42.

Bharati, Madhu and Sriram Divi. (2019). Housing Policies: Common Goals and Diverse Approaches to Social Housing in India and Other Countries. PDPU Journal of Energy and Management, 4(1), 41-49.

Bhattacharya,K.P. (1994). Affordable Housing Infrastructure and Urban Development. *Habitat international* 18(2*)*, 99-101.

Binuraj and Chitra L. (2022). Comparison of Family Environment of Higher Secondary Students Based on Family Type, Locality and Socio-Economic Status. *Journal of Positive School Psychology*, 6(8). doi://journalppw.com, 6085-6095.

Bird, Kate, Andy Mckay and Issac Shinyekwa. (2010). Isolation and Poverty, Working Paper 322. London: Chronic Poverty Research Centre.

Brahmanandam, N. and Nagarajan R. (2021). Impact of Change in Household Environment Condition on Morbidity in India: Evidence from Longitudinal Data. *PLoS One,* 16(3), e0247465. doi:10.1371/journal.phone.0247465.

Bredenoord, Jan, Joon Park and Kyohee Kim. (2020). The Significance of Community Training Centers in Building Affordable Housing and Developing Settlements. *Sustainability* 12(7), 2952. doi:10.3390/su12072952.

Centres for Disease Control and Prevention and U.S. Department of Housing and Urban Development (2006). Healthy Housing Reference Manual. Atlanta: US Department of Health and Human Services, 29-60.

Chakrapani, R. (2014). Domestic Water and Sanitation in Kerala: A Situation Analysis. Pune: Forum for Policy Dialogue on Water Conflicts in India. URL: waterconflictforum.org. 5-77.

Chathukulam, Jos and Alex Thottunkel. (2010). The Sen in the Neo-Liberal Developmental Programmes of Kerala. *International Journal of Rural Management*, 6. doi:10.1177/097300521200600201.161-192.

Chauhan, Abhishek Kumar. (2014). Need of Rural Development in India for Nation Building. *Asian Mirror- International Journal of Research,1(1)*. 43-55.

Coates, Dremot, Paul Anad and Michelle Norris. (2015). Housing, Happiness and Capabilities: A Summary of International Evidence and Model. *Open Discussion Paper in Economics 81*. Milton Keynes: The Open University.

Das, Bhaswathi and Avijit Mistri. (2013). Household Quality of Living in India: Analysis of 2011 Census. *Environment and Urbanization ASIA,* 4(1). doi:10.1177/0975425313477759, 151-171.

Das, Dinesh and Minakshee Pathak. (2012). The Growing Rural-Urban Disparity in India: Some Issues. *International Journal of Advancements in Research & Technology*, 1(5). 145-151.

Dhanaraj, Soumya and Vidya Mahambare. (2018). Family Structure, Education and Women's Employment in Rural India. Working Paper176/2018. Chennai: Madras School of Economics.

Diener, Ed and Williaam Pavot. (1993). Review of the Satisfaction with Life Scale. *Psychological Assessment*, 5(2). doi:10.1037/1040-3590.5.2.164, 164-172.

Diener, Ed. (1984). Subjective Well-being. *Psychological Bulletin*, 95(3), doi:10.1037/0033-2909.95.3.542, 542- 575.

D'souza, Renita. (2019). Housing Poverty in Urban India: The Failures of the Past and Current Strategies and the Need for a New Blueprint. New Delhi: Observer Research Foundation.

Elliot, Susan and Allison Gray. (2000). Family Structures: A Report for the New Zealand Immigration Service. New Zealand: Department of Labour and Immigration Service, New Zealand.

Fatima, Sana and Abdus Salam. (2019). A Study of IAY and PMGSY in India: A Regression Approach. *IOSR Journal of Humanities and Social Science* ,24 (7), 16-23.

Fornell, Claes and David F. Larcker. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, *18*(1). doi:10.2307/3151312, 39-50.

Gangopadhyay, Shubhashis, WilimaWadhwa.(2004). Are Indian Female-Headed Households More Vulnerable to Poverty? Mumbai: Indian Development Foundation.

George, K.K. (2013). How the Poor Manage their Finances: A Study of the Portfolio Choices of Poor Households in Ernakulam District, Kerala. Mumbai: Development Research Group's Project RBI.

George, Sunny. (2006). Local Governance and Development: The Kerala Experience. *Journal of the Development and Research Organisation for Nature, Arts and Heritage,* 3(1), 55-60.

Gillard, Rosse, A. Dately and Sundamet. (2018). Resilient and Affordable Housing for All: Lessons on Housing Building from Kochi and Trivandrum, India. London: Coalition for Urban Transitions.

Girish, S. and Prasanth A.P. (2023). The Expectation Disconfirmation Theory of Green Banking Practises of State Bank of India with Special Reference to Kerala- A Structural Equation Modelling Approach. *Journal of Advanced Zoology,* 44(5), 2476-2484.

Gleaser, Bernhard. (1995). Housing, Sustainable Development and the Rural Poor: A Study of Tamil Nadu. New Delhi: SAGE publications, 43-350.

Gopikuttan, G. (2002). Public Housing Schemes for Rural Poor in Kerala: A Critical Study of their Suitability (Discussion Paper No.49). Thiruvananthapuram: Kerala Research Programme on Local Development Centre for Development Studies.

Gopikuttan, G. (2004). Technology Options in Housing for Economically Weaker Sections in Kerala. Thiruvananthapuram: Centre for Developmental Studies.

Gopikuttan,G. (1990). House Construction Boom in Kerala-Impact on Economy and Society. *Economic and Political Weekly,* 25 (37).

Government of India. (1985). Indira Awaz Yojana Guidelines. New Delhi: Community and Rural Development Department. doi: megcnrdgov.in/forms.

Government of India. (1991). Census of India. New Delhi: Office of the Registrar General & Census Commissioner.

Government of India. (2001). Census of India. New Delhi: Office of the Registrar General & Census Commissioner.

Government of India. (2005). National Sample Survey Report No:500 Household Assets and Liabilities in India. New Delhi: Ministry of Statistics and Programme Implementation.

Government of India. (2006). Working Group on Rural Housing for the Eleventh Five Year Plan. New Deihi: Ministry of Rural Development.

Government of India. (2011). Census of India. New Delhi: Office of the Registrar General & Census Commissioner.

Government of India. (2011). Establishment and Management of Community Sanitary Complexes in Rural Areas: A Hand Book on Water and Sanitation Programme. New Delhi: Ministry of Rural Development.

Government of India. (2011). Housing in India: Statistical Compendium 2011. New Delhi: Ministry of Housing and Urban Poverty Alleviation.

