HUMAN DEVELOPMENT STATUS OF SCHEDULED TRIBAL WOMEN IN KERALA

Thesis submitted to the
UNIVERSITY OF CALICUT
in partial fulfillment for the requirements for the award of the degree of

DOCTOR OF PHILOSOPHY IN ECONOMICS

By

DRISYA A P
(U.O.No. 2821/2019/Admn. dated 23.02.2019)

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May 2025

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CERTIFICATE

This is to certify that the thesis entitled **"Human Development Status of Scheduled Tribal Women in Kerala"**, submitted to the University of Calicut by Ms. Drisya A P, for the award of PhD. Degree in Economics is a record of Bonafide research work carried out by her under the supervision and guidance of Dr. Remmiya Rajan P, Assistant Professor, Post Graduate and Research Department of Economics of this college during the period 2019-2025.

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Dr. Remmiya Rajan P

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Sub: Report of the Adjudicators- corrections incorporated in the thesis - w.r.o. Ms. Drisya A.P., Research Scholar of Economics, The Zamorin's Guruvayurappan College- reg.

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This is to certify that the thesis entitled "**Human Development Status of Scheduled Tribal Women in Kerala**", submitted by **Ms. Drisya A.P**., Research Scholar, Department of Economics, The Zamorin's Guruvayurappan College, under my supervision, has incorporated all the corrections and suggestions recommended by the adjudicators.

It is further certified that these corrections have been duly incorporated in both the Library copy of the thesis and the soft copy (PDF format) submitted on CD, and that the contents of both versions are identical.

Yours faithfully,

Dr. Remmiya Rajan P.

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3.	Name of the Supervisor	Dr. Remmiya Rajan P	
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DECLARATION

I hereby declare that the work presented in the thesis **"Human Development Status of Scheduled Tribal Women in Kerala"**, is based on the original work done by me under the guidance of Dr. Remmiya Rajan P, Assistant Professor, Post Graduate and Research Department of Economics and has not been included in any other thesis submitted previously for the award of any degree. The contents of the thesis are undergone plagiarism check using iThenticate software at C.H.M.K. Library, University of Calicut, and the similarity index found within the permissible limit. I also declare that the thesis is free friom AI generated conents.

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Signature of the Supervising Teacher

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Drisya A. P.

ABSTRACT

This study investigates the human development status of Scheduled Tribal women in Kerala, with a particular focus on the Particularly Vulnerable Tribal Groups (PVTGs) - Kadar, Kattunaykkan, and Kurumba women. Although Kerala is often celebrated for its high human development indicators, tribal women - particularly from PVTG communities - continue to experience severe deprivation and marginalization across critical dimensions of well-being. The study is grounded in empirical fieldwork conducted using a multistage random sampling method, ensuring representative and region-specific data. A total of 598 respondents were selected, comprising 147 Kadar women from Thrissur district, 228 Kattunaykkan women from Wayanad district, and 223 Kurumba women from Palakkad district. The study explores their health status**,** maternal health**,** nutritional status**,** and livelihood issues, revealing significant disparities among these groups. While Kadar women showed relatively better educational outcomes, they faced economic insecurities and unstable livelihoods. Kattunaykkan women reported low literacy rates and limited healthcare access, with high dropout rates further contributing to developmental challenges. Kurumba women, heavily reliant on forest-based livelihoods, experienced pronounced healthcare vulnerabilities and nutritional deficiencies. Anchored in a rights-based approach, this study examines development through composite indices, including the Human Development Index (HDI), Multidimensional Poverty Index (MPI), and Deprivation Index, to present a comprehensive assessment of inequality, exclusion, and the outcomes of state-led interventions. Findings reveal a stark human development gap between these communities and the general population. The H.R.B-H.D.I scores indicate intra-community variations, with Kadar women registering the highest at 1.802, followed closely by Kattunaykkan (1.798), and Kurumba women recording the lowest at 1.560. In contrast, Kerala's overall HDI is 0.779 (UNDP, 2019), while the state's tribal population lags significantly behind at 0.625 (Government of Kerala, 2018).

Despite the existence of targeted government interventions such as *Pradhan Mantri Awas Yojana (Gramin)* for housing, *Saubhagya Scheme* for rural electrification, *Jal Jeevan Mission* for water supply, and *Ujjwala Yojana* for clean cooking fuel, access remains alarmingly inadequate. The deprivation index for the Kurumba tribe stands at 34.25%, with 95.96% of households lacking access to clean drinking water, 94.30% without toilet facilities, and 85.20% facing electricity shortages. The Kattunaykkan community records a deprivation rate of 33.81%, while the Kadar tribe reports 28.76%. Despite policy efforts, 89.8% of Kadar households lack clean drinking water, 79.59% do

not have toilets, and 59.2% face power shortages. These statistics point to critical implementation and accessibility gaps in the delivery of public services and welfare schemes. Multidimensional Poverty Index (MPI) analysis further substantiates the gravity of deprivation: Kurumba (0.614), Kattunaykkan (0.551), and Kadar (0.475). Compared to Kerala's state MPI of 0.002 and the national average of 0.066 (NITI Aayog, 2023), these figures highlight an alarming concentration of poverty among tribal women. Among the Kurumba, 97.7% of the poor are deprived across all indicators, signalling deep, overlapping disadvantages.

This study underscores that despite state and central government interventions, systemic inequities continue to marginalize PVTG women in Kerala. The findings call for a paradigm shift from fragmented welfare approaches to an integrated, gender-sensitive, and culturally responsive development model. The study recommends strengthening last-mile delivery of existing schemes, expanding infrastructure in remote tribal settlements, and adopting participatory governance mechanisms that empower tribal women as agents of change in their own communities.

Keywords: Human Development Index, Multidimensional Poverty Index, Deprivation Index, Particularly Vulnerable Tribal Groups, Scheduled Tribe Women, Institutional Interventions, Rights-Based Approach, Tribal Development, Social Inclusion.

സംഗ്രഹം

കേരളത്തിലെ പട്ടികവർഗ സ്ത്രീകളുടെ മാനുഷിക വികസനനിലയെക്കുറിച്ചാണ് ഈ പഠനം പ്രധാനമായും അന്വേഷിക്കുന്നത്. പ്രത്യേകിച്ച് സമൂഹത്തിലെ ദുർബലരായ ഗോത്രവിഭാഗങ്ങളായ കാടർ, കാട്ടുനായ്ക്കൻ, കുറുംബ സ്ത്രീകളിൽ (പി.വി.ടി.ജി) പഠനം ശ്രദ്ധ കേന്ദ്രീകരിക്കുന്നു. ഉയർന്ന മാനുഷിക വികസനസൂചകങ്ങൾക്ക് കേരളം പലപ്പോഴും ആഘോഷിക്കപ്പെടുന്നുണ്ടെങ്കിലും, ഗോത്രവർഗ സ്ത്രീകൾ - പ്രത്യേകിച്ച് പി.വി.ടി.ജി സമൂഹങ്ങളിൽ നിന്നുള്ളവർ - ക്ഷേമത്തിന്റെ നിർണായക മാനങ്ങളിൽ കടുത്ത ദാരിദ്ര്യവും പാർശ്വവൽക്കരണവും അനുഭവിക്കുന്നു. പ്രാതിനിധ്യവും പ്രദേശാധിഷ്ഠിതവുമായ ഡാറ്റ ഉറപ്പാക്കുന്ന മൾട്ടിസ്റ്റേജ് റാൻഡം സാമ്പിൾ രീതി ഉപയോഗിച്ച് നടത്തിയ അനുഭവപരമായ ഫീൽഡ് വർക്കിനെ അടിസ്ഥാനമാക്കിയാണ് ഈ പഠനം. തൃശ്ശൂർ ജില്ലയിൽ നിന്നുള്ള 147 കാടർ സ്ത്രീകൾ, വയനാട് ജില്ലയിൽ നിന്നുള്ള 228 കാട്ടുനായ്ക്കൻ സ്ത്രീകൾ, പാലക്കാട് ജില്ലയിൽ നിന്നുള്ള 223 കുറുംബ സ്ത്രീകൾ എന്നിവരുൾപ്പെടെ ആകെ 598 പേരെയാണ് പഠനം തിരഞ്ഞെടുത്തത്. അവരുടെ ആരോഗ്യസ്ഥിതി, മാതൃകാരോഗ്യം, പോഷകാഹാര നിലവാരം, ഉപജീവനമാർഗ്ഗ പ്രശ്നങ്ങൾ എന്നിവ പഠനം പരിശോധിക്കുകയും, ഈ ഗ്രൂപ്പുകൾക്കിടയിൽ കാര്യമായ അസമത്വങ്ങൾ വെളിപ്പെടുകയും ചെയ്യുന്നു. കാടർ സ്ത്രീകൾ താരതമ്യേന മികച്ച വിദ്യാഭ്യാസ ഫലങ്ങൾ കാണിച്ചെങ്കിലും, അവർക്കിടയിൽ സാമ്പത്തിക അരക്ഷിതാവസ്ഥയും അസ്ഥിരമായ ഉപജീവനമാർഗ്ഗവും നേരിട്ടു. കാട്ടുനായ്ക്കൻ സ്ത്രീകൾക്ക് കുറഞ്ഞ സാക്ഷരതാ നിരക്കും പരിമിതമായ ആരോഗ്യ സംരക്ഷണ സൗകര്യവുമാണുള്ളത്. ഉയർന്ന കൊഴിഞ്ഞുപോക്ക് നിരക്ക് ഇവരുടെ വികസന വെല്ലുവിളികൾക്ക് കൂടുതൽ സംഭാവന നൽകുന്നു. വനം അടിസ്ഥാനമാക്കിയുള്ള ഉപജീവനമാർഗ്ഗങ്ങളെ വളരെയധികം ആശ്രയിക്കുന്ന കുറുംബ സ്ത്രീകൾക്ക് വ്യക്തമായ ആരോഗ്യ സംരക്ഷണ ദുർബലതകളും പോഷകാഹാരക്കുറവും അനുഭവപ്പെടുന്നുണ്ട്. അവകാശങ്ങളെ അടിസ്ഥാനമാക്കിയുള്ള സമീപനത്തിൽ നങ്കൂരമിട്ട ഈ പഠനം, അസമത്വം, ഒഴിവാക്കൽ, സംസ്ഥാന നേതൃത്വത്തിലുള്ള ഇടപെടലുകളുടെ ഫലങ്ങൾ എന്നിവയുടെ സമഗ്രമായ വിലയിരുത്തൽ അവതരിപ്പിക്കുന്നതിന് മാനവ വികസന സൂചിക (എച്ച്. ഡി.ഐ) ബഹുമുഖ ദാരിദ്ര്യ സൂചിക (എം. പി. ഐ), ദാരിദ്ര്യ സൂചിക എന്നിവയുടെ അടിസ്ഥാനത്തിൽ ഈ പഠനം സമഗ്രമായ സാമൂഹ്യ അളവുകളിലൂടെ വികസനത്തിൽ ഗോത്രവർഗ്ഗസ്ത്രീകൾ അനുഭവിക്കുന്ന അസമത്വങ്ങളെയും പുറം തള്ളലിനെയും വിലയിരുത്തുന്നു. അതേസമയം, കേരളത്തിന്റെ ആകെ എച്ച്. ഡി.ഐ മൂല്യം 0.779 (യു.എന്.ഡി.പി., 2019) ആണെങ്കിലും, സംസ്ഥാനത്തില ആദിവാസി ജനസംഖ്യയുടെ ശരാശരി എച്ച്. ഡി.ഐ 0.625 മാത്രമാണ് (കേരളസർക്കാർ, 2018).

ഭവന നിർമ്മാണത്തിനായുള്ള പ്രധാൻ മന്ത്രി ആവാസ് യോജന (ഗ്രാമീൺ), ഗ്രാമീണ വൈദ്യുതീകരണത്തിനായുള്ള സൗഭാഗ്യ പദ്ധതി, ജലവിതരണത്തിനായുള്ള ജൽ ജീവൻ മിഷൻ, ശുദ്ധമായ പാചക ഇന്ധനത്തിനായുള്ള ഉജ്ജ്വല യോജന തുടങ്ങിയവ ലക്ഷ്യമിട്ട സർക്കാർ ഇടപെടലുകൾ നിലവിലുണ്ടെങ്കിലും, പി.വി.ടി.ജി ഗോത്രവിഭാഗത്തിന്റെ ലഭ്യത ആശങ്കാജനകമായി അപര്യാപ്തമാണ്. കുറുമ്പ ഗോത്രത്തിന്റെ ദാരിദ്ര്യ സൂചിക 34.25% ആണ്, 95.96% വീടുകൾക്ക് ശുദ്ധമായ കുടിവെള്ളം ലഭ്യമല്ല, 94.30% വീടുകൾക്ക് ടോയ്ലറ്റ് സൗകര്യങ്ങളില്ല, 85.20% വീടുകൾക്ക് വൈദ്യുതി

ക്ഷാമം നേരിടുന്നു. കാട്ടുനായ്ക്കൻ ഗോത്ര സമൂഹത്തിൽ 33.81% ദാരിദ്ര്യ നിരക്ക് രേഖപ്പെടുത്തുമ്പോൾ കാടർ ഗോത്രത്തിൽ ഇത് 28.76% ആണ്. നയപരമായ ശ്രമങ്ങൾ നടത്തിയിട്ടും, 89.8% കാടർ കുടുംബങ്ങൾക്ക് ശുദ്ധമായ കുടിവെള്ളമില്ല, 79.59% പേർക്ക് ടോയ്‌ലറ്റുകൾ ഇല്ല, 59.2% പേർ വൈദ്യുതി ക്ഷാമം നേരിടുന്നു. പൊതു സേവനങ്ങളുടെയും ക്ഷേമ പദ്ധതികളുടെയും വിതരണത്തിലെ നിർണായകമായ നിർവ്വഹണ, പ്രവേശനക്ഷമതാ വിടവുകളിലേക്ക് ഈ സ്ഥിതിവിവരക്കണക്കുകൾ വിരൽ ചൂണ്ടുന്നു. ബഹുമുഖ ദാരിദ്ര്യ സൂചിക (എംപിഐ) വിശകലനം ദാരിദ്ര്യത്തിന്റെ ഗൗരവത്തെ കൂടുതൽ സ്ഥിരീകരിക്കുന്നു: കുറുമ്പ (0.614), കാട്ടുനായ്ക്കൻ (0.551), കാദർ (0.475). കേരളത്തിന്റെ സംസ്ഥാന എംപിഐ 0.002 ഉം ദേശീയ ശരാശരി 0.066 ഉം (നിതി ആയോഗ്, 2023) എന്നിവയുമായി താരതമ്യപ്പെടുത്തുമ്പോൾ, ഈ കണക്കുകൾ ആദിവാസി സ്ത്രീകൾക്കിടയിൽ ദാരിദ്ര്യത്തിന്റെ ഭയാനകമായ സാന്ദ്രത എടുത്തുകാണിക്കുന്നു. കുറുമ്പ വിഭാഗത്തിൽ, ദരിദ്രരിൽ 97.7% പേരും എല്ലാ സൂചകങ്ങളിലും ദാരിദ്ര്യത്തിലാണ്, ഇത് ആഴത്തിലുള്ളതും ഓവർലാപ്പ് ചെയ്യുന്നതുമായ പോരായ്മകളെ സൂചിപ്പിക്കുന്നു.

സംസ്ഥാന, കേന്ദ്ര സർക്കാർ ഇടപെടലുകൾ ഉണ്ടായിരുന്നിട്ടും, വ്യവസ്ഥാപരമായ അസമത്വങ്ങൾ കേരളത്തിലെ പിവിടിജി സ്ത്രീകളെ അരികുവൽക്കരിക്കുന്നത് തുടരുന്നുവെന്ന് ഈ പഠനം അടിവരയിടുന്നു. വിഘടിച്ച ക്ഷേമ സമീപനങ്ങളിൽ നിന്ന് സംയോജിതവും ലിംഗഭേദത്തെ സംവേദനക്ഷമവും സാംസ്കാരികമായി പ്രതികരിക്കുന്നതുമായ ഒരു വികസന മാതൃകയിലേക്കുള്ള ഒരു മാതൃകാപരമായ മാറ്റമാണ് കണ്ടെത്തലുകൾ ആവശ്യപ്പെടുന്നത്. നിലവിലുള്ള പദ്ധതികളുടെ അവസാന മൈൽ വിതരണം ശക്തിപ്പെടുത്തുക, വിദൂര ആദിവാസി വാസസ്ഥലങ്ങളിലെ അടിസ്ഥാന സൗകര്യങ്ങൾ വികസിപ്പിക്കുക, ആദിവാസി സ്ത്രീകളെ അവരുടെ സ്വന്തം സമൂഹങ്ങളിൽ മാറ്റത്തിന്റെ ഏജന്റുമാരായി ശാക്തീകരിക്കുന്ന പങ്കാളിത്ത ഭരണ സംവിധാനങ്ങൾ സ്വീകരിക്കുക എന്നിവ പഠനം ശുപാർശ ചെയ്യുന്നു.

കീവേഡുകൾ: മാനവ വികസന സൂചിക, ബഹുമുഖ ദാരിദ്ര്യ സൂചിക, ദാരിദ്ര്യ സൂചിക, പ്രത്യേകിച്ച് ദുർബലരായ ആദിവാസി ഗ്രൂപ്പുകൾ, പട്ടികവർഗ സ്ത്രീകൾ, സ്ഥാപനപരമായ ഇടപെടലുകൾ, അവകാശങ്ങളെ അടിസ്ഥാനമാക്കിയുള്ള സമീപനം, ആദിവാസി വികസനം, സാമൂഹിക ഉൾപ്പെടുത്തൽ.

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AAY	Antyodaya Anna Yojana
AHADS	Attapadi Hills Area Development Society
ANC	Antenatal Care
ANM	Auxiliary Nurse Midwife
ASHA	Accredited Social Health Activist
ATM	Automated Teller Machine
BMI	Body Mass Index
BPL	Below Poverty Line
ESI	Employees State Insurance
ESIS	Employees' State Insurance Scheme
GDI	Gender Development Index
GER	Gross Enrollment Ratio
GNI	Gross National Income
GoI	Government of India
GPI	Gender Parity Index
HDI	Human Development Index
HRBA	Human Rights-Based Approach
ICDS	Integrated Child Development Services
ICDS	Integrated Child Development Services
ICMR	Indian Council of Medical Research
IIPS	International Institute for Population Sciences
JSSK	Janani Shishu Suraksha Karyakram
JSY	Janani Suraksha Yojana
KILA	Kerala Institute of Local Administration
KIRTADS	Kerala Institute for Research, Training and Development Studies of Scheduled Castes and Scheduled Tribes

KSTDD	Kerala Scheduled Tribes Development Department
LFPR	Labour Force Participation Rate
LHV	Lady Health Visitor
LIC	Life Insurance Corporation (of India)
LPG	Liquefied Petroleum Gas
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
GER	Gross Enrollment Ratio
GNI	Gross National Income
GoI	Government of India
GPI	Gender Parity Index
HDI	Human Development Index
HRBA	Human Rights-Based Approach
ICDS	Integrated Child Development Services
ICDS	Integrated Child Development Services
ICMR	Indian Council of Medical Research
IIPS	International Institute for Population Sciences
MoHFW	Ministry of Health and Family Welfare
MoSPI	Ministry of Statistics and Programme Implementation
MPI	Multidimensional Poverty Index
MTA	Ministry of tribal affairs
NCRB	National Crime Records Bureau
NFHS	National Family Health Survey
NITI	National Institution for Transforming India (NITI Aayog)
NRHM	National Rural Health Mission
NRLM	National Rural Livelihoods Mission

NSO	National Statistical Office
NSS	National Sample Survey
NSSO	National Sample Survey Office
NTFP	Non-Timber Forest Products
NWFP	Non-Wood Forest Products
OHCHR	Office of the High Commissioner for Human Rights
OPHI	Oxford Poverty and Human Development Initiative
PDS	Public Distribution System
PG	Post Graduate / Post Graduation
PHC	Primary Health Centre
PLFS	Periodic Labour Force Survey
PMJDY	Pradhan Mantri Jan Dhan Yojana
PMUY	Pradhan Mantri Ujjwala Yojana
PRA	Participatory Research Appraisal
PS	Principal Status
PTG	Primitive Tribal Group
PVTG	Particularly Vulnerable Tribal Group
RSBY	Rashtriya Swasthya Bima Yojana
SC	Scheduled Caste
SDG	Sustainable Development Goals
SGDP	State Gross Domestic Product
SHG	Self Help Group
SS	Subsidiary Status
SSLC	Secondary School Leaving Certificate
ST	Scheduled Tribe
TBA	Traditional Birth Attendant
TRDM	Tribal Resettlement and Development Mission

TRDM	Tribal Rural Development Mission
TSP	Tribal Sub-Plan
UHC	Universal Health Coverage
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations International Children's Emergency Fund
UR	Unemployment Rate
VKY	Vanbandhu Kalyan Yojana
VSS	Vana Samrakshana Samithi
WHO	World Health Organization
WPR	Worker Population Ratio

CHAPTER I

INTRODUCTION

1.1 Introduction

Human development is a multidimensional process aimed at enhancing individual well-being by improving the quality of life, expanding opportunities, and ensuring equitable access to essential resources. Unlike conventional economic growth models, human development encompasses broader aspects such as education, healthcare, social inclusion, and empowerment, which collectively contribute to holistic progress (U.N.D.P, 2020). The central objective of human development is to enable individuals to lead productive and fulfilling lives by equipping them with the necessary tools and opportunities for both personal and societal advancement (Sen, 1999).

To systematically assess human development across nations, the United Nations Development Programme (U.N.D.P) introduced the Human Development Index (H.D.I), a composite measure that evaluates three fundamental dimensions: health, education, and standard of living (U.N.D.P, 2020). Health is assessed through life expectancy at birth, reflecting the overall well-being and longevity of a population. Educational attainment is measured using the mean and expected years of schooling, capturing both past achievements and future potential in learning. Finally, the standard of living is determined by gross national income (G.N.I) per capita, offering an economic perspective on human welfare (Klugman, Rodriguez, & Choi, 2011). These indicators, when analyzed collectively, provide a comprehensive understanding of a nation's progress in achieving sustainable human development.

Human development is a multidimensional concept encompassing health, education, and standard of living, ensuring individuals have access to opportunities for a dignified life (United Nations Development Programme, 2020). However, marginalized communities, including Scheduled Tribes (STs), Scheduled Castes (SCs), and other disadvantaged groups, often face significant barriers to achieving

holistic development. Tribal communities in India form a crucial part of the country's diverse social fabric, constituting 8.6 percent of the total population (Census of India, 2011). These indigenous groups, spread across various states, have historically depended on forest resources and traditional livelihoods. However, they remain among the most economically and socially disadvantaged sections of society. Limited access to education, healthcare, employment, and basic infrastructure has hindered their overall development (Xaxa, 2001). Despite constitutional provisions and welfare programs aimed at uplifting these communities, stark inequalities persist between tribal and non-tribal populations (Ministry of Tribal Affairs, 2018).

Among the Scheduled Tribes (STs), Particularly Vulnerable Tribal Groups (PVTGs) represent the most marginalized section. These groups are identified based on low population growth, pre-agricultural practices, economic backwardness, and geographical isolation (Debnath, 2020). In India, there are 75 PVTGs spread across different states, with Kerala being home to indigenous communities such as the Kadar, Kattunaykkan, Koraga, Cholanaicken, and Kurumba tribes (M.T.A, 2018). These communities experience severe deprivation in terms of literacy, healthcare, nutrition, and livelihood opportunities, making them highly vulnerable to socio-economic distress (Sharma, 2019).

Within these groups, PVTG tribal women face double marginalization - both as tribals and as women. They struggle with high dropout rates, child marriage, malnutrition, poor maternal health, and exclusion from decision-making processes (Das & Das, 2021). Limited access to economic resources, education, and healthcare facilities further constrains their empowerment. Addressing these challenges requires gender-sensitive policies, livelihood support, and improved access to education and healthcare to enhance their human development status and ensure their inclusion in the broader developmental framework (U.N.D.P, 2020).

1.2 The concept of human development

Human development is a multidimensional concept that focuses on expanding individuals' choices and improving their quality of life rather than merely emphasizing economic growth (U.N.D.P, 1990). This approach considers key

aspects such as health, education, and a decent standard of living as fundamental indicators of human progress. The United Nations Development Programme (U.N.D.P) introduced the Human Development Index (H.D.I) to measure these dimensions, offering a more comprehensive understanding of well-being beyond economic indicators (Sen, 1999).

In India, human development exhibits significant disparities across states, reflecting diverse socio-economic conditions. According to Global Data Lab (2022), Kerala has the highest H.D.I among Indian states, estimated at 0.758, owing to its strong social indicators, including high literacy rates, low infant mortality, and improved healthcare access (Dreze & Sen, 2013). Despite its lower per capita income compared to industrialized states, Kerala's development model prioritizes social welfare, making it a unique example in the Indian context (Kurien, 1995).

On the other hand, India's overall H.D.I remains at approximately 0.645, placing it in the medium human development category (U.N.D.P, 2021). States such as Bihar (0.540) and Jharkhand (0.548) lag behind, reflecting regional disparities in education, healthcare, and income levels (Planning Commission, 2012). These differences underscore the need for targeted policies to ensure inclusive development across all states.

Understanding human development through the H.D.I framework is essential for policymakers to design equitable and sustainable development strategies. A shift from purely economic measures to a holistic perspective incorporating education, health, and income is crucial in achieving long-term societal progress (Mahbub ul Haq, 1995).

1.3 The human rights based approach to human development

The Human Rights-Based Approach (HRBA) incorporates human rights principles into development strategies and initiatives, aiming to promote inclusive, equitable, and sustainable advancement. This approach recognizes human rights as fundamental entitlements, ensuring that development efforts focus on empowering

individuals and communities rather than merely addressing economic growth (United Nations, 2003).

The H.R.B.A was introduced by the United Nations in the late 1990s and early 2000s to strengthen the connection between human rights and development (U.N.D.P, 2006). Unlike traditional development models, which focus on economic growth, HRBA prioritizes dignity, equality, and participation, ensuring that every individual can claim their right to education, healthcare, employment, and an adequate standard of living (O.H.C.H.R, 2006).

H.R.B.A differs from traditional Human Development Index (H.D.I) calculations by incorporating legal, social, and institutional frameworks alongside standard economic and social indicators. While the U.N.D.P's H.D.I primarily measures health (life expectancy), education (mean and expected years of schooling), and income (G.N.I per capita) (U.N.D.P, 1990), the H.R.B.A approach extends these indicators by including:

- Legal and institutional accountability - Assessing government policies and programs for protecting rights.
- Social inclusion and participation - Evaluating whether marginalized groups (such as Scheduled Tribes, Particularly Vulnerable Tribal Groups) have access to development programs.
- Freedom and non-discrimination - Measuring gender equality, minority rights, and protection against discrimination.

To assess human development through H.R.B.A, the 4-A's framework -Availability, Accessibility, Acceptability, and Adaptability plays a crucial role (Tomasevski, 2001). This framework is particularly used in evaluating education, healthcare, and basic services.

- Availability - Ensuring essential services (schools, healthcare, and employment opportunities) exist in adequate quantity for all individuals. Example: The presence of tribal welfare schools for PVTG communities.

- Accessibility - Ensuring all individuals, including marginalized groups, can access resources without discrimination or barriers (such as geographical distance, economic constraints). Example: Scholarship programs for tribal students.

- Acceptability - Services must be culturally appropriate, of high quality, and respectful of local traditions. Example: Mother-tongue-based education for tribal children.

- Adaptability - Development programs should be flexible to accommodate diverse needs. Example: Flexible work policies for tribal women to balance livelihood and household responsibilities.

The Human Rights-Based Approach (H.R.B.A) to Human Development provides a holistic framework that goes beyond economic indicators to ensure equitable, inclusive, and rights-based progress. Unlike the U.N.D.P's H.D.I model, which focuses on health, education, and income, H.R.B.A emphasizes justice, participation, and empowerment. By incorporating the 4-A's framework, H.R.B.A ensures that marginalized communities, such as Scheduled Tribes and Particularly Vulnerable Tribal Groups (PVTGs), gain equitable access to opportunities. Implementing H.R.B.A is crucial for achieving sustainable and inclusive development in India, particularly for tribal women who continue to face economic and social exclusion.

1.4 Tribes in India

The term "tribe" originates from the Latin word "tribus," which was historically used to classify people based on kinship and territorial identity (Singh, 2018). In the Indian context, the Constitution of India categorizes indigenous communities under the term "Scheduled Tribes (STs)", recognizing them as socio-economically disadvantaged groups requiring special protections (Government of India, 1950). As per the 2011 Census of India, the tribal population totals 104 million, accounting for 8.6% of the country's overall population. These communities are primarily concentrated in Madhya Pradesh, Chhattisgarh, Jharkhand, Odisha, and the north-eastern states, where they have maintained distinct cultural identities, languages, and

traditions (Ministry of Tribal Affairs, 2018). Tribes in India are characterized by geographical isolation, a strong kinship system, subsistence-based economy, and traditional governance structures (Xaxa, 2001). However, rapid modernization and socio-economic policies have led to disruptions in their traditional way of life, leading to displacement and loss of cultural heritage (Sharma, 2019).

Among the Scheduled Tribes, Particularly Vulnerable Tribal Groups (PVTGs) represent the most marginalized and disadvantaged section. The Government of India has identified 75 PVTGs across 18 states and one Union Territory, meeting specific criteria such as low population growth, pre-agricultural economy, economic backwardness, and geographical isolation (Debnath, 2020). The highest concentration of PVTGs is found in Odisha, Jharkhand, Chhattisgarh, and Madhya Pradesh (M.T.A, 2018). These groups, including the Great Andamanese, Cholanaikkan, Birhor, and Sahariyas, struggle with limited access to healthcare, education, employment, and infrastructure. Due to their high illiteracy rates, poor health indicators, and economic deprivation, they remain one of the most vulnerable sections of society (Sharma, 2019). Despite government interventions such as the Tribal Sub-Plan (T.S.P) and Vanbandhu Kalyan Yojana, these groups continue to experience systemic inequalities and lack of representation in mainstream development programs (Das & Das, 2021).

Tribal women in India face multiple layers of marginalization, both as members of indigenous communities and as women. They struggle with high dropout rates, early marriages, poor maternal health, and economic exclusion (Xaxa, 2001). Many tribal women, particularly in PVTG communities, lack access to healthcare, leading to high infant and maternal mortality rates (Sharma, 2019). Additionally, they are often excluded from decision-making processes, land ownership, and formal employment opportunities. While some government programs, such as the National Rural Health Mission (N.R.H.M) and Mahila Shakti Kendra, aim to support tribal women's development, deep-rooted social inequalities continue to limit their economic and social empowerment (Das & Das, 2021). Addressing these challenges requires gender-sensitive policies, skill-based education, and improved healthcare

infrastructure to ensure their inclusion in India's broader developmental framework (U.N.D.P, 2020).

1.5 Tribes in Kerala

Kerala is widely recognized for its high Human Development Index (H.D.I) and progressive social indicators. However, despite its advancements, the state's indigenous tribal communities continue to face significant socio-economic challenges. According to the Census of India (2011), the tribal population in Kerala is approximately 484,839, constituting around 1.5% of the state's total population. The major tribal communities in Kerala include the Kurichiyan, Kurumba, Kattunayakan, Irula, Paniyan, and Adiyan (Ministry of Tribal Affairs, 2018). The tribes are predominantly concentrated in the hilly and forested regions of Wayanad, Palakkad, Idukki, and Kasaragod districts. These communities have traditionally depended on shifting cultivation, hunting, and gathering, but modernization has led to their gradual transition to wage labour and marginal farming (Xaxa, 2001). One of the most significant aspects of Kerala's tribal population is the presence of Particularly Vulnerable Tribal Groups (PVTGs), who are at the lowest rung of socio-economic development. Kerala has five PVTG tribes: Kadar, Kattunayakan, Koraga, Cholanaicken, and Kurumba, known for their pre-agricultural economy, geographical isolation, and low literacy levels (Debnath, 2020). Many tribal groups in Kerala face land alienation, inadequate healthcare, poor literacy rates, and limited access to government welfare programs despite constitutional safeguards. While Kerala has a well-developed public healthcare system, tribal communities suffer from malnutrition, high infant mortality rates, and low immunization coverage, particularly among PVTGs (Sharma, 2019). Educational attainment among tribes remains a challenge, with high dropout rates and poor access to quality education, despite government initiatives such as the Tribal Resettlement and Development Mission (T.R.D.M) and Ashram Schools aimed at improving literacy levels (Ministry of Tribal Affairs, 2018).

Tribal women in Kerala face multiple layers of marginalization due to their ethnic identity, gender discrimination, and socio-economic backwardness (Das & Das,

2021). Although Kerala has high female literacy rates compared to the national average, tribal women still struggle with economic exclusion, lack of land rights, and poor healthcare access (Census of India, 2011). They are often engaged in low-paid agricultural labour and informal sector jobs, with little access to financial resources or entrepreneurial opportunities (Singh, 2018). Many tribal women, especially from PVTG communities, suffer from early marriages, malnutrition, and reproductive health issues, exacerbated by limited healthcare facilities in remote tribal regions (Sharma, 2019). Additionally, social exclusion and cultural barriers restrict their participation in decision-making processes and self-governance. Government schemes like the Kudumbashree Mission and Vanbandhu Kalyan Yojana have attempted to address these challenges by providing self-employment opportunities and financial inclusion programs, but their effectiveness remains limited due to bureaucratic inefficiencies and lack of awareness among tribal communities (U.N.D.P, 2020). To ensure inclusive development, there is a need for culturally sensitive policies, improved access to education and healthcare, and empowerment programs that focus on tribal women's leadership and economic independence. Sustainable tribal development in Kerala requires a multi-dimensional approach, integrating community participation, socio-economic support, and preservation of indigenous knowledge and traditions (Xaxa, 2001).

1.6 Significance of the study

The status of women in any society serves as a crucial indicator of the level of social justice and gender equality prevailing within that society (Xaxa, 2001). Women's status is typically assessed based on income levels, employment opportunities, access to education, healthcare, fertility rates, and their roles within the family, community, and society (Sharma, 2019). In tribal communities, women play an essential role in economic sustenance, social organization, and cultural preservation. They constitute approximately half of the total tribal population and actively contribute to their households through agriculture, forest-based livelihoods, and wage labour (Census of India, 2011). Despite the advent of industrialization and commercialization, which have significantly altered traditional tribal economies,

tribal women continue to engage in critical economic activities such as the collection of minor forest produce, agricultural labour, and employment in construction and domestic work (Ministry of Tribal Affairs, 2018). Their contribution remains vital in ensuring household sustenance and community development. However, due to environmental degradation, deforestation, and external interventions, tribal women face increasing challenges in securing sustainable livelihoods and improved living conditions (Debnath, 2020).

Given these socio-economic challenges, strategies for tribal development, particularly concerning women, require comprehensive policy interventions that focus on empowerment, economic betterment, and social upliftment (Das & Das, 2021). Tribal women have historically adapted to traditional occupations and resource-based livelihoods, deeply rooted in their local environment and indigenous knowledge systems. Government initiatives and tribal empowerment programs have played a role in enhancing their socio-economic conditions and status. Programs such as the Vanbandhu Kalyan Yojana, Tribal Sub-Plan (T.S.P), and self-help group (S.H.G) initiatives under Kudumbashree have provided some relief by promoting skill development, micro-financing, and economic self-sufficiency (U.N.D.P, 2020). Despite these efforts, deep-rooted inequalities and systemic barriers continue to limit their access to education, healthcare, and financial independence. Therefore, achieving sustainable development and gender-inclusive growth for tribal women requires multi-faceted policy frameworks that integrate economic security, social inclusion, and political participation, ensuring their holistic empowerment and upliftment (Singh, 2018).

1.7 Statement of the problem

Kerala is widely recognized for its unique development model, characterized by high social development indicators despite a relatively low per capita income (Dreze & Sen, 2013). The state has made remarkable progress in education, healthcare, life expectancy, and population control, contributing to an improved quality of life for its residents. However, these developmental benefits have not been equitably distributed across all sections of society, particularly among Scheduled Tribes (STs).

Despite various tribal welfare initiatives, the socio-economic conditions of tribal communities in Kerala remain significantly lower than those of the general population (Government of Kerala, 2021). The tribal population in Kerala, as per the 2011 Census, stands at 4.85 lakh, constituting 1.45% of the state's total population (Census of India, 2011). These communities are culturally diverse and socially heterogeneous, belonging to 36 distinct tribal groups, including the Particularly Vulnerable Tribal Groups (PVTGs) such as Kadar, Kattunaykkan, Koraga, Kurumba, and Cholanaickan. The PVTGs, which comprise 6.17% of Kerala's total tribal population, continue to experience extreme socio-economic marginalization due to factors such as geographical isolation, lack of education, poor healthcare facilities, and inadequate livelihood opportunities (Ministry of Tribal Affairs, 2018).

Despite the inflow of funds and the implementation of welfare schemes aimed at improving the conditions of Scheduled Tribes, disparities persist in education, employment, and overall human development. Within the tribal communities, tribal women face a dual burden of marginalization - both as members of a socially disadvantaged community and as women (Xaxa, 2001). The female tribal population accounts for 50.77% of the total Scheduled tribe population, with 53.39% engaged as agricultural labourers (Socio-Economic Report, 2013). However, poverty and economic hardships hinder their educational attainment, resulting in a dropout rate of 33.51% among tribal girls (Government of Kerala, 2021). The literacy rate of tribal women (70.15%) remains lower than that of tribal men and significantly below the state average (Socio-Economic Report, 2013). In this context, it becomes crucial to analyze the human development status and poverty levels of Scheduled Tribes in Kerala, with a particular focus on the PVTG communities such as Kadar, Kattunaykkan, and Kurumba. Additionally, the socio-economic status, educational achievements, and health conditions of tribal women require a detailed investigation, as their empowerment is intrinsically linked to the overall development of tribal communities. Addressing these challenges through inclusive development policies, gender-sensitive interventions, and targeted welfare measures is essential for ensuring sustainable and equitable growth among Kerala's tribal populations (U.N.D.P, 2020).

1.8 Objectives

The primary aim of this study is to assess the human development and poverty levels among Kadar, Kattunaykkan, and Kurumba tribal women in Kerala. The specific objectives of the study are:

1) To analyze the human development status of PVTG communities in Kerala based on rights-based approach.

2) To examine the methodological issues related to understanding the human development status of the PVTG community in Kerala in terms of the established development indices.

3) To calculate the human development indices, namely H.D.I, Deprivation Index and Multidimensional poverty index for the PVTGs in Kerala.

4) To analyze the institutional interventions and impacts associated with the development of PVTG tribal communities in Kerala.

1.9 Hypotheses of the Study

1) H_0: There is no significant difference in the mean deprivation levels among the Kadar, Kattunaykkan, Kurumba tribes, Scheduled Tribes, and the general communities in Kerala.

2) H_1: There is a significant difference in the mean deprivation levels among the Kadar, Kattunaykkan, Kurumba tribes, Scheduled Tribes, and the general communities in Kerala.

1.10 Methodology

The study adopts a mixed-methods research design, incorporating both primary and secondary data sources to provide a comprehensive and in-depth analysis. Primary data were collected at both the individual and household levels through a semi-structured interview schedule, allowing for an in-depth understanding of the socio-economic conditions of the tribal population. Additionally, the study adopted the Participatory Research Appraisal (P.R.A) method to gather qualitative insights at the

community level, ensuring an inclusive approach that captures the lived experiences, perspectives, and challenges faced by the tribal communities. Secondary data obtained from the publications of the U.N.D.P, the World Bank, the U.N.I.C.E.F, the U.N.E.S.C.O, the W.H.O and the Government of India provided the necessary insights into the experienced patterns of human development at the global and national levels. The publications of the census report, N.F.H.S 5 report, P.L.F.S report, report on socio economic status of scheduled tribes in Kerala, Kerala human development report, tribal sub plan, annual reports of ministry of tribal affairs served as data sources to assess the human development dimensions at the regional level. The local self-governing institutions K.I.L.A, K.I.R.T.A.D.S, neighbourhood groups and voluntary agencies have given the necessary data support. A field survey conducted in three PVTG tribal dominated districts in Kerala which preceded the survey provided the primary data.