Government of India. (2011). Instruction Manual for House Listing and Housing Census. New Delhi: Office of the Registrar General & Census Commissioner.

Government of India. (2011). Socio Economic and Caste Census. New Delhi: The Ministry of Rural Development.

Government of India. (2011). Working Group on Rural Housing for the Twelfth Five Year Plan. New Deihi: Ministry of Rural Development.

Government of India. (2011). Working Group Report for the Twelfth Five Year Plan. New Delhi: Planning Commission of India.

Government of India. (2012). Bridging the Urban Housing Shortages in India. (2012). New Delhi: National Real Estate Development Council.

Government of India. (2012). National Sample Survey Report No:570 Household Assets and Liabilities in India. New Delhi: Ministry of Statistics and Programme Implementation.

Government of India. (2012). Report of the Special Group on Urban Housing shortage. New Delhi: Ministry of Housing and Urban Poverty Alleviation.

Government of India. (2012). Report of the Technical Group on Urban Housing Shortage. New Delhi: Ministry of Housing and Urban Poverty Alleviation.

Government of India. (2012). Report on Working Group on Rural Housing for the Twelfth Five Year Plan. New Delhi: Ministry of Rural Development.

Government of India. (2013). State of Housing in India: A Statistical Compendium. New Delhi: National Building Organisation.

Government of India. (2015). Evaluation Study on Rural Roads Components of Bharat Nirman. Policy Evaluation Organisation Report No.201. New Delhi: Planning Commission of Government of India.

Government of India. (2018). National Urban Sanitation Policy 2018. New Delhi: Ministry of Urban Development.

Government of India. (2022). Pradhan Manthri Awas Yojana 16th Report. New Delhi: Standing Committee on Rural Development.

Government of India. (2023). Swachh Bharath Mission. New Delhi: Ministry of Jalsakthi.

Government of Kerala. (2007). Kerala Housing and Habitat Policy 2007. Thiruvananthapuram: Department of Housing.

Government of Kerala. (2011). Kerala State Housing Policy 2011. Thiruvananthapuram: Department of Housing.

Government of Kerala. (2012). Report on NSS Socio-Economic Survey 65th Round: Housing Conditions and Amenities in Kerala. Thiruvananthapuram: NSS Division, Department of Economics and Statistics.

Government of Kerala. (2012). Urbanisation Report: A study on the Scattered Human Settlement Pattern of Kerala and its Development Issues. Thiruvananthapuram: Department of Town and Country Planning.

Government of Kerala. (2013). Economic Review. Thiruvananthapuram: Kerala State Planning Board.

Government of Kerala. (2013). Twelfth Five Year Plan. Thiruvanathapuram: Kerala State Planning Board.

Government of Kerala. (2017). Report on Qualitative and Quantitative Condition in Housing in Rural Kerala 2016-17. Thiruvananthapuram: Directorate of Economics and Statistics Kerala.

Government of Kerala. (2017). Thirteenth Five-Year Plan Working Group on Housing Report. Thiruvananthapuram: Kerala State Planning Board.

Government of Kerala. (2018). Thirteenth Five Year Plan. Thiruvanathapuram: Kerala State Planning Board.

Government of Kerala. (2019). Economic Review. Thiruvananthapuram: Kerala State Planning Board.

Government of Kerala. (2020). Economic Review. Thiruvananthapuram: Kerala State Planning Board.

Government of Kerala. (2021). Economic Review. Thiruvananthapuram: Kerala State Planning Board.

Government of Kerala. (2022). Economic Review. Thiruvananthapuram: Kerala State Planning Board.

Government of Kerala. (2022). Fourteen Five-Year Plan Working Group on Housing Report. (2022). Thiruvananthapuram: Kerala State Planning Board.

Government of Kerala. (2023). Economic Review. Thiruvananthapuram: Kerala State Planning Board.

Government of Kerala. (2024). Economic Review. Thiruvananthapuram: Kerala State Planning Board.

Government of Punjab. (2008). Punjab Housing and Habitat Policy 2008. Amritsar: Department of Housing.

Grozdanovic, Natasa Petkovic, Goran Jovanovic, Branislava Stoijikovic and Mirko Stanimirovic. (2014). Parameters for Improvement of the Housing Quality in Social HoseingDwellings. *Facta Universitatis-Series Architecture and Civil Engineering*, 12(2). doi:10.2298/FUACE1402149P, 149-160.

Hair, J.F., W. C. Black, B.J Babin and R.E Anderson. (2010). Multivariate Data Analysis: A Global Perspective, 7th Edition. New Jersey: Pearson Education, 153-289.

Henilane, Inita. (2016). Housing Concept and Analysis of Housing Classification. *Baltic Journal of Real Estate Economics and Construction Management*, 4(1). doi:10.1515/bjreecm-2016-0013, 168-179.

Herda, Gregor, Sonia Rani, Pratibha Ruth Caleb, Rajat Gupta, Megha Behal, Matt Gregg, Srijani Hazra. (2017). Sustainable Social Housing in India: Definition, Challenges and Opportunities-Technical Report. Oxford: Oxford Brookes University, Development Alternatives, The Energy and Resources Institute and UN-Habitat.

Hingorani, Pritika. (2011). Revisiting Low Income Housing: A Review of Policies and Perspectives, A Background Paper for 'Re-visiting Upgrading: Low Income Housing and Infrastructure', India Urban Conference. Mysore: Indian Institute of Human Settlements.

Hirve, Siddhivinayak, Neisha Sundaram, Uddhavi Chavan and Pallavi Lele. (2015). Psychosocial Stress Associated with Sanitation Practices: Experiences of Women in A Rural Community in India. *Journal of Water, Sanitation and Hygiene for Development*, 5(1). doi:10.2166/washdev.2014.110, 115-126.

Hirway, Indira, U.B Singh and Rajeev Sharma. (2014). Migration and Development: Study of Rural to Urban Temporary Migration to Gujarat. Ahmadabad: Centre for Development Alternatives.

Housing and Land Right Network. (2018). The Human Rights to Adequate Housing and Land in India: Report to the Human Right Commission for India's Third Universal Periodic Review (UNHRC). New Delhi: Housing and Land Right Network.

Howden-Chapman, P. (2004). Housing Standards: A Glossary of Housing and Health. *Journal of Epidemiology Community Health,* 58(3). doi: 10.1136/jech.2003.011569, 162-167.

Hu, Mingzhi, Yinxin Su and Xiaofen Yu. (2022). Housing Difficulties, Health Status and Life Satisfaction. *Frontiers in Psychology*,13. doi: 10.3389/fpsyg.2022.1024875.

India. (1950). The Constitution of India.

indiastat.com. (1995). Household Data on Type of Occupancy-Data State Level-Kerala.

indiastat.com. (2011). Housing Data by Sources of Drinking Water-Data State Level-Kerala.

indiastat.com. (2011). Housing Data on Households by Social Group-Data State Level-Kerala.

indiastat.com. (2011). Housing Data on Housing and Their Uses-Data State Level-Kerala.

indiastat.com. (2011). Housing Data on Housing Condition-Data State Level-Kerala.

indiastat.com. (2012). Household Data on Type of Fuel Used for Cooking-Data State Level-Kerala.

indiastat.com. (2015). Housing Data on Housing Schemes-Data State Level-Kerala.

indiastat.com. (2018). Housing Data by Sources of Toilet/Bathing Facility-Data State Level-Kerala.

indiastat.com. (2021). Housing Data by Sources of Specified Assets-Data State Level-Kerala.

indiastat.com. (2021). Survey on Drinking Water, Sanitation, Hygiene and Housing Condition-Data State Level-Kerala.

indiastat.com. (2023). Housing Data on Housing Projects-Data State Level-Kerala.

Irving, Adele. (2021). Exploring the Relationship between Housing Conditions and Capabilities: A Qualitative Case Study of Private Hostel Residents. *Housing Studies,* 38(6), 985-1005.

Itheppalli, S. (2005). Rural Housing Schemes in Andhra Pradesh - A Study of Chittoor District. Saarbruken: LAP LAMBERT Academic Publications.

Jeyenes, W. H. (2002). Examining the Effects of Parental Absence on the Academic Achievement of Adolescents: Challenge of Controlling for Family income. *Journal of Family and Economic Issues*, 23(1). doi:10.1023/A:1015790701554, 189-210.

Kannan, K.P and Imran Khan. (2016). Housing Condition in Kerala with Special Focus on Rural Areas and Socially Disadvantaged Section. Hyderabad: National Institute of Rural Development and Panchayat Raj.

Kesar, Yogesh M, Binayak Chaudhary and Nikhil Ranjan Mandal. (2022). Assessing the Quality of Low-Income Group Houses in India: Identification of Indicators. *Nagarlok*, 6(2), 1-21.

Khan, N. (2019). Pradhan Manthri Awas Yojana- An Assessment from Housing Adequacy Perspective. *International Journal of Research and Analytical Reviews,* 6(2), 801-805.

Khushwaha ,Anupama. (2018). Providing Shelter to Homeless of Weaker Sections in India: A Critical Analysis of Indira Awas Yojana. *International Journal of Novel Research and Development,*3(12),45-58

Kimhur, Boaram. (2020). How to Apply the Capability Approach to Housing Policy? Concepts, Theories and Challenges. *Housing, Theory and Society,* 37(3),257-277. doi: 10.1080/140336096.2019.1706630.

Kishore, R. (2016). India's Housing Situation. *Nagarlok*, 8(1), 16-21.

Kulshreshtha, Y., N. Mota, K.S Jagadish, J. Bredenoord and P.J Vardon. (2020). The Potential and Current Status of Earthen Material for Low-Cost Housing in Rural India. *Construction and Building Materials* 247,118615.

Kumar, Abhay, Anirudha Deka and Rajat Sinha. (2017). Policy Imperatives for Rural Housing in India. *Shelter,* 18(2), 20-26.

Kumar, Abhay. and Anirudha Deka. (2017). Rural Housing in India: Status and Policy Challenges. New Dehi: Lokashraya Foundations, 12-20.

Kumar, Arjun. (2012). Estimating Rural Housing Shortage. *Economic and Political Weekly*, 49(26), 74-79.

Kumar, V. (2016). Understanding Determinants for Sanitation Facility Adoption in Rural Area: - A Case Study of "Simrol Model Toilet" Project of Madhya Pradesh, India. *Imperial Journal of Interdisciplinary Research*, 2(7), 145-155.

Liang, Zhao. (2020). A Framework of Resilience Development for Poor Villages After the Wenchuan Earthquake Based on the Principle of "Build Back Better". *Sustainability*, 12(12). doi:10.3390/su12124979.

Lorenzo, Cotula, Toulmin C. and Quan J. (2006). Better Land Access for the Rural Poor: Lessons from Experience and Challenges Ahead. London: IIED and FAO.

Lorie, Sousa and Sonija L. (2001). Life Satisfaction. J Worrel (Edu), Encyclopaedia of Women and Gender: Sex similarities and differences and the impact of society on gender (Vol. 2, pp. 667-676). San Diego: Academic Press.

Madhu, B. and Divi Sriram (2019). Housing Policies: Common Goals and Diverse Approaches to Social Housing in India and Other. *Journal of Energy and Management*, 4(1),41-49.

Malhotra, N. K and M. Peterson. (2001). Marketing Research in the New Millennium: Emerging Issues and Trends. *Marketing Intelligence and Planning*, 19(1), 216- 235.

Manoj, P.K. (2010). Housing Microfinance for Solving the Housing Problems of the Poor in India. New Delhi: Global Publications, 861-886.

Manoj, P.K. (2015). Cost Effective and Eco-Friendly Housing in Kerala: Need and Relevance of Green Houses. *Indian Journal of Applied Research*. 5 (2), 205-208.

Manoj, P.K. (2017). Cost Management in the Construction of Affordable Housing Units in Kerala: A Case Study of the Relevance of Earned Value Analysis Approach. *International Journal of Civil Engineering and Technology,* 8(10), 111-129.

Mathur, O. P. (2009). Slum Free Cities: A New Deal for the Urban Poor. New Delhi: National Institute of Public Finance and Policy.

Meenakshi, C. S. (2000). Women's Participation in Rural Housing Schemes: A Case Study of Kerala. Thiruvananthapuram: Kerala Research Programme on Local Level Development.

Mendhe, H. (2015). Assessment of Housing Standards in the Field Practice Area of Medical College in Andhra Pradesh. *Journal of Dental and Medical Sciences*, 4(1), 2279-0861.

Menon, S. (2023). Class, Caste, Gender and the Materiality of Cement Houses in India. *Antipode*, 55 (2),574–598.

Mohit, M. A. (2014). Residential Satisfaction-Concept, Theories and Empirical Studies. *Planning Malaysia* 12(3). doi: 10.21837/pmjournal.v12.i3.131, 47-66.

Mondall, Dinabandhu. (2022). Access to Latrine Facilities and Associated Factors in India: An Empirical and Spatial Analysis. *Indian Journal of Human Development,* 16(1996). doi:10.1177/09737030221141248.

Nagraj, Deepika, T. Agarawala, J.Madtha and J.J Norris. (2020). Assessment of Housing Conditions among the Residents of a Village in Rural Karnataka. *National Journal of Community Medicine,* 11(03). doi:10.5455/njcm.2020029030739.