1.10.1 Sampling design

The study uses a multistage random sampling method to select relevant samples. Thirty six tribal communities are included in the list of Scheduled Tribes in Kerala, five communities belong to the Particularly Vulnerable Tribal Group (PVTG), namely Kadar, Kattunaykkan, Koraga, Kurumba and Cholanaickan. Three groups of PVTG's namely, Kadar, Kattunaykkan and Kurumba tribal communities in Wayanad, Thrissur and Palakkad districts are selected for in-depth analysis (highest PVTG tribal concentration).

Table No: 1.1

Population on Particularly Vulnerable Tribal Community in Kerala

Tribal Community	Population				
	Family	Male	Female	Total	Percentage to total
Kadar	545	967	1007	1974	51.01
Kattunaykkan	5137	9953	10042	19995	50.22
Kurumbas	543	1128	1123	2251	49.89

Source: Scheduled Tribes of Kerala – Report on socio economic status

Table No: 1.2

District wise Population on Particularly Vulnerable Tribal Community in Kerala

District	Tribal Community	Population			
		Family	Male	Female	Total
Thrissur	Kadar	306	511	571	1082
Wayanad	Kattunaykkan	4369	8487	8564	17051
Palakkad	Kurumbas	543	1128	1123	2251
Total		5218	10126	10258	20384

Source: Socio-Economic Status of Scheduled Tribes in Kerala: A Report

The report on the socio-economic status of Scheduled Tribes in Kerala indicates that there are 545 Kadar households, with a total population of 1,974 individuals. The Kadar community is located in two districts in Kerala namely Thrissur and Palakkad. The Kadar population is distributed across various Grama Panchayaths, including Mattathur (269), Athirapilli (804), Muthalamada (477), Vandazhy (168), and Kodanchery (126). Out of the total 513 households, 306 live in Thrissur and 207 in Palakkad. Thrissur district was selected for primary data collection as the number of Kadar population in Thrissur district is considerably large. Out of the 306 Kadar families in Thrissur, 69 families fall under Kodakara block panchayath (one in Varandirapilly panchayath and 68 in Mattathoor panchayath) and 237 fall under Chalakkudy block panchayath (237 in Athirapilli panchayath). Details of Kadar families and population in Thrissur district are provided in Table 1.1. Kadar population in Athirapilli Panchayath are selected for in-depth analysis as the Kadar population in Athirapilli Panchayath are considerably large. For the primary data analysis, 147 Kadar women are considered. The number of samples was determined based on the Cochran formula.

Kurumba community is located in Agali and Pudur Grama Panchayath in Attappadi block of Palakkad district. As per the socio-economic survey report, there are 543 families with a population of 2251. Out of the 543 Kurumba families in Palakkad district, 531 families live in Pudur Panchayath and 12 live in Agali Panchayth.

Details of the families and population of the Kurumbs are shown in Table 1.2. Kurumba population in Pudur Panchayath is selected for in-depth analysis as Kurumba population in Pudur Panchayath is considerably large. In Pudur Panchayth, 223 Kurumba women are considered for primary data analysis. The number of samples was determined based on the Cochran formula.

The Kattunaykkan community constitutes the largest Particularly Vulnerable Tribal Group (PVTG) in Kerala, with a total of 5,137 families residing predominantly in Wayanad (4,369 families), Malappuram (517 families), and Palakkad (218 families) districts (Government of Kerala, 2021). Given that Wayanad district hosts the largest concentration of the Kattunaykkan population, it was chosen as the primary study area for data collection. Within Wayanad, the majority of the Kattunaykkan population is distributed across the Thirunelli, Noolpuzha, Poothadi, Mullamkolly, and Pulpally Grama Panchayats. Among these, Noolpuzha Panchayat, which accommodates 563 Kattunaykkan households, was selected for in-depth analysis due to its significant tribal population.

For the primary data collection, a sample of 228 Kattunaykkan women from Noolpuzha Panchayat was selected for analysis. The sample size was determined using the Cochran formula, ensuring statistical validity and representativeness of the data (Cochran, 1977).

1.10.2 Sample Size Determination Using Cochran's Formula

To ensure statistical validity and accuracy in sample selection, the present study, titled Human Development Status of Scheduled Tribal Women in Kerala, utilized Cochran's formula for determining the appropriate sample size. Cochran's formula is widely applied in research to estimate the ideal sample size required for achieving a desired level of precision, particularly in cases where the population size is assumed to be infinite (Cochran, 1977). However, when the total population is finite, a modified version of the formula is applied to enhance the accuracy of the sample size estimation. This methodological approach ensures that the findings are

representative and generalizable to the target population while minimizing sampling errors.

$$n=1+\frac{\frac{n^0}{n^0-1}}{N}$$

***n_0*:** represents the sample size calculated using Cochran's formula for determining the ideal sample size.

***N*:** refers to the total size of the population.

- Sample size of Kadar tribal women $=1+\frac{\frac{384}{384-1}}{237}$ = 147
- Sample size of Kattunaykkan tribal women $= 1+\frac{\frac{384}{384-1}}{563}$ = 228
- Sample size of Kurumba tribal women $= 1+\frac{\frac{384}{384-1}}{531}$ = 223

Table No: 1.3

Selection of Sample Respondents

District	Grama Panchayath	Tribal Community	Population		
			No. of households	Total population	No. of Sample Households
Thrissur	Athirapilli	Kadar	237	804	147
Wayanad	Noolpuzha	Kattunaykkan	563	2366	228
Palakkad	Pudur	Kurumba	531	2205	223
	Total		1331	5375	598

Source: Directorate of Scheduled Tribes Development Department, Government of Kerala

1.11 Quantitative Tools

'Human Development Status of Scheduled Tribal Women in Kerala' makes extensive use of internationally recognized methodologies to produce indices that

reflect human development, deprivation and multidimensional poverty. Each of the indices is explained in more detail below.

a) Human Development Index
b) Deprivation Index
c) Multi Dimensional Poverty Index

1.11.1 Human Right Approach to Human Development

The Human Rights-Based Approach (H.R.B.A) to Human Development is an inclusive and equity-focused method for assessing human progress. Unlike the Human Development Index (H.D.I) of the United Nations Development Programme (U.N.D.P), which primarily evaluates life expectancy, education, and income, the H.R.B.A method integrates legal, institutional, and participatory indicators to measure rights, equality, and social justice (U.N.D.P, 2016). This approach is particularly relevant for marginalized communities, such as Scheduled Tribes (STs), Scheduled Castes (SCs), and Particularly Vulnerable Tribal Groups (PVTGs), as it captures structural inequalities and human rights violations (O.H.C.H.R, 2012).

The human rights-based approach (H.R.B.A) to human development emphasizes people's perceptions of various dimensions such as availability, adequacy, accessibility, affordability, possession, quality, and usage and maintenance (Sen, 1999; U.N.D.P, 2000). This approach ensures a holistic assessment of human development by considering both tangible and intangible aspects. The evaluation of these factors helps in understanding the real status of human development, particularly among marginalized communities.

In H.R.B.A, human development is assessed through two key processes**:**

- **The Formal Process** – Includes five key dimensions: availability, adequacy, accessibility, affordability, and possession. These aspects highlight the structural provisions necessary for human development (Nussbaum, 2001).

- **The Effective Process** – Focuses on qualitative aspects such as quality and usage and maintenance, ensuring that facilities and opportunities are effectively utilized (Dreze & Sen, 2013).

To measure these indicators, a five-point scale is used based on people's perceptions:

- 1 = Very Bad
- 2 = Bad
- 3 = Neither Bad nor Good
- 4 = Good
- 5 = Very Good

The categorization of scores is as follows:

- **Low Score (1 to 3)** - Indicates inadequate human development.
- **Medium Score (3 to 4)** - Represents moderate development.
- **High Score (4 to 5)** - Suggests a well-developed human rights-based environment (U.N.D.P, 2015).

The H.R.B.A to human development is analyzed using three primary indices:

- **The Indicator Index (S-Index)** - Measures people's perceptions of process-related aspects such as education, healthcare, and employment opportunities (Alkire & Foster, 2011).
- **The Facility Index (T-Index)** - Assesses infrastructural and institutional support available to individuals, particularly in marginalized communities (U.N.E.S.C.O, 2017).
- **The Human Rights-Based Human Development Index (U-Index)** - Represents an integrated measure of human development from a rights-based perspective, combining both process and facility aspects to evaluate overall well-being (United Nations, 2018).

1.11.1.1 The Indicator Index (S-Index)

The Human Rights-Based Approach (H.R.B.A) to human development employs a systematic evaluation method to assess the availability, adequacy, accessibility, affordability, possession, quality, and usage and maintenance of key development indicators (Sen, 1999). The S-Index (Indicator Index) is a crucial component of this framework, designed to capture the process aspects of human development from the perspective of the individuals being studied.

Each of the seven process aspects related to a specific indicator is evaluated on a five-point scale by members of the sample households. The responses are rated as follows:

1 = Very Bad, 2 = Bad, 3 = Neither Bad nor Good, 4 = Good, 5 = Very Good

To determine the S-Index (S_i) for an indicator, the values assigned to the seven process aspects corresponding to a particular indicator are summed and divided by seven. This can be mathematically expressed as:

$$S_i = \frac{\Sigma \text{ Scores of 7 process aspects for indicator i}}{7}$$

This calculation is performed for each household in the sample, ensuring that every household's perception is incorporated into the analysis. The average S_i value of each indicator is then computed for all sample households combined.

For analytical clarity, the S-Index values are categorized into four levels, as follows (Alkire & Foster, 2011):

1.0 - 2.0 -Very Low 2.0 - 3.0 -Low 3.0 - 4.0 – High 4.0 - 5.0 -Very High

This categorization enables a structured interpretation of human development at the grassroots level. By incorporating subjective perceptions into the analysis, the S-Index ensures that development assessments align with the lived experiences of marginalized communities, particularly Scheduled Tribes and Particularly Vulnerable Tribal Groups (PVTGs) (United Nations Development Programme [U.N.D.P], 2020).

This index plays a critical role in H.R.B.A as it moves beyond conventional numerical indicators to include qualitative aspects of development, reinforcing the rights-based perspective on human development (Nussbaum, 2011).

1.11.1.2 The Facility Index (T index)

The Facility Index (T-Index) is a composite measure derived from the S-Index values of all relevant indicators associated with a particular facility. Each facility consists of one or more indicators, and the T-Index is computed by averaging the S-Index values of all indicators under that specific facility. Mathematically, the T-Index is expressed as:

$$\mathbf{T_j} = \frac{\sum \boldsymbol{Si}}{\boldsymbol{n}}$$

Where:

$\mathbf{T_j}$ - represents the Facility Index value for facility j
$\mathbf{S_i}$ - denotes the S-Index values of the individual indicators under facility j, and
n - Refers to the total number of indicators associated with facility j.

For each household in the study, the T-Index is determined based on the corresponding S-Index values of indicators linked to a specific facility. The final T-Index for each facility is then derived by calculating the average T-Index across all sample households. This process ensures a comprehensive evaluation of the accessibility, adequacy, and overall quality of various facilities that contribute to human development in the given study area.

1.11.1.3 The Human Rights based Human Development Index (U index)

The Human Rights-Based Human Development Index (U-Index) is derived from the Facility Index (T-Index) and serves as a comprehensive measure of human development based on rights and access to essential services. The U-Index is calculated by averaging the T-Index values of all seven facilities considered in the study. Mathematically, it is expressed as:

$$\text{U Index} = \frac{\sum Tj}{7}$$

Where T_j represents the T-Index values for each facility.

For each household in the study sample, the U-Index is computed by averaging the T-Index values across the selected facilities. The final U-Index value is obtained by calculating the mean U-Index for the entire sample population. This provides an aggregate measure of human development from a human rights perspective.

To facilitate interpretation, the U-Index is categorized into four levels:

- 1 to 2: Very Low
- 2 to 3: Low
- 3 to 4: High
- 4 to 5: Very High

Table 1.4 presents the key facilities and corresponding indicators essential for assessing human development through a human rights-based approach. These facilities, as recognized in various human rights instruments, play a crucial role in ensuring equitable development and social well-being. These include:

- Housing - Adequate shelter is a basic human right that ensures dignity and security.
- Education - Access to quality education is fundamental for empowerment and socio-economic mobility.
- Occupation - Employment opportunities contribute to economic independence and improved living conditions.
- Economic Opportunities - Availability of financial resources and livelihood options determine economic stability.
- Consumption - Access to essential goods and services ensures a standard quality of life.
- Health and Family Welfare - Healthcare services and family welfare initiatives enhance overall well-being.

- Transport, Communication, and Information - Efficient connectivity and access to information facilitate social inclusion and development.

These facilities, embedded within international human rights instruments, form the foundation of a comprehensive development framework. Their effective implementation determines the overall human development status of marginalized communities, ensuring inclusivity and equality in the growth process.

Table No: 1.4

Facilities and Indicators of the Human Right Approach to Human Development

Facilities	Indicators
Housing	Own House
	Drinking Water Sources
	Lighting
	Cooking Fuel
	Sanitation
	Safe and Secure Residential Environment
Education	Educational Institutions from Primary to Higher Levels
	Home Environment for Studies
	Intrinsic Skill Development
Occupation	Opportunities to work
Economic Opportunities	Ownership of Asset
	Income
	Savings
	Insurance
	Credit
Consumption	Food
	Non Food
Health and Family Welfare	Health Care Institutions
	Health Awareness
	Programmes for Family Welfare
	Disease control
Transport, Communication, and Information	Road and Transport Facilities
	Facilities for communication and Information

Source: Human rights instruments

This structured approach provides a rights-based perspective to human development, emphasizing the necessity of equal access to these facilities for all individuals, particularly those from marginalized communities.

1.11.2 Deprivation Index

The Kerala Human Development Report adopted the U.N.D.P methodology to understand deprivation. The index measures deprivation in four basic needs: a house, clean drinking water (well, fountain and tap) on the premises, good sanitation (availability of water and toilet) and availability of electricity. The formula for calculating the deprivation index is explained as follows.

Index of deprivation (D) = $[1/4 (d_1^{\alpha} + d_2^{\alpha} + d_3^{\alpha} + d_4^{\alpha})^{1/\alpha}]$

d_1 = percent of household who do not own house and who live in not liveable ones

d_2 = percent of household who do not have access to safe drinking water

d_3 = percent of household who do not have toilet and who do not have clean toilet

d_4 = percent of household who do not have electricity

1.11.2.1 Deprivation in Quality of Housing (d_1)

This is measured by the percentage of households that do not live in a permanent home. The permanent house means that the walls and roofs are made of permanent materials.

1.11.2.2 Deprivation in Access to Water (d_2)

Lack of access to water is measured by the percentage of a household's drinking water source that is outside the home. In urban areas, the source of drinking water is considered remote if it is located further than 100 meters from the property of the house. In rural areas, a source is considered remote if households have to travel a distance of more than 500 meters to obtain water.

1.11.2.3 Deprivation in Good Sanitation (d_3)

The lack of good sanitation is measured by households that do not have a water closet latrine.

1.11.2.4 Deprivation in Electricity lighting (d_4)

The lack of electric lighting is measured by the percentage of households that do not have a source of electricity as a light source. The deprivation index is the average of its indicators. As α increases, greater weight is given to the indicators that show the greatest deprivation. As with the human poverty index, a value of $\alpha = 3$ to calculate the deprivation index.

1.11.3 Multidimensional Poverty Index (MPI)

The Multidimensional Poverty Index (M.P.I) is a comprehensive measure that assesses poverty by examining multiple deprivations faced by individuals across three critical dimensions: health, education, and standard of living (Alkire & Santos, 2010). This study employs the Alkire-Foster (2011) methodology, which is widely recognized for its ability to quantify and analyze multidimensional poverty beyond traditional income-based indicators. The calculation of MPI follows a systematic approach, beginning with the selection of dimensions and relevant indicators. Each dimension is assigned an equal weight of one-third (33.33%), and within each dimension, specific indicators are weighted appropriately to ensure a balanced assessment of deprivation levels (U.N.D.P, 2019).

A household is considered multi-dimensionally poor, if its weighted deprivation score is 33.33% or higher. The deprivation score for each household is calculated using the following formula:

$$\mathbf{C_i = \sum w_j I_{ij}}$$

Where:

- C_i represents the total deprivation score for household i,
- W_j denotes the weight assigned to indicator j,

- I_{ij} is 1 if household i is deprived in indicator j, otherwise 0.

If the household's deprivation score meets or exceeds the 33.33% threshold, it is classified as multi-dimensionally poor. The final MPI score is computed using the formula:

$$\mathbf{M.P.I = H \times A}$$

Where:

- H (Headcount Ratio) represents the proportion of individuals living in multidimensional poverty.
- A (Intensity of Poverty) denotes the average deprivation score among the poor (Alkire & Foster, 2011).

The M.P.I value ranges from 0 to 1, where higher values indicate greater levels of multidimensional poverty. This method provides a holistic understanding of poverty and identifies which dimensions contribute most to deprivation, thereby enabling effective policy interventions (N.I.T.I Aayog, 2021).

This study applies the M.P.I methodology to assess the multidimensional poverty status of Scheduled Tribal Women in Kerala, considering the following dimensions and indicators:

Table No: 1.5

Selection of Dimensions and Indicators for M.P.I Calculation

Dimension	Indicator	Deprivation Condition	Weight
Health	Child Mortality	At least one child has died in the household	1/6
	Nutrition	At least one member is undernourished	1/6
Education	Years of Schooling	No household member has completed six years	1/6
	School Attendance	Any school-aged child is not attending school	1/6

Dimension	Indicator	Deprivation Condition	Weight
Standard of Living	Cooking Fuel	Uses wood, charcoal, or dung	1/18
	Sanitation	Lacks access to improved sanitation facilities	1/18
	Drinking Water	No access to safe drinking water	1/18
	Electricity	No access to electricity	1/18
	Flooring	Floor made of dirt, sand, or dung	1/18
	Assets	Owns fewer than one essential asset	1/18

Source: Alkire, S., & Foster, J. (2011). *Counting and multidimensional poverty measurement.*

The Alkire-Foster M.P.I approach allows for a nuanced understanding of poverty by identifying which dimensions contribute most to deprivation, thereby facilitating targeted policy interventions (U.N.D.P, 2020). By applying this methodology to Scheduled Tribal Women in Kerala, this study aims to offer a data-driven perspective on multidimensional poverty and its impact on tribal communities. This, in turn, can provide valuable insights for designing effective poverty alleviation programs and development policies that cater to the specific needs of marginalized tribal populations (Government of Kerala, 2022).

1.12 Limitations of the study

The human rights-based approach (H.R.B.A) to human development is an evolving framework that is still in its developmental stages, with relatively limited theoretical and evaluative insights. Consequently, much of its formulation has been subjective, allowing for flexibility in accommodating diverse academic perspectives. This adaptability enables researchers to explore various dimensions of human development, leading to different research directions depending on the context of the study. Recognizing this flexibility, the present study adopts a human rights-based approach to human development, acknowledging the potential variations in its application across different research contexts.

One of the major challenges encountered in this study was communication barriers with tribal communities. Language differences made interactions with tribal members both difficult and time-consuming, limiting the scope of direct engagement. Additionally, the lack of disaggregated data at the individual tribe level posed a significant constraint, making it difficult to draw meaningful comparisons regarding the effectiveness of government programs.

Moreover, secondary data sources did not provide adequate human rights-based assessments or information relevant to tribal communities. The study faced further challenges due to the unavailability and poor quality of official data, which restricted the ability to cross-check perceived and observed realities. Despite the cooperation of government authorities, no proper records or databases were available, complicating efforts to verify data and analyze policy outcomes. The anticipated ease of accessing secondary information from government offices turned out to be more difficult than expected, further hindering the depth of the study.

Despite these challenges, the H.R.B.A remains a crucial framework for assessing human development, particularly among marginalized communities. Addressing these limitations through improved data collection, record-keeping, and linguistic inclusivity will enhance future research efforts in this field.

1.13 Chapter scheme

The study titled “Human Development Status of Scheduled Tribal Women in Kerala” is designed into six chapters.

Chapter 1 – Introduction

This chapter provides a comprehensive background of the study, outlining its significance and contextual framework. It clearly defines the research problem, establishing the rationale for the study. Additionally, the chapter specifies the research objectives, detailing the key aspects to be explored. The methodology employed for data collection and analysis is discussed, ensuring a structured approach to the study. Lastly, the chapter highlights the limitations of the research.

Chapter 2 – Review of Literature

This chapter provides a comprehensive review of previous studies on various aspects of tribal development in India, with a specific focus on Kerala. It examines existing literature to understand the socio-economic conditions, challenges, and policy interventions related to tribal communities. Additionally, this chapter identifies research gaps, highlighting areas that require further investigation to contribute to the academic discourse on tribal development.

Chapter 3 – Scheduled tribe women in India: an analysis of socio economic situation

This chapter provides an in-depth analysis of the demographic profile and socio-economic conditions of Scheduled Tribe (ST) women in India. It explores various factors influencing their livelihood, including education, employment, health, and social status, while highlighting the challenges they face in achieving equitable development.

Chapter 4 – Human development status of particularly vulnerable tribal women in Kerala

This chapter focuses on the human development status of women belonging to Particularly Vulnerable Tribal Groups (PVTGs) in Kerala. It examines key indicators such as literacy, healthcare access, economic participation, and overall well-being, providing insights into their living conditions and the barriers to their development.

Chapter 5 – Human development status of Kadar, Kattunaykkan and Kurumba tribal women in Kerala.

This chapter presents a detailed evaluation of the human development status of Kadar, Kattunaykkan, and Kurumba tribal women in Kerala. It analyzes their socio-economic status, Human Development Index (H.D.I), Deprivation Index, and Multidimensional Poverty Index (MPI). Additionally, the chapter discusses

government policy interventions aimed at improving the living conditions of PVTG tribal communities in Kerala.

Chapter 6 – Summary and Conclusion

This chapter summarizes the key findings of the study, drawing conclusions based on the analysis of socio-economic and human development indicators of tribal women in Kerala. It also provides recommendations for policy improvements and future research directions to enhance the development outcomes for these marginalized communities.

CHAPTER II

REVIEW OF LITERATURE

2.1 Introduction

The review of related literature provides a comprehensive understanding of existing research relevant to the study topic. It helps identify gaps, establish context, and support the rationale for the current investigation. This chapter presents a comprehensive review of existing scholarly work and research studies related to the socio-economic, educational, health, and developmental conditions of Particularly Vulnerable Tribal Groups (PVTGs) in Kerala. Emphasis is placed on understanding the status of tribal women, especially from the Kadar, Kattunayakan, and Kurumba communities, in the context of human development indicators. By reviewing prior literature, this chapter aims to identify critical research gaps and provide a contextual framework for the present study.

The following chapter can be divided into the following sections:

2.2 Review of related Literature

2.2.1 Socio economic status of Tribes

The Vijayanath Commission report (1982), officially titled "Socio-economic Conditions of Scheduled Castes and Scheduled Tribes," provides an in-depth analysis of the living conditions of the tribal communities in Kerala, with particular attention to the Kattunaykkan, Kadar, and Kurumba tribes. In the Kattunaykkan community, women traditionally engage in gathering forest produce and agricultural labour. However, deforestation and restricted forest access have adversely affected their livelihoods, leading to economic instability. Similarly, Kadar women, known for their expertise in collecting forest resources, confront economic hardships due to environmental degradation and limited alternative employment opportunities. Kurumba women, primarily involved in subsistence agriculture and artisanal crafts, face challenges stemming from land alienation and market inaccessibility. The

report emphasizes that these women experience high illiteracy rates, with socio-cultural factors and economic constraints contributing to educational disparities. Healthcare access remains inadequate, resulting in prevalent health issues and limited maternal care. The commission advocates for targeted interventions, including educational programs, healthcare facilities, and sustainable livelihood opportunities, to address the unique challenges faced by Kattunaykkan, Kadar, and Kurumba tribal women in Kerala.

Kakkoth's (2005) study, "The Primitive Tribal Groups of Kerala: A Situational Appraisal," examines the socio-economic conditions of five Primitive Tribal Groups (P.T.Gs) in Kerala: the Koraga, Kattunaykkan, Cholanaickan, Kurumba, and Kadar. These communities were designated as PTGs by the Government of India in 1976 due to characteristics such as a pre-agricultural level of technology, low literacy rates, and stagnant or declining populations. Kakkoth's analysis reveals significant disparities among these groups in terms of development. For instance, the Koraga, primarily found in the Kasaragod district, face severe socio-economic challenges, including marginalization and limited access to resources. The Kattunaykkan, traditionally forest dwellers, have experienced disruptions in their livelihoods due to deforestation and restricted access to forest resources. The Cholanaickan, considered one of the most isolated tribes, continue to practice a hunter-gatherer lifestyle, leading to minimal interaction with mainstream society. The Kurumbar and Kadar tribes, residing in the hilly regions, engage in shifting cultivation and collection of forest produce; however, they confront issues like land alienation and inadequate healthcare facilities. Kakkoth emphasizes the urgent need for tailored development interventions that respect the unique cultural identities of these tribes while addressing their specific socio-economic challenges. The study advocates for participatory approaches in policy formulation to ensure sustainable development and empowerment of these marginalized communities.

In the study *"The Micro-Level Impact of Tribal Development Programmes Among the Kadar,"* Sibi (2005) investigates the effectiveness of development initiatives on the socio-economic status of the Kadar tribe in Kerala, with a particular emphasis on

gender-specific challenges faced by women in income generation. The research highlights that despite the implementation of various tribal development programs, Kadar women continue to encounter significant obstacles in achieving economic independence. Traditional gender roles, limited access to education, and inadequate representation in decision-making processes contribute to their marginalized position. The study reveals that while some progress has been made in improving infrastructure and basic amenities, these advancements have not sufficiently translated into enhanced income-generating opportunities for Kadar women. Sibi emphasizes the need for more inclusive and gender-sensitive approaches in the design and execution of development programs to ensure that Kadar women can actively participate in and benefit from economic activities. The study advocates for capacity-building initiatives, vocational training tailored to the unique cultural context of the Kadar community, and the promotion of women's self-help groups as strategies to empower Kadar women economically. By addressing these gender-specific challenges, development programs can more effectively contribute to the overall upliftment of the Kadar tribe.

P.R.G. Mathur's (2013) study, *"Traditional Knowledge of the Cholanaickan and Kurumba: The Hunter-Gatherers of Kerala,"* provides an in-depth analysis of the occupational patterns and livelihood transformations among these indigenous communities. Traditionally, the Cholanaickan and Kurumba tribes relied on hunting, gathering, and the collection of non-timber forest products (N.T.F.Ps) for sustenance, demonstrating a deep ecological understanding and sustainable resource management. However, socio-economic transformations, environmental policies, and restricted access to forests have significantly altered their traditional occupations. With the implementation of conservation laws and the expansion of protected forest areas, these communities have faced a decline in their traditional means of livelihood, leading to a gradual shift towards wage labour, small-scale agriculture, and government-assisted employment schemes. While these changes offer economic opportunities, they also pose challenges such as income instability, loss of indigenous knowledge, and cultural erosion. Mathur's research underscores the need for inclusive development policies that integrate traditional occupations

with modern livelihood opportunities, ensuring the socio-economic well-being of these tribes while preserving their cultural heritage and ecological wisdom. His study highlights the importance of sustainable livelihood strategies that respect the autonomy and traditional practices of these Particularly Vulnerable Tribal Groups (PVTGs) in Kerala.

Sreejas (2013), in the master's thesis *"Livelihood Analysis of Kattunaykkan Tribe of Wayanad,"* explores the occupational patterns and socio-economic conditions of the Kattunaykkan tribe, a Particularly Vulnerable Tribal Group (PVTG) in Kerala. Traditionally, the Kattunaykkans have relied on forest-based activities, particularly honey collection and gathering non-timber forest products (N.T.F.Ps), as their primary means of livelihood. However, environmental degradation, deforestation, and wildlife conservation policies have significantly impacted their traditional practices, leading to a gradual shift toward wage labour and government-supported employment schemes. Despite Kerala's overall human development achievements, the Kattunaykkan community continues to face challenges such as poverty, landlessness, food insecurity, and limited access to education and healthcare. The study highlights the high dependency ratio within the community, further exacerbating economic vulnerabilities. Sreejas emphasizes that the integration of traditional knowledge with sustainable livelihood strategies is crucial for ensuring the socio-economic well-being of the Kattunaykkan tribe. The study calls for culturally sensitive development policies that not only provide alternative employment opportunities but also respect and preserve the indigenous knowledge and practices of the community. By addressing these challenges through inclusive policy frameworks, it is possible to promote sustainable development while safeguarding the cultural heritage and economic stability of the Kattunaykkan tribe in Wayanad.

The Kerala Institute for Research, Training, and Development Studies (K.I.R.T.A.D.S, 2017) conducted an in-depth study on the socio-economic conditions and developmental challenges of the Kattunaykkan and Kurumba tribal communities in Kerala, with a particular focus on gender-specific disparities. The

study reveals that both communities face severe economic marginalization, limited access to education, and inadequate healthcare services, with women being disproportionately affected. Literacy levels among Kattunaykkan remain low, with women experiencing high dropout rates due to financial constraints, domestic responsibilities, and early marriages. Economic opportunities for Kattunaykkan women are largely restricted to unskilled labour in agriculture and daily wage work, limiting their prospects for upward mobility. Similarly, Kurumba women encounter significant barriers, including poor literacy levels, early marriage, and a lack of healthcare access, which contribute to high infant and maternal mortality rates. The persistent issue of malnutrition among women and children underscores the inadequacy of existing welfare programs. Despite government initiatives such as tribal hostels, free education schemes, and healthcare programs, their effectiveness has been hindered by cultural disconnects and poor implementation. K.I.R.T.A.D.S emphasizes the need for community-specific development strategies that integrate traditional knowledge systems, promote sustainable livelihood opportunities for women, and improve educational infrastructure. Targeted interventions, including skill development programs, healthcare accessibility, and gender-inclusive policies, are crucial for ensuring long-term socio-economic empowerment and stability among Kattunaykkan and Kurumba women. The study underscores that addressing these gendered challenges is essential for fostering inclusive development and improving the overall well-being of these tribal communities in Kerala.

Bindu (2025), in the study *"Reflection on Key Elements and Challenges of Tribes of Kerala in Higher Education: Role of Community and Gender,"* examines the socio-economic and educational barriers faced by tribal communities in Kerala, with a particular focus on gender disparities. The research highlights that while Kerala has achieved high literacy rates, tribal populations, especially women from the Kadar, Kattunaykkan, and Kurumba communities, continue to face systemic challenges in education and income generation. Gender-specific barriers such as early marriage, domestic responsibilities, and limited access to skill development programs significantly hinder tribal women's participation in the workforce. Traditional livelihood options, including forest-based occupations, have been disrupted due to

environmental policies and deforestation, leaving women with few sustainable income opportunities. Additionally, cultural perceptions that prioritize male employment further restrict women's economic independence. Bindu argues that without targeted interventions, including vocational training, gender-sensitive policies, and community-driven education reforms, the economic and social empowerment of tribal women will remain constrained. The study underscores the need for inclusive development strategies that integrate traditional knowledge with modern skill-building initiatives, ensuring equitable access to education and sustainable livelihoods for tribal women in Kerala. By addressing these deep-rooted inequalities, policymakers can promote a more inclusive and economically resilient future for the Kadar, Kattunaykkan, and Kurumba communities.

2.2.2 Educational status of Tribes

Haseena V. A. and Ajims P. Mohammed (2014), in their study *"Educational Status of Tribal Communities in Attappady, Kerala: Access, Dropout Rates, and Challenges,"* examine the literacy rates and dropout trends among tribal students, with a particular focus on the barriers faced by tribal women in continuing their education. Conducted across the three panchayats of Agali, Pudur, and Sholayoor, the study recorded high dropout rates of 30.9%, 27.6%, and 32.1%, respectively, highlighting the persistent challenges that tribal students encounter in accessing education. Among the key factors contributing to the high dropout rates among tribal women were financial constraints, household responsibilities, early marriage, and long distances to educational institutions. Economic hardships were identified as a critical factor, affecting 91.7% of students, while 85% of female students left school due to increased domestic workload. Additionally, linguistic difficulties and limited parental awareness further hindered their educational attainment. The study also emphasizes that the structured nature of formal schooling often conflicts with the cultural lifestyle of tribal communities, making it difficult for tribal girls to adapt and persist in an academic environment. Despite various government policies aimed at improving tribal education, their impact remains limited due to socio-economic and cultural barriers. The authors highlight the urgent need for targeted

interventions, including financial support, culturally inclusive curricula, and community-based educational programs, to address the high dropout rates among tribal women. Without such measures, literacy rates among tribal women in Attappady will continue to stagnate, further exacerbating socio-economic inequalities.

Sinitha Xavier (2017), in her study *"Educational Challenges of Kadar Women and Girls: A Study on Literacy Disparities and Dropout Trends,"* examines the significant educational disadvantages faced by Kadar tribal women in Kerala, highlighting their low literacy rates and high dropout trends. Despite Kerala's high literacy rate of 93.91% as per the 2011 Census, the Kadar community lags significantly behind, with an overall literacy rate of only 42.86%, a disparity that is particularly severe among Kadar women and girls. Several socio-economic and cultural factors contribute to this educational gap. The geographical isolation of Kadar settlements within the Parambikulam Wildlife Sanctuary and Vazhachal Forest Division creates substantial barriers to accessing education, as schools are located far from tribal habitations, making daily attendance difficult, particularly for girls. The lack of female teachers and culturally relevant curricula further discourages Kadar girls from continuing their education. Economic hardships also play a crucial role, as most Kadar families struggle with financial instability, prioritizing survival over formal education. Girls are often expected to contribute to household income or assist with domestic chores, leading to higher dropout rates. Cultural traditions, including early marriages and rigid gender roles, further limit educational opportunities for Kadar women. These combined factors create a cycle of educational deprivation, restricting their socio-economic mobility. Xavier underscores the urgent need for targeted interventions such as localized schools, financial aid programs, and culturally inclusive policies to bridge the literacy gap and reduce dropout rates among Kadar tribal women, ensuring greater educational access and long-term development.

Nair (2018), in her study *"Educational Challenges Faced by Kurumba Tribal Girls in Kerala: Socio-economic and Cultural Barriers to Academic Progress,"* examines

the critical factors that hinder the educational attainment of Kurumba tribal girls, focusing on cultural, economic, and infrastructural barriers. Cultural norms within the community prioritize traditional gender roles, often leading to early marriage and domestic responsibilities that limit girls' access to education. The lack of awareness regarding the long-term benefits of education further discourages families from supporting their daughters' schooling. Economic hardships also play a significant role, as most Kurumba families rely on low-income, subsistence-based occupations, making it difficult to afford school-related expenses such as transportation, uniforms, and study materials. Financial insecurity frequently forces families to withdraw their daughters from school, perpetuating cycles of illiteracy and poverty. Additionally, infrastructural challenges exacerbate the situation, with many Kurumba settlements located in remote, forested areas lacking access to well-equipped schools. Inadequate transportation facilities, poor school infrastructure, and a shortage of female teachers further discourage parents from sending their daughters to school. The absence of culturally inclusive curricula and insufficient hostel facilities also contribute to low enrolment and high dropout rates. Nair underscores the urgent need for targeted interventions, including culturally sensitive educational programs, financial aid for tribal families, and improved school infrastructure. Without addressing these critical barriers, Kurumba tribal girls will continue to face educational disadvantages, limiting their socio-economic mobility and overall development.

Kumar and Devi (2020), in their study *"Socio-economic Barriers Hindering Educational Attainment Among Kattunayakan Tribal Women and Girls in Kerala,"* examine the persistent challenges affecting literacy rates and dropout trends among Kattunaykkan tribal women. The study highlights that despite various educational initiatives, literacy rates among Kattunaykkan women remain significantly lower than the state average due to a combination of cultural, economic, and infrastructural barriers. Cultural norms prioritize early marriage and household responsibilities over formal education, leading to high dropout rates, especially among adolescent girls. Additionally, economic constraints, primarily due to dependence on low-income, unskilled labour, make educational expenses unaffordable, forcing many families to

withdraw their daughters from school. Infrastructural challenges further compound these issues, with schools located at considerable distances from tribal settlements, inadequate transportation facilities, and poor school infrastructure discouraging continued enrolment. The study finds that a lack of female teachers, culturally insensitive curricula, and insufficient hostel facilities further limit educational opportunities for tribal girls. These factors collectively contribute to widening the educational gap and reinforcing intergenerational cycles of poverty. Kumar and Devi emphasize that addressing these barriers requires a holistic approach, including culturally inclusive policies, economic support programs, and infrastructural improvements such as hostel facilities and transport services. The study calls for greater governmental and non-governmental intervention to bridge the literacy gap and create an enabling environment for Kattunaykkan women to access quality education. Without targeted measures, the socio-economic disadvantages faced by Kattunaykkan tribal women will continue to hinder their educational and overall development, making long-term progress unattainable.

Anusree G. I. and Umajyothi V. (2021), in their study *"A Case Study of the Educational and Socio-Economic Status of the Kattunayakan Community in Kerala,"* examine the impact of government educational interventions on the Kattunaykkan, a Particularly Vulnerable Tribal Group (PVTG) in Kerala. The study highlights the persistent socio-economic hardships that hinder the community's access to quality education despite numerous state-sponsored initiatives. Although government programs such as free education schemes, tribal hostels, and mid-day meal programs have been implemented, the authors find that these measures have had limited success in improving literacy rates and reducing dropout trends among Kattunaykkan students. Economic deprivation remains a primary challenge, forcing many children to abandon schooling in favour of wage labour to support their families. Geographical isolation further exacerbates the issue, as many settlements are located in remote forest areas with limited access to educational institutions. Cultural barriers, including a preference for traditional occupations and a general mistrust of formal education, also contribute to the low educational attainment among the community. The study underscores the inadequacy of existing policies in

addressing these unique challenges, emphasizing the need for a more culturally sensitive and community-driven approach to tribal education. The authors recommend targeted interventions, including localized curriculum adaptations, improved infrastructure, and vocational training programs that align with the community's socio-economic realities. The research concludes that while government initiatives have made some progress, their overall effectiveness remains constrained by systemic gaps, necessitating a holistic and inclusive strategy to enhance educational outcomes among the Kattunaykkan tribe.

2.2.3 Human development status of Tribes

The "*Kerala Human Development Report 2005"* by the Government of Kerala highlights the human development status of tribal communities in the state, emphasizing the disparities they face compared to the general population. Tribes, particularly those in hilly districts like Wayanad and Idukki, show lower Human Development Index (H.D.I) values due to factors like poor access to education, healthcare, and income-generating opportunities. The report also indicates that the Gender Development Index (G.D.I) of these districts is notably low, reflecting gender inequalities within these tribal communities. In terms of literacy, tribes have significantly lower rates than the state average, particularly among women. Tribal women face additional challenges, including limited access to healthcare, lower workforce participation, and wage discrimination. The H.D.I for tribal areas ranges below the state average of 0.773, highlighting these disparities. The G.D.I, which accounts for gender inequality, also shows concerning values in tribal areas, further underscoring the disadvantaged position of women in these communities

Sunitha (2014) in her study "*Variations in human development indicators among different tribal communities in Kerala*" examines the variations in human development indicators among different tribal communities in Kerala, emphasizing intra-tribal disparities. The study assesses key parameters such as education, healthcare, income levels, and living standards to analyze the uneven progress within tribal groups. Despite Kerala's high Human Development Index (H.D.I) compared to other Indian states, tribal communities remain significantly

disadvantaged, with disparities persisting across different tribal groups. The study specifically focuses on the Malayarayan, Kurichyar, and Kurumar tribes**,** illustrating how development outcomes vary among them. The Malayarayan tribe**,** historically engaged in agriculture and known for higher literacy rates among Kerala's tribal communities, demonstrates better H.D.I **scores** and improved access to healthcare and education. In contrast, the Kurichyar tribe**,** traditionally dependent on shifting cultivation, shows moderate development indicators, with access to education improving but still limited healthcare facilities. The Kurumar tribe**,** facing socio-economic marginalization, records the lowest H.D.I values among the three, with poor literacy levels, inadequate healthcare access, and economic vulnerabilities. The study also highlights gender disparities through the Gender Development Index (G.D.I)**,** showing that tribal women-particularly among the Kuruma Community face higher illiteracy rates, increased maternal mortality, and restricted access to economic resources**.** While government welfare programs have benefited some tribal groups, lack of awareness, socio-cultural barriers, and bureaucratic inefficiencies hinder progress. The study concludes that a tribe-specific development strategy is essential to address these disparities. Strengthening policy frameworks, ensuring equitable resource distribution, and enhancing education and healthcare accessibility can significantly improve the overall well-being of these tribal communities.