Nair, Deepa G. and G. Gopikuttan. (2005). Public Housing Schemes for the Poor in Kerala: Recommendations for Sustainable Housing. *Conference Proceedings of Sustainable Building South East Asia.* Malasia: 493-501.

Nair, Deepa G., P.J Vergragt, K. van Breugel, A.L.A Fraaij and B. Enserink. (2006). Sustainable – Affordable Housing for Rural Kerala. *Conference Proceedings of 6th International Postgraduate Research.* Salford: University of Salford. 785-796.

O'Nei, John (2000). Housing Conditions and Health. Manitoba: University of Manitoba and Grand Council of the Crees (Eeyou Istchee) .

Organisation for Economic Cooperation and Development. (2016). Society at A Glance 2016: OECD Social Indicators. Paris: Organisation for Economic Cooperation and Development. doi:10.1787/9789264261488-en.

Organisation for Economic Cooperation and Development. (2019). Economic Survey: India 2019. Paris: Organisation for Economic Cooperation and Development.

Organisation for Economic Cooperation and Development. (2023). Inequality: Housing Overcrowding Indicators. Paris: Organisation for Economic Cooperation and Development. doi:10.1787/96953cb4-en.

Praag, B.M.S.,P.Frijters and A.Ferror . (2003). The Anatomy of Subjective Wellbeing. *The Journal of Economic Behaviour and Organisation*, 51(1), 29-49.

Practical Action. (2010). Poor People's Energy Outlook 2010. Rugby: The Schumacher Centre for Technology and Development.

Ramachandran, V. K. (1997). On Kerala's Development Achievements. Jean Dreze and Amartya Sen (eds). *Indian Development: Selected Regional Perspectives*. London: Oxford Publication,205-365.

Ramkumar, R. (2018). Selecting a Village in the Malabar Region, Kerala, India: A Note. *Review of Agrarian Studies*, 8(1). 45-57.

Reddy, W.R, R. Ramesh and P. Sivaram. (2019). Impact Assessment of PMAY-G (Madhya Pradesh, Odisha and West Bengal). Hyderabad: Centre for Rural Infrastructure and National Institute of Rural Development & Panchayati Raj, 3-45.

Regeneris Consulting. (2010). The Role of Housing. London: Regeneris Consulting Ltd.

Rentu, B. (2018). Impact of PMGSY on Socio-Economic Development: A Case Study of Chandpur- Kushabaria Road, Murshidabad District, West Bengal. *The Konkan Geographer*, 19 (2), 31-39.

Reserve Bank of India. (2017). Indian Household Finance. Mumbai: Household Finance Committee.

Rizvii, F. F. (2011). Housing Situation among the Poor and Marginalised Rural Households: A Study of Indira Awas Yojana in Selected Districts of Orissa and Maharashtra. New Delhi: Indian Institute of Dalit Studies.

Rolfe, Steve, Lisa Garnham, Jon Godwin and Isobel Anderson. (2020). Housing as a Social Determinant of Health and Well-being: Developing an Empirically-Informed Realist Theoretical Framework.*BMC Public Health,* 20. doi:10.1186/s12889-020-09224-0.

Roudenska, P. (2023). Single Item Measures of Happiness and Life Satisfaction : The Issue of Cross Country Invariance of Popular General Well-being Measures. *Humanities and Social sciences communications* ,10(3), 861.

Sahu, Geetanjoy, Yacoud Zachriah and Sandipan Baksi (2009). National Level Background Document on Urban Issues and Concerns. Mumbai: Tata Institute of Social Science.

Sen, Amartya. (1992). Inequality Re-examined. Cambridge: Harward University Press.

Sen, Amartya. (1999). Development as a Freedom. Oxford: Oxford University Press.

Sevrani, Kozeta and Juna Miluka. (2014). Albanian Dwellings and Living Conditions. doi:10.13140/RG.2.1.1632.1446.

Siddiqui. (2016). Rural Housing: Finance Impediments and Way Forward. *International Research Journal of Social Sciences.* 5(12), 47-51.

Sing, S., Madhura Swaminadhan and V.K Ramachandran. (2010). Housing Shortages in Rural India. *Review of Agrarian Studies,* 13(4), 47-56.

Sinha, A. (2016). Assessing Patterns and Determinants of Latrine Use in Rural Settings. *International Journal of Hygiene and Environmental Health*, 24(3),906-915.

Sivanna, T and Ravindranath N.K. (2018). Problems and Solutions of Rural Housing in India: An Overview. *Conference Proceedings of International Conference on New Horizons in Science, Engineering, Management and Humanities.* Noida: IIMT College of Engineering.

Solanki, D. (1989). Housing Problems in Rural India. *Indian Economic Journal,* 26(3).67-76.

Sridevi. (2015). An Economic Appraisal of Rural Housing Programmes in Kanyakumari district. *International Research Journal of Social Sciences,* 2(1), 48-58.

Stats NZ. (2018). Well-being Statistics-Data that Improves Lives Today and for Generations to Come. Wellington: Government Department of New Zealand.

Stephen, P. (1987). Housing Conditions and Ill Health. *British Medical Journal*, 294.

Su, Yingying, Carl D'Arcy, Muzi Li and XiangfeiMeng.(2022). Trends and Patterns of Life Satisfaction and its Relationship with Social Support in Canada: 2009 to 2018. *Scientific Reports,* 12,9720. doi:10.1038/s41598-022-13794.

Sudharani, M., Rashmi Kundapur, K.G. Kiran and N. Udaya Kiran. (2015). Cross Sectional Study to Assess Housing Condition and to Compare it with Education and Socio Economic Status of a Semi Urban Area in Manglore: A Pilot Study. *Journal of Health and Allied Sciences,*5(3). doi:10.1055/s-0040-1703907, 24-28.

Suhr, D. D. (2005). Principal Component Analysis v/s Exploratory Factor Analysis. Paper presented at the meeting of the SAS Users Group International (SUGI 30), Philadelphia, PA., 203-230.

Swain, Sanjit. (2021). Impact of Rural Housing Programs on Infrastructural Development of Rural Poor- A Case Study of Kalahandi District of Odisha. *International Journal of Recent Advances in Multidisciplinary Topics,* 2(2),49-54.

Thampuran, Ashlatha and Sruthy Mary. (2011). Assessment of Housing Quality. *Institute of Town Planners, India Journal*, 8 (2), 74-85.

Tiwari, P. (2016). Housing Markets and Policies in India. Phillippians: Asian Development Bank.

Tripathy, D. K. (2012). Government Intervention in Rural Infrastructure: A Review of Bharat Nirman Programme. *Kurukshetra*, 12 (1),3-6.

United Nations Committee on Economic, Social and Cultural Rights (CESCR*)*. (2000). General Comment No. 14: The Right to the Highest Attainable Standard of Health (Art. 12 of the Covenant*)*, E/C.12/2000/4, https://www.refworld.org/legal/general/cescr/2000/en/36991.

United Nations Committee on Economic, Social and Cultural Rights (CESCR*)*. (1991). General Comment No. 4: The Right to Adequate Housing (Art. 11 (1) of the Covenant), E/1992/23, 13, https://www.refworld.org/legal/general/cescr/1991/en/53157.

United Nations. (1948). Universal Declaration of Human Rights. (1948). Nairobi: United Nations.

United Nations. (1973). Aging Population Trends. Nairobi: UN Department of Economic and Social Affairs.

United Nations. (2011). Affordable Land and Housing in Asia. Nairobi: UN- HABITAT (UN Human Settlement Programme).

Usta, P., Arici A. and Kepenek. (2017). Sustainability of Traditional Buildings Located in Rural Area. *Periodicals of Engineering and Natural Sciences*, 5(2),231-236.

Varghese, K. (1980). Housing Problem in India: Economic and Social Aspects. New Delhi: Eurekh .

Von, Seidlein L, Wood H., Brittain. (2019). Knowledge Gaps in the Construction of Rural Healthy Homes: A Research Agenda for Improved Low-Cost Housing in Hot-Humid Africa. *PLoS Med,* 16(10). doi:10.1371/journal.pmed.1002909.

Wardha. (1988). Housing Programmes for the Urban Poor-Shifting Priorities. *Economic and Political Weekly,* 23(34), 1762-1767.

Weiner, Laura Sara, Billy and Sally Murray. (2016). Incremental Housing and Other Design Principles for Low-Cost Housing. London: International Growth Centre.

Wells, Thomas. (2013). Reasoning about Development: Essay's on Amartya Sen's Capability Appoach. *Dissertation.*Rotterdam: Erasmus University.

Wimalasena, Nipuni, Alice Chang-Richards, K. Wang and Kim Dirks. (2022). Housing Quality Indicators: A Systematic Review. *Conference Proceedings of 10th World Construction Symposium.* doi:10.31705/WCS.2022.43.

World Bank. (2015). Household Survey: Hygiene and Sanitation Behaviour as well as Willingness to Pay in Rural Senegal. Basel: Swiss Centre for International Health.

World Health Organization and United Nations International Children's Emergency Fund. Progress on Household Drinking Water, Sanitation and Hygiene 2000-2020. (2021).. New York: WHO/UNICEF Joint Monitoring programme for Water Supply, Sanitation and Hygiene and Drinking water.

World Health Organization. (2018). World Health Organization Housing and Health Guidelines. Geneva: World Health Organization.

World Health Organization. (2021). World Health Statistics 2021: Monitoring Health for the Sustainable Development Goals. Geneva: World Health Organization.

Yun, Su. (2023). Role of Economic and Social Parameters Affecting Life Satisfaction and Happiness During Pre and Post Covid Era: A Study with Marx's Prospective. *Economic Research*, 36(1), doi.org/10.1080/1331677X.2023.

Zainal, Nor Rashidah, Gurmit Kaur, N.A Ahamad and J.M Khalili. (2012). Housing Conditions and Quality of Life of the Urban Poor in Malaysia. *Procedia-Social and Behavioural Sciences,* 50 (1), 827-838.

Zang, Chuanyong and Fang Zhang. (2019). Effects of Housing Wealth on Subjective Well-being in Urban China. *Journal of Housing and Built Environment,* 34(2). doi:10.1007/s10901-019-09651-5.

APPENDIX

Housing Conditions among Below Poverty Line Households in the Rural Areas of the District of Palakkad

This survey is carried out as part of the research work leading to the award of phd degree in economics from Calicut university Kozhikode. The information collected through this survey will be used only for research purpose and not for any other purpose. Your kind co operation is requested for the same.

Naval Kishore S
Research Scholar
P M Government College
Chalakkudy

Part 1- Identification of the Household

1	Serial No.	:	
2	Name of Household Head	:	
3	Address	:	
4	Phone Number	:	
5	District	:	
6	Taluk	:	

Part II - Socio Economic Profile

7	Gender	:	☐	1= Male 3= Transgender	2= Female
8	Age	:	☐		
9	Marital Status	:	☐	1= Married 3= Single 5= Widower	2= Unmarried 4= Widow
10	Type of Family	:	☐	1= Nuclear	2= Joint
11	Religion	:	☐	1= Hindu 3=Muslim	2=Christian 4=Others
12	Category	:	☐	1=SC 3=OBC	2=ST 4= others
13	No of household members	:	☐		
14	Educational status of household head	:	☐	1= Illiterate 3=LP 5=SSLC 7=degree/diploma	2=literate 4=UP 6=HS 8=PG/PhD/ Professional
15	Highest educational status among household members	:	☐		
16	Number of degree holders among adults above 20 years	:	☐	1=0 4=3	2= 1 3=2 5= 4

17	Total household Income	:		1= 5000-10000 2= 10000-15000 3=15000-20000 4=20000-25000 5=Above 25000 (In Rs)
18	Occupation of household head	:		1 = Manual casual labour 2 = Self Employed 3 = Driver 4 = Shop keeper/ helper 5 = Farmer 6 = Unemployed 7 =Asha worker 8= private Job 9 = Professional
19	Size i)Land in cents ii)Area of house in feet	:		1=1-3 2=3-5 3=5-7 4= 7-9 5=>9
20	Mode of Ownership	:		1= Purchased, 2= Inherited 3=Granted by govt 4=others 5= no ownership
21	Present Value	:		1 = Less than 2 Lakhs 2= 2 to 4 Lakhs 3= 4to 6 Lakhs 4= 6 to 8 Lakhs 5= 8 to 10 Lakhs 6= More than 10 Lakhs

Part III-Physical and Financial Conditions of Rural Housing

22	Material for Wall	:		1= Concrete 2= Burnt Brick 3= Unburned brick 4= Stone 5= Mud 6= Bamboo 7= Asbestos 8= Plastic/Polythene 9= Thatch/grass 10= Wood
23	Material for Roof	:		1=concrete 2= tile 3= Metal 4=stone 5=wood 6=bamboo 7= Asbestos 8=Plastic/polythene 9=Grass/Thatch
24	Type of Floor	:		1= Mud, 2= Cement not Plastered, 3= Cement 4= Stone 5=Red oxide 6=Tiles 7=Others
25	No of rooms	:		1=1 2=2 3=3 4=4 5=5 6=6
26	No of bed rooms	:		1=1 2=2 3=3 4=4 5=5 6=6
27	Kitchen	:		1 = Separate Kitchen 2 = No Separate Kitchen
28	Kitchen facility	:		1=pipe connection to kitchen 2=no pipe water
29	Predominant Cooking Fuel	:		1=LPG 2= firewood 3=electricity
30	Studying Facility for Student	:		
	i. Separate Room			1=Yes 2=No
	ii. Separate Space			1=Yes 2=No
	iii. Facility to Keep Books/Bookshelf			1=Yes 2=No