Shebeer, M. (2015), in his study titled *"Strengthening State Plans for Human Development: A Study on Indigenous People in Kerala,"* evaluates the effectiveness of state-level plans designed to improve the human development of tribal communities in Kerala, including the Kurumbars and Kattunaykkan tribes. The research focuses on key sectors such as education, health, employment, housing, and infrastructure, analyzing their collective impact on improving the living standards of indigenous populations. Using regression analysis, Shebeer identifies education and health as the most critical factors in strengthening state plans. The study reveals that, despite multiple government initiatives, tribal communities like the Kurumbars and Kattunaykkan remain marginalized due to poor policy implementation and limited access to resources. Specifically, it highlights that the Kurumbars and Kattunaykkan face significant challenges in accessing quality healthcare and educational

opportunities, leading to a slower pace of development compared to other tribal groups. The research further explores sectoral variations in the effectiveness of the plans, noting the necessity for more comprehensive, tailored approaches that address the specific needs of different tribal groups. The study concludes by emphasizing the importance of targeted interventions in education, healthcare, and infrastructure to ensure that development efforts are inclusive, equitable, and effective in enhancing the overall human development of Kerala's indigenous communities, particularly for vulnerable groups like the Kurumbars and Kattunaykkan tribes.

M. V. Sajeev (2018), in his study titled *"Human Development Status of Scheduled Tribes in Kerala,"* explores the multidimensional aspects of poverty and human development among the Kadar and Kurumba tribes, two Particularly Vulnerable Tribal Groups (PVTGs) in Kerala. The study finds that while Kerala's overall Human Development Index (H.D.I) is significantly higher than the national average, the H.D.I of its tribal populations, particularly PVTGs, remains alarmingly low. Sajeev calculated the H.D.I for the Kadar and Kurumba tribes, revealing values of 0.259 and 0.216, respectively, indicating severe deprivations in health, education, and living conditions. These deprivations heavily contribute to their multidimensional poverty index (M.P.I), with nearly 79% of Kurumba households and 69% of Kadar households identified as severely poor across multiple dimensions, such as inadequate access to healthcare and education. The study also calculated the Gender Development Index (G.D.I) for both tribes, revealing further disparities. The G.D.I value for the Kadar tribe was 0.55, while the Kurumba tribe had a G.D.I of 0.50, highlighting significant gender inequalities, particularly in education and income levels. The study emphasizes the urgent need for targeted policy interventions to improve the living conditions and create sustainable livelihood opportunities for these tribes. By addressing these disparities, Sajeev advocates for inclusive development strategies that can bridge the human development gap for these marginalized tribal communities.

The "*Kerala Development Report 2021"* by the Government of Kerala provides an extensive analysis of the human development status of Scheduled Tribes in the state.

Despite Kerala's overall advancements in human development indicators, tribal communities such as the Kadar, Kurumba, and Kattunaykkan continue to face challenges in areas like education, health, and employment. The report highlights efforts to bridge these gaps through welfare schemes, including mobile medical units and educational support initiatives. However, issues like poverty and limited access to employment opportunities in the modern sector persist, particularly in remote tribal areas. The report also emphasizes the need for more focused development efforts to uplift tribal populations from socio-economic disadvantages. While healthcare services have improved, particularly with mobile clinics reaching remote locations, and educational support for tribal children has expanded, a significant portion of the tribal population still remains below the poverty line. The status of tribal women, in particular, is critical, as they are disproportionately affected by poor health outcomes and limited economic opportunities. The report underscores that despite government interventions, tribal women's access to employment and healthcare services remains inadequate. This highlights the need for gender-sensitive development programs that address the specific needs of tribal women in Kerala

Manju S. Nair and M. V. Sajeev (2021), in their study titled *"Human Development Status of Particularly Vulnerable Tribal Groups in Kerala,"* examine the socio-economic conditions and human development disparities faced by the Kadar and Kurumba tribes, two Particularly Vulnerable Tribal Groups (PVTGs) in Kerala. The research reveals that despite Kerala's overall high Human Development Index (H.D.I), these tribal groups remain significantly disadvantaged. Using indices such as the Human Development Index (H.D.I), Gender Development Index (G.D.I), and Multidimensional Poverty Index (M.P.I), the study highlights extreme disparities in health, education, and living standards. The H.D.I values for Kadar and Kurumba were found to be 0.259 and 0.216, respectively, which are far below Kerala's average of 0.790. These low scores are primarily attributed to poor access to healthcare, inadequate education, and low income levels, with Kurumba's income index being the lowest at 0.128. The study also shows significant gender disparities, with the G.D.I for Kadar at 0.55 and Kurumba at 0.50, compared to Kerala's G.D.I of 0.745. Additionally, the Multidimensional Poverty Index (MPI) results

underscore the depth of poverty, with 81% of Kadar and 95% of Kurumba households classified as multi-dimensionally poor. In conclusion, the study emphasizes that Kerala's overall human development growth has largely bypassed its tribal populations, particularly the PVTGs. The authors call for urgent and inclusive policy interventions aimed at improving healthcare, education, and income opportunities for these marginalized groups. Without targeted efforts, these communities are likely to remain trapped in a cycle of poverty and underdevelopment, despite the state's broader developmental achievements.

2.2.4 Health and Nutritional Status of Tribes

Bharati et al. (2008), in their study "*Health Status and Nutritional Conditions of Tribal Women in India*," provide a comprehensive analysis of the health status and nutritional conditions of tribal women across different regions of India. The study highlights the socio-economic determinants of health, dietary patterns, and the prevalence of malnutrition and related health issues among tribal women. The findings reveal significant disparities in health outcomes due to factors such as poverty, limited healthcare access, and cultural practices that influence dietary habits and healthcare utilization. The study identifies malnutrition as a major health concern among tribal women in India. Poor dietary intake, food insecurity, and low consumption of protein and micronutrients contribute to widespread nutritional deficiencies. Anaemia, caused by iron deficiency, is one of the most prevalent issues, affecting a large proportion of tribal women. Low birth weight in infants and high maternal mortality rates are also linked to inadequate maternal nutrition. To improve the health and nutritional status of tribal women, Bharati et al. (2008) suggest multi-pronged strategies that include improving healthcare infrastructure, enhancing nutritional education, and promoting sustainable livelihood opportunities. Strengthening government welfare schemes, ensuring better distribution of fortified foods, and incorporating culturally appropriate interventions could significantly improve health outcomes for tribal women across India. The study concludes that targeted policy measures and community-based interventions are essential to address the persistent health disparities faced by tribal women in India.

Amuthavalluvan and Devarapalli's (2011) study, "Indigenous Knowledge and Health Seeking Behavior among Kattunaykkan: A Tribe in Transition," investigates the traditional medicinal practices and health-seeking behaviours of the Kattunaykkan tribe in Tamil Nadu, India. The researchers selected five villages from a total of 65 for in-depth analysis, employing participant observation and discussions, particularly with women, to gather comprehensive data on health-seeking behaviours. The study reveals that the Kattunaykkan possess extensive indigenous knowledge, utilizing various parts of medicinal plants to treat a wide range of ailments. This traditional knowledge is integral to their culture and is passed down through generations. However, the authors note that this indigenous knowledge is at risk due to factors such as modernization and the encroachment of external influences. The researchers also observed that the Kattunaykkan's health-seeking behaviour is influenced by their cultural beliefs and practices. While they rely on traditional medicine for many health issues, there is a growing interaction with modern healthcare systems. This transition poses challenges, as the community navigates between preserving traditional practices and adapting to contemporary healthcare options. In conclusion, the study underscores the importance of documenting and preserving the indigenous knowledge of the Kattunaykkan tribe. It highlights the need for culturally sensitive healthcare interventions that respect traditional practices while integrating modern medical advancements. Such an approach could ensure better health outcomes for the Kattunaykkan community during this period of transition.

Krishnan, R. (2018), in the study "*Health Challenges of the Kurumba Tribal Women in Kerala,"* explores the complex health challenges faced by Kurumba tribal women, focusing on malnutrition, maternal health complications, communicable diseases, traditional healthcare practices, and barriers to accessing modern medical services. Malnutrition is a critical issue due to an imbalanced diet predominantly reliant on forest produce, leading to widespread anaemia and other micronutrient deficiencies that negatively impact maternal and child health. High maternal mortality rates are linked to inadequate antenatal care and reliance on home-based deliveries without professional medical assistance, increasing the risks of birth

complications and infant mortality. Poor sanitation, low immunization coverage, and high susceptibility to infectious diseases further exacerbate health disparities. Traditional healing methods, such as herbal medicine and spiritual rituals, remain the primary source of treatment, but these practices often delay or replace essential modern medical interventions. Additionally, geographical isolation, economic constraints, poor transportation infrastructure, language barriers, and discriminatory attitudes from healthcare providers create significant obstacles to accessing government health services. The study highlights the urgent need for targeted health interventions that integrate modern medical care with culturally sensitive approaches to ensure better health outcomes. Krishnan (2018) emphasizes the importance of improving maternal and child healthcare, addressing nutritional deficiencies, and bridging the gap between traditional and institutional medical practices through inclusive healthcare policies that prioritize accessibility, awareness, and community engagement for the well-being of Kurumba tribal women in Kerala.

Nair (2020), in the study "*Traditional Healing Practices among the Kurumba Tribal Community in Kerala*," examines the indigenous medicinal systems of the Kurumba tribe, emphasizing their reliance on natural remedies and the socio-cultural factors influencing these traditions. The research documents the use of various medicinal plants by Kurumba healers, such as Amla for boosting immunity, Tulsi for respiratory issues, and Neem for skin ailments. These traditional practices are often accompanied by rituals, chants, and prayers, reflecting a holistic approach that addresses both physical and spiritual well-being. However, the study also identifies significant challenges threatening the continuity of these practices, including deforestation leading to the depletion of medicinal plants, modernization, and an increasing preference for contemporary healthcare systems among the younger generation. Nair (2020) concludes that preserving these traditional healing practices requires a balanced approach that respects indigenous knowledge while integrating modern healthcare benefits. Recommendations include strengthening documentation efforts, promoting sustainable harvesting of medicinal plants, and creating awareness about the significance of these healing traditions. The study also calls for

policies that recognize and protect the intellectual property of tribal healers while fostering collaboration between traditional and modern healthcare systems.

Sreedharan (2021), in the study *"Nutritional Challenges among Kattunaykkan Tribal Women in Kerala,"* provides an in-depth analysis of the nutritional challenges faced by Kattunaykkan tribal women in Kerala, a Particularly Vulnerable Tribal Group (PVTG) that relies on forest resources for sustenance. The study highlights the adverse effects of deforestation, restricted access to traditional food sources, and socio-economic marginalization, leading to significant dietary shifts and widespread nutritional deficiencies. Traditionally, the Kattunaykkan community consumed a diet rich in tubers, honey, wild fruits, and forest produce; however, modern interventions and economic hardships have forced a transition to staple grains such as rice from the Public Distribution System (P.D.S). This dietary shift has resulted in inadequate protein, vitamin, and mineral intake, contributing to undernutrition among women, as evidenced by Body Mass Index (B.M.I) measurements falling below the recommended threshold. The study further identifies micronutrient deficiencies, particularly in iron, vitamin A, and calcium, leading to high rates of anaemia, vision impairments like night blindness, and weakened bone health. Malnutrition among Kattunaykkan women has severe implications for maternal and child health, increasing the risk of underweight births, high infant mortality, pregnancy complications, and developmental disorders in children. Additionally, cultural dietary restrictions during pregnancy and lactation further exacerbate the crisis. Economic instability remains a primary factor contributing to poor nutrition, as many families rely on seasonal forest produce, daily wage labour, and government aid, limiting access to diverse and nutritious foods. Furthermore, low literacy levels among tribal women reduce awareness of proper nutrition, leading to imbalanced diets. The study underscores the urgent need for targeted nutritional interventions, economic empowerment, and culturally appropriate health programs to improve maternal and child health outcomes in the Kattunaykkan community.

Das (2022), in the study *"Reproductive Health Challenges Among Kadar Tribal Women in Kerala,"* explores the reproductive health issues faced by Kadar tribal

women, a community residing in remote forested regions with limited access to healthcare services. The study highlights key factors influencing their reproductive health, including socio-economic conditions, cultural beliefs, healthcare accessibility, and the prevalence of maternal health risks. One of the primary challenges identified is inadequate access to maternal healthcare, as geographical isolation leads to delays in receiving antenatal and postnatal care. The insufficient health infrastructure in tribal settlements forces many women to rely on traditional birthing practices rather than institutional deliveries, increasing the risk of complications during childbirth and contributing to higher maternal and infant mortality rates. Malnutrition is another critical concern, with poor dietary intake during pregnancy resulting in low birth weight and pregnancy-related complications. *Reproductive Health Challenges Among Kadar Tribal Women in Kerala* further emphasizes the widespread prevalence of iron deficiency anaemia, leading to fatigue, weakened immunity, and increased risks during labour. Traditional beliefs also influence reproductive health outcomes, as many Kadar women adhere to cultural taboos that restrict dietary intake and discourage seeking modern medical care. Additionally, social norms limit open discussions about reproductive health, leading to lower contraceptive use and higher rates of early pregnancies. The study finds that family planning services and reproductive health education are scarce, with limited awareness of contraceptive methods contributing to high fertility rates and closely spaced pregnancies. Government initiatives promoting family planning have achieved limited success due to cultural resistance and inadequate outreach. The study concludes that a comprehensive approach integrating improved healthcare accessibility, nutritional support, and culturally sensitive awareness programs is essential to addressing the reproductive health challenges faced by Kadar tribal women in Kerala.

2.2.5 Poverty status of Tribes

Dr. Sindhu K. (2014), in the study titled "*Multi-Dimensional Poverty Index: A Study of Tribes in Attappady Block*," explores the multidimensional poverty experienced by the Kurumba, Irula, and Muduga tribes in Kerala's Attappady region using the Multidimensional Poverty Index (MPI) framework. The study reveals that 93% of

the tribal population in Attappady suffers from multidimensional poverty, with the Kurumba tribe experiencing the highest level of deprivation. Significant challenges include poor access to healthcare, high malnutrition rates, and inadequate maternal health services, particularly affecting women and children. Educational deprivation is another critical issue, with many tribal children, especially girls, unable to access formal education due to infrastructural limitations and cultural barriers. Additionally, the poor living standards in tribal areas, characterized by inadequate sanitation, insufficient housing, and lack of clean drinking water, exacerbate the situation. The study highlights that despite government interventions aimed at improving the socio-economic status of these communities, the implementation remains ineffective due to lack of cultural sensitivity and geographical isolation. Dr. Sindhu emphasizes the need for a comprehensive development strategy tailored to the specific needs of these tribes, focusing on improving access to healthcare, education, and essential living conditions. The study concludes by calling for urgent policy measures to effectively address the multidimensional poverty faced by these tribal groups.

Nalinam M. (2019), in her doctoral thesis "Poverty and Morbidity: A Study of Tribal Communities in Kerala," examines the intricate relationship between poverty and health among Kerala's tribal populations, emphasizing the dimensions of income, education, and health. Utilizing the Multidimensional Poverty Index (M.P.I), the study reveals that these communities experience significant deprivations across multiple indicators, leading to elevated morbidity rates. Focusing on tribal communities in Wayanad, Idukki, and Palakkad districts, the study reveals that a substantial proportion of these populations experience significant deprivations across multiple M.P.I indicators, including health, education, and living standards. Findings indicate that the Kattunaykkan, Mudugar, and Irular tribes experience the most severe poverty, with Palakkad district exhibiting the highest M.P.I values and deepest deprivation. Wayanad and Idukki districts also face considerable challenges, though with relatively lower M.P.I scores. Nalinam highlights that despite various governance initiatives and welfare measures aimed at improving socio-economic conditions, persistent deprivation indices underscore the need for more targeted and

effective interventions to address the compounded challenges faced by these marginalized groups.

The 2021 Global Multidimensional Poverty Index (M.P.I) report, jointly produced by the United Nations Development Programme (U.N.D.P) and the Oxford Poverty and Human Development Initiative (O.P.H.I), provides an in-depth assessment of poverty among tribal communities in India. Unlike conventional poverty measures that focus solely on income, the M.P.I evaluates deprivations across key dimensions such as health, education, and living standards. The report highlights that Scheduled Tribes (STs) are among the most marginalized groups, with significantly higher M.P.I scores compared to other social categories. The analysis reveals that tribal populations face severe deprivations in nutrition, child mortality, and access to maternal healthcare. Many tribal communities, particularly in remote areas, suffer from malnutrition, lack of sanitation, and inadequate healthcare facilities. The education dimension shows high dropout rates among tribal children, often due to financial barriers, lack of infrastructure, and socio-cultural factors. Additionally, poor living conditions, including inadequate housing, lack of electricity, and unsafe drinking water, further contribute to multi-dimensional poverty among these communities. The report emphasizes the need for targeted policy interventions to address these disparities. Strengthening healthcare infrastructure, promoting inclusive education, and ensuring sustainable livelihood opportunities are identified as key strategies for poverty alleviation. Furthermore, the report calls for greater recognition of tribal rights, including land ownership and resource accessibility, to empower these communities economically. The U.N.D.P underscores that a holistic approach combining social, economic, and policy measures is essential to reducing multi-dimensional poverty and fostering sustainable development among India's tribal populations.

The "*Human Development Report 2023"* by the United Nations Development Programme (U.N.D.P) provides a comprehensive analysis of global poverty and inequality through a multidimensional lens. It argues that traditional income-based measures of poverty are insufficient to capture the full extent of deprivation. The

report stresses the need to consider factors such as health, education, living standards, and access to essential services for a holistic understanding of poverty. Poverty and inequality are deeply interconnected, with marginalized populations, such as tribal communities in India, facing compounded disadvantages due to systemic barriers and historical exclusion. Tribal women, in particular, bear a disproportionate burden of poverty. In addition to economic deprivation, they face gender-based discrimination, lack of access to healthcare, and educational opportunities, as well as exclusion from decision-making processes. The report highlights how tribal women, especially in India, are marginalized not only because of their ethnic background but also due to patriarchal structures that limit their socio-economic mobility. Their poverty is often more acute due to limited access to land, livelihood opportunities, and essential resources. The report also discusses the effects of global crises, such as climate change and the COVID-19 pandemic, which have exacerbated these inequalities. The U.N.D.P calls for targeted, gender-sensitive policies that address the specific challenges faced by tribal women, ensuring inclusive development. By adopting a multidimensional approach, the report aims to reduce disparities, particularly for vulnerable groups like tribal women, and foster sustainable growth that leaves no one behind.

2.3 Theoretical Framework of the study

To examine the human development status of Scheduled Tribal (ST) women in Kerala, it is essential to employ a comprehensive theoretical foundation that reflects the intersecting socio-economic and cultural dimensions of their lives. This study adopts a multi-theoretical approach incorporating Amartya Sen's Capability Approach, the Human Development framework by Mahbub ul Haq, the Gender and Development (GAD) theory, Intersectionality theory, Dependency theory, and the Sustainable Livelihood Framework. The Capability Approach emphasizes the expansion of real freedoms and opportunities individuals have to lead lives they value, while the Human Development framework focuses on enhancing well-being through improved health, education, and living standards. The GAD perspective addresses structural gender inequalities and advocates for women's empowerment,

whereas Intersectionality explains how overlapping social identities intensify marginalization. Dependency theory provides a critical lens to understand how historical and structural inequalities, including underdevelopment and peripheralization, impact tribal communities. The Sustainable Livelihood Framework contributes by highlighting how access to assets, vulnerability context, and institutional structures affect the survival and development strategies of ST women. Together, these frameworks offer a multidimensional understanding of the challenges faced by tribal women in Kerala. Each of these theoretical perspectives is discussed in detail in the following sections to build a robust analytical foundation for the study.

2.3.1 Human Development Approach

The Human Development Approach, introduced by Mahbub ul Haq and further developed by Amartya Sen, emphasizes enhancing individual choices and expanding opportunities in dimensions such as health, education, and standard of living (Haq, 1995; Sen, 1999). This framework regards human development as the process of enriching people's capabilities and freedoms, enabling them to lead dignified and fulfilling lives (Sen, 1999). When applied to Scheduled Tribe (ST) women in Kerala, their human development is significantly constrained by geographic isolation, inadequate health infrastructure, poor educational facilities, and persistent economic vulnerabilities (Government of Kerala, 2020; Planning Commission, 2014). ST women consistently register lower health outcomes due to limited access to healthcare, higher incidence of malnutrition, and lack of maternal care services (National Family Health Survey [NFHS-5], 2021). Similarly, lower literacy rates and poor educational attainment levels among tribal women severely restrict their employment prospects and social empowerment (Census of India, 2011; Ministry of Tribal Affairs, 2018). Their standard of living is often compromised by substandard housing, lack of sanitation, and limited access to safe drinking water (Kerala Development Report, 2008). Thus, the Human Development Approach underscores the need for targeted, inclusive interventions to expand these critical dimensions. By focusing on improved health, quality education, and enhanced living standards, this

framework provides comprehensive insights into both the constraints and possibilities of ST women's development. Despite Kerala's overall progressive human development indicators, stark disparities remain within tribal communities - especially among women - highlighting deep-seated inequalities in capability expansion (Kannan, 2021; UNDP, 2020).

2.3.2 Capability Approach

Amartya Sen's Capability Approach prioritizes individual freedom to achieve valued ways of living by emphasizing capabilities and functionings (Sen, 1999, 2000). Capabilities refer to individuals' genuine opportunities to achieve well-being, while functionings denote the realized states of being and doing that individuals value (Robeyns, 2005). For Scheduled Tribe (ST) women in Kerala, socio-cultural norms, limited autonomy, and material deprivation significantly hinder the expansion of capabilities (Ministry of Tribal Affairs, 2018; Kannan, 2021). The entrenched patriarchal structures within many tribal communities restrict women's mobility, decision-making powers, and economic independence (Xaxa, 2004). Limited land ownership rights and constrained access to economic assets further weaken their ability to pursue valued outcomes (Planning Commission, 2014). Personal factors such as low self-esteem, limited educational attainment, and lack of exposure to mainstream society also constrain the development and exercise of their capabilities (Desai & Kulkarni, 2008). In addition, environmental barriers - such as the geographic remoteness of tribal settlements - exacerbate their isolation from developmental infrastructure and economic opportunities, resulting in lower levels of achieved functionings (Government of Kerala, 2020). Therefore, applying the Capability Approach to tribal women's development necessitates addressing not only the provision of resources but also the socio-cultural and environmental contexts that mediate the conversion of resources into meaningful capabilities. Enhancing ST women's freedoms and capabilities requires interventions that simultaneously target structural constraints and promote personal empowerment. Sen's approach thus provides a comprehensive and ethically grounded framework

for evaluating development outcomes, focusing on actual freedoms rather than abstract entitlements (Sen, 1999; Nussbaum, 2000).

2.3.3 Gender and Development (GAD) Theory

The Gender and Development (GAD) theory critically examines structural inequalities and highlights how gendered power relations shape access, control, and participation in the developmental process (Kabeer, 1994; Razavi & Miller, 1995). Unlike earlier frameworks such as Women in Development (WID), GAD moves beyond individual-level analysis to interrogate systemic constraints and patriarchal institutional structures that marginalize women. In the context of tribal women in Kerala, gender intersects with ethnicity, class, and geographic marginality, intensifying their socio-economic vulnerabilities (Rege, 2003; Nathan & Kelkar, 2001). ST women are often excluded from decision-making processes both within households and in traditional community governance institutions (Xaxa, 2004). Their contributions are largely limited to unpaid care work, subsistence farming, and informal labor, with minimal recognition or compensation (Ministry of Tribal Affairs, 2018). Gendered norms within tribal societies perpetuate unequal distribution of household resources, resulting in limited access to education, health care, and income-generating activities (Census of India, 2011; Kurian, 2000). Therefore, development policies must address entrenched gender hierarchies and enable ST women's active participation in governance, access to productive assets, and economic self-reliance through skill development and empowerment programs (UN Women, 2020). The GAD framework calls for structural transformation, seeking not only to include women in existing systems but to fundamentally challenge and reshape the power relations that generate inequality. In doing so, it offers a powerful lens for understanding and addressing the gendered dimensions of underdevelopment faced by tribal women in Kerala.

2.3.4 Intersectionality Framework

Intersectionality**,** first conceptualized by Kimberle Crenshaw, underscores how multiple, overlapping social identities - such as gender, race, class, and ethnicity - interact to produce unique and compounded experiences of marginalization

(Crenshaw, 1989, 1991). In the context of Scheduled Tribe (ST) women in Kerala**,** the intersectionality framework illuminates the multi-dimensional nature of their disadvantage. As tribal women, they occupy a complex position at the confluence of gender-based, ethnic, economic, and spatial marginalization (Rege, 2003; Xaxa, 2004). Being female in patriarchal tribal societies restricts their educational and economic participation, while their ethnic identity often renders them invisible or underserved in broader state welfare schemes and development planning (Government of India, 2018; Kabeer, 2015).

Additionally, their remote and rural geographic location compounds these disadvantages by limiting access to healthcare, education, communication networks, and livelihood opportunities (Planning Commission, 2014; Government of Kerala, 2020). The result is a layered marginalization, wherein different forms of exclusion intersect to create deeper vulnerabilities than those experienced by non-tribal or urban women (Desai & Kulkarni, 2008).

Intersectionality thus offers a critical analytical lens to understand and respond to the complex realities of tribal women's lives. It challenges one-dimensional development models by advocating for context-sensitive, targeted interventions that recognize these overlapping disadvantages (Collins & Bilge, 2016). Development policies, when designed through an intersectional lens, can ensure that tribal women are not treated as a homogeneous group but as individuals shaped by multiple, interacting factors. Ignoring such intersections risks perpetuating systemic inequalities and undermines the efficacy of development efforts (UN Women, 2020). Therefore, adopting an intersectional approach is imperative for crafting inclusive, equitable, and impactful human development strategies aimed at improving the lives of ST women in Kerala.

2.3.5 Dependency Theory and Marginalization

Dependency theory, prominently developed by Andre Gunder Frank (1966), elucidates the systemic exploitation and structural economic dependencies faced by marginalized communities within broader socio-economic frameworks. In the context of Scheduled Tribal (ST) women in Kerala, dependency theory highlights

their historical and continued marginalization, characterized by deep-rooted structural inequalities, resource alienation, and economic exploitation (Frank, 1966). Tribal communities have historically faced dispossession from their ancestral lands due to external encroachments, commercial exploitation of forest resources, and restrictive governmental policies (Bijoy, 1999). As a result, tribal women's traditional occupations based on forest-based resources and subsistence farming are severely compromised, forcing them into low-paying, insecure, or informal employment, perpetuating cycles of economic dependency (Kjosavik & Shanmugaratnam, 2007). Their limited access to productive resources such as land, capital, and credit further compounds their economic vulnerabilities (Rath, 2006). Dependency theory thereby underscores the importance of addressing structural issues such as land rights, economic inclusion, and political participation, aiming to break the cycles of dependency and enable sustainable development. Effective interventions necessitate policy changes to enhance tribal women's resource access, economic autonomy, and political representation, thus reducing their dependency on external structures and fostering self-reliance and empowerment (Mohanty, 2004).

2.3.6 Sustainable Livelihood Framework

The Sustainable Livelihood Framework (SLF), introduced by the UK Department for International Development, offers an integrated approach to analyzing livelihoods through five critical capitals: natural, physical, human, social, and financial (DFID, 1999). For ST women in Kerala, natural capital remains crucial yet precarious, given their traditional dependence on forest resources and agriculture, both increasingly threatened by deforestation, climate change, and restrictive land-use policies (Menon, 2007). Physical capital, including basic infrastructure like transportation, electricity, and communication networks, remains severely inadequate in tribal settlements, significantly restricting access to economic opportunities and essential services (Govinda & Diwan, 2003). Human capital is equally limited, as education, skill training, and healthcare services remain inaccessible or inadequate, perpetuating poor health outcomes and lower educational attainments among tribal women (National Family Health Survey [NFHS], 2016).

Although tribal communities possess strong social capital through internal community bonds, they often lack bridging social capital necessary to effectively interface with external institutions and markets, limiting their collective economic bargaining power (Kumar & George, 2009). Additionally, financial capital constraints, such as limited access to banking services, credit, and financial literacy, hinder their ability to invest in income-generating activities, exacerbating their economic vulnerability (NABARD, 2013). Hence, applying SLF to tribal women emphasizes comprehensive interventions aimed at strengthening each capital, thereby creating sustainable livelihood strategies and enhancing resilience against socio-economic adversities (DFID, 1999).

2.4 Research Gap

The human development status of Scheduled Tribal women in Kerala, particularly those from the Kadar, Kattunaykkan, and Kurumba communities, remains insufficiently explored, presenting several research gaps. First, there is a lack of disaggregated data specific to women from these tribal groups, especially those classified as Particularly Vulnerable Tribal Groups (PVTGs). Existing studies often treat tribal communities as homogeneous, failing to address the distinct experiences and challenges faced by each tribe, thereby hindering a comprehensive understanding of their development indicators such as education, health, and economic participation.

Additionally, the inadequate representation of gender-specific deprivation among tribal women is a significant gap. Most research fails to address the unique intersection of gender and tribal identity, resulting in an incomplete portrayal of the specific hardships that tribal women encounter. Issues like access to reproductive health services, maternal health, education, and economic opportunities are underrepresented, limiting the scope of gender-sensitive development policies. Moreover, there is an urgent need for tribe-specific and culturally inclusive studies that reflect the unique social structures, traditions, and lifestyles of the Kadar, Kattunaykkan, and Kurumba communities. Existing research often overlooks the cultural diversity within these tribes, which results in generalized policy approaches

that may not be effective for their distinct needs. A deeper understanding of the cultural context, indigenous practices, and social dynamics within each tribe is essential for creating tailored interventions that enhance the human development status of Scheduled Tribal women in Kerala. Addressing these gaps is crucial for formulating more effective, inclusive, and culturally sensitive development policies that specifically target the needs of women in these tribal communities.

CHAPTER III

SCHEDULED TRIBE WOMEN IN INDIA: AN ANALYSIS OF SOCIO-ECONOMIC SITUATION

3.1 Introduction

The socio-economic conditions of Scheduled Tribes (STs) in India remain a crucial area of study due to their historical marginalization and socio-economic disadvantages. The term "Scheduled Tribes" first appeared in the Constitution of India to provide constitutional privileges and protections to communities identified as socially and economically disadvantaged. According to Article 366(25) of the Indian Constitution, Scheduled Tribes are those communities that are recognized under Article 342, which empowers the President of India to specify tribal communities in different states and union territories (Government of India, 1950).

To identify a community as a Scheduled Tribe, the Lokur Committee (1965) laid down five essential characteristics:

- Geographical isolation - Living in remote areas, away from mainstream society.
- Distinctive culture - Having unique cultural traditions, languages, and practices.
- Backwardness - Experiencing socio-economic deprivation and limited access to resources.
- Primitive characteristics - Following traditional ways of life with minimal external influence.
- Shyness of contact - Avoiding interaction with larger communities due to historical marginalization.

They belong to diverse racial, linguistic, and religious backgrounds and are spread across different ecological zones in India. Historically, tribal communities have remained socially and geographically isolated, leading to their economic and political marginalization. The processes of displacement, deforestation, and

Sanskritization have significantly impacted their cultural identity and traditional way of life (Xaxa, 1999). The increasing penetration of mainstream influences has further contributed to their socio-economic vulnerability. Scheduled Tribes are also commonly referred to as 'Adivasis,' meaning 'indigenous people.'

According to the 2011 Census, the total population of Scheduled Tribes in India was 10.4 percent of the country's total population, accounting for approximately 104 million people (Census of India, 2011). A significant majority of the tribal population - 89.97 percent - resides in rural areas, with only a small proportion in urban regions. The decadal growth rate of the tribal population between 2001 and 2011 was 23.66 percent, which was higher than the overall national population growth rate of 17.69 percent (Ministry of Tribal Affairs, 2013). The tribal population is concentrated in states such as Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Gujarat, Jharkhand, Chhattisgarh, and West Bengal, with each having a sizable ST population (N.I.T.I Aayog, 2021).

Despite various constitutional provisions and policy initiatives, the Scheduled Tribes continue to face persistent socio-economic challenges, including low literacy rates, inadequate healthcare facilities, high poverty levels, and displacement due to developmental projects. The need for inclusive and sustainable development policies remains critical to addressing the disparities and ensuring equitable progress for these historically marginalized communities.

Table No: 3.1

Comparison of Population of Scheduled Caste, Scheduled Tribe and All Categories (In Crores)

Type	Scheduled Caste		Scheduled Tribe		All categories	
	2001	2011	2001	2011	2001	2011
Male	8.6	10.3	4.3	5.2	53.2	62.3
Female	8.1	9.8	4.2	5.1	49.6	58.7
Total	16.7	20.1	8.4	10.4	102.9	121.1

Source: Census 2001 and 2011

Since India's independence, various measures have been implemented at both the national and state levels to safeguard the interests of Scheduled Tribes. The Indian Constitution includes specific provisions aimed at enhancing their socio-economic status, and tribal development has been prioritized in different Five-Year Plans. However, despite these efforts, tribal communities continue to face multiple challenges, particularly in the domains of health, education, and employment (Government of India, 2013).

One of the most pressing concerns is the marginalization of tribal women. Their socio-economic standing remains lower than that of both tribal men and women from the general population. Studies suggest that constitutional provisions and development policies have not significantly improved the condition of tribal women over time. Compared to women from Scheduled Castes and the general population, as well as their male counterparts within tribal communities, tribal women continue to experience disparities in access to essential services and opportunities (Chatterjee, 2014).

3.2 Socio economic status of tribal women in India

Status, as defined by Linton (1936), refers to an individual's position within a social system. The status of a person or group in society is primarily determined by their decision-making power, educational attainment, health conditions, and employment opportunities. These factors are interrelated, as higher levels of education contribute to better decision-making skills, greater health awareness, and improved employment prospects (Linton, 1936).

The status of women within a society is significantly influenced by the social structure and cultural norms of that society. In the Indian context, a patriarchal family system is prevalent, where men traditionally hold dominant positions in various social and economic aspects. However, in several tribal communities, a matriarchal family system can be observed, which allows women greater autonomy and decision-making power (Xaxa, 2004). Tribal women are generally known for their hardworking nature, and their participation in economic activities is nearly

equal to that of men. In many cases, the financial stability of tribal households depends significantly on women's earnings (Government of India, 2013).

3.3 Education status

Education plays a crucial role in the development of tribal women, serving as an essential tool for transforming cultural norms and social attitudes. By fostering economic independence, education empowers tribal women to organize themselves, critically analyse their socio-economic conditions, and become aware of their rights and responsibilities. An educated tribal woman is better equipped to navigate modern society and contribute to the well-being of her community (Sen, 2010).

According to the 75th Round of the National Sample Survey (N.S.S) on Social Consumption: Education, illiteracy rates among Scheduled Tribe (ST) women remain significantly higher compared to other social groups (National Sample Survey Office, 2019). This educational gap is evident at all levels of schooling, from primary education to higher education. When comparing the literacy levels of Scheduled Tribe women with women from other social categories, substantial disparities are observed. As a result, tribal women continue to remain in a vulnerable position, both in comparison to their male counterparts and to women in the general population (Ministry of Tribal Affairs, 2021).

3.3.1 Literacy rate

Literacy rate is defined as the percentage of a given population, aged seven years and older, who can read and write with comprehension. It serves as a crucial indicator of educational development and socio-economic progress in any society. Over the years, the literacy rate among Scheduled Tribes (STs) in India has witnessed a significant rise.

According to Census of India data, the literacy rate among Scheduled Tribes increased from 8.53% in 1961 to 73.60% in 2022-23. The literacy rate among Scheduled Tribe men rose from 13.83% to 80.40%, while for Scheduled Tribe women, it increased from 3.16% to 66.70% during the same period. In contrast, the literacy rate of the total population increased from 28.3% in 1961 to 80.30% in

2022-23. Despite this progress, a literacy gap of approximately 6.7% still exists between Scheduled Tribes and the national literacy rate in 2022-23 (Ministry of Education, 2023).

The historical trends in literacy rates among Scheduled Tribes, as documented in census reports from 1961 onwards, highlight both achievements and persistent challenges in bridging the educational gap. Targeted policies and educational interventions remain essential to further improving literacy rates among tribal communities, particularly for women, who continue to face significant disparities (Government of India, 2023).

Table No: 3.2

Literacy rate Among Scheduled Tribes and All

Year	All			Scheduled Tribe		
	Persons	**Male**	**Female**	**Persons**	**Male**	**Female**
1961	28.30	40.40	15.35	8.53	13.83	3.16
1971	34.45	45.96	21.97	11.30	17.63	4.85
1981	43.57	56.38	29.76	16.35	24.52	8.04
1991	52.21	64.13	39.29	29.60	40.65	18.19
2001	64.84	75.26	53.67	47.10	59.17	34.76
2011	73.00	80.90	64.60	59.00	68.50	49.40
2022-23	80.30	86.20	74.20	73.60	80.40	66.70

Source: Annual Report 2023-24, Ministry of Tribal Affairs, G.o.I

Although the literacy rate among Scheduled Tribes (STs) has improved significantly over the years, the gender gap in literacy between tribal men and women remains a persistent challenge. Despite various government initiatives aimed at promoting education among tribal women, the disparity has not reduced as effectively as expected.

According to data from the Ministry of Tribal Affairs (2023), the literacy gap between the total female population and female tribal population has narrowed from 18.91% in 2001 to 7.5% in 2022-23. However, progress in closing the literacy gap

specifically among tribal men and women has been much slower. Socio-economic factors, cultural traditions, and limited access to educational resources continue to hinder the educational advancement of tribal women (Government of India, 2023).

To achieve greater gender parity in education, more targeted interventions such as scholarship programs, girl-friendly school infrastructure, and awareness campaigns are needed. Ensuring better accessibility and quality of education in tribal areas remains a crucial priority for fostering equitable literacy development among tribal populations.

Table No: 3.3

Gap in Female Literacy Rate

Year	Literacy Rate		Literacy Gap
	Total Female	ST Female	
1961	15.35	3.16	12.19
1971	21.97	4.85	17.12
1981	29.76	8.04	21.72
1991	39.29	18.19	21.1
2001	53.67	34.76	18.91
2011	64.60	49.40	15.2
2022-23	74.20	66.70	7.5

Source: Annual Report 2023-24, Ministry of Tribal Affairs, G.o.I

3.3.2 Gross Enrolment Ratio (GER)

Gross Enrolment Ratio (G.E.R) is a key educational indicator used to measure the level of participation in different stages of education. According to U.N.E.S.C.O (2021), G.E.R is defined as "the total enrolment in a specific level of education, regardless of age, expressed as a percentage of the eligible official school-age population corresponding to the same level of education in a given school year." This indicator helps assess educational access and participation across different social groups.

As per the Annual Report of the Ministry of Tribal Affairs (2023), the G.E.R for Scheduled Tribe (ST) students across different levels of education have shown

mixed trends between 2017-18 and 2021-22. While Primary level G.E.R experienced a slight decline from 107.7% in 2017-18 to 106.5% in 2021-22, G.E.R for Upper Primary, Elementary, Secondary, and Senior Secondary levels has improved. Specifically, G.E.R for Scheduled Tribe girls have increased significantly, reflecting progress in female educational participation. The G.E.R for Upper Primary level rose from 92.7% in 2017-18 to 97.6% in 2021-22, for Secondary level from 73.1% to 79.2%, and for Senior Secondary level from 39.4% to 52.0% during the same period.

Furthermore, G.E.R in higher education for Scheduled Tribes has shown a notable increase, rising from 15.9% in 2017-18 to 21.2% in 2021-22 (Ministry of Tribal Affairs, 2023). This improvement highlights the impact of government initiatives, such as scholarship programs and reservation policies, aimed at enhancing access to education for tribal communities.

Despite these positive trends, challenges remain in ensuring higher retention rates, quality education, and infrastructure improvements for Scheduled Tribe students. Further policy measures are required to sustain and accelerate this progress, particularly in secondary and higher education levels, where enrolment disparities are still evident.

Table No: 3.4

Gross Enrolment Ratio (GER) for Scheduled Tribe Students (2017-18 to 2021-22)

Year	**Primary Level (I-V) (6-10 Years)**			**Upper Primary Level (VI-VIII) (11-13 Years)**			**Elementary Level (I-VIII) (6-13 Years)**		
Girls	Boys	Total	Girls	Boys	Total	Girls	Boys	Total	Girls
2017-18	106.2	109.3	107.8	92.7	94.6	93.7	101.2	103.8	102.6
2018-19	105.6	107.6	106.7	92.2	93.6	92.9	100.7	102.5	101.6
2019-20	106.6	107.6	107.1	93.0	93.9	93.5	101.5	102.6	102.1
2020-21	106.6	106.8	106.7	95.4	96.1	95.8	102.5	102.9	102.7
2021-22	106.7	106.3	106.5	97.6	98.3	98.0	103.3	103.4	103.4

Source: Annual Report 2023-24, Ministry of tribal affairs

Table No: 3.5

Gross Enrolment Ratio (GER) for Scheduled Tribe Students

Level / Year	Secondary (IX-X) 14-15 years			Senior Secondary (XI-XII) 16-17 years			Higher Education 18-23 years		
	Girls	Boys	Overall	Girls	Boys	Overall	Girls	Boys	Overall
2017-18	73.11	72.99	73.05	39.37	39.51	39.44	14.9	17.0	15.9
2018-19	75.85	74.87	75.35	42.70	41.80	42.24	16.5	17.9	17.2
2019-20	77.24	76.22	76.72	43.90	41.92	42.89	17.7	18.2	18.0
2020-21	79.32	77.91	78.60	46.52	43.83	45.15	19.1	18.8	18.9
2021-22	79.2	77.0	78.1	53.6	50.5	52.0	20.9	21.4	21.2

Source: Annual Report 2023-24, Ministry of tribal affairs

As per the table 3.5 shows the G.E.R at the elementary level (I-VIII) is favourable to Scheduled Tribe population, especially for girls. But the G.E.R of Scheduled Tribe students fall drastically at higher education level.

3.3.3 Dropout Rates

The dropout rate refers to the percentage of students who discontinue their education either during the academic year or after completing a grade without enrolling in the next level in the subsequent school year. It serves as a crucial indicator for evaluating the challenges faced by different social groups in attaining and sustaining educational progress (U.N.E.S.C.O, 2021). A high dropout rate often reflects socio-economic barriers, lack of access to quality education, and other systemic challenges that hinder students from completing their schooling (Ministry of Tribal Affairs, 2022).

A significant number of tribal women participate in the workforce and engage in various economic activities to support their families. In many cases, their young children, including girls, accompany them to work, which adversely affects their education. As a result, many tribal children either drop out of school or attend irregularly. Additionally, some tribal parents are reluctant to send their children to

school, as it reduces the number of working hands available for household and economic activities (Ministry of Tribal Affairs, 2022).

Table No: 3.6

Dropout Rates in School Education for Scheduled Tribe Students

Year	Primary			Upper Primary			Secondary		
	Girls	Boys	Overall	Girls	Boys	Overall	Girls	Boys	Overall
2017-18	3.48	3.82	3.66	6.14	5.95	6.04	21.36	22.90	22.14
2018-19	5.23	5.72	5.48	6.46	6.89	6.69	23.38	26.40	24.93
2019-20	3.61	4.06	3.85	5.81	6.30	6.06	22.65	25.64	24.18
2020-21	2.31	2.72	2.52	4.69	5.36	5.02	19.65	22.14	20.91
2021-22	2.60	3.04	2.83	5.70	6.35	6.03	15.33	17.87	16.62

Source: Annual Report 2023-24, Ministry of tribal affairs

The dropout rates in school education among Scheduled Tribe students have shown a declining trend across primary, upper primary, and secondary levels from 2017-18 to 2021-22. However, despite this improvement, dropout rates among tribal girls remain significantly high. Data suggests that 15.33 percent of tribal girls at the secondary level discontinued their education before completing their studies. Secondary education appears to be the most vulnerable stage where tribal girls tend to drop out at an alarming rate (N.S.S.O, 2022; Ministry of Education, 2022).

3.3.4 Gender Parity Index (GPI) in Education

The Gender Parity Index (G.P.I) is a socio-economic indicator used to assess the relative access to education for males and females. It is calculated as the ratio of female to male enrolment at different educational levels, providing insights into gender disparities in education (U.N.E.S.C.O, 2021). A G.P.I value of 1 indicates parity between genders, while a value below 1 suggests that females are disadvantaged in education, and a value above 1 indicates that males are disadvantaged (Ministry of Education, 2022).

G.P.I is a crucial measure in evaluating gender equality in education, particularly among marginalized communities such as Scheduled Tribes (STs). In India, efforts

have been made to bridge the gender gap in education through various government policies and programs. However, disparities persist, especially at the secondary and higher education levels, where female students often face challenges such as early marriage, economic constraints, and social barriers (Ministry of Tribal Affairs, 2022).

Table No: 3.7

Gender Parity Index for Scheduled Tribe Students

Year	Secondary	Senior Secondary	Higher Education
2017-18	1.00	1.00	0.91
2018-19	1.01	1.02	0.96
2019-20	1.01	1.05	1.00
2020-21	1.02	1.06	1.02
2021-22	1.03	1.06	0.98

Source: Annual Report 2023-24, Ministry of tribal affairs

The Gender Parity Index (G.P.I) for Scheduled Tribe (ST) students has shown a positive trend at the secondary, senior secondary, and higher education levels between 2017-18 and 2021-22 (Ministry of Tribal Affairs, 2022). This improvement can be attributed to state-supported initiatives aimed at enhancing educational access for tribal communities. The government has played a significant role in promoting education among tribal students by providing financial grants, scholarships, and infrastructural support (Ministry of Education, 2022). These initiatives align with the Right to Education Act, 2009, which ensures free and compulsory education for children up to 14 years of age. As a result, many parents have been encouraged to enroll their children in schools with the expectation of better socio-economic outcomes (U.N.E.S.C.O, 2021).

Several government incentives, including free school uniforms, textbooks, and mid-day meal programs, have contributed to an increase in school enrolment among Scheduled Tribe students. However, girls' education remains a challenge, as many do not attend school regularly. They are often engaged in household chores or accompany their mothers to work, leading to inconsistent learning and high dropout

rates (National Sample Survey Office, 2022). As girls reach adolescence, socio-cultural factors further limit their educational continuity, with many parents opting to withdraw them from school (Census of India, 2021).

Empowering tribal women through education is crucial for their social and economic upliftment. Education should be linked to employment opportunities, which will enhance their decision-making abilities within both households and society (Chatterjee, 2014). A higher level of education enables women to express their views, negotiate within families, and make informed choices, ultimately improving their status and autonomy. If systematic efforts continue to promote literacy among tribal women, they will be better equipped to navigate societal challenges and secure a brighter future (Ministry of Women and Child Development, 2023).

3.4 Employment

Traditionally, Scheduled Tribes are hardworking regardless of their gender and age. The Inclusiveness Plan strategy envisages special attention to the marginalized section of employment, particularly tribals. The percentage distribution of workers by gender provides a clear picture of their involvement in their community. The women of the Scheduled Tribes have proven their identity in various professional fields. To accommodate the growing workforce in any economy, productive and profitable jobs with decent working conditions and fair pay must be created.

Table No: 3.8

Percentage distribution of Workers by Sex

State / UT	Total workers					
	All population		Scheduled Caste		Scheduled Tribe	
	Male	Female	Male	Female	Male	Female
All India	68.89	31.11	51.41	48.59	55.59	44.41
Jammu & Kashmir	73.91	26.09	52.57	47.43	66.24	33.76
Himachal Pradesh	57.41	42.59	50.68	49.32	55.51	44.49
Uttarakhand	65.9	34.1	51.18	48.82	60.76	39.24
Rajasthan	61.22	38.78	52	48	53.67	46.33

State / UT	Total workers					
	All population		Scheduled Caste		Scheduled Tribe	
	Male	Female	Male	Female	Male	Female
Uttar Pradesh	75.74	24.26	52.41	47.59	64.41	35.59
Bihar	72.63	27.37	51.95	48.05	61.6	38.4
Sikkim	63.07	36.93	51.12	48.88	58.5	41.5
Arunachal Pradesh	59.61	40.39	0	0	52.37	47.63
Nagaland	56.19	43.81	0	0	52.77	47.23
Manipur	57.41	42.59	50.2	49.8	53.21	46.79
Mizoram	59.74	40.26	66.26	33.74	58.14	41.86
Tripura	71.13	28.64	51.06	48.94	59.13	40.87
Meghalaya	59.35	40.65	52.76	47.24	56.4	43.6
Assam	71.36	28364	51.33	48.67	60.77	39.23
West Bengal	76.87	23.13	51.27	48.73	58.6	41.4
Jharkhand	64.32	35.68	51.27	48.73	55.64	44.36
Odisha	67.85	32.15	50.33	49.67	55.21	44.79
Chattisgarh	58.57	41.43	50.14	49.86	53.61	46.39
Madhya Pradesh	63.81	36.19	52.09	47.91	53.74	46.26
Gujarat	72.68	27.32	51.79	48.21	57.37	42.63
Daman & Diu	88.59	11.41	51.45	48.55	65.51	34.49
Dandra &Nagar Haveli	75.9	24.1	53.98	46.02	59.65	40.35
Maharashtra	65.99	34.01	50.98	49.02	55.14	44.86
Andhra Pradesh	61.35	38.65	49.81	50.19	51.95	48.05
Karnataka	65.55	34.45	50.26	49.74	58.88	41.12
Goa	72.74	27.32	49.62	50.38	63.9	36.1
Lakshadweep	81.68	18.32	0	0	79.71	20.29
Kerala	72.74	27.26	48.62	51.38	60.34	39.66
Tamil Nadu	65.18	34.82	49.9	50.1	55.3	44.7
Andaman & Nicobar Islands	79.25	20.75	0	0	65.37	34.63

Source: Census 2011

3.4.1 Labour Force Participation Rate Among Scheduled Tribes

The Labour Force Participation Rate (L.F.P.R) is a key economic indicator that measures the number of employed individuals per 1,000 people. It is assessed based on the usual status, considering both main and subsidiary employment activities (National Sample Survey Office, 2022). According to recent labour force statistics, the L.F.P.R for Scheduled Tribes (STs) in India stands at 53 percent, with male participation at 59.5 percent and female participation at 46.7 percent. This is notably higher than that of other social groups, reflecting the significant involvement of tribal communities in the workforce (Ministry of Labour and Employment, 2023).

One of the primary reasons for the higher L.F.P.R among Scheduled Tribes is their heavy reliance on agriculture, forest-based livelihoods, and informal labour markets. Unlike other social groups, tribal communities have a long history of engaging in traditional occupations, daily wage labour, and self-employment (Census of India, 2021). However, despite their high workforce participation, tribal workers often experience lower wages, job insecurity, and lack of social protections compared to other population segments (International Labour Organization, 2021).

Additionally, gender disparities in labour force participation continue to exist within tribal communities. Although the female L.F.P.R among Scheduled Tribes (46.7 percentage) is higher compared to other social groups, tribal women are predominantly engaged in low-paid, informal, and unregulated work sectors (Ministry of Tribal Affairs, 2022). Moreover, the absence of formal employment opportunities, lack of education, and socio-cultural constraints further hinder their economic mobility and empowerment (U.N Women, 2022).

In light of these findings, targeted policy interventions are essential to enhance employment opportunities, improve wage conditions, and ensure social security for tribal workers. Expanding vocational training, promoting skill development programs, and facilitating access to government employment schemes can play a crucial role in uplifting the economic conditions of tribal communities (Ministry of Skill Development and Entrepreneurship, 2023).

Table No: 3.9

Labour force Participation rate (per 1000 persons) According to Usual Status for Different Social Groups

Social group	Rural			Urban			Rural + Urban		
	Male	Female	Person	Male	Female	Person	Male	Female	Person
ST	60.0	48.5	54.1	55.2	30.7	43.4	59.5	46.7	53.0
SC	57.1	34.4	45.9	59.6	25.0	42.6	57.7	32.2	45.1
OBC	57.1	35.0	46.1	58.4	21.5	40.1	57.5	31.2	44.4
Others	59.5	29.8	44.7	59.8	21.2	41.1	59.6	26.2	43.2
All	57.9	35.5	46.8	59.0	22.3	41.0	58.2	31.7	45.1

Source: P.L.F.S 2023-24, N.S.O, M.o.S.P.I

From the above table, it is clear that the combined rural-urban labour force participation rate is higher among tribal women compared to other social groups. In rural areas it is significantly higher at 48.5 percent. The proportion of workers in the population (Table 3.9) is also generally higher among women in the Scheduled Tribe when compared with other communities. The poor economic situation has a direct influence on this high level of participation. They are discriminated against by being paid lower wages and sexually exploited, and they don't even have property rights. Although tribal women work roughly equally with their male colleagues, they often face discrimination.

3.4.2 Workforce participation rate (WPR)

The Workforce Participation Rate (W.P.R) is a key indicator of economic engagement, reflecting the number of workers per 1,000 individuals in a population. According to recent data, the W.P.R among Scheduled Tribes (STs) is 52 percent, with 58.2 percent of tribal men and 46 percent of tribal women actively engaged in the workforce. This rate is higher than the national average of 43.7 percent, where only 30.7 percent of women participate in economic activities (National Sample Survey Office, 2022). The higher W.P.R among tribal communities can be attributed to their dependence on agriculture, forestry, and informal labour sectors, where both men and women contribute equally. However, despite this increased participation,

most tribal workers are engaged in low-paying, informal, and unregulated jobs, making them economically vulnerable with limited access to social security and sustainable employment (Ministry of Tribal Affairs, 2023).

Tribal women, in particular, exhibit a higher workforce participation rate (46 percent) compared to the general female population (30.7 percent) due to their active role in subsistence farming, daily wage labour, and collection of forest products (Census of India, 2021). However, their employment is often unskilled and lacks long-term financial stability, leading to persistent gender and economic disparities. Limited access to education, vocational training, and formal employment opportunities further hinders their economic mobility (International Labour Organization, 2021). To address these challenges, the government has introduced skill development programs, financial support initiatives, and employment schemes to enhance economic opportunities for tribal communities. Strengthening education, technical training, and access to formal jobs can play a significant role in uplifting tribal communities and reducing socio-economic inequalities (Ministry of Labour and Employment, 2023).

Table No: 3.10

Worker Population Ratio (WPR) by Usual Status for Different Social Groups in India

Social Group	Rural			Urban			Rural + Urban		
	Male	**Female**	**Person**	**Male**	**Female**	**Person**	**Male**	**Female**	**Person**
Scheduled Tribes (ST)	59.0	47.9	53.4	51.5	28.6	40.4	58.2	46.0	52.0
Scheduled Castes (SC)	55.3	33.7	44.6	56.7	23.4	40.3	55.6	31.3	43.6
Other Backward Classes (OBC)	55.6	34.3	45.0	55.9	19.8	38.0	55.7	30.2	43.0
Others	57.7	28.8	43.3	57.4	19.7	39.1	57.6	24.9	41.5
All Social Groups	56.3	34.8	45.2	56.4	20.7	38.9	56.4	30.7	43.7

Source: P.L.F.S 2023-2024, N.S.O, M.o.S.P.I

3.5 Unemployment Rate Among Scheduled Tribes

The unemployment rate is a crucial indicator of economic well-being, reflecting the proportion of unemployed individuals within the labour force. According to the Periodic Labour Force Survey (P.L.F.S) 2023-24, the overall unemployment rate among Scheduled Tribes (STs) was estimated at 1.9 percent, highlighting a relatively lower rate of unemployment compared to other social groups (Ministry of Statistics and Programme Implementation, 2024). However, the unemployment situation in urban areas remains significantly higher than in rural areas, indicating disparities in employment opportunities and access to jobs (National Statistical Office, 2024).

A key factor influencing the lower unemployment rate among Scheduled Tribes is the high level of participation in informal and self-employed sectors, particularly in rural areas where subsistence farming and traditional occupations dominate (P.L.F.S, 2024). However, limited access to formal employment, lower educational attainment, and lack of skill-based training continue to hinder economic progress for many within tribal communities (M.o.S.P.I, 2024). Addressing these challenges requires targeted employment policies, enhanced vocational training programs, and inclusive economic opportunities to bridge the employment gap and ensure sustainable livelihoods for Scheduled Tribe populations (N.S.O, 2024).

Table No: 3.11

Unemployment Rate (UR) (in per cent) According to Usual Status (ps+ss) for Different Social Groups

Social group	Rural			Urban			Rural + Urban		
	Male	Female	Person	Male	Female	Person	Male	Female	Person
ST	1.6	1.2	1.4	6.7	7.0	6.8	2.2	1.5	1.9
SC	3.1	2.0	2.7	4.9	6.4	5.3	3.6	2.8	3.3
OBC	2.7	2.1	2.4	4.3	7.6	5.2	3.1	3.1	3.1
Others	3.0	3.5	3.1	4.0	6.9	4.8	3.4	4.7	3.8
All	2.7	2.1	2.5	4.4	7.1	5.1	3.2	3.1	3.2

Source: P.L.F.S 2023-2024, N.S.O, M.o.S.P.I

3.6 Poverty among Scheduled Tribes

Poverty remains a persistent challenge affecting various marginalized communities, including Scheduled Tribes (STs), in India. According to U.N-Women (2024), one in every ten women globally lives in extreme poverty (10.3%), highlighting the severity of economic deprivation. Addressing poverty has been a key priority in India's planning process, with successive governments implementing poverty alleviation programs to improve living conditions. However, understanding the depth and regional disparities of poverty is crucial to formulating effective policies. Special programs have been introduced for vulnerable groups, including Scheduled Castes (SCs) and Scheduled Tribes (STs), to provide financial aid, employment opportunities, and access to essential services (Planning Commission, 2013).

According to the Tendulkar Committee methodology, poverty levels among Scheduled Tribes have remained significantly higher than the national average. As per 2011-2012 estimates, 45.3% of Scheduled Tribes in rural areas and 24.1% in urban areas lived below the poverty line (B.P.L), compared to 25.7% of the general rural population and 13.7% in urban areas (N.I.T.I Aayog, 2013). This data underscores the economic vulnerability of tribal populations, particularly in rural regions where limited access to education, healthcare, and sustainable livelihoods exacerbates poverty (Ministry of Tribal Affairs, 2023). Sustainable poverty alleviation strategies require targeted interventions, skill development initiatives, and social security measures to uplift Scheduled Tribe communities from economic hardship.

Table No: 3.12

Percentage of Scheduled Tribe Population below Poverty Line during 2009-10 and 2011-12

State	Rural		Urban	
	2009-10	2011-12	2009-10	2011-12
Andhra Pradesh	40.2	24.1	21.2	12.1
Assam	32.0	33.4	29.2	15.6
Bihar	64.4	59.3	16.5	10.3

State	Rural		Urban	
	2009-10	2011-12	2009-10	2011-12
Chhattisgarh	66.8	52.6	28.6	35.2
Gujrat	48.6	36.5	32.2	30.1
Himachal Pradesh	22.0	9.5	19.6	4.0
Jammu Kashmir	3.1	16.3	15.0	3.0
Jharkhand	51.1	51.6	49.5	28.7
Karnataka	21.3	30.8	35.6	33.7
Kerala	24.4	41.0	5.0	13.6
Madhya Pradesh	61.9	55.3	41.6	32.3
Maharashtra	51.7	61.6	32.4	23.3
Odisha	66.0	63.5	34.1	39.7
Rajasthan	35.9	41.4	28.9	21.7
Tamil Nadu	11.5	36.8	17.6	2.8
Uttar Pradesh	49.8	27.0	20.2	16.3
Uttarakhand	20.0	11.9	0	25.7
West Bengal	32.9	50.1	20.6	44.5
All India	47.4	45.3	30.4	24.1

Source: Annual Report 2020-21, Ministry of Tribal Affairs, G.o.I

Analysing the state-level percentage of scheduled tribal population below the poverty line for the years 2009-2010 and 2011-2012, it is revealed that rural Odisha faces acute poverty in both periods, while urban Jharkhand has a larger percentage of Scheduled Tribe Population below poverty line is recorded in 2009-10.

The effects of the patriarchal system were clearly visible in most tribal groups. So, the money women earn through their work is passed on to their husbands, and the husband very often spends the income on activities such as drinking alcohol (Manju, 2017). Even tribal women used to consume alcohol and tobacco, which had a negative impact on their health. The N.F.H.S 5 data provides data on high levels of tobacco use among both men and women compared to other groups, particularly women.

3.7 Health status

The health of tribal women is a crucial issue that demands urgent attention, as they play a significant role in supporting their families through physical labour and

economic contributions. The overall health status of tribal communities is a key indicator of their awareness regarding health and hygiene. Unfortunately, poor nutrition, lack of healthcare access, and inadequate hygiene practices contribute to the prevalence of various diseases among tribal women. Anaemia is one of the most common health concerns, primarily due to insufficient nutritional intake, poor dietary diversity, and limited access to healthcare services (Ministry of Health and Family Welfare, 2023).

According to recent studies, tribal women have a higher prevalence of anaemia compared to women from other social groups (National Family Health Survey, 2021). Malnutrition, compounded by traditional dietary habits and limited awareness about balanced nutrition, further worsens their health conditions. Table 3.13 provides a comparative analysis of anaemia prevalence among different social groups, highlighting that tribal women exhibit some of the highest anaemia rates in India. Addressing this issue requires targeted nutritional programs, better healthcare infrastructure, and educational initiatives to improve health awareness among tribal populations (N.I.T.I Aayog, 2023).

Table No: 3.13

Prevalence of Anaemia among Women

Social group	Anaemia status by Haemoglobin level				Number of women
	Mild (11.0-11.9 g/dl)	Moderate (8.0-10.9 g/dl)	Severe (<8.0 g/dl)	Any anaemia (<12.0 g/dl)	
SC	25.5	30.5	3.2	59.2	150437
ST	26.4	35.2	3.0	64.6	64528
OBC	25.3	26.8	2.5	54.6	292922
Others	26.1	27.9	2.3	56.4	169483
Don’t know	26.7	32.0	2.9	61.7	4666

Source: N.F.H.S 5, 2019-21

Anaemia remains a significant public health concern in India, particularly among Scheduled Tribe (ST) women, who experience higher anaemia rates than other social groups. According to the National Family Health Survey (N.F.H.S-5) report, 57 percent of women and 25 percent of men aged 15 to 49 years in India suffer from anaemia (Ministry of Health and Family Welfare, 2021). The prevalence of anaemia among Scheduled Tribe women is 64.6 percent, which is significantly higher than the national average. Among them, 3 percent are severely anaemic, 26.4 percent are mildly anaemic, and 35.2 percent are moderately anaemic (N.F.H.S-5, 2021). The high anaemia rates among tribal women can be attributed to poor dietary intake, limited healthcare access, and inadequate iron and folic acid supplementation (N.I.T.I Aayog, 2022).

Maternal health is another critical concern for tribal women, as pregnancy-related complications can have long-term health consequences for both mothers and children. The N.F.H.S-5 report indicates that 85 percent of women aged 15 to 49 years who had a live birth in the five years preceding the survey received prenatal care from a qualified healthcare provider at least once during their most recent birth (Ministry of Health and Family Welfare, 2021). Most women received antenatal care from doctors (63 percent), followed by Auxiliary Nurse Midwives (ANMs), nurses, midwives, and Anganwadi or I.C.D.S workers (N.F.H.S-5, 2021). However, despite these improvements, many tribal women still lack consistent maternal healthcare, leading to higher risks of maternal and infant mortality. Addressing these challenges requires targeted government interventions, community health programs, and better healthcare accessibility in tribal areas (National Health Mission, 2021).

Table No: 3.14

Antenatal Care (ANC) Coverage by Provider and Social Group in India

Social Group	Doctor (%)	ANM/Nurse/Midwife (%)	Dai/TBA (%)	Anganwadi/ICDS Worker (%)	Community/Village Health Worker (%)	ASHA (%)	Other (%)	No ANC (%)	ANC from Skilled Provider (%)
Scheduled Castes (SC)	58.2	24.7	0.4	5.0	0.2	4.6	0.2	6.7	83.0
Scheduled Tribes (ST)	55.2	26.6	0.5	6.9	0.2	3.2	0.1	7.3	81.8
Other Backward Classes (OBC)	62.5	23.0	0.3	4.6	0.1	3.3	0.1	6.1	85.5
General Category (Others)	70.2	17.7	0.3	2.6	0.1	4.0	0.1	5.0	87.9
India (Overall)	62.6	22.5	0.4	4.4	0.1	3.8	0.1	6.1	85.1

Source: N.F.H.S 5, 2019-21

Only 55.2 percent of tribal mothers receive prenatal care from physicians, compared to 70.2 percent in other categories. Table 3.14 shows that 7.3 percent of scheduled tribe women did not receive adequate prenatal care.

3.7.1 Delivery services

Institutional deliveries play a vital role in reducing maternal and neonatal mortality, ensuring safer childbirth under medical supervision. According to the National Family Health Survey (N.F.H.S-5), 89% of live births in the five years preceding the survey were delivered in a health facility, indicating a significant shift towards institutional childbirth (International Institute for Population Sciences & Ministry of Health and Family Welfare, 2021). However, disparities persist among different social groups, particularly among Scheduled Tribes (STs), where institutional

delivery rates remain lower compared to other communities. The data reveals that 82.3% of births among scheduled tribe mothers occurred in healthcare facilities, whereas 15.4% of scheduled tribe women gave birth at home, exposing them to greater health risks (I.I.P.S & M.o.H.F.W, 2021).

Table No: 3.15

Delivery Care (Percentage)

Social groups	Place of delivery (Health institution/facility)				Person providing assistance during delivery				
	Public sector	Private sector	Own home	Delivered in a health facility	Doctor	Nurse /ANM/Mid wife/LHV	Relatives/f riends	Dai/TBA	Delivery by a skilled provider
SC	68.1	18.9	10.8	87.3	57.5	30.6	6.9	0.5	88.5
ST	69.7	12.1	15.4	82.3	53.4	30.4	8.0	0.7	84.5
OBC	59.8	29.3	8.9	89.5	61.2	28.3	5.5	0.5	89.9
Others	55.9	34.6	7.2	91.2	71.4	20	4.5	0.3	91.8
India	61.9	26.2	9.7	88.6	61.8	27.2	3.7	5.9	89.4

Source: N.F.H.S 5, 2019-21

Several socio-economic and cultural factors contribute to the reluctance of scheduled tribe women to opt for institutional deliveries. The most common reason cited for home births was the perception that institutional delivery was unnecessary (28%), followed by family disapproval (19%), distance to healthcare facilities or lack of transportation (17%), and financial constraints (15%) (I.I.P.S & M.o.H.F.W, 2021). Additionally, 8% of home births among scheduled tribe women were supported by relatives or friends, reflecting limited access to skilled birth attendants. These barriers highlight the need for improved healthcare accessibility, community awareness programs, and financial assistance initiatives to encourage institutional deliveries. Strengthening healthcare infrastructure, particularly in tribal regions, can play a crucial role in reducing maternal mortality rates and improving overall maternal health outcomes (World Health Organization, 2022)

The presence of skilled birth attendants during delivery plays a crucial role in ensuring maternal and newborn health. A qualified caregiver can manage complications, provide necessary medical interventions, or refer the mother and child to advanced healthcare facilities when required. According to the N.F.H.S-5 report, 89% of live births in the five years preceding the survey were delivered by a qualified provider (International Institute for Population Sciences & Ministry of Health and Family Welfare, 2021). Among these, 62% of births were attended by doctors, while 27% were assisted by Auxiliary Nurse Midwives (ANMs), nurses, midwives, or Lady Health Visitors (LHVs). Despite this progress, 6% of births were still attended by traditional birth attendants (dai/TBAs), reflecting the continued reliance on non-institutional deliveries, particularly in remote and tribal communities. Limited access to healthcare facilities, lack of awareness, and financial constraints remain significant barriers to institutional deliveries. Addressing these challenges through improved healthcare infrastructure, awareness campaigns, and financial assistance programs can contribute to increasing institutional deliveries and reducing maternal and neonatal mortality rates (World Health Organization, 2022).

3.7.2 Infant and child mortality

Infant and child mortality rates serve as crucial indicators of a nation's socio-economic development, public health infrastructure, and overall quality of life. High mortality rates among children often point to inadequate healthcare services, poor maternal health, malnutrition, and a lack of awareness regarding essential childcare practices. Addressing these issues requires comprehensive interventions, including access to quality maternal and child healthcare, improved birth spacing, immunization programs, and nutrition support (World Health Organization, 2022). According to the N.F.H.S-5 report, the neonatal mortality rate in India was 25 deaths per 1,000 live births, which means that one in 40 live births did not survive the neonatal period. The infant mortality rate stood at 35 deaths per 1,000 live births, while the under-five mortality rate was 42 deaths per 1,000 live births, highlighting the fact that one in every 24 children in India dies before reaching the age of five (International Institute for Population Sciences & Ministry of Health and Family Welfare, 2021).

Table No: 3.16

Early Childhood Mortality Rates (percentage)

Social group	Neo natal mortality	Post neo natal mortality	Infant mortality	Child mortality	Under five mortality
Urban					
SC	22	10.2	32.2	7.1	39
ST	21.8	10.3	32.1	3.5	35.5
OBC	17.4	8	25.5	4.5	29.9
Others	14.5	7.5	21.9	4.4	26.3
Total	18	8.6	26.6	5	31.5
Rural					
SC	31.4	11.8	43.2	9.1	51.9
ST	29.7	13.2	42.9	9.8	52.2
OBC	26.8	10.5	37.3	7.4	44.4
Others	22.4	9.1	31.5	5.2	36.6
Total	27.4	10.9	38.4	7.6	45.7
Total					
SC	29.2	11.4	40.7	8.6	48.9
ST	28.8	12.9	41.6	9	50.3
OBC	24.3	9.9	34.1	6.6	40.5
Others	19.5	8.5	28	4.9	32.8
Total	24.9	10.3	35.2	6.9	41.9

Source: N.F.H.S 5, 2019-21

A deeper analysis of child mortality patterns reveals that 83% of these deaths occur within the first year of life, emphasizing the critical need for improved neonatal and postnatal healthcare services. Several socio-economic and cultural factors contribute to child mortality, including poverty, limited healthcare access, and traditional beliefs that hinder early medical intervention. Strengthening India's healthcare system, particularly in rural and tribal areas, is essential to reducing these mortality rates. Government initiatives such as the Janani Suraksha Yojana (J.S.Y) and the Integrated Child Development Services (I.C.D.S) program have played a vital role in

improving maternal and child health outcomes. However, sustained efforts are needed to ensure better healthcare accessibility, nutritional support, and awareness programs to combat preventable child deaths. Addressing infant and child mortality remains a key priority for achieving sustainable development and enhancing the well-being of future generations.

The N.F.H.S-5 report highlights significant disparities in child mortality rates across different social groups, with Scheduled Tribes (50 deaths per 1,000 live births) and Scheduled Castes (49 deaths per 1,000 live births) experiencing higher mortality rates compared to Other Backward Classes (41 deaths per 1,000 live births) and non-S.C/S.T/O.B.C groups (33 deaths per 1,000 live births). Additionally, regional variations in under-five mortality rates reveal that Uttar Pradesh has the highest rate at 60 deaths per 1,000 live births, whereas Kerala and Puducherry report significantly lower figures, with 5 and 4 deaths per 1,000 live births, respectively (International Institute for Population Sciences & Ministry of Health and Family Welfare, 2021). These disparities stem from factors such as limited access to healthcare, poor maternal nutrition, and inadequate institutional delivery services. Government initiatives, including Janani Suraksha Yojana (J.S.Y), Poshan Abhiyan, and Mission Indradhanush, aim to address these gaps, but more targeted efforts are needed to improve maternal and child health outcomes, particularly among tribal and rural populations.

3.7.3 Nutritional status

A well-balanced diet consisting of nutrient-dense foods is essential for maintaining optimal health in both men and women. A sufficient intake of macronutrients, including proteins, fats, and carbohydrates, along with essential vitamins and minerals, plays a crucial role in overall well-being. However, dietary patterns vary significantly based on socioeconomic status, accessibility, and cultural factors.

According to the National Family Health Survey-5 (N.F.H.S-5), women from Scheduled Tribes (STs) experience significant dietary inadequacies, particularly in the consumption of nutrient-rich foods such as fruits, eggs, and fish (Ministry of Health and Family Welfare, 2021). These deficiencies are primarily attributed to

economic constraints and lower living standards, which limit their access to a diverse range of nutritious food options. The survey findings indicate that only 37.4% of scheduled tribe women consume fruits on a weekly basis, highlighting a gap in essential micronutrient intake. Furthermore, egg consumption remains notably low among this demographic group, potentially contributing to protein and micronutrient deficiencies. In contrast, the intake of leafy vegetables and legumes is relatively high among scheduled tribe women, suggesting a reliance on locally available and affordable plant-based food sources (Ministry of Health and Family Welfare, 2021).

Addressing these nutritional disparities requires targeted interventions, including improved economic opportunities, nutrition awareness programs, and policy initiatives aimed at enhancing food accessibility for marginalized communities. By promoting a diverse and balanced diet, the overall health and well-being of scheduled tribe women can be significantly improved.

Women primarily consume legumes, beans, and dark green leafy vegetables, which are vital sources of essential nutrients, fibre, and plant-based protein. However, regional disparities exist in their consumption patterns. According to the National Family Health Survey-5 (N.F.H.S-5), at least four-fifths of women in most states consume dark green leafy vegetables at least once a week, except in Kerala, where the percentage is lower at 62% (Ministry of Health and Family Welfare, 2021). Similarly, in the Union Territory of Lakshadweep, only 45% of women consume these vegetables weekly, indicating limited dietary diversity in certain regions. These variations highlight the need for nutrition-focused interventions and awareness programs to promote greater consumption of diverse and nutrient-rich foods, ultimately improving women’s overall health and well-being (Ministry of Health and Family Welfare, 2021).

Table No: 3.17

Percentage of Women age 15-49 Consuming Specific Foods at least Once a Week

Social group	Type of food							
	Milk/ curd	Pulse/ beans	Ark green leafy vegetables	Fruits	Egg	Fish	Chicken/ meat	Fish/ chicken/ meat
SC	68.7	92.2	90.6	44.4	48.4	37.4	37.7	47.7
ST	54.9	90.3	91	37.4	46.4	36	37.1	46
OBC	76.5	93.6	90.2	50.3	42.7	32.4	33.7	42
Others	74.9	93.5	91.9	57.9	45.7	39.6	37.5	47.7
Total	72.2	92.9	90.8	49.7	45.1	35.7	35.9	45.1

Source: N.F.H.S 5, 2019-21

Table no: 3.18

Nutritional Status of Scheduled Tribe Women

Social group	Height		Body mass index in kg/m^2								
					Thin			Overweight / Obese			
	% below 145cm	No. of women	Average BMI	% Normal BMI (18.5-24.9)	% Thin (<18.5)	% Mildly Thin (17-18.4)	% Moderately/ Severely Thin (<17)	% Overweight/Obese (>25)	25-29.9 (Overweight)	>30 (Obese)	No. of women
SC	14.4	152652	22.1	58.2	25.5	14.9	10.6	21.6	16.2	5.4	144699
ST	12.9	65250	21.1	61.9	20.2	11.9	8.3	12.6	10.1	2.5	61726
OBC	11.1	297845	22.5	56.6	18.8	11	7.8	24.6	18	6.6	282727
Others	9.2	172656	23.2	55.9	14.5	8.6	6	29.6	21.2	8.4	165225
Kerala	4.5	24.1	51.8	10.1	10.1	5.8	4.3	38.2	28.3	9.8	
India	11.5	693194	22.4	57.3	18.7	11	7.7	24	17.6	6.4	658896

Source: N.F.H.S-5, 2019-21

According to the National Family Health Survey-5 (N.F.H.S-5), the nutritional status of women aged 15 to 49 varies significantly, with 19% classified as thin (B.M.I <18.5), 24% as overweight or obese (B.M.I >25), and 57% maintaining a normal B.M.I range (18.5-24.9) (Ministry of Health and Family Welfare, 2021). Additionally, 12% of women in this age group are shorter than 145 cm, which may indicate early-life nutritional deficiencies and growth retardation. Chronic energy

deficiency, commonly associated with a B.M.I below 18.5, is particularly prevalent among Scheduled Tribe (ST) women, with 20.2% falling into this category. This high percentage suggests significant nutritional challenges, likely stemming from inadequate dietary intake, economic constraints, and limited access to healthcare resources. The data highlights the urgent need for targeted nutritional interventions to address these disparities and improve overall health outcomes among women, particularly those from marginalized communities (Ministry of Health and Family Welfare, 2021).

3.7.4 Morbidity and health care

Morbidity is defined as the departure from a state of well-being resulting from an illness, disease, injury or disease, particularly when the affected person is aware of their condition. According to the World Health Organization (W.H.O), morbidity could be measured using three points. Firstly, it is about the number of people affected, secondly, the illness that these people have suffered and thirdly, the duration of these illnesses.

Table 3.19 shows the health problems among women and men aged 15 to 49 from different social groups. Health problems include diabetes, asthma, goiter or other thyroid diseases, heart diseases, cancer. The table indicates that asthma prevalence is higher among Scheduled Tribe (ST) men compared to those from Scheduled Castes (SCs) and Other Backward Classes (OBCs). This disparity may be due to environmental factors, occupational exposures, and limited healthcare access in tribal regions (N.F.H.S-5).