31	Roof leakage	:	1=Yes 2=No
32	Overcrowding	:	1=Yes 2=No
33	Toilet	:	1= Attached Toilet 2= Within the Premise 3= Poorly maintained toilet within the premises
34	Bath Room	:	1=Attached 2=Within the premises
35	Waste Water Management	:	1=Open Flow to Backyard 2= To Tank
	i. Biodegradable. Solid Waste Management		1=Compost 2= Disposing in the Backyard
	ii. Non- biodegradable Solid Waste Management		1= Collecting and Giving to Panchayath 2= Disposing in the Backyard 3=burning
36	Source of Drinking Water	:	1= Well 2= Pipe Water 3= Bore Well 4= Pond
37	Do you have scarcity of water	:	1= No Scarcity 2= Scarcity During Specific Periods 3= Scarcity Throughout The year
38	How often you get water	:	1= continuous 2= once in a day 3=once in 2 days 4=once in 3 days 5=once in a week
39	Distance to principal source of drinking water	:	1=within the Premise 2= <0.2 km 3=0.2-1km 4=1-2km
40	Source of Lighting	:	1=Electricity 2= Solar 3= Kerosene
41	Door	:	1=Yes 2=No
42	Material of Door	:	1=wood 2= plywood 3= metal 4=plastic
43	Road access to house	:	1= no road 2= walkable road 3= can be accessed by 2 wheelers 4=can be accessed by Auto 5= can be accessed by four wheeler

44. Details of the Possession of Financial Assets. Which of the Following do You Possess (Put Tick Mark)

Sl no	Assets	Size/no	Value
1	Vehicle		
2	Fridge		
3	Washing Machine		
4	Television		
5	Computer		
6	Mobile		

7	Cattle		
8	Sheep		
9	Poultry		
10	Gold		
11	Any savings		

45. Physical condition of house

Sl. No		Factors	VP	P	BA	A	G	VG	E
1	(PCH1)	Roof							
2	(PCH2)	Floor							
3	(PCH3)	Wall							
4	(PCH4)	Latrine							
5	(PCH5)	Kitchen							
6	(PCH6)	House design							
7	(PCH7)	Water supply							
8	(PCH8)	Waste management							

1 = very poor 2= poor 3= below average 4= average 5=good 6= very good 7=excellent

46. Financial conditions of household. How well does this statement describe your situation

Sl No		**statement**	**N**	**VR**	**R**	**O**	**F**	**VF**	**A**
1	(FCH1)	Is income sufficient to meet daily needs							
2	(FCH2)	Can you cover unexpected expenses							
3	(FCH3)	Monthly household expenses are met without financial stress							
4	(FCH4)	Are you able to save money out of income							
5	(FCH5)	Do you have Feeling of financial security							
6	(FCH6)	Do you follow household budget practices							
7	(FCH7)	Is Household budget affected by debt							
8	(FCH8)	My family has sufficient assests							

1 = never 2 = very rarely 3 = Rarely 4= occassionally 5 = frequently 6 = very frequently 7 = always)

Assessment of functions achieved by the household

Health, education, material well-being, social interaction and personal safety

47. Outcome on improvement in health

Sl no		Practices	N	VR	R	O	F	VF	A
1	HLI1	we are able to maintain good physical health							
2	HLI2	we are able to maintain good mental health							
3	HLI 3	work absenteeism due to health issues							
4	HLI 4	Awareness and practice of drinking boiled water							
5	HLI 5	Awareness and practice of Minimizing Smoke from firewood							
6	HLI 6	Awareness and practice of ventilation and space inside house							
7	HLI 7	Awareness and practice of Disposal of Waste							
8	HLI 8	Awareness and practice of keeping Water Containers Covered							
9	HLI 9	Awareness and practice of Handwashing with soap and water							
10	HLI10	Awareness and practice to Avoid Pests and Flies							
11	HLI 1	Awareness and practice of Storing Food Properly							

1 = never 2 = very rarely 3 = Rarely 4=occasionally, 5 = frequently 6 = very frequently 7 = always)

48. Any history of diseases like Asthma COPD TB in last 5 years

Education

49. Outcome on children's education

Sl. No.		Opinion	EU	U	SU	N	SS	S	ES
1	EDN1	Children's overall development							
2	EDN2	Children's performance in academics							
3	EDN3	Interaction with peers							
4	EDN4	Children's extracurricular activities							
5	EDN5	Children's skill development							
6	EDN6	Children's confidence level							
7	EDN7	Expectations about children's future							

1 = Extremely Unsatisfied 2 = Unsatisfied 3 = Slightly unsatisfied 4 = Neutral 5 = Slightly Satisfied 6 = Satisfied 7 = Extremely Satisfied

50. Which among the following facilities are available in your house for education. Tick the Appropriate One

1	Study room	Yes	No
2	Study corner		
3	Study table and chair		
4	Facility to keep books/ bookshelves		

51. Outcome on Material well-being Achieved

Sl no			*VP*	*P*	*BA*	*A*	*G*	*VG*	*E*
1	MTW1	Financial stability							
2	MTW2	Acceptance in society							
3	MTW3	Standard of living							
4	MTW4	Job opportunities							
5	MTW5	Income level							
6	MTW6	Self esteem							
7	MTW7	Social status							
8	MTW8	Acceptance in relations							

7= very poor (VP) 6=poor(P), 5= below average (BA), 4= average(A), 3= good(G), 2=very good (VG) 1=excellent

52. Outcome on social activities or social interaction

		Social activities	VP	P	BA	A	*G*	VG	E
1	SLI1	Political parties							
2	SLI2	PTA committee							
3	SLI3	Resident association							
4	SLI4	Attends Gram Sabha kudumbasree etc.							
5	SLI5	Casting votes in elections							
6	SLI6	Neighbour cooperation for caring elderly/kids/sick							
7	SLI7	Neighbourhood cooperation for conducting functions like marriage							
8	SLI8	Neighbourhood cooperation providing mental support at times of grief-demise of close relative							
9	SLI9	Neighbourhod cooperation for solving family disputes							
10	SLI10	For children's education							