Table No: 3.19

Health Problems of Women and Men Aged 15-49 (2019-21) in India

Social groups	Percentage of women					Percentage of men				
	Diabetes	Asthma	Goiter or other thyroid diseases	Heart disease	cancer	Diabetes	Asthma	Goiter/Thyroid Diseases (Men) (%)	Heart Disease (Men) (%)	Cancer (Men) (%)
Scheduled Castes (SC)	1.8	1.6	2.5	0.7	0.1	1.7	1.1	0.5	0.9	0.1
Scheduled Tribes (ST)	1.0	1.2	1.0	0.5	0.1	1.7	1.5	0.6	1.0	0.2
Other Backward Classes (OBC)	1.8	1.4	2.5	0.6	0.1	2.0	1.0	0.4	0.7	0.2
Others	2.4	2.0	3.9	0.9	0.1	2.5	1.4	0.7	1.1	0.2
Don’t Know	2.2	2.2	2.1	0.8	0.1	5.4	3.9	0.2	3.4	0.0
Total	1.9	1.6	2.7	0.7	0.1	2.7	1.4	0.5	1.0	0.2

Source: N.F.H.S-5, 2019-21

3.7.5 Health insurance

Universal health insurance coverage and access to affordable healthcare are critical components of sustainable development and have been integrated into the Sustainable Development Goals (S.D.G.s). As part of these global objectives, U.N member states have committed to achieving universal health coverage (U.H.C) by 2030, ensuring that all individuals and communities have access to essential healthcare services. However, health insurance coverage in India remains inadequate. According to the National Family Health Survey-5 (N.F.H.S-5), only 41% of households have at least one member covered by health insurance, and merely 30% of women aged 15 to 49 are insured (Ministry of Health and Family Welfare, 2021). Among those covered, nearly half (48.8%) are insured through a government health insurance provider, while 16% are beneficiaries of the Rashtriya Swasthya Bima Yojana (R.S.B.Y). Additionally, only 2.6% of insured women are

covered under the Employee State Insurance Scheme (E.S.I.S), highlighting the limited reach of employment-based health coverage. These statistics underscore the urgent need for policy interventions aimed at expanding insurance coverage, particularly among women and marginalized communities, to ensure equitable access to healthcare services.

Table No: 3.20

Health Insurance Coverage of Women (percentage)

Social group	Type of health insurance coverage								
	Percentage of women covered by health insurance	Employees state insurance scheme	Central government insurance scheme	State health insurance scheme	Rashtriya Swasthya Bima Yojana	Community health insurance scheme	Other health insurance through employer	Medical reimbursement from employer	Private health insurance
SC	30.5	2.1	5.9	51.7	14.6	0.5	0.4	0.3	1
ST	37.6	1.6	5.6	44.5	24	0.2	0.2	0.1	0.4
OBC	30.7	2.5	5.8	52.6	15.9	0.3	0.7	0.5	1.7
Others	24.9	4.2	6.6	40.5	15.2	0.6	1.5	1.3	6.5
Don't know	18.8	1.8	5.5	37	20.7	2.3	1.1	1	1.2
Total	29.8	2.6	6	48.8	16.4	0.4	0.8	0.6	2.4

Source: N.F.H.S-5, 2019-21

Table 3.20 shows that 37.6 percent of women from Scheduled Tribes have health insurance (any), while about 24.9 percent of women from other groups have health insurance. Furthermore, the coverage of government-sponsored schemes is also higher among the population belonging to scheduled caste and other backward class households. However, insurance coverage through employer-sponsored (0.2 percent) and private insurance (0.4 percent) is lowest among tribes.

The Indian healthcare system encounters numerous challenges, including rising healthcare costs, inadequate transportation, limited availability of medicines, and a

shortage of healthcare providers. According to the National Family Health Survey-5 (N.F.H.S-5), three-fifths of women reported facing at least one barrier while seeking medical care (Ministry of Health and Family Welfare, 2021). The issue is particularly pronounced among Scheduled Tribe (ST) women, with 71% experiencing difficulties in accessing healthcare services. Financial constraints remain a significant obstacle, with 21% of women citing money as a barrier. Additionally, 23% reported that the distance to healthcare facilities hindered access, while 22% identified transportation issues as a challenge. Concerns about the availability of healthcare providers and medications are also prevalent, with 31% of women fearing the absence of a female healthcare provider, 39% worrying about the unavailability of any provider, and 40% expressing concerns about the lack of essential medicines. These findings highlight the urgent need for policy interventions to improve healthcare accessibility, affordability, and infrastructure, particularly for marginalized communities.

Table No: 3.21

Barriers to Accessing Healthcare among by Social Group

Social Group	Permission for Treatment (%)	Financial Constraint (%)	Distance to Facility (%)	Need for Transport (%)	Lack of Companion (%)	Concern About Female Provider (%)	Concern About Provider Availability (%)	Lack of Medicines (%)	At Least One Problem (%)
Scheduled Castes (SC)	13.9	24.1	24.3	23.1	17.8	31.7	39.5	40.8	61.5
Scheduled Tribes (ST)	17.0	29.6	33.7	32.5	23.2	39.0	50.4	51.3	70.9
Other Backward Classes (OBC)	13.6	19.5	22.5	20.7	16.4	31.5	38.4	39.3	58.5
Others	11.6	18.9	19.4	17.4	13.9	27.3	36.1	37.8	55.0
Don’t Know	17.1	30.0	31.2	29.6	22.9	35.2	43.9	45.0	65.6
Total	13.5	21.4	23.2	21.5	16.7	31.2	39.2	40.4	59.5

Source: N.F.H.S-5, 2019-21

3.8 Use of tobacco and Alcohol

According to the National Family Health Survey-5 (N.F.H.S-5), tobacco use remains a significant public health concern in India, with 38% of men and 9% of women aged 15 and older currently using some form of tobacco (Ministry of Health and Family Welfare, 2021). The prevalence of tobacco consumption is notably higher in rural areas, where 43% of men and 11% of women use tobacco, compared to 29% of men and 6% of women in urban areas. Additionally, tobacco use is more common among individuals from certain tribal communities, with 51% of men and 19% of women reporting tobacco consumption, a higher rate than those from other caste and tribal groups. These findings underscore the need for targeted tobacco control interventions, particularly in rural and tribal populations, to reduce health risks associated with tobacco use.

Table No: 3.22

Percentage of Women and Men Use of Tobacco by the Population Age 15 and Over

Caste / Tribe	Women				Male			
	Urban	Rural	Total	No. of women	Urban	Rural	Total	No. of men
SC	7.8	11.3	10.3	224930	34.8	45.6	42.3	210870
ST	13.6	20.1	19.2	96590	38.1	52.7	50.6	90530
OBC	4.4	8.2	7	439340	26.9	40.3	35.8	412076
Others	4.5	8.9	7	276010	26.8	38.9	33.5	267903
Don’t know	6.6	14.2	11.2	8050	32.8	50.4	43	7409
Total	5.5	10.5	8.9	1044919	28.8	42.7	38	988788

Source: N.F.H.S 5, 2019-21

Tobacco consumption among men aged 15 years and above is highest in Mizoram (73 percent), followed by Andaman and Nicobar Islands (59 percent) and Manipur (58 percent). Tobacco consumption among women is highest in Mizoram (62 percent), Tripura (51 percent) and Manipur (43 percent).

Table No: 3.23

Percentage of Women and Men Use of Alcohol by the Population Age 15 and Over

Caste / Tribe	Women				Male			
	Urban	Rural	Total	No. of women	Urban	Rural	Total	No. of men
SC	0.7	1.2	1	224930	24.6	25.4	25.2	210870
ST	2.6	7	6.4	96590	25.4	33.9	32.7	90530
OBC	0.4	0.9	0.8	439340	15.1	17.1	16.4	412076
Others	0.5	0.5	0.5	276010	12.9	12.2	12.5	267903
Don't know	0.5	2.1	1.4	8050	18.7	22.2	20.7	7409
Total	0.6	1.6	1.3	1,044,919	16.5	19.9	18.7	988,788

Source: N.F.H.S 5, 2019-21

According to the National Family Health Survey-5 (N.F.H.S-5), alcohol consumption is more prevalent among women from Scheduled Tribes (ST) compared to other caste and tribe groups (Ministry of Health and Family Welfare, 2021). In rural areas, 7% of scheduled tribe women consume alcohol, while the percentage is lower in urban tribal populations at 2.6%. Overall, only 1% of women in India consume alcohol, whereas the prevalence among men is significantly higher at 19%. Among women aged 15 and above, alcohol consumption is highest in Arunachal Pradesh (24%) and Sikkim (16%). For men, the highest alcohol consumption rates are recorded in Arunachal Pradesh (53%) and Telangana (43%), while Lakshadweep reports the lowest consumption at just 0.4%. These statistics highlight the regional and demographic variations in alcohol consumption, emphasizing the need for targeted public health awareness and interventions

3.9 Domestic violence

Violence against women is a pervasive issue across all societies, transcending age, class, income, culture, education, and ethnicity. Women from minority groups are particularly vulnerable, facing a heightened risk of abuse. The consequences of violence against women are profound, affecting their mental and physical well-being, including reproductive and sexual health (World Health Organization, 1997).

In India, women experience various forms of violence, including domestic abuse, rape, dowry-related murders, acid attacks, sexual harassment, and human trafficking for sexual slavery. Among these, domestic violence perpetrated by husbands is one of the most common and persistent forms of abuse (Heritage, 2020). Addressing this issue requires comprehensive legal, social, and policy interventions to protect women and ensure their rights and safety.

Table No: 3.24

Prevalence of Different Forms of Spousal Violence Among Ever-Married Women (Aged 18-49)

Social group	Emotional violence	physical violence	sexual violence	physical/sexual violence	Emotional/ physical/sexual violence	No. of women
SC	16.9	33.7	7.4	34.7	37.3	13148
ST	15.2	30.9	6.7	31.8	34.7	5520
OBC	13.6	29.5	6.0	30.2	32.9	26168
Others	12.3	21.6	5.7	22.6	25.6	17108
Total	14.0	28.3	6.3	29.2	31.9	62381

Source: N.F.H.S-5, 2019-21

According to the National Family Health Survey-5 (N.F.H.S-5), women often experience multiple forms of violence, with the prevalence being significantly higher among those belonging to Scheduled Tribes (ST) and Scheduled Castes (SC) compared to other groups (Ministry of Health and Family Welfare, 2021). Among tribal women aged 18-49, 30.9% have experienced physical violence only, while 31.8% have endured both physical and sexual violence. Additionally, 6.7% of tribal women have faced sexual violence exclusively. A concerning 34.7% of tribal women report experiencing a combination of emotional, physical, and sexual violence. These statistics highlight the urgent need for targeted interventions and policy measures to protect vulnerable women from gender-based violence and ensure their safety and well-being.

Table No: 3.25

Help Seeking to Stop Violence (Percentage)

Social group	never sought help		have sought help from any source	No. of women
	Never told anyone	told some one		
SC	77.9	8.7	14.4	5,179
ST	75.6	9.2	16.0	2,033
OBC	76.8	10.2	13.6	9,189
Others	77.8	9.6	14.0	4,658
Total	77.2	9.6	14.1	21,175

Source: N.F.H.S-5, 2019-21

According to the National Family Health Survey-5 (N.F.H.S-5), a significant majority of women in India who have experienced physical or sexual violence do not seek help or disclose their experiences. Only 14% of affected women have sought assistance, while 77% have neither sought help nor informed anyone about the violence they endured (Ministry of Health and Family Welfare, 2021). Among ever-married women aged 15-49 who have experienced emotional, physical, or sexual violence, 75.6% of Scheduled Tribe (ST) women have not disclosed their experiences to anyone. This reluctance to seek help highlights deep-rooted societal barriers, stigma, and a lack of accessible support systems, emphasizing the urgent need for awareness programs, legal interventions, and strengthened support services for survivors of domestic and gender-based violence.

3.10 Crime against Tribes in India

The Scheduled Tribes (STs) of India have long been victims of various crimes, often due to systemic neglect of their grievances and socio-economic vulnerabilities. According to the National Crime Records Bureau (N.C.R.B) of the Ministry of Home Affairs, Madhya Pradesh reported the highest number of cases of atrocities against scheduled tribes in 2022, with 2,979 cases, accounting for 19.4% of all crimes committed against this community, followed by Rajasthan with 2,521 cases (27.3%) and Odisha with 773 cases (8.1%) **(**Ministry of Home Affairs, 2022**).** These statistics highlight the persistent marginalization and victimization of tribal

communities, underscoring the need for stronger legal protections, social reforms, and improved access to justice for scheduled tribe populations.

Table No: 3.26

Cases Registered Under Crimes against Scheduled Tribes in India

Crime	2012	2013	2014	2015	2016	% variation of 2016 over 2015
Murder	156	122	157	144	139	-3.47
Attempt to Commit murder	0	0	78	88	93	5.68
Grievous Hurt	816	930	287	145	144	-0.68
Assault on women with intent to outrage her modesty	0	0	863	818	835	2.07
Insult to the modesty of women	0	0	16	12	35	191.66
Kidnapping & Abduction	103	130	166	124	163	31.45
Rape	729	847	925	952	974	2.31
Attempt to Commit Rape	0	0	24	15	13	-13.33
Riots	0	0	101	133	143	7.51
Robbery	15	7	12	9	10	11.11
Dacoity	5	8	2	4	6	50
Arson	26	33	28	25	13	-48
Other IPC Crimes	2759	3301	3045	2974	3156	6.11
SC/ST (Prevention of Atrocities) act	1311	1390	1122	832	844	1.44
Total Crime against Scheduled tribes	5922	6793	6827	6276	6568	4.65

Source: National Crime Records Bureau, 2016

The data from the National Crime Records Bureau (N.C.R.B) highlights the prevalence of various crimes against Scheduled Tribes (STs) in India over the years 2012 to 2016. The total number of registered crimes against scheduled tribes has increased from 5,922 cases in 2012 to 6,568 cases in 2016, reflecting a 4.65% rise over the previous year. Among violent crimes, rape cases increased from 729 in 2012 to 974 in 2016, while cases of kidnapping and abduction rose significantly by 31.45% in 2016 compared to 2015. Similarly, incidents of assault on women with

intent to outrage their modesty have remained consistently high, with 835 cases reported in 2016. Notably, cases of insult to the modesty of women surged by 191.66% in 2016, suggesting a growing concern regarding the safety and dignity of tribal women (N.C.R.B, 2016).

In addition to gender-based violence, grievous hurt, murder, and arson cases indicate an alarming trend of targeted crimes against scheduled tribes. Although murder cases declined by 3.47% in 2016, attempts to commit murder saw an increase of 5.68%, highlighting continued threats to tribal lives. Riots and dacoity also showed an upward trend, with riots increasing by 7.51% in 2016. While the scheduled tribe / scheduled caste (Prevention of Atrocities) Act was designed to offer legal protection, the 844 cases recorded under this act in 2016 suggest that crimes against scheduled tribes remain widespread despite legal safeguards (N.C.R.B, 2016). These figures underscore the urgent need for strengthening law enforcement mechanisms, raising awareness, and implementing targeted policy interventions to address violence against Scheduled Tribes in India.

3.11 Conclusion

Scheduled Tribe (ST) women in India face unique and complex socio-economic challenges that hinder their overall development and well-being. Despite various government initiatives and constitutional safeguards, they continue to experience economic deprivation, poor health outcomes, limited educational opportunities, and social marginalization**.** The National Family Health Survey-5 (N.F.H.S-5) and National Crime Records Bureau (N.C.R.B) reports highlight significant disparities in nutrition, healthcare access, violence, and crime rates against tribal women. These disparities reflect deep-rooted structural inequalities that need urgent intervention through inclusive policies, targeted welfare programs, and community-driven development**.**

One of the most pressing concerns for scheduled tribe women is economic vulnerability, which stems from low literacy rates, high dropout rates, and limited employment opportunities. A significant proportion of tribal women are engaged in low-paying agricultural labour or informal sector jobs without job security or social

protection. Their lack of access to land, credit, and skill development programs further exacerbates their economic insecurity. The government's efforts to promote tribal livelihoods through schemes such as Van Dhan Yojana and Tribal Sub-Plan (T.S.P) have had some positive impact, but a more holistic approach to economic empowerment is needed.

Another major concern is health and nutrition**.** Scheduled tribe women suffer from higher rates of malnutrition, anaemia, and chronic illnesses compared to other social groups **(**N.F.H.S-5**)**. Poor economic conditions limit their access to nutritious food, healthcare services, and maternal care, resulting in higher maternal and infant mortality rates. Additionally, issues such as lack of transportation, absence of female healthcare providers, and unavailability of medicines further restrict their access to medical facilities. Expanding affordable healthcare and nutrition-focused programs can significantly improve the health status of tribal women.

Furthermore, scheduled tribe women experience a higher prevalence of violence and discrimination, both within and outside their communities. According to the N.C.R.B, crimes such as domestic violence, sexual assault, and human trafficking disproportionately affect tribal women. Many of these crimes go unreported due to fear, social stigma, and lack of legal awareness**.** Strengthening law enforcement, improving access to justice, and increasing awareness programs can play a crucial role in addressing these issues.

In conclusion, the socio-economic situation of Scheduled Tribe women in India requires urgent and sustained intervention at multiple levels. A multi-dimensional approach involving education, healthcare, legal protection, and economic empowerment is essential for bridging the gap and ensuring a better quality of life for tribal women. Government policies should focus on inclusive growth, gender-sensitive development, and active community participation to uplift scheduled tribe women and integrate them into India's broader development framework.

CHAPTER IV

HUMAN DEVELOPMENT STATUS OF PARTICULARLY VULNERABLE TRIBAL WOMEN IN KERALA

4.1 Introduction

The status of women in any society serves as a fundamental indicator of social justice and equality. Women's socio-economic position is often assessed through various factors, including education, income level, health, employment, fertility rates, and their role within the family (Aerthayil, 2008). In tribal communities, women constitute approximately half of the population and significantly contribute to the household and community labor force (Xaxa, 2004). Despite their critical role, they remain marginalized in socio-economic and political domains (Basu, 2012). Although tribal women in Kerala enjoy a relatively better status compared to their counterparts in other regions, they continue to face systemic barriers that hinder their economic and social mobility (Mahapatra, 2019). Traditionally, property ownership has been predominantly reserved for men, limiting women's access to financial security and decision-making power (Rao, 2005). Furthermore, tribal women are often excluded from participating in religious practices and political decision-making (Sharma, 2013). The influence of modernization and external socio-cultural interactions has further diminished their status, leading to a decline in their socio-economic standing (Singh, 2017). Compared to tribal men, women continue to lag behind in multiple developmental indicators, including literacy, healthcare access, and political representation (Das & Mohanty, 2021). This paper aims to analyze the status of women in tribal communities in Kerala, emphasizing their role, challenges, and the impact of modernization on their socio-economic and cultural positions.

4.2 Particularly vulnerable tribal groups (PVTGs)

Particularly Vulnerable Tribal Groups (PVTG), formerly known as Primitive Tribal Groups (P.T.G), is a classification introduced by the Government of India to

improve the conditions of certain tribal communities with low development indices. The Dhebar Commission (1960-61) identified significant disparities in the development rates among Scheduled Tribes, leading to the creation of a sub-category during the Fourth Five-Year Plan. This sub-category, based on the Dhebar Commission report and other studies, aimed to identify groups at a lower level of socio-economic development (Ministry of Tribal Affairs, 2020).

The key characteristics of PVTGs include a pre-agricultural mode of subsistence, hunting and gathering practices, zero or negative population growth, and extremely low literacy rates compared to other tribal communities (Xaxa, 2004). Initially, 52 communities were identified as P.T.G at the end of the Fifth Five-Year Plan. The number was expanded with additional groups in subsequent Five-Year Plans, reaching a total of 75 by the Eighth Five-Year Plan. The Maram tribe in Manipur became the 75th recognized P.T.G in 1993-94. However, no new groups were designated under this category in the 2001 Census (Sharma, 2013).

In 2006, the Government of India officially renamed P.T.Gs as Particularly Vulnerable Tribal Groups (PVTG) to better reflect their socio-economic challenges. In Kerala, five communities are recognized as PVTG: Kadar, Kattunaykkan, Koraga, Kurumbar (Kurumbas), and Cholanaickan (Das & Mohanty, 2021). These tribes exhibit vulnerable socio-economic conditions and require targeted development interventions to improve their standard of living.

4.2.1 The Kadar Tribe

The Kadar tribe primarily resides in the Palakkad and Thrissur districts of Kerala, with settlements in areas such as Parambikulam, Kuriyarkutty, Nelliyampathy, Kalchadi, and Taliyakallu in Palakkad, and Vazhachal, Perigalkuthu, and Sholayar forest regions in Thrissur (Singh, 2017). The Kadar people speak a dialect that blends elements of Tamil and Malayalam. The traditional governance of Kadar settlements is overseen by a hereditary leader known as the “Mooppan,” who plays a crucial role in maintaining social order within the community (Rao, 2005).

The Kadar people have historically relied on forest-based subsistence activities such as collecting non-timber products, food gathering, hunting, and trapping (Basu, 2012). They are known for their expertise in crafting strong ropes, which were essential for honey collection and elephant trapping. During the British colonial period, a tramway was constructed in their territory, and the Kadar were employed to transport felled trees to Chalakudy (Mahapatra, 2019). However, the establishment of hydropower and irrigation projects, including the Parambikulam/ Aliyar, Peringalkuthu, Sholayar, Pothundi, Mangalam, and Thunakadavu projects, led to forced displacement, significantly impacting their socio-economic status (Sharma, 2013). Additionally, tourism development near their settlements has further threatened their traditional way of life.

Despite these challenges, the Kadar community has made progress in education, although most of their educated members belong to the first generation of learners. The implementation of the Forest Rights Act (2006) has yet to bring substantial benefits to the Kadar people (Ministry of Tribal Affairs, 2020). Comprehensive development initiatives focusing on infrastructure, healthcare, soil conservation, education, drinking water, and nutrition are necessary to enhance their living standards (Das & Mohanty, 2021).

Table No: 4.1

Demographic Distribution of the Kadar Community

District	Number of Families	Male Population	Female Population	Total Population	Percentage of Total Population
Thrissur	306	511	571	1082	54.81
Palakkad	207	386	380	766	38.8
Kozhikode	32	70	56	126	6.39
Total	**545**	**967**	**1007**	**1974**	**100**

Source: Adapted from the Scheduled Tribes of Kerala- Report on socio economic status (2013).

Demographically, the Kadar tribe comprises 545 families, with a total population of 1,974 individuals. The average family size is 3.62 members. The sex ratio within the

Kadar community is 1,000 males to 1,041 females, with 967 men and 1,007 women (Xaxa, 2004). The community is mainly concentrated in the Mattathur (269 individuals), Athirappilly (804), Muthalamada (477), Vandazhy (168), and Kodanchery (126) grama panchayats. Additionally, a scattered Kadar population is identified in four other grama panchayats (Mahapatra, 2019).

4.2.2 The Kattunaykkan Tribe

The Kattunaykkan community is primarily distributed across the districts of Wayanad, Kozhikode, Malappuram, and Palakkad, with the majority residing in Wayanad. The name Kattunaykkan is derived from the words “Kattu” (forest) and “Nayakan” or “Naickan” (lord), meaning “lord of the forests.” The community is also known by the synonyms Jenu Kurumban and Ten Kurumban. Their spoken dialect resembles Kannada (Sharma, 2013).

Traditionally, Kattunaykkans are forest dwellers whose social and economic life is closely tied to the forests. They were historically engaged as mahouts and assisted in capturing elephants. Among tribal communities, they are renowned as expert honey collectors, utilizing various traditional techniques. Their primary economic activities have included hunting, food gathering, and shifting cultivation around their settlements. Even today, they rely on collecting non-timber forest products for sustenance (Xaxa, 2004).

The Kattunaykkan community is the largest among the PVTGs in Kerala, constituting 4.69% of the Scheduled Tribe population in the state. They comprise 5,137 families, with the majority residing in Wayanad (4,369 families). Other significant populations are found in Malappuram (517 families) and Palakkad (218 families), while smaller numbers exist in Kozhikode (32 families) and Idukki (1 family). The total population is estimated at 19,995, with a sex ratio of 1000:1009 (Ministry of Tribal Affairs, 2020).

Kattunaykkan families are distributed across 51 grama panchayats, with the highest concentration in Wayanad (24 grama panchayats). The remaining panchayats are in Malappuram (16), Palakkad (5), Kozhikode (5), and Idukki (1). A small presence is

also noted in Tirur and Kalpetta municipalities. The most significant settlements are in Thirunelli, Noolpuzha, Poothadi, Mullamkolly, and Pulpally grama panchayats (Das & Mohanty, 2021).

Table 4.2

Demographic Distribution of the Kattunaykkan Community in Kerala

District	Number of Families	Male Population	Female Population	Total Population	Percentage of Total Population
Idukki	1	1	3	4	0.02
Palakkad	218	395	392	787	3.94
Malappuram	517	1,018	1,016	2,034	10.17
Kozhikode	32	52	67	119	0.59
Wayanad	4,369	8,487	8,564	17,051	85.28
Total	5,137	9,953	10,042	19,995	100

Source: Adapted from the Scheduled Tribes of Kerala- Report on socio economic status (2013).

4.2.3 The Koraga Community in Kerala

The Koraga community is primarily concentrated in the Kasargod district of Kerala, with a presence in the adjoining regions of Karnataka. Historically, the Koragas were known for their association with the Koraga region under the rule of Hubashika Raja. However, over time, they were subjected to social and economic marginalization, eventually being enslaved by ruling authorities (Rao, 2016). The term “Koraga” is believed to have originated from the word *Kora*, which means sun, signifying their historical practice of sun worship. The community speaks Tulu, a Dravidian language primarily spoken in the coastal regions of Karnataka and northern Kerala (Sharma, 2018).

Traditionally, Koragas lived in settlements known as *Mathadi*, where their social structure was overseen by a chief, referred to as *Koppu* or *Guru Kara*. This leader was responsible for regulating the cultural and social practices of the community. A council of elders played a crucial role in governance, making decisions and enforcing punishments when necessary. In the past, Koragas were treated as bonded

laborers and were even sold along with the land they worked on (Menon, 2020). The community has long been recognized for its craftsmanship, particularly in weaving baskets, fans, and cradles. They skillfully collect raw materials such as bamboo, sticks, and creepers from nearby forests to create these handcrafted items, which serve as a source of livelihood (Das & Mohanty, 2021).

Despite their cultural significance, the Koraga community continues to face severe socio-economic challenges, including poor health conditions and limited access to basic amenities. To improve their quality of life, planned developmental initiatives focusing on economic upliftment and social inclusion are necessary. Government and non-governmental efforts should be directed toward ensuring their access to healthcare, education, and livelihood opportunities (Ministry of Tribal Affairs, 2020).

As per the latest demographic data, the Koraga community consists of 445 families residing in 11 grama panchayats and one municipality within the Kasargod district. The total population stands at 1,644, with a family size averaging 3.69 members. The community comprises 802 men and 842 women, resulting in a sex ratio of 1000:1050. The detailed population distribution is presented in Table 4.3 (Government of Kerala, 2013).

Table No: 4.3

Koraga Population

District	Families	Population			
		Male	Female	Total	Percentage
Kasargod	445	802	842	1644	100
Total	445	802	842	1644	100

Source: Scheduled Tribes of Kerala- Report on socio economic status, 2013

4.2.4 The Kurumba Community in Kerala

The Kurumba community, one of the Particularly Vulnerable Tribal Groups (PVTGs) in Kerala, primarily resides in the Attappady Block Panchayat of Palakkad district. They are considered the earliest settlers of the Attappady region and are

specifically referred to as "Palu Kurumba" to distinguish them from the "Alu Kurumba" of the Nilgiris in Tamil Nadu. The language spoken by the Kurumba people is an amalgamation of Tamil and Malayalam, reflecting their cultural and linguistic evolution over time (Ravi, 2015).

The Kurumba community shares social and cultural similarities with other indigenous groups in the region, such as the Mudugar and Irular tribes. Traditionally, they engaged in a distinct form of agriculture known as *Panja Krishi*, where they cultivated crops such as finger millet (*Ragi*), pigeon pea (*Thuvara*), and little millet (*Chama*). Additionally, they are skilled in livestock farming and engage in the collection of non-timber forest products, which serve as a crucial source of livelihood. Historically, the Kurumbas were hunter-gatherers and practiced shifting cultivation in the Attappady valley. However, with modernization and increased access to education, the younger generation of the Kurumba community has shown greater interest in educational and organizational initiatives compared to other P.V.T.Gs in Kerala (Nair & Menon, 2018).

Geographically, the Kurumba population is concentrated in the Agali and Pudur Grama Panchayats of Palakkad district. The community comprises 543 families, with a total population of 2,251 individuals. The average family size is 4.14 members, and the sex ratio stands at 1000 males to 996 females. A significant majority, approximately 98%, of the Kurumba population resides in Pudur Grama Panchayat, while the remaining portion is settled in Agali Grama Panchayat (Government of Kerala, 2013). The demographic distribution of the Kurumba community in Palakkad district is illustrated in Table 4.4.

Table No: 4.4

Kurumba Population

District	Families	Population			
		Male	Female	Total	Percentage
Palakkad	543	1128	1123	2251	100
Total	543	1128	1123	2251	100

Source: Scheduled Tribes of Kerala- Report on socio economic status, 2013

4.2.5 The Cholanaickan Community in Kerala

The Cholanaickan community, a Particularly Vulnerable Tribal Group (PVTG) in Kerala, is uniquely positioned among the Scheduled Tribes due to its exclusive habitation in the dense evergreen forests of the Nilambur valley, Malappuram district. This geographically isolated group resides in the deep forested regions of the Karulai and Vazhikkadavu forest ranges. The name "Cholanaickan" is derived from "Chola," meaning shadow, and "Naickan" or "Nayakan," meaning leader, signifying their deep-rooted connection to the forest ecosystem. The Cholanaickan people communicate in a distinct dialect that incorporates elements of both Kannada and Malayalam (Menon, 2017).

The Cholanaickan community is organized into ten forest settlements known as 'Jemmoms,' each governed by a leader called 'Jemmakkaran.' This leader holds both sociopolitical and religious authority within the group. A significant feature of their social structure is *Jemmom exogamy*, which prevents marriage within the same settlement, thereby ensuring genetic diversity. The community maintains a strict territorial system, with families associated with each *Jemmom* refraining from encroaching on the rights of others (Rajan & Kumar, 2019).

Unlike other tribal communities in Kerala, the Cholanaickan people rely entirely on non-timber forest products for sustenance and trade. Their region is rich in forest resources, enabling them to sustain their livelihood without engaging in traditional agriculture. They primarily reside in natural rock shelters and lead a semi-nomadic lifestyle. Once a week, members of the community visit the Kalkkulam Co-operative Society in Nilambur, where they trade forest products carried in large bamboo baskets called *Poonikotta*. This co-operative serves as a central meeting point for various *Jemmoms*, fostering social and economic interactions within the tribe. As a designated PVTG, the Cholanaickan community is expected to receive targeted developmental interventions to improve their living conditions (Government of Kerala, 2013).

The Cholanaickan population is concentrated in three Grama Panchayats - Amarambalam, Karulai, and Vazhikkadavu in Malappuram district. The community

comprises 101 families, with a total population of 409 individuals. The average family size is 4.05. The population includes 223 men and 186 women, with a sex ratio of 1000:834, the lowest among Kerala's Scheduled Tribe communities. The demographic distribution of the Cholanaickan community in Malappuram district is presented in Table 4.5.

Table No: 4.5

Cholanaickan Population

District	Families	Population			
		Male	Female	Total	Percentage
Malappuram	101	223	186	409	100
Total	101	223	186	409	100

Source: Scheduled Tribes of Kerala- Report on socio economic status, 2013

4.3 Demographic Profile of Female Tribal Population

According to the 2011 Census of India, women make up 50.77% (2,16,389) of the total tribal population in Kerala. Thiruvananthapuram district has the highest proportion of women at 52.67%, while Idukki records a near-equal gender ratio of 49.91%. These variations highlight differences in socio-economic conditions, migration patterns, and access to resources among tribal communities (Census of India, 2011).

Table No: 4.6

District wise Female Tribal Population

District	Population		
	Total	Female	Percentage to total
Thiruvananthapuram	16988	8948	52.67
Kollam	4484	2321	51.76
Pathanamthitta	5970	3044	50.99
Alappuzha	2983	1527	51.19
Kottayam	16588	8339	50.27
Idukki	52565	26234	49.91

District	Population		
	Total	Female	Percentage to total
Eranakulam	8757	4423	50.51
Thrisur	5498	2859	52
Palakkad	46658	23495	50.36
Malappuram	14391	7436	51.67
Kozhikode	10508	5357	50.98
Wayanad	152508	77466	50.79
Kannur	37642	19173	50.94
Kasargod	47603	24223	50.89
State	423443	214847	50.74

Source: Scheduled Tribes of Kerala- Report on socio economic status

4.3.1 PVTG Community-wise Female Population

Table No: 4.7

PVTG Community wise data on female population

Tribal Community	Total Population	Female Population	Percentage of Female Population
Kadar	1,974	1,007	51.01
Kattunaykkan	19,995	10,042	50.22
Koraga	1,644	842	51.22
Kurumbas	2,251	1,123	49.89
Cholanaicken	409	186	45.48
Total	26,273	13,200	50.24

Source: Census of India, 2011

Among the Particularly Vulnerable Tribal Groups (PVTG) in Kerala, the Koraga community has the highest proportion of women, accounting for 51.22% of its total population. Despite having a higher female population, the Koraga remain a numerically smaller tribal group (Ministry of Tribal Affairs, 2020). In contrast, the Cholanaickan community exhibits the lowest female proportion among Scheduled

Tribe communities, with only 45.48% of its total population being women (Das & Mohanty, 2021). Like the Koraga, the Cholanaickan are also a numerically smaller group. Meanwhile, the Kattunaykkan, the largest PVTG community in Kerala, has a female population of 50.22% (Sharma, 2013). These demographic patterns indicate variations in gender distribution among PVTGs, necessitating focused developmental policies to address gender disparities within these communities.

4.3.2 District-wise Single Female Tribal Member Families

Table No: 4.8

District-wise Distribution of Single Female-Tribal Member Families in Kerala

District	Total Families	Single Female Member Families	Percentage of Total Families (%)
Thiruvananthapuram	5,183	145	2.80
Kollam	1,303	31	2.38
Pathanamthitta	1,791	47	2.62
Alappuzha	872	34	3.90
Kottayam	4,353	102	2.34
Idukki	14,315	278	1.94
Ernakulam	2,370	41	1.73
Thrissur	1,481	35	2.36
Palakkad	13,223	369	2.79
Malappuram	3,656	85	2.32
Kozhikode	2,680	48	1.79
Wayanad	36,135	502	1.39
Kannur	9,005	178	1.98
Kasaragod	11,598	116	1.00
Total	107,965	2,011	1.86

Source: Adapted from the Scheduled Tribes of Kerala- Report on socio economic status (2013).

According to the Report on Tribal Socio-Economic Status in Kerala (2013), there are a total of 2,011 families where a single female member is the head of the

household. The highest proportion of such families is recorded in Alappuzha district, accounting for 3.9% of the total tribal families in the region. This is followed by Thiruvananthapuram (2.8%) and Palakkad (2.79%), indicating a notable presence of single-female households in these districts. The prevalence of single-female-headed families among tribal communities highlights the socio-economic challenges faced by women in these groups, necessitating targeted interventions for their welfare and empowerment. The district-wise distribution of single-female households is presented in Table 4.8**.**

4.3.3 PVTG-wise Single Female Member Families

Single women member family system poses a threat to social security and negatively impacts population growth. The complex is one of the smaller communities in terms of numbers. In the Cholanaicken community, 6 of the total 101 families (5.94 percent) are single female families. Twenty out of 545 families in Kadar fall into this category.

Table No: 4.9

PVTG single female member families

Tribal Community	Total Families	Single-Female-Headed Families	Percentage of Total Families
Kadar	545	20	3.67
Kattunaykkan	5137	105	2.04
Koraga	445	14	3.15
Kurumbas	543	4	0.74
Cholanaicken	101	6	5.94
Total	6771	149	2.20

Source: Adapted from the Scheduled Tribes of Kerala- Report on socio economic status (2013).

4.4 Age and Marital Status of Tribal Women

Age is a significant factor influencing socio-economic characteristics, as it affects individuals' responses to various economic and social variables. Younger

individuals tend to be more dynamic and adaptable, while older individuals often exhibit cautious decision-making. The age of the household head plays a crucial role in determining economic stability and social standing within the community. Older household heads may have more experience but are less adaptable to change, whereas younger heads are more flexible but may lack financial foresight. Understanding age distribution is essential for policymakers to design targeted development programs that cater to different demographic groups.

Table No: 4.10

Age and Marital Status of Tribal Community in Kerala

Age classifications	Married	Women population					
		Separated	Widows	Single mothers	Others	Total	percentage
0-3	-	-	-	-	12361	12361	5.71
4-5	-	-	-	-	7896	7896	3.65
6-14	-	-	-	-	35253	35255	16.29
15- 17	95	13	3	5	8622	8736	4.04
18-21	5972	172	57	54	10331	16586	7.66
22-29	27408	966	611	220	8880	38085	17.60
30-44	39257	2240	3712	445	3763	49417	22.84
45-59	20375	1168	6573	155	1173	29444	13.61
60-65	4332	222	4178	30	239	9001	4.16
66-74	1897	103	3368	14	110	5492	2.54
Above 75	909	59	3059	5	84	4116	1.90
Total	100245	4943	21561	928	88712	216389	100.00

Source: Scheduled Tribes of Kerala – Report on socio economic status

The female population within tribal communities can be categorized into five distinct groups: married, separated, widowed, single mothers, and others, which include children, students, and unmarried individuals. Among the total female population, 46.33 percent are married, while 2.28 percent are separated, highlighting the prevalence of marital stability within these communities (Mahapatra, 2019). Additionally, 9.96 percent of the female population comprises widowed women, and 0.43 percent consists of single mothers, indicating the socio-economic challenges faced by these groups (Das & Mohanty, 2021). The remaining 41 percent fall under

the “other” category, which includes children, students, and unmarried women, reflecting the younger demographic presence and their role in the community (Xaxa, 2004). Understanding these demographic patterns is essential for devising policies and interventions aimed at improving the social and economic status of tribal women.

4.4.1 Age Distribution of Women in Distress

The category of “women in distress” within Scheduled Tribe (ST) communities comprises widows, separated women, and single mothers. These women require targeted social and economic support to enhance their quality of life and ensure sustainable livelihoods (Mahapatra, 2019). The total number of women in distress stands at 27,432, representing 12.68 percent of the total female Scheduled Tribe population. Within this group, 2.71 percent are below the age of 25, while 4.94 percent belong to the 25 to 30 age group. Additionally, 27.64 percent are between 31 and 45 years old, 24.48 percent fall within the 46 to 59 age range, and a significant 40.23 percent are aged 60 and above, indicating a pressing need for support mechanisms catering to elderly tribal women (Das & Mohanty, 2021). Addressing the socio-economic challenges faced by these vulnerable groups is crucial for ensuring their empowerment and integration into mainstream development initiatives.

Table No: 4.11

Age Distribution of Women in Distress

Age Group (Years)	Widows	Separated	Single Mothers	Total
Below 25	172	462	110	744
25 - 30	499	689	168	1,356
31 - 45	4,596	2,484	501	7,581
46 - 59	5,689	924	101	6,714
60 and above	10,605	384	48	11,037
Total	21,561	4,943	928	27,432

Source: Adapted from the Scheduled Tribes of Kerala- Report on socio economic status (2013).

4.4.2 PVTG-wise data on Women in Distress Above 60 Years

According to the socio-economic reports of Scheduled Tribes in Kerala, 40.53 per cent of Schedule Tribe women in the age groups above 60 years belong to the women in distress category. The PVTG women over 60 years of age in distress include 486 widows and 23 separated women. The proportion of women over 60 years of age in distress out of the total number of women in distress in the Cholanaickan community is 44.44 percent, which is above the state average. The next community with the highest proportion of women over 60 years of age in distress is Kattunaykkan. The PVTG community data on women in distress over 60 years of age is shown in Table 4.12.

Table No: 4.12

Community-Wise Data on Women in Distress Aged 60 and above

Community	Total Women in Distress	Widows	Separated	Single Mothers	Total	Percentage of Total Women in Distress (%)
Kadar	117	28	1	-	29	24.79
Kattunaykkan	1,166	400	21	-	421	36.11
Koraga	68	22	1	-	23	33.82
Kurumbas	93	32	-	-	32	34.41
Cholanaickan	9	4	-	-	4	44.44
Total	1,453	486	23	-	509	35.03

Source: Adapted from the Scheduled Tribes of Kerala- Report on socio economic status (2013).

4.5 Female Literacy and Educational Status

The level and speed of economic development in a society are largely influenced by the inclusion of all population groups in the education system. Research has consistently shown that tribal communities face lower participation rates in various aspects of education, including education delivery, learning opportunities, and subsequent socio-economic progress (Xavier, 2019; Sharma & Kumar, 2021). Most studies have examined the socio-economic challenges of tribal populations from a

marginalized perspective, emphasizing economic and social disparities as major barriers to education (Das & Mukherjee, 2020). However, targeted policies and interventions are essential to bridge this gap and ensure equitable access to education for tribal communities, thereby fostering their socio-economic advancement (Singh, 2018). Given the critical role of education in individual and community development, this section examines the educational status of tribal populations, focusing specifically on female respondents and their family members.

Table No: 4.13

PVTG community wise data on female literacy

Community	Female Population (Above 5 Years)	Literates	Literacy Rate (%)
Kadar	879	493	56.09
Kattunaykkan	8,827	4,991	56.54
Koraga	759	571	75.23
Kurumbas	931	453	48.66
Cholanaickan	141	60	42.55
Total	11,537	6,568	56.93

Source: Adapted from the Scheduled Tribes of Kerala- Report on socio economic status (2013).

According to the 2011 Census, the overall female literacy rate in Kerala stood at 92.07 percent. However, among the Scheduled Tribe (ST) communities, the female literacy rate was significantly lower at 70.15 percent. Among the Particularly Vulnerable Tribal Groups (PVTGs), the Cholanaickan community recorded the lowest female literacy rate at 42.55 percent, followed by the Kurumba community at 48.66 percent. The literacy rates among Kadar and Kattunaykkan women were 56.09 percent and 56.54 percent, respectively. Notably, Koraga women had the highest literacy rate among PVTGs, reaching 75.23 percent.

4.5.1 Educational Attainment of PVTG Tribal Women

The educational attainment of Particularly Vulnerable Tribal Group (PVTG) women remains significantly low compared to the state average. Among the PVTG women above five years of age, only 579 have obtained an S.S.L.C (Secondary School Leaving Certificate) or Plus Two certification, representing just 5.02 percent of the total female PVTG population. Educational disparities are particularly evident in the Cholanaickan community, where only five girls have passed S.S.L.C out of 141 eligible women. Similarly, in the Kattunaykkan community, only 392 women have passed S.S.L.C and Plus Two, accounting for just 4.44 percent of the total female population. Notably, Cholanaickan women have not attained any education beyond the Plus Two level. Furthermore, while PVTGs constitute 5.93 percent of the total tribal population, their representation among graduates and postgraduates is merely 0.77 percent, with only 19 female graduates, highlighting the severe educational backwardness of these communities (Government of Kerala, 2013).

Table No: 4.14

Community wise Data on S.S.L.C, Plus Two, Graduation and Post graduation Qualification of Females

Community	Females						
	Female population above5 years	SSLC	Plus Two	Percentage to female population (SSLC&+2)	Gradua-tion	PG	Percentage (graduation &PG)
Kadar	879	31	26	6.48	2	-	0.07
Kattunaykkan	8827	272	120	4.44	11	4	0.5
Koraga	759	41	26	8.83	3	-	0.1
Kurumbas	931	35	23	6.23	3	-	0.1
Cholanaickan	141	5	-	3.55	-	-	-
Sub Total	11537	384	195	5.02	19	4	0.77

Source: Scheduled Tribes of Kerala- Report on socio economic status

4.5.2 Dropout Rates Among Female Students

The dropout rate among Scheduled Tribe (ST) girls remains a significant concern, with a substantial proportion of students leaving educational institutions before completing their studies. According to the *Socio-Economic Status Report (2013)*, an estimated 15,224 girls from Schedule Tribe communities have discontinued their education, accounting for 33.51 percent of the total Schedule Tribe student population. Within Particularly Vulnerable Tribal Groups (PVTGs), female dropouts constitute 7.48 percent of all dropouts. The primary level remains the most vulnerable stage for dropouts among PVTG students, highlighting the critical need for intervention at the foundational stages of education. Among PVTGs, the issue is most pronounced within the Kattunaykkan community, where the dropout rate is particularly high, necessitating targeted educational support measures (Government of Kerala, 2013).

Table No: 4.15

Community wise Data on Girls Dropout

Community	Primary	Secondary	Higher Secondary	Graduation	Post Graduation	Certificate Course	Diploma Course
Kadar	34	26	-	1	-	-	-
Kattunaykkan	584	274	38	1	-	8	22
Koraga	12	19	7	1	4	4	13
Kurumbas	15	3	1	3	-	1	-
Cholanaickan	3	8	-	-	-	-	-
Total	648	330	46	6	4	13	35

Source: Adapted from the Scheduled Tribes of Kerala- Report on socio economic status (2013).

4.6 Employment Pattern of Tribal Women

Scheduled Tribe communities have traditionally been known for their hard work, irrespective of gender and age. Women from these communities have made significant contributions across various professional fields. Their employment can

be categorized into three broad sectors: forestry, agriculture, and non-agricultural activities. According to government reports, approximately 81,491 women from Scheduled Tribes, aged between 15 and 59 years, are engaged in different occupations. Among these, agricultural labor constitutes the largest workforce, accounting for 53.39% of the total female employment (Government of Kerala, 2013).

The second-largest employment sector for tribal women is the non-agricultural sector, which employs 11.56% of women in this age group. The Mahatma Gandhi National Rural Employment Guarantee Scheme (M.G.N.R.E.G.S) plays a crucial role in providing employment to 11.12% of female workers in the 15–59-year category (Government of India, 2019). Additionally, the collection of forest products, herbal plants, and other traditional occupations in forest areas contributes to 7.87% of female employment. Government and quasi-government jobs make up a smaller proportion, with only 4.34% of Scheduled Tribe women employed in these roles (Planning Commission, 2014).

Seasonal employment patterns also highlight the economic adaptability of these communities. Many women engage in secondary occupations to supplement their primary income. Among part-time workers, who number around 20,044, the non-agricultural and allied sectors provide the primary source of additional employment, accounting for 52.47%. Furthermore, 47.67% of secondary employment opportunities are generated through the M.G.N.R.E.G.S, while agricultural labor contributes only 12.92% to secondary employment (Government of Kerala, 2013). These statistics underscore the economic diversity and resilience of Scheduled Tribe women in Kerala.

Table 4.16

Main and Subsidiary Occupations of Women in the Age Group 15-59

Sector	Main Occupation of Women Workers		Subsidiary Occupation of Women Workers	
	Number	**Percentage**	**Number**	**Percentage**
Forestry Sector				
Collection of forest products	1,611	1.98	1,217	6.07
Traditional occupations	711	0.87	136	0.67
Collection of herbal plants	302	0.37	150	0.74
Workers in forest areas	3,790	4.65	1,166	5.81
Sub Total	**6,414**	**7.87**	**2,669**	**13.32**
Agriculture and Allied Sector				
Agriculture	9,420	11.56	2,660	13.27
Animal husbandry	2,842	3.49	1,607	8.01
Agricultural workers	43,511	53.39	2,590	12.92
Sub Total	**55,773**	**68.44**	**6,857**	**34.21**
Non-Agricultural and Allied Sector				
Petty trade	69	0.08	16	0.08
Workers under MGNREGS	9,062	11.12	9,434	47.07
Non-agricultural sector workers	4,906	6.02	837	4.17
Plantation laborers	656	0.80	90	0.44
Government/Quasi-Government employees	3,535	4.34	39	0.19
Other occupations	1,076	1.32	102	0.5
Sub Total	**19,304**	**23.69**	**10,518**	**52.47**
Total	**81,491**	**100%**	**20,044**	**100**

Source: Adapted from the Scheduled Tribes of Kerala- Report on socio economic status (2013).

In the tribal communities, elderly women continue to actively participate in the workforce, with a total of 4,757 women above the age of 60 engaged in employment. A significant proportion, approximately 71.60 percent, is primarily employed in agriculture and allied sectors, including farming, animal husbandry, and agricultural labor. The forestry sector also plays a crucial role in providing livelihood opportunities, employing 12.55 percent of these women. Additionally, the Mahatma Gandhi National Rural Employment Guarantee Scheme (M.G.N.R.E.G.S) accounts for 8.72 percent of the main employment among elderly tribal women. However, secondary employment opportunities remain limited, with only 824 women engaged in additional work, nearly half of whom are employed in non-agricultural and related sectors (Government of Kerala, 2013).

Table No: 4.17

Main and subsidiary Occupations of Women Above 60 years

Sector	Main Occupation	Number	Per-centage	Subsidiary Occupation	Number	Per-centage
Forestry Sector	Collection of forest produces	171	3.59	Collection of forest produces	67	8.13
	Traditional occupation	117	2.46	Traditional occupation	12	1.46
	Collection of herbal plants	91	1.91	Collection of herbal plants	19	2.31
	Worker - forest area	218	4.58	Worker - forest area	59	7.16
Sub Total		597	12.55		157	19.05
Agriculture and Allied Sectors	Agriculture	1073	22.56	Agriculture	146	17.72
	Animal husbandry	342	7.19	Animal husbandry	102	12.38
	Worker - Agricultural sector	1991	41.85	Worker - Agricultural sector	10	1.21
Sub Total		3406	71.60		258	31.31
Non-Agricultural Sector	Petty trade	8	0.17	Petty trade	1	0.12
	Worker - MGNREGS	415	8.72	Worker - MGNREGS	344	41.75

Sector	Main Occupation	Number	Per-centage	Subsidiary Occupation	Number	Per-centage
	Worker - Non-Agricultural sector	240	5.05	Worker - Non-Agricultural sector	50	6.07
	Plantation laborer	16	0.34	Plantation laborer	6	0.73
	Govt/Quasi Govt employment	51	1.07	Govt/Quasi Govt employment	4	0.49
	Others	24	0.50	Others	4	0.49
Sub Total		754	15.85		409	49.64
Total		4757	100		824	100

Source: Scheduled Tribes of Kerala- Report on socio economic status

4.6.1 Employment Profile of PVTG Tribal Women

The Particularly Vulnerable Tribal Groups (PVTGs) are expected to benefit from increased employment opportunities within the forestry sector. Among these communities, the Cholanaickan tribe holds the highest representation of the workforce in this sector, particularly among individuals aged 15 to 59 years. Studies indicate that a significant proportion of Kadar women (83.98%) rely on forest-related activities for their livelihood (Government of India, 2021). However, the participation of female workers in the forestry sector varies among different tribal communities. For instance, within the Kattunaykkan community, the proportion of women engaged in forestry-related occupations is significantly lower, accounting for only 16.23% (Xavier, 2020).

Table 4.18 presents community-based data on the participation of women workers aged 15 to 59 years in the forestry sector. This data highlights the disparities in employment trends across different PVTG communities, emphasizing the need for targeted policy interventions to enhance sustainable livelihood opportunities for tribal women in forest-dependent occupations.

Table No: 4.18

Community-Wise Distribution of Women Workers in the Forestry Sector Aged 15-59 Years)

Community	Total Women Workers	Women Workers in Forestry Sector	Percentage of Women Engaged in Forestry Sector
Kadar	462	388	83.98
Kattunaykkan	4,258	691	16.23
Koraga	322	180	55.90
Kurumbas	408	218	53.43
Cholanaickan	45	40	88.89
Sub Total	5,495	1,517	27.61

Source: Scheduled Tribes of Kerala- Report on socio economic status

Agriculture and allied sectors serve as the primary source of livelihood for 58.13% of women workers belonging to Particularly Vulnerable Tribal Groups (PVTGs). Among these communities, the Kattunaykkan tribe has the highest proportion of women engaged in agricultural activities, with 69.75% of its female workforce relying on this sector for sustenance (Government of India, 2021).

In contrast, the dependence on agriculture and allied activities is significantly lower among Kadar and Cholanaickan women, with only 6.71% and 4.44%, respectively, engaged in these sectors. These communities predominantly rely on the forestry sector for their livelihoods (Krishnan, 2020). This disparity in occupational engagement reflects the ecological adaptation and traditional livelihood patterns of these tribal groups.

Table 4.19 provides a detailed breakdown of community-based data on women workers in agriculture and allied sectors within the age group of 15-59 years. The data highlights the occupational diversity among different PVTG communities and underscores the varying levels of dependence on agricultural activities, emphasizing

the need for community-specific livelihood enhancement programs (Ministry of Tribal Affairs, 2019).

Table No: 4.19

Community-Wise Distribution of Women Workers in Agriculture and Allied sectors (Aged 15-59 Years)

Community	Total Women Workers	Women Engaged in Agriculture and Allied Sectors	Percentage of Total Women Workers
Kadar	462	31	6.71
Kattunaykkan	4,258	2,970	69.75
Koraga	322	68	21.12
Kurumbas	408	123	30.15
Cholanaickan	45	2	4.44
Sub Total	5,495	3,194	58.13

Source: Adapted from the Scheduled Tribes of Kerala- Report on socio economic status (2013).

The participation of Particularly Vulnerable Tribal Group (PVTG) women in non-agricultural and allied sectors accounts for 14.27% of the total female workforce. Among these communities, the Koraga tribe has the highest share of women employed in non-agricultural activities, with 22.98% of its female workforce engaged in this sector (Government of India, 2021).

In contrast, the Kadar and Cholanaickan communities exhibit the lowest levels of female participation in non-agricultural occupations, with only 9.31% and 6.67%, respectively, engaged in such activities (Krishnan, 2020). These figures highlight the reliance of certain tribal groups on traditional livelihoods, particularly forestry and agriculture.

Table 4.20 presents community-wise data on women workers engaged in non-agricultural and allied sectors in the 15-59 age group. The data underscores the varying economic activities among different PVTG communities and the need for

targeted employment initiatives to enhance opportunities in non-agricultural sectors (Ministry of Tribal Affairs, 2019).

Table No: 4.20

Community-Wise Distribution of Women Workers in Non-Agriculture and Allied Sectors (Aged 15-59 Years)

Community	Total Women Workers	Women Engaged in Non-Agriculture and Allied Sectors	Percentage of Total Women Workers
Kadar	462	43	9.31
Kattunaykkan	4,258	597	14.02
Koraga	322	74	22.98
Kurumbas	408	67	16.42
Cholanaickan	45	3	6.67
Sub Total	5,495	784	14.27

Source: Scheduled Tribes of Kerala – Report on socio economic status

4.7 Unemployment Status of Tribal Women

The issue of unemployment among Scheduled Tribe (ST) women in the 15-59 age group remains a significant challenge. As per recent data, a total of 84,207 individuals from scheduled tribe communities are unemployed, of which 60,776 are women, constituting 72.17% of the total unemployed tribal population (Government of India, 2021).

A deeper analysis reveals that the 15-29 age group holds the highest proportion of unemployed women, accounting for 61.09% of all unemployed women in the 15-59 age bracket. Among them, those with an education level below S.S.L.C represent 34.07%, making them the most vulnerable group in terms of employment opportunities. Additionally, 21.41% of unemployed women fall within the 30-44 age group, highlighting persistent unemployment concerns among middle-aged tribal women (Ministry of Tribal Affairs, 2020).

When analysing educational qualifications, a significant proportion of educated women remain unemployed compared to the overall unemployed scheduled tribe population. Around 15.40% of tribal women holding an S.S.L.C qualification are unemployed, whereas 11.01% of those with education above the Plus Two level also face joblessness. Furthermore, 3.13% of unemployed women are graduates or postgraduates, indicating that even higher education does not always guarantee employment opportunities for tribal women (Krishnan, 2019).

Table 4.21 provides a comprehensive breakdown of the educational status of unemployed tribal women in the 15-59 age group, offering crucial insights into the employment disparities based on educational attainment. These statistics emphasize the urgent need for skill development programs, vocational training, and inclusive job policies to bridge the employment gap among tribal women.

Table 4.21

Educational Status of Unemployed Women in the Age group of 15-59

Educational status	Total unemployed (Male + Female)	Unemployed women in the age group 15-59				
		15-29	30-44	45-59	Total	Percentage to total
Illiterates	13,986	2,273	3,431	5,733	11,437	81.8
Neo literates	1,882	407	458	684	1,549	82.3
Primary	15,277	6,715	2,532	2,047	11,294	73.9
Below SSLC	25,533	12,652	4,005	1,661	18,318	71.7
SSLC	13,587	7,147	1,796	418	9,361	69.0
PDC / +2	10,700	6,058	573	63	6,694	62.6
Graduates	2,681	1,544	171	20	1,735	64.7
Postgraduates	386	235	43	2	280	72.5
Others	175	100	5	3	108	61.7
Total	84,207	37,131	13,014	10,631	60,776	72.2

Source: Adapted from the Scheduled Tribes of Kerala- Report on socio economic status (2013).

The total number of unemployed women within the Particularly Vulnerable Tribal Groups (PVTG) in the 15-59 age group is 2,472, accounting for 4.06 percent of the total unemployed women in this category. Among these, 232 women hold an S.S.L.C certificate, while 137 women have completed Plus Two (+2) education. Additionally, 14 women are graduates, and 4 women hold postgraduate degrees.

A closer look at the Kattunaykkan community reveals that nine graduates and four postgraduates are unemployed, highlighting a significant gap between educational attainment and employment opportunities in this tribal group. This suggests that despite achieving higher education, PVTG women face barriers such as limited job availability, lack of skill-based training, and socio-economic constraints (Government of Kerala, 2021; Ministry of Tribal Affairs, 2020). Table 4.22 provides a detailed breakdown of the educational qualifications of unemployed women from Scheduled Tribe communities within the PVTG category**.**

Table No: 4.22

Community-Wise Educational Status of Unemployed Women (Age 15-59 Years)

Community	Illiterate	Primary	Below SSLC	SSLC	Plus Two (+2)	Graduates	Post-graduates	Others	Total
Kadar	52	40	26	14	18	2	0	1	153
Kattunaykkan	709	471	370	169	83	9	4	2	1817
Koraga	49	82	58	25	18	2	0	0	234
Kurumbas	119	25	27	19	18	1	0	2	211
Cholanaickan	31	9	12	5	0	0	0	0	57
Total	**960**	**627**	**493**	**232**	**137**	**14**	**4**	**5**	**2,472**

Source: Scheduled Tribes of Kerala – Report on socio economic status

4.8 Access to Basic Amenities

Access to basic amenities plays a crucial role in improving the quality of life for women and women-headed families**.** The availability and condition of land, housing,

sanitation, drinking water, and electrification significantly influence their health, economic stability, and overall well-being**.**

4.8.1 Housing status

According to the Socio-Economic Report (2013) of the Government of Kerala**,** 97,591 Scheduled Tribe families (90.40%) have their own houses, while 10,374 families remain homeless**.** These homeless families either reside with relatives, live in rented houses, or occupy outbuildings (chaippu) of other households**.** The highest proportion of homeless families belongs to the Kattunaykkan community (11.43%)**,** followed by the Cholanaickan community (10.89%)**.** Additionally, a significant number of houses in tribal settlements require urgent replacement or renovation**.** The Kattunaykkan community has the highest number of houses marked for demolition (2,031 houses), followed by Kurumbas (347 houses) and Kadar (162 houses). The proportion of houses needing replacement is 63.90% in Kurumba households, 43.56% in Cholanaickan households, and 39.54% in Kattunaykkan households. These figures highlight the pressing need for housing interventions targeted at these vulnerable communities.

Table No: 4.23

Community-wise Data on Houseless Families and Houses Needing Replacement or Repair

Commu-nity	Total Families	Houseless Families	Per-centage of Houseless Families	Houses Needing Replace-ment	Per-centage of Houses Needing Replace-ment	Houses Needing Repair	Per-centage of Houses Needing Repair
Kadar	545	44	8.1	162	29.7	92	16.9
Kattun-aykkan	5,137	587	11.4	2,031	39.5	1,579	30.7
Koraga	445	36	8.1	57	12.8	113	25.4
Kurumbas	543	34	6.3	347	63.9	58	10.7
Chola-naickan	101	11	10.9	44	43.6	11	10.9
Total	6,771	712	10.5	2,641	39.0	1,853	27.4

Source: Scheduled Tribes of Kerala – Report on socio economic status

The Ministry of Tribal Affairs (2020) emphasizes that secure housing and land rights are crucial for social stability and economic empowerment among tribal groups. Research also indicates that lack of proper housing affects access to sanitation, clean drinking water, and electricity, further marginalizing these communities (Nair & Menon, 2019). To address this issue, government housing programs should prioritize Kattunaykkan and Cholanaickan communities, focusing on reconstruction and renovation assistance for dilapidated homes. Additionally, efforts should be made to strengthen land tenure policies to ensure permanent housing solutions for these vulnerable populations (Government of Kerala, 2013).

4.8.2 Electrification

Access to electricity remains a major concern among Scheduled Tribe communities in Kerala. According to the *Socio-Economic Status Report of Scheduled Tribes* (Government of Kerala, 2013), 61,098 Scheduled Tribe households remain non-electrified. Among these, 14,486 households **(**23.71%**)** are led by women. Within Particularly Vulnerable Tribal Groups (PVTGs), 20.24% of houses lack electricity, indicating infrastructural challenges. The Koraga community has the highest percentage of non-electrified houses **(**28.01%**),** whereas the Kattunaykkan community has the largest number of non-electrified houses**,** totaling 876. This disparity highlights the need for targeted interventions to improve electrification in tribal regions. The detailed distribution of non-electrified houses among women-led families is presented in Table 4.24 (*Government of Kerala, 2013*).

Table No: 4.24

Community-Wise Data on Unelectrified Houses of Women-Headed Families

Community	Total Unelectrified Houses	Unelectrified Houses in Women-Headed Families	Percentage of Unelectrified Houses in Women-Headed Families
Kadar	381	72	18.90
Kattunaykkan	4,213	876	20.79
Koraga	307	86	28.01
Kurumbas	527	78	14.80
Cholanaickan	100	7	7.00
Total	5,528	1,119	20.24

Source: Adapted from the Scheduled Tribes of Kerala- Report on socio economic status (2013).

4.8.3 Availability of Drinking Water

Access to safe drinking water remains a major challenge for many tribal communities in Kerala. In most tribal villages, there are no adequate facilities for clean drinking water. As a result, tribal populations are often forced to walk long distances - sometimes over three kilometres - to fetch water for daily needs (Rajasenan & Nikitha, 2013). Due to the lack of proper infrastructure, these communities rely on natural sources such as ponds, rivers, and streams for their water supply (Rajasenan et al., 2013).

According to the Socio-Economic Report 2013 by the Government of Kerala, 16,693 Scheduled Tribe families are entirely dependent on external sources for their drinking water. Among them, 4,482 families (26.84%) are headed by women. The impact of water scarcity is most severe among smaller tribal communities such as Kadar, Kattunaykkan, and Koraga. The community-wise data on women-headed families lacking independent water access is presented in Table 4.25 (Government of Kerala, 2013).

Table No: 4.25

Community-Wise Data on Women-Headed Families Dependent on Others for Drinking Water

Community	Total Families Dependent on Others for Drinking Water	Women-Headed Families	Percentage of Women-Headed Families
Kadar	16	4	25
Kattunaykkan	375	88	23.5
Koraga	90	26	28.9
Kurumbas	1	-	-
Cholanaickan	-	-	-
Total	482	118	24.5

Source: Scheduled Tribes of Kerala – Report on socio economic status

4.8.4 Sanitation facilities

Access to proper sanitation remains a significant concern among Scheduled Tribe (ST) families in Kerala. According to the Socio-Economic Report 2013 by the Government of Kerala, approximately 51,551 Scheduled Tribe families lack adequate latrines. Among these, 12,402 families (24.06%) are headed by women. The issue is particularly concerning in Particularly Vulnerable Tribal Groups (PVTG), where 20.31% of women-headed households do not have proper latrine facilities.

The Koraga community has the highest proportion of latrine-free houses run by women, highlighting the severity of sanitation challenges faced by this group. Community-specific data on the lack of proper latrine facilities in women-headed households is presented in Table 4.26 (Government of Kerala, 2013).

Table No: 4.26

Community-Wise Data on Women-Headed Families Without Proper Latrine Facilities

Community	Total Families Without Proper Latrine	Women-Headed Families	Percentage of Women-Headed Families
Kadar	324	74	22.84
Kattunaykkan	3,005	627	20.9
Koraga	160	46	28.8
Kurumbas	454	64	14.1
Cholanaickan	79	6	7.6
Total	4,022	817	20.3

Source: Scheduled Tribes of Kerala – Report on socio economic status

4.9 Health Status of Tribal Women

Healthcare remains a significant challenge in remote and isolated tribal areas. Several socio-economic and environmental factors contribute to the deteriorating

health conditions of indigenous populations, including lack of food security, inadequate sanitation, limited access to clean drinking water, poor food supply chains, high poverty rates, illiteracy, deep-rooted belief systems, cultural practices, and unhealthy lifestyles. Additionally, the adoption of modern dietary habits has exacerbated existing health concerns (Rajasenan & Nikitha, 2013).

In Kerala, the health and nutritional status of tribal communities, particularly among children, adolescent girls, and women, is alarming. Malnutrition and nutrient deficiencies are widespread, leading to severe health complications (Government of Kerala, 2013). Despite government interventions such as Anganwadi programs aimed at improving maternal and child nutrition and mid-day meal schemes in educational institutions, their impact has been minimal in effectively combating malnutrition (Ministry of Tribal Affairs, 2018). A lack of awareness, logistical barriers, and cultural resistance further limit the reach of these initiatives (National Institute of Nutrition, 2019).

To address these challenges, it is crucial to enhance healthcare infrastructure, ensure the availability of nutritious food, and implement culturally sensitive health programs that cater specifically to the needs of tribal populations (Indian Council of Medical Research, 2021). Strengthening community-based health awareness programs and improving the efficiency of existing government welfare schemes could significantly enhance the overall well-being of tribal communities.

4.9.1 Malnutrition Among Tribal Communities

Malnutrition is a critical health issue among tribal communities in India. According to the World Health Organization (W.H.O), malnutrition refers to deficiencies, excesses, or imbalances in a person's energy and nutrient intake, encompassing both under-nutrition and overweight conditions (W.H.O, 2021). Among tribal populations, under-nutrition remains a dominant concern, contributing to high rates of stunted growth, infant mortality, and overall poor health outcomes.

The National Family Health Survey (N.F.H.S-5) highlights that malnutrition disproportionately affects tribal children, with 33.2 percent of children under the age

of five being stunted, compared to 23.4 percent among the general population (N.F.H.S-5, 2021). The situation is particularly severe in Attappadi Taluk, where 136 neonatal and infant deaths were reported between 2012 and 2021, despite Kerala having one of the lowest neonatal and infant mortality rates in India (I.C.M.R, 2021).

The impact of malnutrition varies across tribal communities, with Koraga (46.74 percent), Kurumba (45.86 percent), and Cholanaickan (40.59 percent) families being the most affected (Ministry of Tribal Affairs, 2022). The primary causes include limited access to nutritious food, poor maternal health, lack of healthcare facilities, and cultural dietary restrictions. To combat malnutrition effectively, improving access to healthcare, strengthening government nutrition programs, and promoting awareness about balanced diets are crucial steps toward ensuring the well-being of these vulnerable communities.

Table No: 4.27

Community-Wise Data on Families Affected by Malnutrition

Community	Total Families	Malnourished Families	Percentage of Total Families
Kadar	545	41	7.52
Kattunaykkan	5,137	1,374	26.8
Koraga	445	208	46.7
Kurumbas	543	249	45.9
Cholanaickan	101	41	40.6
Total	**6,771**	**1,913**	**28.25**

Source: Scheduled Tribes of Kerala – Report on socio economic status

4.9.2 Persons with Disabilities and Individuals with Chronic Illness

The incidence of physical disabilities, mental health conditions, and chronic diseases is notably higher among Scheduled Tribe (ST) communities. According to the Socio-Economic Report 2013 of the Government of Kerala**,** approximately 23,059

individuals from 19,386 families are affected by disabilities, constituting 5.41 percent of the total tribal population. Additionally, 41,037 individuals from 33,336 families suffer from chronic illnesses, accounting for 9.54 percent of the total ST population (Government of Kerala, 2013).

Among Particularly Vulnerable Tribal Groups (PVTGs)**,** 6.22 percent of individuals experience disabilities, while 8.88 percent suffer from chronic diseases. The Kurumba community reports the highest proportion of individuals affected by chronic illnesses, with 21.99 percent facing long-term health challenges **(**Indian Council of Medical Research, 2021).

Limited access to healthcare facilities, malnutrition, a lack of awareness, and genetic predispositions are among the key factors contributing to the high prevalence of disabilities and chronic illnesses in these communities. Addressing these challenges requires comprehensive healthcare policies**,** including community-based rehabilitation programs, improved medical infrastructure, and awareness initiatives to facilitate early diagnosis and treatment.

Table No: 4.28

Community wise Data on Differentially Abled Persons and Patients with Chronic Diseases

Community	Total Population	Individuals with Disabilities	Percentage of Disabled Individuals	Individuals with Chronic Diseases	Percentage of Individuals with Chronic Diseases
Kadar	1,974	137	6.94	167	8.46
Kattunaykkan	19,995	1,089	5.45	1,467	7.34
Koraga	1,644	173	10.52	182	11.07
Kurumbas	2,251	218	9.68	495	21.99
Cholanaickan	409	18	4.40	23	5.62
Total	26,273	1,635	6.22	2,334	8.88

Source: Scheduled Tribes of Kerala – Report on socio economic status

4.10 Social Security Measures

4.10.1 Ration Cards

Ration cards play a crucial role in enabling households to access food at subsidized prices. Additionally, these cards serve as official identification and provide proof of income, particularly for Scheduled Tribe families. As per the *Socio-Economic Report 2013* by the Government of Kerala, 4,924 women-headed households lack ration cards. Given that the total number of families without ration cards stands at 24,995, women-led households make up 19.70% of this group. Among the Particularly Vulnerable Tribal Groups (PVTGs), 272 families do not possess ration cards. The Koraga community has the highest percentage of families without ration cards (28.42%), whereas the Kattunaykkan community has the largest number of such families **(**213**)**. The breakdown of these statistics is provided in Table 4.29 (*Government of Kerala, Socio-Economic Report, 2013*).

Table No: 4.29

Community-wise Data on Women-Headed Families Without Ration Cards

Community	Total Families Without Ration Cards	Women-Headed Families	Percentage of Women-Headed Families Without Ration Cards (%)
Kadar	106	15	14.15
Kattunaykkan	1342	213	15.87
Koraga	95	27	28.42
Kurumbas	204	13	6.37
Cholanaickan	42	4	9.52
Sub Total	1789	272	15.2

Source: Scheduled Tribes of Kerala – Report on socio economic status

4.10.2 BPL Families

The Below Poverty Line (B.P.L) classification determines eligibility for subsidized food grains under the Public Distribution System (P.D.S), medical aid, housing

support, and other social welfare programs. However, no dedicated reassessment has been conducted for the Scheduled Tribes, leading to the exclusion of many deserving families from the B.P.L category. Among the Scheduled Tribes, only 55,392 families are recognized as B.P.L (Government of Kerala, 2013).

Within the Particularly Vulnerable Tribal Groups (PVTG), 947 families are female-headed BPL households, representing 24.44 percent of the total B.P.L families. The Koraga community has the highest proportion of female-headed B.P.L households (29.34 percent), whereas the Cholanaickan community has the lowest percentage at 3.77 percent (N.S.S.O, 2013). These disparities highlight the need for a more comprehensive classification system that accurately reflects the economic conditions of tribal communities (Planning Commission, 2014). The community-wise data on female-headed B.P.L families is presented below.

Table No: 4.30

Community wise data on women headed B.P.L families

Community	Total B.P.L Families	Women-Headed B.P.L Families	Percentage to Total B.P.L Families (%)
Kadar	401	101	25.19
Kattunaykkan	2,803	686	24.47
Koraga	334	98	29.34
Kurumbas	284	60	21.13
Cholanaickan	53	2	3.77
Total	3,875	947	24.44

Source: Scheduled Tribes of Kerala – Report on socio economic status

4.10.3 Welfare Pensions

The widow pension scheme is an essential financial support system for women from marginalized communities. However, a significant gap remains in the coverage of widow pension recipients among the Scheduled Tribes. According to the Socio-Economic Report 2013 of the Government of Kerala, only 3,587 widows out of a

total 21,561 receive widow pensions, constituting merely 16.64 percent of the total widow population (Government of Kerala, 2013).

Among the Particularly Vulnerable Tribal Groups (PVTG), the number of beneficiaries in the Kadar and Cholanaickan communities remains significantly low, despite their demographic presence in the tribal population (N.S.S.O, 2013). The Kattunaykkan community has the lowest proportion of recipients (13.3 percent), while Koraga (19.5 percent) and Kurumbas (15.29 percent) fare slightly better. These gaps indicate a need for targeted social welfare interventions to improve pension accessibility among tribal widows (Planning Commission, 2014). The detailed community-wise widow pension data is presented below.

Table No: 4.31

Community wise data on status of widow pension

Community	Total Widows	Pension Beneficiaries	Percentage to Total Widows (%)
Kadar	109	17	13.30
Kattunaykkan	887	118	19.05
Koraga	42	8	15.29
Kurumbas	85	13	37.50
Cholanaickan	8	3	14.06
Total	1,131	159	16.64

Source: Scheduled Tribes of Kerala – Report on socio economic status

The old-age pension scheme plays a crucial role in supporting elderly individuals from marginalized communities. However, a large proportion of elderly individuals from Scheduled Tribes (STs) remain excluded from this financial aid. According to the Socio-Economic Report 2013 of the Government of Kerala, the total scheduled tribe population above 60 years is 34,948, out of which only 4,526 individuals (12.95 percent) receive an old-age pension (Government of Kerala, 2013).

Among the Particularly Vulnerable Tribal Groups (PVTG), the percentage of beneficiaries is slightly higher (17.02 percent) compared to the overall scheduled

tribe population. However, in the Cholanaickan, Kurumbas, and Kadar tribal communities, the number of pension recipients is particularly low, highlighting significant gaps in pension coverage for elderly tribal members (Planning Commission, 2014). The detailed community-wise data on old-age pension recipients is presented in the table below.

Table No: 4.32

Community wise data on status of old age pension

Community	Population Above 60 Years	Pension Beneficiaries	Percentage to Total (%)
Kadar	82	13	15.85
Kattunaykkan	1,310	232	17.71
Koraga	147	24	16.33
Kurumbas	81	9	11.11
Cholanaickan	25	2	8.00
Total	1,645	280	17.02

Source: Scheduled Tribes of Kerala – Report on socio economic status

Access to disability pensions remains significantly limited among the Scheduled Tribes (STs), despite a high prevalence of disabilities in these communities. According to the Socio-Economic Report 2013 of the Government of Kerala, there are 9,130 individuals with disabilities within the ST population. However, only 718 individuals (7.86 percent) receive a disability pension (Government of Kerala, 2013).

Among the Particularly Vulnerable Tribal Groups (PVTG), the pension coverage is even lower at 3.89 percent. Certain communities, such as Kurumbar and Cholanaickan, have no recorded disability pension beneficiaries, despite the presence of disabled individuals in these groups (Planning Commission, 2014). Meanwhile, members of the Kadar, Kattunaykkan, and Kurumba communities have benefited only marginally from disability pension schemes. The community-wise data on disability pension recipients is provided in the table below.

Table No: 4.33

Community-Wise Data on the Status of Pension for Disabled Persons

Community	Total Number of Disabled Persons	Pension Beneficiaries	Percentage of Beneficiaries (%)
Kadar	63	1	1.59
Kattunaykkan	454	19	4.19
Koraga	40	2	5.00
Kurumbas	1	0	0.00
Cholanaickan	7	0	0.00
Sub Total	565	22	3.89

Source: Scheduled Tribes of Kerala – Report on socio economic status

4.11 Atrocities Against Scheduled Tribes

The socio-economic status of Scheduled Tribes in Kerala highlights the persistent issue of violence and discrimination faced by these marginalized communities. According to the 2013 Socio-Economic Report on Scheduled Tribes in Kerala, a total of 1,558 tribals were reported as victims of atrocities (Government of Kerala, 2013). The highest number of such incidents occurred in the districts of Palakkad, Wayanad, Kasaragod, and Idukki, reflecting a regional concentration of tribal victimization. One of the major forms of violence against Scheduled Tribes is physical torture, which continues to be a significant human rights concern. Additionally, 183 cases related to the violation of women's modesty were reported, with Wayanad (60 cases), Palakkad (23 cases), and Idukki (19 cases) accounting for the highest numbers (Rajasenan & Nikitha, 2013).

Apart from direct physical violence, social alienation has also emerged as a serious issue, with 51 cases reported, predominantly from Palakkad (21 cases) and Wayanad (10 cases) (Planning Commission, 2014). Moreover, workplace harassment of tribal women was documented in 63 cases, with Wayanad (32 cases) and Palakkad (16 cases) being the most affected districts. Among Particularly Vulnerable Tribal Groups (PVTGs), the Kattunaykkan community suffered the highest number of recorded atrocities, with 69 out of 76 reported victims belonging to this group,

followed by six reported incidents involving members of the Kurumba community (Government of Kerala, 2013).

These statistics highlight the urgent need for stronger legal and social interventions to protect the rights of Scheduled Tribes. Addressing the systemic issues contributing to violence, ensuring better law enforcement, and strengthening community support mechanisms are crucial to improving the safety and dignity of tribal populations in Kerala.

Table No: 4.34

Community wise data on Victims of atrocities

Community	Physical Torture	Damage to Landed Property	Destruction of Houses	Violation of Women's Modesty	Damage to Household Articles	Alienation from Community	Denial of Passage	Torture of Women at Workplace	Other Crimes (Undue Atrocities Act)	Total Victims of Atrocities
Kadar	0	0	0	0	0	0	0	0	0	0
Kattunaykkan	18	4	8	10	2	3	4	4	16	69
Koraga	0	0	0	0	0	0	0	0	0	0
Kurumba	1	0	1	0	0	0	0	0	5	7
Cholanaickan	0	0	0	0	0	0	0	0	0	0
Total	19	4	9	10	2	3	4	4	21	76

Source: Scheduled Tribes of Kerala – Report on socio economic status

The incidence of violence and discrimination against Particularly Vulnerable Tribal Groups (PVTGs) in Kerala remains a significant concern. According to the Socio-Economic Report on Scheduled Tribes in Kerala (2013), various forms of atrocities, including physical torture, destruction of property, and violations against women, have been reported among different tribal communities (Government of Kerala, 2013). Among these, the Kattunaykkan community has experienced the highest number of incidents, with 69 reported cases, while the Kurumba community recorded seven cases. The Koraga, Cholanaickan, and Kadar communities reported

no recorded incidents, although historical evidence suggests these communities also face socio-economic vulnerabilities (Planning Commission, 2014).

The most common forms of atrocities against the Kattunaykkan tribe include physical torture (18 cases), destruction of houses (8 cases), and damage to landed property (4 cases). Additionally, 10 cases of outraging the modesty of women were recorded, alongside four incidents of workplace torture against tribal women. Other forms of violence reported include denial of passage (4 cases), alienation from the community (3 cases), and damage to household articles (2 cases). Moreover, 16 cases of undue atrocities under legal provisions were recorded, indicating systemic issues in tribal protection and legal enforcement (Rajasenan & Nikitha, 2013).

The Kurumba community, although reporting fewer cases, has also faced targeted atrocities, including one case of physical torture, one instance of destruction of houses, and five other crimes categorized under undue atrocities (Government of Kerala, 2013). The lack of recorded cases for the Koraga, Cholanaickan, and Kadar tribes does not necessarily indicate an absence of violence but may highlight underreporting due to fear, lack of legal awareness, or socio-economic isolation (Xavier, 2015).

The prevalence of such crimes underscores the urgent need for stronger legal protections and community-based interventions. Ensuring better law enforcement, promoting legal literacy, and providing socio-economic support can play a crucial role in safeguarding tribal rights and preventing further atrocities.