7= very poor (VP) 6=poor(P), 5= below average (BA), 4= average(A), 3= good(G), 2=very good (VG) 1=excellent,

53. Outcome on personal safety of the family?

		Personnel safety	N	VR	R	O	F	VF	A
1	PRS1	Any falls or injuries occurred due to the peculiarity of house construction							
2	PRS2	Any incidence of short circuit or accidental shock							
3	PRS3	Any incidence of burns							
4	PRS4	Occurrence of pests and insects inside the house							
5	PRS5	Any waterborne diseases like diarrhea							
6	PRS6	Any incidents of security threat due to inadequate doors and windows							

1 = Never 2 = Very Rarely 3 = Rarely 4= Occassionally 5 = Frequently 6 = Very Frequently

7 = Always

Part IV – Quality of Rural Housing

54. Assess the quality of house based on

slno			VP	P	BA	A	G	VG	E
1	QOH1	Availability of services							
2	QOH2	Design							
3	QOH3	Condition of house							
4	QOH4	Overcrowding							
5	QOH5	Security							
6	QOH6	Road access to house							
7	QOH7	Sanitation							
8	QOH8	External environment							

1 = Very Poor, 2= Poor, 3= Below Average, 4= Average, 5=Good, 6= Very Good, 7=Excellent

55. Life Satisfaction-What is the effect of Housing on my family' life satisfaction

Sl. No			SD	D	SLD	NAND	SA	A	SA
1	LS1	My family is living a life close to my ideal							
2	LS2	The living conditions are decent							
3	LS3	We are satisfied with our life							
4	LS4	We are provided with the important things in our life							
5	LS5	My children are able to perform well							
6	LS6	I have a positive outlook for future							

1 = Strongly Disagree 2 = disagree, 3 = Slightly disagree, 4 = Neither Agree nor Disagree, 5 = Slightly agree, 6 = agree, 7 - Strongly Agree

56. Are you content with the house constructed. Answer the Following Arguments

Sl. No			SD	D	SLD	NAND	SLA	A	SA
7	IOHS7	Rooms constructed are spacious enough for my family							

8	IOHS8	The house is constructed at a proper place							
9	IOHS9	The durability of the house varies from 20-30 years							
10	IOHS10	The house design is apt for my family							
11	IOHS11	I recommend this scheme to other houseless people							
12	IOHS12	There was no undue delay in building house							

1= Strongly Disagree (SD), 2=Disagree(D), 3= Slightly Disagree (SLD) 4=Neither Agree nor Disagree (NAND), 5=Slightly Agree (SLA), 6=Agree(A), 7=Strongly Agree (SA)

57. How Satisfied are You with the following housing facilities- Housing satisfaction

	Housing satisfaction	EU	U	SU	N	SS	S	ES
HS1	Privacy							
HS2	Security							
HS3	Studying facility							
HS4	Leisure and rest							
HS5	Hygienic living							
HS6	comfort							
HS7	Sense of belonging							

1 = extremely unsatisfied 2 = unsatisfied 3 = Slightly unsatisfied 4 = Neutral 5 = Slightly satisfied 6 = satisfied 7 = Extremely satisfied

Part IV - Implementation of housing schemes

58. Evaluation of Housing schemes characteristics

Type of housing scheme	1= PMAY 2= life, 3= IAY, 4=EMS 5=MN
Is the construction complete	1= Yes 2= No
Duration of house building	1= Less than 1 Year, 2=1 to 2 Years, 3=2 to 3 Years, 4=3 to 5 Years,
Delay in getting fund	1= Yes 2= No
are you in debt after completion of house	1= Yes 2= No
Amount of liability	1= Rs. 25000-Rs.50000, 3=Rs50000- Rs. 75000,4= Rs .75000- Rs.100000, 5= Rs.1lakh to Rs. 2 lakhs, 6= Rs .2 lakhs to Rs.3 lakhs, 7= More than 3lakhs

59. What is Your Belief About the Housing Scheme

		Housing scheme	SD	D	SLD	NAND	SLA	A	SA
1	IOHS1	Helps poor people to prosper in life							
2	IOHS2	Helps poor people in fulfilling the dream of owning a house							

3	IOHS3	The scheme promotes overall development of household							
4	IOHS4	I am fully satisfied with the officials implementing the scheme							
5	IOHS5	It is a Sheer Waste of Money time an Resources							
6	IOHS6	I never encountered delay in releasing funds during the scheme							

1 = Strongly Disagree 2 = disagree 3 = Slightly disagree 4 = Neither Agree nor Disagree 5 = Slightly agree 6 = agree 7 - Strongly Agree

60. After the enlistment for housing scheme, did the concerned official visit your place

☐ 1=Yes 2= No

☐ If Yes, How Often

1=Always 2= Frequently, 3=Very Frequently 4=Occasionally, 5= Rarely 6= Very Rarely 7=Never

TSO Level Report – Palakkad

Sl. No	TSO Name	Total Cards	Total Beneficiaries	AAY		PHH		Non Priority State Subsidy		Non Priority Non Subsidy		NPI Cards		Electrified	Non Electrified
				Cards	Beneficiaries	Cards	Beneficiaries	Cards	Beneficiaries	Cards	Beneficiaries				
1	Taluk Supply Office,Palakkad	**181812**	**642880**	6981	22547	76639	273917	31443	115211	66319	230775	430	181628	184	59
2	Taluk Supply Office,Chittur	**129380**	**453515**	9439	31747	64354	227131	15784	56117	39689	138406	114	128822	558	19
3	Taluk Supply Office,Ottappalam	**133746**	**514304**	5988	19695	56654	217640	28750	118148	42280	158747	74	133546	200	43
4	Taluk Supply Office,Mannarkkad	**115204**	**431209**	16743	54597	43718	160785	27556	113283	26894	102251	293	114798	406	32
5	Taluk Supply Office,Alathur	**128782**	**479035**	5352	16683	66786	250557	22551	86761	33922	124863	171	128652	130	6
6	Taluk Supply Office,Pattambi	**125092**	**531433**	4747	16891	56294	232384	28210	129604	35836	152549	5	125081	11	39
Grand Total		**814016**	**3052376**	**49250**	**162160**	**364445**	**1362414**	**154294**	**619124**	**244940**	**907591**	**1087**	**812527**	**1489**	**19**