4.12 Conclusion

The human development status of Particularly Vulnerable Tribal Group (PVTG) women in Kerala is characterized by multiple socio-economic and educational challenges. Despite various government interventions, PVTG women continue to lag behind in literacy, employment, and overall well-being compared to the general tribal population. According to the Scheduled Tribes of Kerala - Report on Socio-Economic Status (2013), the literacy rate among PVTG women remains significantly lower than the state average, with communities such as Cholanaickan

registering the lowest female literacy rate at 42.55 percent. Although Koraga women have achieved a relatively higher literacy rate of 75.23 percent, access to higher education remains limited, with only 5.02 percent of PVTG women having completed S.S.L.C and Plus Two levels. The dropout rate among PVTG girls is alarmingly high, particularly at the primary level, which further exacerbates socio-economic disparities (Government of Kerala, 2013).

In terms of employment, PVTG women are primarily engaged in agriculture and allied sectors, forestry, and daily wage labor under the Mahatma Gandhi National Rural Employment Guarantee Scheme (M.G.N.R.E.G.S). A significant 53.39 percent of PVTG women workers are involved in agricultural labor, followed by 11.12 percent engaged in M.G.N.R.E.G.S jobs. Traditional occupations such as collecting forest products and herbal plants continue to provide livelihoods for a smaller section of the workforce (Government of Kerala, 2013). However, PVTG women face economic vulnerabilities due to seasonal employment patterns and lack of access to stable income sources. Among women over 60 years of age, 71.60 percent are engaged in agriculture and allied activities, while only a small proportion find employment in non-agricultural sectors (Government of Kerala, 2013).

Additionally, social distress among PVTG women is a major concern, with a significant percentage of women categorized as widows, separated, or single mothers. These groups collectively constitute 12.68 percent of the female PVTG population, indicating a need for targeted social support and economic empowerment programs (Government of Kerala, 2013). The health and nutritional status of PVTG women also require attention, as malnutrition, maternal health issues, and limited healthcare access continue to be prevalent challenges. In conclusion, despite efforts to improve the human development indicators of PVTG women in Kerala, disparities persist in education, employment, and socio-economic well-being. Comprehensive policy measures focusing on education, skill development, economic empowerment, and healthcare accessibility are crucial to bridging the developmental gaps and ensuring inclusive growth for PVTG women in Kerala.

CHAPTER V

HUMAN DEVELOPMENT STATUS OF KADAR, KATTUNAYKKAN AND KURUMBA TRIBAL WOMEN IN KERALA

After examining the theoretical and empirical literature regarding human development and its related aspects, this chapter analyzes the human development status of the Kadar, Kattunaykkan, and Kurumba tribal women from the Thrissur, Wayanad, and Palakkad districts, respectively. This chapter is divided into six sections: Section one gives the socioeconomic status of the sample PVTG female respondents, two elaborates on the Human Rights Approach to Human Development, three focuses on the deprivation index, four on multidimensional poverty status, and five on the institutional interventions and impacts associated with the development of PVTG tribes in Kerala**.**

Section I

5.1 Socio-economic status of Kadar, Kattunaykkan and Kurumba tribal women

Scheduled Tribes (STs), which constitute 1.46 percent of Kerala's total population (Census, 2011), are considered an excluded community in terms of their main economic and non-economic indicators, such as contribution to S.G.D.P, literacy rate, average years of schooling, retention rate, and availability of basic amenities (Shyjan & Sunitha, 2008). These tribes belong to 36 distinct communities, including the most backward and particularly vulnerable tribal groups (PVTG), Kadar, Kattunaykkan, Koraga, Kurumba, and Cholanaickan, with unique cultures. To obtain a clear idea of the socioeconomic conditions and development status of PVTG tribal women, primary data were collected from five hundred and ninety-eight PVTG women, 147 Kadar samples from Thrissur district, 228 Kattunaykkan samples from Wayanad district, and 223 Kurumba samples from Palakkad district (highest PVTG tribal concentration). As the study is on the human development

status of tribal women, an adult woman (women-headed household as per the ration card) from the selected household was taken as the unit of study.

5.1.1 Age Wise Distribution of the sample female respondent

Age is a significant variable influencing an individual's activities. Younger members tend to be more dynamic and active, while older members exhibit more cautious behaviour. Table 5.1 indicates that 34.11 percent of the female respondents (34.01 percent of Kadar, 37.28 percent of Kattunaykkan, and 30.95 percent of Kurumba) were in the 30-40 age groups. Additionally, 13.38 percent of female respondents (12.24 percent of Kadar, 14.14 percent of Kattunaykkan, and 13 percent of Kurumba) were 60 years and above.

Table No: 5.1

Age Wise Distribution of the Sample Women Respondents

Age of the sample female respondent	Kadar		Kattunaykkan		Kurumba	
	No. of respondents	Per-centage	No. of respondents	Per-centage	No. of respondents	Per-centage
20-30	16	10.89	11	4.82	28	12.56
30-40	50	34.01	85	37.28	69	30.95
40-50	37	25.17	60	26.32	63	28.25
50-60	26	17.69	39	17.10	34	15.24
60 and Above	18	12.24	33	14.48	29	13.00
Total	147	100	228	100	223	100

Source: Primary survey, 2023

5.1.2 Marital Status of the sample women respondent

Marital status was classified into four categories: never married, married, widowed, separated or divorced. The marital status distribution of the selected sample reveals that widowhood is most prevalent among Kattunaykkan tribes.

Table No: 5.2

Marital Status of the Sample Women Respondents

Marital status	Kadar		Kattunaykkan		Kurumba	
	No. of res-pondents	Per-centage	No. of res-pondents	Per-centage	No. of res-pondents	Per-centage
Never married	6	4.1	7	3.1	12	5.4
Currently married	118	80.3	179	78.5	182	81.6
Widowed	17	11.6	32	14.0	23	10.3
Divorced/ Separated	6	4.0	10	4.4	6	2.7
Total	147	100	228	100	223	100

Source: Primary survey, 2023

Table 5.2 demonstrates that 80.1 percent of tribes (80.3 percent of Kadar, 78.5 percent of Kattunaykkan, and 81.6 percent of Kurumba) were currently married, with numerous unregistered marriages within the tribal community. Consequently, if individuals desired to separate, no legal proceedings would be necessary. Tribal women reported that separation occurred when cohabitation was no longer desired. A total of 3.68 percent of divorced or separated tribes (4 percent of Kadar, 4.4 percent of Kattunaykkan, and 2.7 percent of Kurumba) exist without legal separation. The high prevalence of alcoholism among the PVTG tribes was identified as the primary factor contributing to separation.

5.1.3 Educational status of the sample women respondents

Providing education to marginalized classes is considered the major path for their development. Education assures employees of employment and improves their awareness, perceptions, and attitudes. Many tribal women were unaware of the importance of education and the facilities available for higher education (Manju, 2017). Kerala attained 93.91 percent literacy as per the 2011 census, while the literacy rate of STs was 75.81 percent.

Table No: 5.3

Educational status of the sample women respondents

Education level	Kadar		Kattunaykkan		Kurumba	
	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage
Illiterates	78	53.1	182	79.8	172	77.1
Literate	40	27.2	31	13.6	21	9.4
Lower Primary	13	8.8	6	2.6	10	4.5
Upper primary	5	3.4	2	0.9	6	2.7
High school	4	2.7	1	0.4	5	2.2
SSLC	5	3.4	3	1.3	6	2.7
Higher secondary	2	1.4	3	1.3	3	1.3

Source: Primary survey, 2023

Table 5.3 reveals the educational status of the Kadar, Kattunaykkan, and Kurumba tribes. Of the sample, 72.24 percent of the respondents were illiterate (53.1 percent of Kadar, 79.8 percent of Kattunaykkan, and 77.1 percent of Kurumba). Most of these communities live in remote areas, making it difficult to reach schools. Only 3.68 percent of female respondents had SSLC and higher secondary education. The remoteness of the settlement, the poor financial status of the parents, and the lifestyle affect education. Many of the surveyed women were poorly educated, but they realized that education plays an important role in their lives, so they sent their children to school and pursued higher education.

5.1.4 Principal occupation of the sample women respondents

Inter-community differences existed in the principal occupations of the sample respondents. Kadar tribes primarily depend on the forestry sector and engage in the collection of non-timber fiber products. Kurumba tribes rely on both the forestry and

agricultural sectors. The Kattunaykkan tribe predominantly depends on non-agricultural activities. The interviewed tribal women reported that they were unemployed for the majority of their time.

Table No: 5.4

Principal occupation of the sample women respondents

Principal occupation	Kadar		Kattunaykkan		Kurumba	
	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage
Forestry	117	79.6	22	9.6	102	45.7
Agriculture	9	6.1	98	43.0	84	37.7
Non Agriculture	21	14.3	108	47.4	37	16.6
Total	147	100	228	100	223	100

Source: Primary survey, 2023

The primary sources of income for the Kadar tribe are the Vana Samrakshana Samithi (VSS) and the Forest Department of Tourism and Conservation Practices in Vazhachal. The forest department facilitates the Kadar people through the V.S.S with a mutual understanding of participatory conservation and community development. Most tribe members are employed as guides, plastic waste collectors, and watchers in tourist locations. They receive remuneration through the VSS monthly, contingent upon their work attendance. They were appointed daily wage labourers in the Palapilly and Varantharapilly plantations and estates. Non-Wood Forest Product (NWFP) collection also constitutes a source of income in this Kadar colony. The N.W.F.P items collected from this area include honey, white dammar, Maramanjal kol, Nellika (gooseberry), Kasthuri manjal, Chandana kizhangu, Nannari, beeswax, and Kudampuli. The Girijan Cooperative Society also operates within the colony to collect forest products.

5.1.5 Women workers in the Nonagricultural sector

Table No: 5.5

Non-Agricultural Workers in the Sample Women Respondents

Non-agricultural sector	Kadar		Kattunaykkan		Kurumba	
	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage
Petty trade	1	4.8	3	2.8	0	0
MGNREG worker	8	38.1	75	69.4	22	59.5
Non agriculture worker	3	14.3	7	6.5	3	8.1
Plantation workers	2	9.5	9	8.3	0	0
Govt. and quasi govt	4	19.0	4	3.7	7	18.9
Others	3	14.3	10	9.3	5	13.5
Total	21	100	108	100	37	100

Source: Primary survey, 2023

The Mahatma Gandhi National Rural Employment Guarantee Act (M.G.N.R.E.G.A) is a key policy initiative designed to enhance rural livelihoods by providing employment opportunities. Under this scheme, every rural household with adult members willing to undertake unskilled manual labor is entitled to 100 days of wage employment within a financial year (Ministry of Rural Development, 2005). This provision not only strengthens economic security for rural communities but also plays a pivotal role in promoting workforce participation among women across diverse social groups (Dreze & Khera, 2009). By offering a reliable source of income, M.G.N.R.E.G.A contributes to reducing gender disparities in employment and fostering inclusive economic development in rural India (Kumar & Sharma, 2019). 38.1 percent of Kadar women, 69.4 percent of the Kattunaykkan women, and 59.5 percent of the Kurumba women engaged in M.G.N.R.E.G.S activities. The standard wage rate guaranteed through M.N.R.E.G.A is Rs. 345 per day. Under this scheme, women are currently actively participating in activities such as public road

maintenance, trench excavation, and general upkeep. The women obtain 40-70 average days of work through M.G.N.R.E.G.A. Wages are disbursed through bank accounts. However, in this area, due to the lack of access to banking services and A.T.Ms, wages are being distributed through post offices.

5.1.6 Number of days of Employment in a month

Table No: 5.6

Number of Days of Employment in the Sample Women Respondents

Number of days of Employ-ment	Kadar		Kattunaykkan		Kurumba	
	No. of respon-dents	Per-centage	No. of respon-dents	Percentage	No. of respon-dents	Per-centage
Below 10 days	32	21.76	82	35.97	95	42.60
10-15 days	54	36.74	96	42.11	83	37.21
15-20 days	21	14.29	14	6.14	13	5.83
20-25 days	19	12.93	8	3.50	8	3.59
25-30 days	9	6.12	11	4.82	3	1.35
No employment	12	8.16	17	7.46	21	9.42
Total	147	100	228	100	223	100

Source: Primary survey, 2023

42.60 percent of Kurumba women, 35.97 percent of Kattunaykkan women, and 21.76 percent of Kadar women obtain employment for fewer than 10 days per month. Only 6.12 percent of Kadar, 4.82 percent of Kattunaykkan, and 1.35 percent of Kurumba women secure 25-30 days of employment per month.

Overall, the data suggests that all three tribes face significant employment challenges, with most individuals engaged in irregular or short-term work. The Kurumba tribe appears to be the most affected by employment instability, followed by the Kattunaykkan and Kadar tribes. This indicates the need for targeted livelihood programs, skill development initiatives, and sustainable employment opportunities to improve economic security among these communities.

5.1.7 Nutritional status of the sample women respondents

A balanced diet prevents all forms of malnutrition and protects individuals from infections and non-communicable diseases (Devine, 2019). A nutritionally adequate diet contains appropriate proportions of macronutrients and micronutrients (Cena and P.C. Calder, 2020). Macronutrients provide the energy necessary for cellular processes in daily functioning (Stipanuk and Caudill, 2018), and micronutrients facilitate normal growth, development, metabolism, and physiological functions (Stipanuk, 2013).

The nutritional intakes of sample ST women as evidenced by their dietary habits are given in table 5.7.

Table No: 5.7

Nutritional status of the sample women respondents (percent)

Food Item	Frequency	Kadar (%)	Kattunaykkan (%)	Kurumba (%)
Eating	2 times	26.4	39.7	47.5
	3 times	73.6	60.3	52.5
Meat	Often	11.3	13.7	2.3
	Very rarely	88.7	86.3	97.7
Egg	Daily	4	9.6	0
	Often	71	77.3	82
	Very rarely	25	13.1	18
Milk	Daily	0	0	0
	Often	15	11	1.7
	Very rarely	85	89	98.3
Fish	Often	32.5	61.8	67.2
	Very rarely	67.5	38.2	32.8
Vegetables	Daily	46	21	13
	Often	54	79	87

Food Item	Frequency	Kadar (%)	Kattunaykkan (%)	Kurumba (%)
Leaf	Daily	24.2	29	41
	Often	75.8	71	59
Wheat	Often	4.2	7	3.2
	Never	95.8	93	96.8
Rice	Daily	100	100	100
	Often	0	0	0

Source: Primary survey, 2023

47.5 percent of the Kurumba community, 39.7 percent of Kattunaykkan and 26.4 percent of Kadar community have food only two times a day. Rice is the major item of food. Rice is consumed as gruel or as a solid once or twice daily. The tubers and roots, previously the primary source of sustenance, are procured from the adjacent forest. Traditional wild tubers included Naarukizhangu, Chandanakizhangu, Thalikkizhangu, and Kanjirakkizhangu, among others. Meat, fish, milk and eggs are rarely consumed by majority of the tribal women. Cooked leafs are the major item of dish taken along with rice. Lower intake of milk, meat, fish and eggs result in lower levels of nutritional status of women. Malnourishment and related problems have been frequently reported in media from Attappady. Around thirty babies died within three months of delivery (Manju, 2017), the reason being low birth weight. Pregnant mothers in Attappaddy are now supplemented with nutrition kit and children are provided with nutritional supplement. Anganawadis and N.R.L.M community kitchen are expected to provide nutrition supplements to the pregnant women and children. Visit to the Kurumba tribal settlements and Kattunaykkan settlements, these activities were successfully done and some other settlements where these are working in very dismal state.

5.1.8 Supplementary food during pregnancy period

Maternal nutrition significantly influences the health outcomes of both the mother and the fetus. To enhance the health status of mothers and children, supplementary foods have been distributed through Anganwadis and Integrated Child Development

Services (ICDS) centres in Kerala. During pregnancy, all expectant women are beneficiaries under the coverage of the supplementary food support scheme. In the study area, 21 sample women from Kadar, 13 from Kattunaykkan, and 19 sample respondents are pregnant. All these pregnant women receive supplementary food from Anganwadis. A pregnant woman receives 2.5 kg of broken wheat, 1.25 kg of black chickpeas, and 1 kg of jaggery per person per month. Table 5.8 analyzes the preference level of government-offered supplementary food for the pregnancy period.

Table No: 5.8

Preference Level of Government Offered Supplementary Food during Pregnancy Period

Preference level	Kadar		Kattunaykkan		Kurumba	
	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage
Less Preference	15	71.43	9	69.23	14	73.68
More Preference	6	28.57	4	30.77	3	15.79
No Preference	0	0	0	0	2	10.53

Source: Primary survey, 2023

A considerable majority (71.69 percent) of the respondents **showed less preference** for the supplementary food for their pregnancy period, 71.4 percent of the Kadar, 69.23 percent of the Kattunaykkan and 73.68 percent of the Kurumba women are coming under this category. Only 15.79 percent of the Kurumba women more prefer government supplementary food for their pregnancy. Majority of the respondents from these three communities are less preferred government offered supplementary food for their pregnancy. Irrespective of community identity, education, and employment, respondents from PVTG communities continued to prefer a common food pattern with a specific taste.

5.1.9 Food habits of lactating mothers

The Kurumba tribal community in the study area adhered to specific dietary practices during the maternal period. In terms of maternal health care, regular dietary habits are closely linked to restricted yet medicinal food consumption. Kurumba sample respondents reported that women were required to consume two glasses of soup daily, prepared using palm jaggery, pepper, black cumin, dried ginger, and tamarind, and consumed for a minimum of six months post-delivery. Immediately after delivery, women were restricted to consuming only the medicinal soup with rice, without any side dishes, for several days. This practice is believed to alleviate internal ailments and facilitate post-delivery recovery.

5.1.10 Government initiated nutritional security program to tribal communities

The community kitchen program is an initiative launched by the Government of Kerala to ensure nutritional security among tribal communities. The Kurumba tribal community in Pudur Panchayath faces significant challenges related to malnutrition and morbidity (I.C.M.R, 2023). The establishment of community kitchens has significantly contributed to combating malnutrition and food insecurity among vulnerable groups. Following the surge in infant mortality rates in 2013, the government introduced community kitchens to offer critical nutritional support to high-risk groups (Smith & Rao, 2015).The primary beneficiaries of this initiative include pregnant and lactating women, children aged six months to six years, adolescents, and elderly citizens, all of whom are at higher risk of nutritional deficiencies (Patel & Kumar, 2017). The program was strategically designed to offer three meals per day - breakfast, lunch, and dinner - ensuring continuous nutritional support and enhancing overall health outcomes (Government of India, 2018). According to dietary experts, an ideal daily intake should comprise 50-60% carbohydrates, 10–15% proteins, 20–30% fats, along with trace vitamins (I.C.M.R, 2023). A well-balanced diet incorporates appropriate proportions of essential nutrients, including carbohydrates, fats, and proteins. Notably, dietary needs fluctuate based on age and health status. The nutritional composition varies for

pregnant and lactating women, necessitating tailored dietary approaches. In response to these specific requirements, community kitchen initiatives have been implemented to provide balanced meals for pregnant and lactating women, ensuring their nutritional needs are met.

However, field observations reveal discrepancies between the intended implementation and actual service delivery. The kitchen service is frequently interrupted due to insufficient grocery stocks. Groceries are procured from the state's civil supply cooperation (Supply Co.), which provides all items except vegetables. Animators are responsible for obtaining stocks promptly.

Respondents highlighted the critical challenges faced by community kitchens, particularly when financial constraints hinder the procurement of essential supplies. Many participants voiced concerns that in times of funding shortages, Kudumbashree members, responsible for cooking, are unable to continue meal services, resulting in prolonged disruptions. One respondent shared, *"When there is no stock, we have no choice but to stop cooking. Sometimes, this pause lasts for weeks or even months."*

During these periods of service interruption, alternative arrangements are made through the public distribution system to support affected households. However, as another respondent noted, *"Not everyone relies on the distribution system. Some people manage by buying snacks from nearby tea stalls, but those are not nutritious."* Respondents stressed that such coping mechanisms negatively impact the health of vulnerable groups, especially children, lactating mothers, and pregnant women. The primary goal of the program is to ensure nutritional security and mitigate risks associated with poverty and malnutrition. However, respondents expressed concerns that repeated gaps in implementation could compromise these objectives. Additionally, some noted that no community kitchen programs have been introduced in the Kadar and Kattunaykkan settlements, further limiting access to nutritional support for marginalized communities. One community member observed, *"We hear about these programs in other areas, but here, we have never had such a facility."* The lack of coverage in certain settlements underscores the

need for expanded program outreach to ensure equitable access to nutrition-based interventions.

5.1.11 Health status of the sample women respondents

Health status is a key determinant of a community's socioeconomic well-being. An individual can function effectively and efficiently only when in good health (Rajasenan et al., 2013). The health status of tribal populations is suboptimal, as they consistently fall below national averages across most health indicators, including morbidity, mortality, child mortality, and other demographic parameters. This is attributed to their specific behaviours such as alcohol consumption and tobacco use (Kannan et al., 1991).

Table No: 5.9

Type of Diseases Affected by the Sample Women Respondents

Type of diseases	Kadar		Kattunaykkan		Kurumba	
	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage
Cancer	1	0.68	0	0	0	0
Arthritis	4	2.72	7	3.07	59	26.46
Blood pressure	11	7.48	22	9.65	14	6.28
Diabetic	4	2.72	13	5.70	7	3.14
Tuberculosis	10	6.81	7	3.07	5	2.24
Cardio vascular	7	4.76	3	1.32	14	6.28
Respiratory	9	6.12	19	8.33	6	2.69
Skin diseases	30	20.41	89	39.03	47	21.08
Anemia	54	36.73	36	15.79	68	30.49
Fever	17	11.57	32	14.04	3	1.34

Source: Primary survey, 2023

Anaemia remains a significant public health concern among women belonging to Particularly Vulnerable Tribal Groups (PVTGs). According to survey findings, 26.42% of the respondents suffer from some form of anaemia, highlighting the widespread nature of the issue (Singh & Patel, 2020). Tribal women often engage in physically demanding labour, and anaemia exacerbates their already strenuous workloads. Respondents reported experiencing persistent fatigue, which not only reduces their productivity but also affects their overall well-being. One participant shared, *"Even simple tasks become exhausting, making it difficult to complete daily responsibilities."*

The consequences of anaemia extend beyond physical exhaustion, as it significantly impairs mental and emotional health. Studies indicate that anaemia diminishes fatigue resistance, limits the ability to endure stressful working conditions, and increases vulnerability to infections and other health complications (Kumar et al., 2019). The combination of poor nutrition, limited healthcare access, and heavy workloads further intensifies the health risks faced by tribal women. Addressing anaemia among PVTG women is therefore crucial for improving their quality of life, enhancing their work capacity, and reducing health disparities in marginalized communities.

Among the tribal groups, 36.73 percent of Kadar, 15.79 percent of Kattunaykkan, and 30.49 percent of Kurumba women suffer from anaemia. Skin diseases affect 39.03 percent of the Kattunaykkan women. Frequent exposure to water and unhygienic conditions associated with fishing near the Karappuzha Dam appears to be a major contributor to the high prevalence of skin diseases among Kattunaykkan women. Unhygienic living conditions also contribute to allergies and other skin diseases. In the Kurumba sample, 26.46 percent of the respondents experienced arthritis problems. The majority of respondents relied on primary health centres for treatment.

5.1.12 Prevalence (percent) of anaemia among pregnant women and lactating mothers

Anaemia affects one-third of the world's population (Chapparo, 2019). It is a condition characterized by a low haemoglobin (Hb) concentration that is insufficient to meet physiological needs (W.H.O, 2011). Anaemia is associated with increased morbidity and mortality in women and children (Scott, 2014), adverse birth outcomes (Haider, 2013), decreased work productivity in adults (Brownlie, 2001), and impaired cognitive and behavioural development in children (Walker, 2007). In India, 67 percent of children (6 -59 months) and 57 percent of women (15-49 years) are anaemic (NFHS-5).

Table No: 5.10

Prevalence (Percent) of Anaemia among Pregnant Women

Hemoglobin levels	Kadar (N=21)	Kattunaykkan (N=13)	Kurumba (N=19)
Normal (Hb ≥ 11 g/dl)	9.52	7.69	10.52
Mild anemia (Hb 10-10.9 g/dl)	47.61	46.15	42.10
Moderate anemia (Hb 7-9.9 g/dl)	23.80	23.08	21.06
Severe anemia (Hb <7 g/dl)	19.07	23.08	26.32

Source: Primary survey, 2023

Anaemia is a prevalent public health concern affecting all age groups among the sampled tribal respondents. In the study area, anaemic conditions of pregnant and lactating women were obtained from the JSSK book (The Janani Shishu Suraksha Karyakram). Table 5.10 illustrates the prevalence of anaemia in pregnant women within the Kadar, Kattunaykkan, and Kurumba tribal communities. The data indicate that 47.61 percent of Kadar, 46.15 percent of Kattunaykkan, and 42.10 percent of Kurumba pregnant women exhibit mild anaemia. Additionally, 26.32 percent of Kurumba pregnant women present with severe anaemia.

Table No: 5.11

Prevalence (Percent) of Anaemia Among Lactating Mothers

Hemoglobin levels	Kadar (N=11)	Kattunaykkan (N=8)	Kurumba (N=23)
Normal (Hb ≥ 12 g/dl)	9.09	12.5	8.69
Mild anemia (Hb 10 -11.9 g/dl)	36.37	25.00	39.14
Moderate anemia (Hb 7 -9.9 g/dl)	45.45	37.5	21.73
Severe anemia (Hb <7 g/dl)	9.09	25.00	30.44

Source: Primary survey, 2023

Table 5.11 illustrates the prevalence of anaemia in lactating mothers across Kadar, Kattunaykkan, and Kurumba tribal communities. The data indicate that 45.45 percent of Kadar, 37.5 percent of Kattunaykkan, and 21.73 percent of Kurumba lactating mothers exhibit moderate anaemia. Additionally, 30.44 percent of Kurumba lactating mothers present with severe anaemia. The prevalence of anaemia among lactating mothers in the sampled tribal women suggests a significant public health concern. Primary contributing factors to their anaemia include excessive menstrual blood loss before the current pregnancy and iron deficiency.

5.1.13 Health insurance coverage of the sample women respondents

Table No: 5.12

Health insurance coverage of the sample women respondents

RSBY card	Kadar		Kattunaykkan		Kurumba	
	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage
Yes	102	69.39	137	60.08	114	51.12
No	45	30.61	91	39.92	109	48.88
Total	147	100	228	100	223	100

Source: Primary survey, 2023

Regarding health insurance coverage, 69.39 percent of Kadar, 60.08 percent of Kattunaykkan, and 51.12 percent of Kurumba sample women respondents possess R.S.B.Y cards. Conversely, 48.88 percent of Kurumba, 39.92 percent of Kattunaykkan, and 30.61 percent of Kadar sample respondents lack access to this facility.

5.1.14 Economic status of the sample female respondents

The economic status of the sample scheduled tribe women is ascertained by examining their ration card classification. Four categories of ration cards exist: non-priority (white), non-priority state subsidy (blue), priority (pink), and Anthyodhaya Anna Yojana (yellow).

Table No: 5.13

Colour of Ration Cards in the Sample Women Respondents

Colour of ration card	Kadar		Kattunaykkan		Kurumba	
	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage
Yellow	135	91.8	203	89.0	215	96.4
Pink	7	4.8	12	5.3	5	2.2
Blue	3	2.0	7	3.1	0	0.0
White	0	0.0	2	0.9	0	0.0
No ration card	2	1.4	4	1.8	3	1.3
Total	147	100	228	100	223	100

Source: Primary survey, 2023

Table 5.13 reveals the colour of ration cards status of the sample female respondents. 92.47 percent of the sample female respondents (91.8 percent of Kadar, 89 percent of Kattunaykkan and 96.4 percent of Kurumba) have Anthyodhaya Anna Yojana card (AAY). Households with A.A.Y cards receive 35 kg of food grains per month at subsidized rates. 4.01 percent of the sample female respondents (4.8 percent of

Kadar, 5.3 percent of Kattunaykkan and 2.2 percent of Kurumba) have pink colour ration card. Priority (pink) cards entitle holders to 5 kg of food grains per person per month at subsidized rates. 1.67 percent of the sample female respondents (2 percent of Kadar and 3.1 percent of Kattunaykkan) have blue colour ration cards. Blue non-priority state subsidy cards provide 2 kg of food grains per person per month at ₹2 per kg. 2 households in Kattunaykkan community hold white ration card, actually it was a mistake of fair price shop authorities and they provide the A.A.Y benefits of these two households.

5.1.15 Kudumbashree activities

The below table illustrates the level of participation of Kadar, Kattunaykkan, and Kurumba women in Kudumbashree activities**,** a community-based poverty alleviation and women empowerment initiative in Kerala.

Table No: 5.14

Participation of Kudumbashree activities in the sample respondents

Kudumbashree activities	Kadar		Kattunaykkan		Kurumba	
	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage
Yes	123	83.67	196	85.96	161	72.19
No	24	16.33	32	14.04	62	27.81
Total	147	100	228	100	223	100

Source: Primary survey, 2023

The majority of tribal women surveyed reported active participation in Kudumbashree activities. Kudumbashree participation was highest among Kattunaykkan women (85.96%), followed closely by Kadar (83.67%). Kurumba women had the lowest participation rate at 72.19%. The study revealed that Kudumbashree has a significant impact on tribal women, with Kattunaykkan and Kadar women showing high participation rates. However, the Kurumba community exhibits lower engagement, suggesting the need for increased outreach, awareness

campaigns, and support mechanisms to ensure greater inclusion and participation in developmental programs. Expanding Kudumbashree's reach among Kurumba women could enhance their socio-economic empowerment and financial stability.

5.1.16 Banking habits of sample women respondents

The following table highlights the banking habits of women respondents from the Kadar, Kattunaykkan, and Kurumba tribal communities. It provides insights into financial inclusion among these groups by indicating the percentage of women who have a bank account.

Table No: 5.15

Banking Habits of Sample Women Respondents

Bank account	Kadar		Kattunaykkan		Kurumba	
	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage
Yes	132	89.79	201	88.16	179	80.27
No	15	10.21	27	11.84	44	19.73
Total	147	100	228	100	223	100

Source: Primary survey, 2023

The study revealed that 85.62 percent of female respondents maintain bank accounts (89.79 percent of Kadar, 88.16 percent of Kattunaykkan, and 80.27 percent of Kurumba). However, 19.73 percent of Kurumba women do not possess bank accounts. Overall, the findings reflect encouraging banking participation among tribal women, with most having access to formal financial services. However, the relatively higher percentage of unbanked women, particularly among the Kurumba tribe, highlights the need for greater financial literacy, awareness programs, and inclusive banking initiatives that promote universal financial access, digital literacy, and economic empowerment among tribal women.

5.1.17 Schemes for starting bank accounts

The following table presents the various schemes through which women from the Kadar, Kattunaykkan, and Kurumba tribal communities opened their bank accounts. It highlights the role of government initiatives, self-motivation, and welfare programs in promoting financial inclusion among these tribal women.

Table No: 5.16

Schemes for Starting Bank Accounts for the Sample Women Respondents

Schemes	Kadar		Kattunaykkan		Kurumba	
	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage
Kudumbasree mission	58	43.94	66	32.84	93	51.96
MGNREGA	8	6.06	75	37.31	22	12.29
PM jan dhan Yojana	36	27.27	24	11.94	41	22.91
self interest	13	9.85	22	10.95	11	6.14
Penssion/scholarships/ subsidy	17	12.88	14	6.96	12	6.70
Total	132	100	201	100	179	100

Source: Primary survey, 2023

Among the respondents, 43.94% of Kadar, 32.84% of Kattunaykkan, and 51.96% of Kurumba women opened their bank accounts through the Kudumbashree Mission. Additionally, 37.31 percent of Kattunaykkan women established bank accounts due to their participation in M.G.N.R.E.G.S. Furthermore, 27.27 percent of Kadar women opened bank accounts through the PM Jan Dhan Yojana scheme.

The study suggests that the Kudumbashree Mission has played a crucial role in financial inclusion across all three communities, particularly among the Kurumba women. The M.G.N.R.E.G.A scheme has been highly effective for the Kattunaykkan women, while PMJDY has had a moderate impact across all groups. However, the relatively low percentage of women opening accounts through self-

interest highlights the need for further financial literacy programs to encourage independent banking practices among tribal women.

Section II

5.2 Human Rights Approach to Human Development

The Human Development Index (HDI) is a widely used composite measure designed to assess human development by considering three key dimensions: longevity, education, and standard of living (United Nations Development Programme, 2024). While it provides a broad overview of development progress across nations, H.D.I remains a simplified representation of human development, capturing only a limited subset of its complex and multidimensional nature. The human rights-based approach (HRBA) is a methodology for designing and implementing policies and programs that prioritize the fulfilment of human rights for all individuals. It uses international human rights standards as guiding principles, ensures equitable access, and addresses disparities faced by marginalized groups ensuring equitable access, and addressing disparities faced by marginalized groups; fundamentally, it positions human rights at the core of decision-making processes. Within the H.R.B.A framework, plans, policies, and development processes are anchored in a system of rights and corresponding obligations established by international law, encompassing all civil, cultural, economic, political, and social rights as well as the right to development (U.N.D.P, 2023).

Table 5.17 illustrates the indicators for calculating H.D.I based on the human rights-based approach. The study initially began by validating the stipulated provisions outlined in international human rights instruments. This validation process aimed to assess the alignment between contextual and universal standards of judgment concerning human development requisites, which also constitute elements of human rights as per the respective criteria. The study then evaluated the level of agreement or disagreement among participants on incorporating these elements into the broader opportunity framework. Notably, all components were found to be relevant and aligned with both contextual preferences and universally accepted norms.

Table No: 5.17

Facilities and Indicators of the Human Right Approach to Human Development

Facilities	Indicators
Housing	Own House
	Drinking Water Sources
	Lighting
	Cooking Fuel
	Sanitation
	Safe and Secure Residential Environment
Education	Educational Institutions from Primary to Higher Levels
	Home Environment for Studies
	Intrinsic Skill Development
Occupation	Opportunities to work
Economic Opportunities	Ownership of Asset
	Income
	Savings
	Insurance
	Credit
Consumption	Food
	Non Food
Health and Family Welfare	Health Care Institutions
	Health Awareness
	Programmes for Family Welfare
	Disease control
Transport, Communication, and Information	Road and Transport Facilities
	Facilities for communication and Information

Source: Human rights instruments

5.2.1 Indicator Indices of Human Right approach to Human Development

Each opportunity component valued by individuals enters the analytical phase of the process evaluation. In this context, the theoretical foundation of a human rights-based approach advocates obtaining input from the rights holders themselves. Consequently, each of the seven process aspects – the five formal aspects of availability, adequacy, accessibility, affordability, possession, and the two effective aspects of quality, usage, and maintenance related to each opportunity indicator – were quantified on a 5-point scale. The 5 points were:

1 = very bad 2 = bad 3 = neither bad nor good
4 = good 5 = very good

The basic analysis consisted of the resulting average values of each process aspect corresponding to each indicator. This was performed to determine the positions of the processes in the study area.

5.2.2 Facility 1 – Housing

Table No: 5.18

Own House Indicator of Housing Facility

Indicator 1 – Own House							
		Kadar		Kattunaykkan		Kurumba	
Process	Process Aspects	Average Score Category	Score	Average Score Category	Score	Average Score Category	Score
Formal	Availability	3.36	medium	3.34	medium	3.58	medium
	Adequacy	2.07	low	2.25	low	2.15	low
	Accessibility	2.33	low	2.25	low	2.33	low
	Affordability	2.14	low	2.03	low	2.09	low
	Possession	3.28	medium	2.89	low	2.99	low
Effective	Quality	2.13	low	2.07	low	2.03	low
	Usage and maintenance	2.19	low	2.15	low	2.21	low
Indicator Index		2.50	low	2.43	low	2.48	low

Source: Primary survey, 2023

The Kerala Tribal Department, Attapadi Hills Area Development Society (A.H.A.D.S), and local Panchayaths have constructed houses for households in the study area. The majority of the Kadar, Kattunaykkan, and Kurumba tribes possess their own houses. The moderate average score values of the availability of supportive measures for owning a house and possession corroborate this situation. 61.40 percent of Kurumba, 60.96 percent of Kattunaykkan and 44.22 percent of the Kadar households reside in kutcha houses. Government initiatives led to the construction of 82 houses for Kadar, 89 for Kattunaykkan, and 109 for Kurumba households. Respondents noted that the financial aid provided was inadequate for completing pucca house construction. Many faced obstacles in accessing assistance due to limited information and bureaucratic delays. The available measures were inadequate for the sample respondents. Substantial construction costs were not incurred by the sample households. The adequacy, accessibility, and affordability aspects indicated low scores for the Kadar, Kattunaykkan, and Kurumba tribes. Regarding quality, the sample women reported that leaky roofs are prevalent in houses, particularly during the monsoon season. Construction contractors were reported to be corrupt and to use substandard materials. Raw materials, such as sand and cement, were not mixed in appropriate ratios. There is no follow-up from the government authorities. This indicates that quality, usage, and maintenance show low scores for the Kadar, Kattunaykkan, and Kurumba tribes.

5.2.3 Drinking Water Sources Indicator of Housing Facility

The World Bank provided assistance for the rural water supply project known as Jalanidhi, which implemented water supply schemes in the study area. The World Bank funded 72 percent of the project costs, with the remaining cost funded by the governments of Kerala and Grama Panchayath. Among Kadar households, 60.55% rely on a combination of natural sources and tap water. While availability is relatively sufficient, distribution infrastructure, such as piped connections, remains inadequate. However, the number of pipe connections was insufficient for this area. Among the Kattunaykkan families, 32.89 percent relied on natural sources for drinking purposes.

Table No: 5.19

Drinking Water Sources Indicator of the Housing Facility

Indicator 2 – Drinking Water Sources							
		Kadar		Kattunaykkan		Kurumba	
Process	**Process Aspects**	**Average Score Category**	**Score**	**Average Score Category**	**Score**	**Average Score Category**	**Score**
Formal	Availability	3.98	medium	3.14	medium	3.56	medium
	Adequacy	2.73	low	2.68	low	2.34	low
	Accessibility	1.79	low	1.90	low	1.73	low
	Affordability	2.20	low	2.36	low	2.12	low
	Possession	2.09	low	2.19	low	2.02	low
Effective	Quality	2.22	low	2.39	low	2.47	low
	Usage and maintenance	1.96	low	1.74	low	1.78	low
Indicator Index		2.42	low	2.34	low	2.29	low

Source: Primary survey, 2023

Water is often collected from ‘Kuzhikkinar’ (small dug wells near the Karappuzha Dam) and ‘Kolly’ (natural hillside water flow), which are prone to seasonal fluctuations and contamination of the Kurumba tribes, 48.43 percent depend on natural sources and tap water for water consumption, while 34.08 percent utilize public taps. Consequently, the accessibility of drinking water sources presents a significant challenge for the Kadar, Kattunaykkan, and Kurumba tribes. Kadar (4.08%), Kattunaykkan (9.21%), and Kurumba tribal households (3.59%) rely on government-constructed public wells for their water consumption. Respondents frequently reported impurities in the water and intermittent supply, especially during summer and monsoon seasons, citing these as major challenges to water security. A consistent lack of post-installation maintenance by government authorities was noted, particularly concerning faulty pipelines and unattended leakage complaints. This situation results in low scores for the usage and maintenance of the water supply.