Deprived Households in Kerala- Socio-Economic and Caste Census 2011

District Name	Total Households considered for deprivation	% of Deprived Households with deprivation criteria Only one room with kucha walls and kucha roof	% of Deprived Households with deprivation criteria No adult member between age 16 to 59	% of Deprived Households with deprivation criteria Female headed households with no adult male member between age 16 to 59	% of Deprived Households with deprivation criteria Disabled member and no able bodied adult member	% of Deprived Households with deprivation criteria SC/ST households	% of Deprived Households with deprivation criteria No literate adult above 25 years	% of Deprived Households with deprivation criteria Landless households deriving major part of their income from manual casual labour
State Total	1916469	1%	2.1%	4%	0%	7%	2%	19%
Kasaragod (01)	76458	2%	1%	4%	0%	7%	3%	13%
Kannur (02)	115195	1%	2%	3%	0%	3%	1%	11%
Wayanad (03)	65706	2%	2%	3%	0%	12.5%	4%	25%
Kozhikode (04)	166156	2%	2%	4%	0%	5%	1%	18%
Malappuram (05)	231269	1%	1%	4%	0%	6%	2%	25%
Palakkad (06)	238546	2.2%	2.7%	5.1%	0%	12%	5%	29%
Thrissur (07)	168998	2%	2%	4%	0%	7%	1%	20%
Ernakulam (08)	107550	1%	2%	2%	0%	5%	1%	14%
Idukki (09)	87890	1%	2%	3%	0%	11%	4%	18%
Kottayam (10)	96434	1%	2%	2%	0%	5%	0%	14%
Alappuzha (11)	126345	1%	2%	3%	0%	6%	1%	19%
Pathanamthitta (12)	75487	1%	2%	3%	0%	9%	1%	16%
Kollam (13)	152436	1%	2%	4%	0%	8%	1%	15%
Thiruvananthapuram (14)	207999	2%	4%	6%	0.4%	9%	3%	22%

State/UT-wise details of the number of houses sanctioned under Pradhan Mantri Awaas Yojana- Gramin (PMAY-G) in the country during each of the last three years i.e. from the financial year 2020-21 to 2022-23

(Units in nos.)

SL No.	Name of the State/UT	2020-21	2021-22	2022-23
1	ARUNACHAL PRADESH	19,038	11,044	2,707
2	ASSAM	1,50,039	2,16,359	10,55,005
3	BIHAR	6,25,357	8,99,367	1,33,110
4	CHHATTISGARH	1,57,534	371	81,375
5	GOA	32	47	18
6	GUJARAT	21,347	1,07,420	1,48,714
7	HARYANA	61	3,317	5,114
8	HIMACHAL PRADESH	4,001	2,729	794
9	JAMMU AND KASHMIR	64,045	55,862	7,818
10	JHARKHAND	3,61,648	3,90,226	11,590
11	KERALA	3,330	12,615	1,633
12	MADHYA PRADESH	7,56,726	4,90,326	7,54,552
13	MAHARASHTRA	2,92,105	1,17,601	3,16,475
14	MANIPUR	17,822	1,725	13,849
15	MEGHALAYA	26,487	3,353	8,871
16	MIZORAM	7,017	0	6,951
17	NAGALAND	4,706	9,806	4,203
18	ODISHA	2,90,488	3,421	9,08,916
19	PUNJAB	1,887	11,333	4,959
20	RAJASTHAN	2,64,720	3,87,150	7,467
21	SIKKIM	0	282	48
22	TAMIL NADU	1,13,138	2,30,839	41,101
23	TRIPURA	991	1,57,234	51,915
24	UTTAR PRADESH	7,28,507	4,34,963	8,62,231
25	UTTARAKHAND	47	15,390	18,816
26	WEST BENGAL	9,41,759	1,66,795	11,06,888
27	ANDAMAN AND NICOBAR	397	0	6
28	DADRA AND NAGAR HAVELI & DAMAN DIU	99	49	967
29	LAKSHADWEEP	0	0	0
30	PUDUCHERRY*	-	-	-
31	ANDHRA PRADESH	1,816	0	1,78,899
32	KARNATAKA	36,730	3,972	38,412
33	TELANGANA*	-	-	-
34	LADAKH	200	461	1
	Total	**48,92,074**	**37,34,057**	**57,73,405**

LIFE MISSION PROGRESS REPORT -COMPLETED HOUSES –16.12.2021											
DISTRICT	**PHASE 1**	**PHASE 2**	**PHASE 3**	**PMAY (U)**	**PMAY (R)**	**SC DEPT.**	**ST DEPT.**	**FISHERIES DEPT**	**MINORITY DEPT**	**ADDITIONAL LIST (HOUSES LESS WITH LAND)**	**TOTAL**
Thiruvanathapuram	6049	15170	624	10437	3077	2384	3	1617	152	50	39563
Kollam	3617	8453	1058	5555	1477	1956	3	770	107	18	23014
Pathanamthitta	1176	1987	438	1403	800	1248	7	10	75	106	7250
Alappuzha	2728	9210	389	4343	796	1278	10	607	193	204	19758
Kottayam	1102	4222	777	2050	617	1240	42	79	81	171	10381
Idukki	3129	9989	1261	1722	783	1227	114	15	97	48	18385
Ernakulam	1059	5411	906	9147	799	1944	53	329	79	178	19905
Thrissur	2997	4939	729	6984	1666	2228	22	117	118	163	19963
Palakkad	7611	11936	517	5737	2149	2763	493	14	127	32	31379
Malappuram	2729	6232	863	9265	2436	2553	29	481	678	16	25282
Kozhikodu	6483	4945	266	5541	1212	1311	12	345	124	204	20443
Wayanad	8440	3680	356	2513	934	1073	1716	0	218	30	18960
Kannur	2644	2572	252	4113	708	777	345	212	176	174	11973
Kasarkodu	2871	3451	440	1644	639	623	50	122	138	11	9989
Total	**52,635**	**92,197**	**8,876**	**70,454**	**18,093**	**22,605**	**2,899**	**4,718**	**2,363**	**1,405**	**2,76,245**

List of Publications

1. Knowledge Attitude and Practice of Waste Disposal of Rural Households – A Pathway for Sustainable Housing – Naval Kishore S and Dr. Sinitha Xavier, International Journal of Creative Research Thoughts (UGC care listed journal),
   Volume 12, issue 7, July 2024, a680-a692, ISSN: 2320-2882, https://www.ijcrt.org.
2. Attitude of the Beneficiary Households Towards Government Housing Schemes in Rural Areas of Kerala -Naval Kishore S and Dr. Sinitha Xavier, International Journal of Research and Analytical Reviews (UGC care listed journal), Volume 11,Issue 3, July 2024, 196-208, P-ISSN: 2349-5138, https://www.ijcrt.org.
3. Ecotourism-Effects on Local Economy, Society and Environment - Naval Kishore S and Dr. Sinitha Xavier, Sambodhi (UGC care listed journal) L.D. Institute of Indology, Ahmedabad, ISSN-2249-6661, indologysambodhi.org@gmail.com