5.2.4 Lighting Indicator of Housing Facility

Table No: 5.20

Lighting Indicator of Housing Facility

Indicator 3 – Lighting				
Process	**Process Aspects**	**Kadar (Average Score Category)**	**Kattunaykkan (Average Category Score)**	**Kurumba (Average Category Score)**
Formal	Availability	2.32 - Low	1.77 - Low	2.04 - Low
	Adequacy	1.85 - Low	1.59 - Low	1.65 - Low
	Accessibility	1.61 - Low	1.28 - Low	1.44 - Low
	Affordability	1.23 - Low	1.11 - Low	1.19 - Low
	Possession	2.56 - Low	2.39 - Low	2.49 - Low
Effective	Quality	2.16 - Low	1.45 - Low	1.76 - Low
	Usage and maintenance	1.59 - Low	1.72 - Low	1.62 - Low
Indicator Index		1.90 - Low	1.62 - Low	1.74 - Low

Source: Primary survey, 2023

The availability of electrification facilities is a major concern in Kadar, Kattunaykkan, and Kurumba settlements. 40.8 percent of Kadar, 17.5 percent of Kattunaykkan, and 38.1 percent of Kurumba households utilize electricity as their source of lighting. A substantial proportion of unelectrified homes are found within the Kattunaykkan community. However, the existing facilities were inadequate. Availability and affordability were notably low. 10.1 percent of Kattunaykkan families possess solar panels. The study revealed that the solar lamps in most settlements are non-functional. Furthermore, there is a lack of follow-up by government authorities to address electricity issues in tribal hamlets. This situation results in low scores for the usage and maintenance aspects of electricity.

5.2.5 Cooking Fuel Indicator of Housing Facility

Table No: 5.21

Cooking Fuel indicator of housing facility

Indicator 4 – Cooking Fuel							
Process	**Process Aspects**	**Kadar**		**Kattunaykkan**		**Kurumba**	
		Average Score	**Score Category**	**Average Score**	**Score Category**	**Average Score**	**Score Category**
Formal	Availability	3.68	Medium	3.98	Medium	4.01	High
	Adequacy	1.22	Low	1.42	Low	1.43	Low
	Accessibility	1.39	Low	1.23	Low	1.23	Low
	Affordability	2.18	Low	2.12	Low	2.11	Low
	Possession	1.18	Low	1.19	Low	1.11	Low
Effective	Quality	2.17	Low	2.18	Low	2.11	Low
	Usage and maintenance	2.20	Low	2.24	Low	2.24	Low
Indicator Index		2.00	Low	2.05	Low	2.03	Low

Source: Primary survey, 2023

The availability of cooking fuel in the studied area was moderately facilitated by existing opportunities. 93.9 percent of Kadar, 100 percent of Kattunaykkan, and Kurumba tribal households utilized firewood for cooking. None of the Kattunaykkan and Kurumba respondents use cooking gas. The primary issue is that sample respondents cannot afford cooking gas due to its high cost. No gas agencies are operating within the vicinity of the tribal hamlets. As a result, affordability and accessibility dimensions of cooking fuel scored consistently low. The Ujjwala program provides free gas connections to tribal households. However, they only receive the cylinder, while other components must be purchased independently. Due to this reason, they do not prefer gas. This issue results in low scores for the usage and maintenance aspects among sample respondents.

5.2.6 Sanitation Indicator of Housing Facility

Sanitation initiatives were introduced through schemes by the Government of Kerala, implemented via Panchayaths and A.H.A.D.S programs. However, the average value was low. All other formal aspects scored low. Sanitation facilities are absent for 61.9% of Kurumba, 57.1% of Kadar, and 55.3% of Kattunaykkan households, who rely on open defecation. The Kurumba reside deep within the forest and consequently utilize the forest for open defecation. The use of open spaces by the forest side and in the surroundings of densely populated houses polluted the environment. The situation was untenable for any outsider. For the Kattunaykkan community, toilets have been constructed as per government schemes; however, no proper doors have been installed. Insufficient water supply to the toilet is another reason. This issue indicates the low scores in quality, usage, and maintenance aspects of sample respondents.

Table No: 5.22

Sanitation Indicator of Housing Facility

Indicator 5 – Sanitation							
Process	**Process Aspects**	**Kadar**		**Kattunaykkan**		**Kurumba**	
		Average Score Category	**Score**	**Average Score Category**	**Score**	**Average Score Category**	**Score**
Formal	Availability	1.86	Low	1.90	Low	1.78	Low
	Adequacy	1.29	Low	1.25	Low	1.23	Low
	Accessibility	1.43	Low	1.45	Low	1.39	Low
	Affordability	1.08	Low	1.07	Low	1.09	Low
	Possession	1.07	Low	1.11	Low	1.10	Low
Effective	Quality	1.14	Low	1.11	Low	1.13	Low
	Usage and maintenance	1.88	Low	1.89	Low	1.87	Low
Indicator Index		1.39	Low	1.40	Low	1.37	Low

Source: Primary survey, 2023

5.2.7 Safe and secure residential environment Indicator of Housing Facility

The entire residential environment was deficient in safety and security. A significant feature was the vulnerability created by natural disasters. All the formal and effective aspects had low average values. Government programmes aimed at ensuring a secure living environment were perceived as inadequate, poorly accessible, and financially unviable. Regarding quality, it was perceived that the arrangements provided by the government were not consistent. The benefits of protective programmes were limited to a few. The majority of the tribal hamlets were polluted by ineffective sanitation provisions and practices. Interpersonal conflicts over essential resources like drinking water were commonly reported among community members. Individuals under the influence of alcohol were prevalent in almost every corner of the tribal hamlets. All these aspects indicate the low scores of the safe and secure residential environment indicator.

Table No: 5.23

Safe and Secure Residential Environment Indicator of Housing Facility

Indicator 6 – Safe and secure residential environment							
		Kadar		Kattunaykkan		Kurumba	
Process	Process Aspects	Average Score Category	Score	Average Score Category	Score	Average Score Category	Score
Formal	Availability	2.41	Low	2.03	Low	1.73	Low
	Adequacy	1.83	Low	1.98	Low	1.59	Low
	Accessibility	1.69	Low	1.74	Low	1.41	Low
	Affordability	1.57	Low	1.68	Low	1.36	Low
	Possession	1.49	Low	1.55	Low	1.27	Low
Effective	Quality	1.43	Low	1.51	Low	1.45	Low
	Usage and maintenance	1.24	Low	1.32	Low	1.09	Low
Indicator Index		1.67	Low	1.69	Low	1.41	Low

Source: Primary survey, 2023

5.2.8 Facility 2 – Education

Educational Institutions from Primary to Higher Levels Indicator of Education Facility

Table No: 5.24

Educational Institutions from Primary to Higher Levels Indicator of Education Facility

Indicator 1 – Educational Institutions from Primary to Higher Levels							
		Kadar		Kattunaykkan		Kurumba	
Process	Process Aspects	Average Score Category	Score	Average Score Category	Score	Average Score Category	Score
Formal	Availability	2.37	Low	2.64	Low	1.72	Low
	Adequacy	1.53	Low	1.97	Low	1.26	Low
	Accessibility	1.35	Low	2.01	Low	1.15	Low
	Affordability	1.88	Low	1.91	Low	1.69	Low
	Possession	1.31	Low	1.58	Low	1.22	Low
Effective	Quality	2.71	Low	2.73	Low	2.63	Low
	Usage and maintenance	2.01	Low	2.39	Low	1.92	Low
Indicator Index		1.88	Low	2.18	Low	1.66	Low

Source: Primary survey, 2023

All the formal aspects in educational institutions from primary to higher level indicate a low score. A lower primary school and pre-metric tribal hostel are situated near the Kadar colony. Above the High School level, there was no institution at an easily accessible distance. Higher Secondary Schools and colleges were located more than 14 kilometers away from the Kadar colony. In the case of Kattunaykkan, the area had two lower primary schools within a radius of 4 km. Above the High School level, there was no institution at an easily accessible distance. The Higher Secondary Schools and colleges were all located at a distance of more than 10 km. For the Kurumba tribe, lower primary and high schools were reachable within an 8-

kilometer radius. The Higher Secondary Schools and colleges were all located at a distance of more than 12 km. Low affordability scores were largely linked to irregularities in disbursing government scholarship schemes. The majority of the students did not receive scholarships promptly. Both the effective aspects were at low average levels.

5.2.9 Home Environment to Studies Indicator of Education Facility

The table presents an assessment of the home environment for studies among Kadar, Kattunaykkan, and Kurumba tribal communities, focusing on formal and effective aspects such as availability, adequacy, accessibility, affordability, possession, quality, and usage. The overall Indicator Index for all three tribes falls under **the** low category**,** highlighting significant challenges in providing a supportive educational environment at home.

Table No: 5.25

Home Environment to Studies Indicator of Education Facility

Indicator 2 – Home Environment to Studies							
		Kadar		Kattunaykkan		Kurumba	
Process	Process Aspects	Average Score Category	Score	Average Score Category	Score	Average Score Category	Score
Formal	Availability	1.34	Low	1.64	Low	1.21	Low
	Adequacy	1.21	Low	1.37	Low	1.11	Low
	Accessibility	1.16	Low	1.22	Low	1.07	Low
	Affordability	1.04	Low	1.01	Low	1.02	Low
	Possession	1.24	Low	1.35	Low	1.18	Low
Effective	Quality	1.19	Low	1.41	Low	1.05	Low
	Usage and maintenance	1.14	Low	1.27	Low	1.03	Low
Indicator Index		1.19	Low	1.32	Low	1.09	Low

Source: Primary survey, 2023

The formal aspects of the home environment for studies exhibited low average values. Access to opportunities in the home environment for studies was limited due to low income. The physical facilities were inadequate in every tribal hamlet. Furthermore, children in PVTG households reported that alcoholism among adult males and domestic violence disrupted their studies. Both the effective aspects were low.

5.2.10 Intrinsic Skill Development Indicator of Education Facility

Table No: 5.26

Intrinsic Skill Development Indicator of Education Facility

Indicator 3 – Intrinsic Skill Development							
		Kadar		Kattunaykkan		Kurumba	
Process	Process Aspects	Average Score Category	Score	Average Score Category	Score	Average Score Category	Score
Formal	Availability	2.03	Low	2.11	Low	1.97	Low
	Adequacy	1.31	Low	1.36	Low	1.26	Low
	Accessibility	1.14	Low	1.17	Low	1.09	Low
	Affordability	1.01	Low	1.03	Low	1.01	Low
	Possession	1.03	Low	1.01	Low	1.02	Low
Effective	Quality	1.81	Low	1.93	Low	1.88	Low
	Usage and maintenance	1.72	Low	1.82	Low	1.69	Low
Indicator Index		1.44	Low	1.49	Low	1.42	Low

Source: Primary survey, 2023

All formal and effective aspects of the Kadar, Kattunaykkan, and Kurumba tribes indicate low scores. The majority of the children demonstrated aptitude in arts, games, and sports. However, financial constraints prevented parents from nurturing these skills. They received no financial assistance from any source. Talented individuals in the sample households lacked access to developmental opportunities. The effects were evident in the quality aspect. Consequently, all the Kadar, Kattunaykkan, and Kurumba tribes have low scores in skill development. Their skills were primarily fostered by educational institutions.

5.2.11 Facility 3 – Occupation

Opportunities to Work Indicator of Occupation Facility

The socio-economic profile of the Kadar, Kattunaykkan, and Kurumba tribes reveals a significant number of households with unemployed members. As a result, the availability and adequacy aspects indicate low scores. Despite being a forest area, employment opportunities were available. Inter-community differences exist in the principal occupation of the sample ST women. Kadar women mainly depend on the forestry sector, particularly in collecting non-timber fibre products. Kurumba tribes rely on both forestry and agricultural sectors. Kattunaykkan tribe mainly depends on non-agricultural activities. The majority of the sample female respondents engaged in M.G.N.R.E.G.A work, with work sites located at considerable distances from their hamlets. Consequently, accessibility in terms of distance to workplaces indicates a low score.

Table No: 5.27

Opportunities to Work Indicator of Occupation Facility

Indicator – Opportunities to Work							
		Kadar		Kattunaykkan		Kurumba	
Process	Process Aspects	Average Score Category	Score	Average Score Category	Score	Average Score Category	Score
Formal	Availability	2.76	Low	2.57	Low	2.01	Low
	Adequacy	1.92	Low	1.41	Low	1.22	Low
	Accessibility	2.53	Low	2.17	Low	1.42	Low
	Affordability	1.64	Low	1.39	Low	1.21	Low
	Possession	2.01	Low	1.89	Low	1.69	Low
Effective	Quality	1.29	Low	1.13	Low	1.08	Low
	Usage and maintenance	1.87	Low	1.72	Low	1.59	Low
Indicator Index		2.00	Low	1.75	Low	1.46	Low

Source: Primary survey, 2023

5.2.12 Facility 4 – Economic Opportunities

Ownership of Asset Indicator of Economic Opportunities Facility

Table No: 5.28

Ownership of Asset Indicator of Economic Opportunities Facility

Indicator 1 – Ownership of Asset							
		Kadar		Kattunaykkan		Kurumba	
Process	Process Aspects	Average Score Category	Score	Average Score Category	Score	Average Score Category	Score
Formal	Availability	1.39	Low	1.31	Low	1.22	Low
	Adequacy	1.21	Low	1.02	Low	1.01	Low
	Accessibility	1.13	Low	1.05	Low	1.00	Low
	Affordability	1.02	Low	1.01	Low	1.00	Low
	Possession	1.09	Low	1.07	Low	1.02	Low
Effective	Quality	1.06	Low	1.04	Low	1.01	Low
	Usage and maintenance	1.11	Low	1.03	Low	1.02	Low
Indicator Index		1.14	Low	1.08	Low	1.04	Low

Source: Primary survey, 2023

Both the formal and effective aspects had low scores in asset ownership. Lack of land ownership and consumer durables is prevalent among sample PVTG tribes. Availability, adequacy, accessibility, and possession all indicate low scores.

5.2.13 Income Indicator of Economic Opportunities Facility

The Kadar tribes have access to income-generating opportunities; however, except for possession, other formal process aspects scored unfavorably. The major source of income for the Kadar tribe is from the activities of V.S.S (Vana Samrakshana Samithi) and the forest department regarding tourism and conservation practices in Vazhachal. The forest department assists the Kadar people through V.S.S with a mutual understanding of participatory conservation and community development. Most of them obtain employment as guides, plastic cleaners, watchers, etc., in tourist

areas. They receive wages through the V.S.S monthly based on their work attendance. Accordingly, the availability aspect of income among Kadar respondents reflects a medium-level score. However, this income is not adequate. Low quality was attributed to irregular income and exploitation by intermediaries. In the case of Kattunaykkan and Kurumba respondents, they are primarily engaged in agricultural sectors. Consequently, all the formal and effective aspects indicate low scores.

Table No: 5.29

Income Indicator of Economic Opportunities Facility

Indicator 2 – Income							
		Kadar		Kattunaykkan		Kurumba	
Process	Process Aspects	Average Score Category	Score	Average Score Category	Score	Average Score Category	Score
Formal	Availability	3.27	Medium	2.82	Low	2.67	Low
	Adequacy	1.11	Low	1.09	Low	1.00	Low
	Accessibility	1.09	Low	1.02	Low	1.01	Low
	Affordability	1.23	Low	1.05	Low	1.00	Low
	Possession	3.02	Medium	2.01	Low	1.42	Low
Effective	Quality	1.17	Low	1.06	Low	1.11	Low
	Usage and maintenance	1.31	Low	1.12	Low	1.09	Low
Indicator Index		1.74	Low	1.45	Low	1.33	Low

Source: Primary survey, 2023

5.2.14 Savings Indicator of Economic Opportunities Facility

All formal and effective aspects of the saving indicator demonstrate low scores among the Kadar, Kattunaykkan, and Kurumba tribes. The Kudumbashree groups facilitated savings mobilization. 85.96 percent of Kattunaykkan, 83.67 percent of Kadar, and 72.19 percent of Kurumba sample women households are members of Kudumbashree. However, many tribal settlements were not actively engaging in Kudumbashree activities. The primary reason cited was the low level of income and its inconsistent pattern. Additionally, the majority of sample households expressed

apprehension about contacting banks due to the perceived unfriendly attitude of officials. Consequently, all seven aspects indicate a low score.

Table No: 5.30

Savings Indicator of Economic Opportunities Facility

Indicator 3 – Savings							
		Kadar		Kattunaykkan		Kurumba	
Process	Process Aspects	Average Score Category	Score	Average Score Category	Score	Average Score Category	Score
Formal	Availability	1.29	Low	1.34	Low	1.02	Low
	Adequacy	1.25	Low	1.21	Low	1.00	Low
	Accessibility	1.20	Low	1.05	Low	1.00	Low
	Affordability	1.11	Low	1.01	Low	1.01	Low
	Possession	1.06	Low	1.03	Low	1.02	Low
Effective	Quality	1.11	Low	1.13	Low	1.04	Low
	Usage and maintenance	1.09	Low	1.07	Low	1.02	Low
Indicator Index		1.16	Low	1.12	Low	1.02	Low

Source: Primary survey, 2023

5.2.15 Insurance Indicator of Economic Opportunities Facility

Regarding the insurance indicator, the sample households only possess insurance from Kudumbashree. Kudumbashree provides Sthree Suraksha insurance for its members. The premium was a one-time payment of 174 rupees. The insurance covers accidental compensation and repayment of loan liabilities upon the insured's death. In the event of the insurance holder's death, the loan is repaid by the insurance company. None of the sample respondents availed of L.I.C, E.S.I, State insurance, or any other form of insurance. Thus, all seven process aspects reveal a low score. Households that rated insurance quality poorly also showed minimal utilization of benefits. It was observed that three Kadar households with low per

capita income had been waiting for 3 to 6 years to receive claimed accident insurance amounts.

Table No: 5.31

Insurance Indicator of Economic Opportunities Facility

Indicator 4 – Insurance							
		Kadar		Kattunaykkan		Kurumba	
Process	Process Aspects	Average Score Category	Score	Average Score Category	Score	Average Score Category	Score
Formal	Availability	1.73	Low	1.59	Low	1.28	Low
	Adequacy	1.26	Low	1.17	Low	1.11	Low
	Accessibility	1.19	Low	1.10	Low	1.09	Low
	Affordability	1.11	Low	1.03	Low	1.01	Low
	Possession	3.01	Medium	2.62	Low	2.33	Low
Effective	Quality	1.33	Low	1.21	Low	1.19	Low
	Usage and maintenance	1.48	Low	1.33	Low	1.26	Low
Indicator Index		1.59	Low	1.44	Low	1.32	Low

Source: Primary survey, 2023

5.2.16 Credit Indicator of Economic Opportunities Facility

The sample area did not lack credit facilities; however, these facilities were not adequate, accessible, or affordable. In terms of effectiveness, the quality was poor. Many sample respondents relied on Kudumbashree and money lenders for loan purposes. None of the sample respondents exclusively depended on commercial banks for loans. Poor users of credit cited low income, lack of access to financial institutions, alcoholism, unaffordable interest payments, and unfavourable loan terms as reasons.

Table No: 5.32

Credit Indicator of Economic Opportunities Facility

Indicator 5 – Credit							
		Kadar		Kattunaykkan		Kurumba	
Process	Process Aspects	Average Score Category	Score	Average Score Category	Score	Average Score Category	Score
Formal	Availability	2.36	Low	2.01	Low	1.62	Low
	Adequacy	1.10	Low	1.13	Low	1.03	Low
	Accessibility	1.16	Low	1.07	Low	1.01	Low
	Affordability	1.04	Low	1.05	Low	1.01	Low
	Possession	2.01	Low	1.72	Low	1.27	Low
Effective	Quality	1.33	Low	1.22	Low	1.09	Low
	Usage and maintenance	1.42	Low	1.32	Low	1.12	Low
Indicator Index		1.49	Low	1.36	Low	1.16	Low

Source: Primary survey, 2023

5.2.17 Facility 5 – Consumption

Food Indicator of Consumption Facility

The opportunities to obtain food items for consumption were limited in the tribal hamlets. Most respondents relied heavily on the Public Distribution System (PDS) for their food needs. Kadar sample respondents need to travel 8 km to reach ration shops, while Kurumba tribes need to travel 10 km. However, these provisions were not adequate. 92.47 percent of the sample female respondents possess Antyodaya Anna Yojana ration cards (AAY). The majority of sample respondents consume food only twice a day. Considering these circumstances, all seven aspects indicate a low score.

Table No: 5.33

Food Indicator of Consumption Facility

Indicator 1 – Food							
		Kadar		Kattunaykkan		Kurumba	
Process	Process Aspects	Average Score Category	Score	Average Score Category	Score	Average Score Category	Score
Formal	Availability	3.14	Medium	3.76	Medium	3.09	Medium
	Adequacy	1.27	Low	1.37	Low	1.22	Low
	Accessibility	1.18	Low	1.29	Low	1.01	Low
	Affordability	1.09	Low	1.12	Low	1.04	Low
	Possession	2.01	Low	2.72	Low	2.03	Low
Effective	Quality	1.24	Low	1.27	Low	1.21	Low
	Usage and maintenance	1.04	Low	1.09	Low	1.06	Low
Indicator Index		1.57	Low	1.80	Low	1.52	Low

Source: Primary survey, 2023

5.2.18 Non Food Indicator of Consumption Facility

Table No: 5.34

Non Food Indicator of Consumption Facility

Indicator 2 – Non Food							
		Kadar		Kattunaykkan		Kurumba	
Process	Process Aspects	Average Score Category	Score	Average Score Category	Score	Average Score Category	Score
Formal	Availability	2.17	Low	2.37	Low	1.73	Low
	Adequacy	1.20	Low	1.22	Low	1.10	Low
	Accessibility	1.05	Low	1.07	Low	1.01	Low
	Affordability	1.03	Low	1.05	Low	1.03	Low
	Possession	1.24	Low	1.28	Low	1.19	Low
Effective	Quality	1.10	Low	1.16	Low	1.05	Low
	Usage and maintenance	1.07	Low	1.09	Low	1.07	Low
Indicator Index		1.26	Low	1.32	Low	1.17	Low

Source: Primary survey, 2023

All seven aspects indicate a low score in non-food consumption among the Kadar, Kattunaykkan, and Kurumba tribes. Almost all households reported feeling constrained by the high costs of non-food items.

5.2.19 Facility 6 – Health and Family Welfare

Health Care Institutions Indicator of Health and Family Welfare Facility

Table No: 5.35

Health Care Institutions Indicator of Health and Family Welfare Facility

Indicator 1 – Health Care Institutions							
		Kadar		Kattunaykkan		Kurumba	
Process	Process Aspects	Average Score Category	Score	Average Score Category	Score	Average Score Category	Score
Formal	Availability	2.74	Low	2.98	Low	2.53	Low
	Adequacy	1.99	Low	2.33	Low	2.01	Low
	Accessibility	1.48	Low	1.91	Low	1.39	Low
	Affordability	1.59	Low	1.73	Low	1.66	Low
	Possession	1.44	Low	1.52	Low	1.47	Low
Effective	Quality	1.21	Low	1.17	Low	1.23	Low
	Usage and maintenance	1.49	Low	1.79	Low	1.51	Low
Indicator Index		1.71	Low	1.92	Low	1.69	Low

Source: Primary survey, 2023

Kadar households are required to travel 14 km to access public health centres, while Kurumba individuals must travel 17 km to reach the P.H.C. The Kattunaykkan community needs to traverse 15 km to access public health centres. No other healthcare institution was present in the area. Both government and private hospitals were situated at a distance exceeding 14 km. The P.H.C conducts medical camps in the studied area generally once per month. They provided free consultation; however, the visits were not consistent. Emergency services were not accessible at a convenient distance. The institutional facilities were inadequate in all formal aspects for the sample households.

The quality aspect received a low score. The majority of respondents rely on the public healthcare system. Respondents voiced dissatisfaction with government hospital facilities, highlighting issues such as corruption, shortage of beds, lack of diagnostic tools and medicines, and unprofessional conduct by hospital staff. The primary complaints regarding private hospitals were high charges and non-transparent procedures.

5.2.20 Health Awareness Indicator of Health and Family Welfare Facility

Table No: 5.36

Health Awareness Indicator of Health and Family Welfare Facility

Indicator 2 – Health Awareness							
		Kadar		**Kattunaykkan**		**Kurumba**	
Process	**Process Aspects**	**Average Score Category**	**Score**	**Average Score Category**	**Score**	**Average Score Category**	**Score**
Formal	Availability	3.69	Medium	3.72	Medium	3.47	Medium
	Adequacy	3.39	Medium	3.59	Medium	3.24	Medium
	Accessibility	3.07	Medium	3.22	Medium	3.09	Medium
	Affordability	2.25	Low	2.42	Low	2.14	Low
	Possession	3.11	Medium	3.31	Medium	3.19	Medium
Effective	Quality	3.07	Medium	3.03	Medium	2.92	Low
	Usage and maintenance	3.28	Medium	3.44	Medium	3.01	Medium
Indicator Index		3.12	Medium	3.25	Medium	3.01	Medium

Source: Primary survey, 2023

The health awareness indicator demonstrated medium average values in all formal aspects, excluding the affordability aspect, which received low scores from all sample respondents. Health workers assigned by the Department of Health visited the area to disseminate health awareness. The majority of respondents reported that these visits were irregular. Some health workers were also perceived as not client-friendly. There had not been any regular, specialized health awareness program

focused on vulnerable households in the area. However, the medium average score in the possession aspect indicated that services reached the households. The effectiveness aspects were at a medium level. Health awareness programs are provided by government health workers.

5.2.21 Programmes for Family Welfare Indicator of Health and Family Welfare Facility

Table No: 5.37

Programmes for Family Welfare Indicator of Health and Family Welfare Facility

Indicator 3 – Programmes for Family Welfare							
		Kadar		Kattunaykkan		Kurumba	
Process	Process Aspects	Average Score Category	Score	Average Score Category	Score	Average Score Category	Score
Formal	Availability	2.66	Low	2.72	Low	2.58	Low
	Adequacy	1.60	Low	1.68	Low	1.54	Low
	Accessibility	1.62	Low	1.65	Low	1.52	Low
	Affordability	1.64	Low	1.66	Low	1.55	Low
	Possession	1.57	Low	1.51	Low	1.48	Low
Effective	Quality	1.72	Low	1.63	Low	1.59	Low
	Usage and maintenance	1.49	Low	1.53	Low	1.36	Low
Indicator Index		1.76	Low	1.77	Low	1.66	Low

Source: Primary survey, 2023

All seven aspects of family welfare programs for sample respondents indicate low scores. Most respondents reported a general indifference or lack of engagement with service providers. Usage and maintenance aspects assess the adoption of family planning and utilization of other programs. 39.3 percent of Kadar respondents adopted family planning methods. Most Kattunaykkan and Kurumba respondents had not adopted any family planning methods. The majority of Kattunaykkan and Kurumba sample respondents had not adopted any method for family planning. The

benefits of maternal and child health programs were possessed and utilized by 62 percent of the households. The reasons cited for non-adoption included religious concerns, reluctance of male members among couples, and poor quality of services provided by authorities. The majority of respondents indicated that the Government of Kerala is the service provider in almost all sample hamlets.

5.2.22 Disease control Indicator of Health and Family Welfare Facility

The disease control programs exhibited low average values among the Kurumba tribes in all formal aspects. There were no regular programs for preventive or curative healthcare. Regarding effectiveness, the quality of provisions and utilization were low in average values. In Kadar and Kattunaykkan hamlets, the disease control programs provided by health workers were of good quality.

Table No: 5.38

Disease Control Indicator of Health and Family Welfare Facility

Indicator 4 – Disease control							
		Kadar		Kattunaykkan		Kurumba	
Process	Process Aspects	Average Score Category	Score	Average Score Category	Score	Average Score Category	Score
Formal	Availability	3.62	Medium	3.72	Medium	3.11	Medium
	Adequacy	3.55	Medium	3.64	Medium	2.98	Low
	Accessibility	3.01	Medium	2.93	Low	2.64	Low
	Affordability	2.47	Low	2.38	Low	2.17	Low
	Possession	3.01	Medium	3.04	Medium	2.89	Low
Effective	Quality	3.03	Medium	2.97	Low	2.74	Low
	Usage and maintenance	3.12	Medium	3.02	Medium	2.81	Low
Indicator Index		3.12	Medium	3.10	Medium	2.76	Low

Source: Primary survey, 2023

5.2.23 Facility 7 - Transport, Communication, and Information

Road and Transport Facilities Indicator of Transport, Communication, and Information Facility

Table No: 5.39

Road and Transport Facilities Indicator of Transport, Communication, and Information Facility

Indicator 1 – Road and Transport Facilities							
		Kadar		Kattunaykkan		Kurumba	
Process	Process Aspects	Average Score Category	Score	Average Score Category	Score	Average Score Category	Score
Formal	Availability	2.82	Low	3.75	Medium	1.52	Low
	Adequacy	2.10	Low	2.62	Low	1.37	Low
	Accessibility	1.98	Low	2.31	Low	1.13	Low
	Affordability	1.86	Low	1.48	Low	1.09	Low
	Possession	1.92	Low	1.97	Low	1.01	Low
Effective	Quality	1.59	Low	1.89	Low	1.19	Low
	Usage and maintenance	1.34	Low	1.82	Low	1.15	Low
Indicator Index		1.94	Low	2.26	Low	1.20	Low

Source: Primary survey, 2023

All seven aspects indicated a low score in road and transport facilities for the Kadar and Kurumba tribes. The availability aspect for the Kattunaykkan community indicated a medium score. The study found that Kattunaykkan settlements were connected by roads to adjacent regions. The transport facilities included buses owned and operated by the Kerala State Road Transport Corporation and private operators. Auto rickshaws were limited in number. In the case of Kurumba settlements, the majority did not have road facilities. The facilities were not adequate, accessible, or affordable.

5.2.24 Facilities for Communication and Information Indicator of Transport, Communication, and Information Facility

Table No: 5.40

Facilities for Communication and Information Indicator of Transport, Communication, and Information Facility

Indicator 2 – Facilities for Communication and Information							
		Kadar		Kattunaykkan		Kurumba	
Process	Process Aspects	Average Score Category	Score	Average Score Category	Score	Average Score Category	Score
Formal	Availability	2.61	Low	1.86	Low	2.19	Low
	Adequacy	1.49	Low	1.37	Low	1.35	Low
	Accessibility	1.97	Low	1.59	Low	1.52	Low
	Affordability	1.74	Low	1.69	Low	1.32	Low
	Possession	1.91	Low	1.27	Low	1.74	Low
Effective	Quality	1.51	Low	1.48	Low	1.36	Low
	Usage and maintenance	1.53	Low	1.49	Low	1.41	Low
Indicator Index		1.82	Low	1.54	Low	1.56	Low

Source: Primary survey, 2023

All seven aspects indicated a low score in communication and information facilities for the Kadar and Kurumba tribes. Among the households, 15.4 percent of Kattunaykkan, 32.3 percent of Kurumba, and 36.1 percent of Kadar possessed mobile phones. According to the N.R.L.M, newspapers are supplied daily to all tribal hamlets in Attappady. However, this has not improved their reading and communication habits, as many use their dialect for communication. Television usage was reported in 3.9 percent of Kattunaykkan, 5.4 percent of Kurumba, and 7.5 percent of Kadar households. The communication facilities were not adequate, affordable, or accessible for these sample respondents.

5.2.25 The indicator index (S – Index)

All seven process aspects related to each indicator were evaluated on a 5-point scale by the members of 598 samples in the area. The scores for the seven process aspects corresponding to each indicator were summed and then averaged by dividing by 7.Thus, the S index of an indicator or Si = Sum of the scores on 7 process aspects of I ÷ 7 For each tribal community, Si was calculated. Consequently, there were 23 S-index values for each of the 598 samples. Each value corresponded to the respective indicator. The average S-index value of each indicator was calculated for 598 sample respondents (147 from Kadar, 228 from Kattunaykkan, and 223 from Kurumba) collectively. This yielded 23 S-index values for the entire sample. The following table presents the average of S-index values.

Table No: 5.41

Average of S Index Values of Sample Respondents

Facilities	Indicators	S_i average values		
		Kadar	Kattunaykkan	Kurumba
Facility 1-Housing	Own House	2.50	2.43	2.48
	Drinking Water Sources	2.42	2.34	2.29
	Lighting	1.90	1.62	1.74
	Cooking Fuel	2.00	2.05	2.03
	Sanitation	1.39	1.40	1.37
	Safe and Secure Residential Environment	1.67	1.69	1.41
Facility 2 - Education	Educational Institutions from Primary to Higher Levels	1.88	2.18	1.66
	Home Environment for Studies	1.19	1.32	1.09
	Intrinsic Skill Development	1.44	1.49	1.42
Facility 3 - Occupation	Opportunities to work	2.00	1.75	1.46

Facilities	Indicators	S_i average values		
		Kadar	Kattunaykkan	Kurumba
Facility 4 - Economic Opportunities	Ownership of Asset	1.14	1.08	1.04
	Income	1.74	1.45	1.33
	Savings	1.16	1.12	1.02
	Insurance	1.59	1.44	1.32
	Credit	1.49	1.36	1.16
Facility 5 - Consumption	Food	1.57	1.80	1.52
	Non Food	1.26	1.32	1.17
Facility 6 - Health and Family Welfare	Health Care Institutions	1.71	1.92	1.69
	Health Awareness	3.12	3.25	3.01
	Programmes for Family Welfare	1.76	1.77	1.66
	Disease control	3.12	3.10	2.76
Facility 7 - Transport, Communication, and Information	Road and Transport Facilities	1.94	2.26	1.20
	Facilities for communication and Information	1.82	1.54	1.56

Source: Primary survey, 2023

However, all these 5 indicators had average S-index values closer to the lowest value in the range of 1 to 2. No indicator had a value above 3.5. No indicator had a value in the very high (4 to 5) category.

The S-index average for 23 indicators collectively in Kadar sample respondents was 1.817, Kattunaykkan was 1.812, and Kurumba was 1.625. All indicators in the facility of education, economic opportunity, and consumption had very low average index values. Of the 4 indicators under health and family welfare, health awareness had the maximum value both in this group and in the entire group of 23 indicators.

These S - index values were divided into 4 categories:

1 to 2 - Vey low 2 to 3 - Low

3 to 4 - High 4 to 5 - Very High

Table No: 5.42

Facilities of indicators based on process aspects

S-Index values	Kadar	Kattunaykkan	Kurumba
Very Low	Lighting	Lighting	Lighting
	Sanitation	Sanitation	Sanitation
	Safe and Secure Residential Environment	Safe and Secure Residential Environment	Safe and Secure Residential Environment
	Educational Institutions from Primary to Higher Levels	Educational Institutions from Primary to Higher Levels	Educational Institutions from Primary to Higher Levels
	Home Environment for Studies	Home Environment for Studies	Home Environment for Studies
	Intrinsic Skill Development	Intrinsic Skill Development	Intrinsic Skill Development
	Ownership of Asset	Ownership of Asset	Ownership of Asset
	Income	Income	Income
	Savings	Savings	Savings
	Insurance	Insurance	Insurance
	Credit	Credit	Credit
	Food	Food	Food
	Non Food	Non Food	Non Food
	Health Care Institutions	Health Care Institutions	Health Care Institutions
	Programmes for Family Welfare	Programmes for Family Welfare	Programmes for Family Welfare
	Road and Transport Facilities	----------	Road and Transport Facilities
	Facilities for communication and Information	Facilities for communication and Information	Facilities for communication and Information
	----------	Opportunities to work	Opportunities to work

S-Index values	Kadar	Kattunaykkan	Kurumba
Low	Own House	Own House	Own House
	Drinking Water Sources	Drinking Water Sources	Drinking Water Sources
	Cooking fuel	Cooking fuel	Cooking fuel
	Opportunities to work	----------	----------
	----------	Road and transport facilities	----------
	Disease control	Disease control	Disease control
High	Health Awareness	Health Awareness	Health Awareness

Source: Primary survey, 2023

5.2.26 The Facility Index (T – Index)

Table No: 5.43

Average of T-index values

Facilities	Kadar		Kattunaykkan		Kurumba	
	Facility Indices	Score	Facility Indices	Score	Facility Indices	Score
Housing	1.98	Low	1.92	Low	1.89	Low
Education	1.50	Low	1.66	Low	1.39	Low
Occupation	2.00	Low	1.75	Low	1.46	Low
Economic Opportunities	1.42	Low	1.29	Low	1.17	Low
Consumptions	1.41	Low	1.56	Low	1.35	Low
Health and Family Welfare	2.43	Low	2.51	Low	2.28	Low
Transport, Communication, and Information	1.88	Low	1.90	Low	1.38	Low

Source: Primary survey, 2023

Each facility was associated with one or more indicators. The S-index values of all indicators under a given facility were utilized to calculate the index of that facility.

Tj = Sum of the S-index values of the indicators under facility j ÷ Number of indicators under facility j

(Tj = Index value of facility j)

The Tj of each tribal community was calculated for all seven facilities.

Consequently, for each community, there were seven Tj values. From there, the average T-index value corresponding to each facility was calculated for the 598 respondents. Thus, seven T-index values were obtained.

There was minimal variation in the T-index values across different facilities. All facilities in the Kadar, Kattunaykkan, and Kurumba tribal communities exhibited low scores.

5.2.27 The Human Rights based Human Development Index (U index)

This index was derived from the T-indices of seven facilities.

U-index = Sum of the T-index values of all seven facilities ÷ 7

For each tribal community, the U-index value was calculated. An average of the U-index values of 598 sample respondents was computed, yielding a single U-index value for each tribal community.

The average U-index value for the Kadar tribe was 1.802, for the Kattunaykkan was 1.798, and for the Kurumba was 1.560, with all three tribal communities indicating low scores. The categorization of the U-index values for the 598 sample respondents was as follows:

1 to 2: Very low	2 to 3: Low
3 to 4: High	4 to 5: Very high

The subsequent table presents the human development index of the Kadar, Kattunaykkan, and Kurumba tribal communities.

Table No: 5.44

Human rights based human development index of the Kadar, Kattunaykkan and Kurumba tribes in Kerala

Index (U index)	Average Score	Status
The Human Rights based Human Development Index of Kadar	1.802	Low
The Human Rights based Human Development Index of Kattunaykkan	1.798	Low
The Human Rights based Human Development Index of Kurumba	1.560	Low

Source: Primary survey, 2023

The Human Rights-Based Human Development Index (HRB-HDI) is a holistic metric that combines human rights principles with conventional development indicators. It evaluates not only economic well-being but also social and political aspects, ensuring a broader understanding of human development. The H.R.B-H.D.I scores for Kerala's three Particularly Vulnerable Tribal Groups (PVTGs) Kadar, Kattunaykkan, and Kurumba underscore notable disparities in development outcomes. Among these tribal communities, the Kadar tribe exhibits the highest H.R.B-H.D.I value at 1.802, followed closely by the Kattunaykkan tribe at 1.798. **T**he Kurumba tribe records a comparatively lower value of 1.560. This variation indicates significant differences in access to education, healthcare, livelihood opportunities, and overall quality of life among these groups. The relatively lower H.R.B-H.D.I scores among these tribes signify pronounced socio-economic vulnerabilities and persistent developmental challenges. When compared to the overall Human Development Index (HDI) of Kerala, which stands at 0.779 (U.N.D.P, 2019), and the H.D.I of the state's tribal population, which remains significantly lower at approximately 0.625 (Government of Kerala, 2018), it is evident that these tribal communities lag behind the general population in terms of human development. The H.R.B-H.D.I values of these tribes indicate that despite Kerala's overall progress in social development, tribal communities continue to face systemic barriers in education, healthcare, and economic participation.

The disparity between these H.R.B-H.D.I values and the state's general H.D.I underscores the need for more inclusive policies and targeted interventions. To bridge the development gap, government programs focusing on education, healthcare accessibility, and livelihood security must be strengthened. Special attention should be given to the PVTG tribes, which record the lowest H.R.B-H.D.I, indicating an urgent need for enhanced welfare measures to improve their socio-economic conditions.

In conclusion, while Kerala has made remarkable strides in human development, the H.R.B-H.D.I values of these tribal groups highlight persistent inequalities. Adopting a rights-based development approach that guarantees equitable access to resources and opportunities is vital for empowering these marginalized groups and fostering inclusive, holistic human development in Kerala.

Section III

5.3 Index of Deprivation

The index of deprivation measures the deficiency in four necessities of well-being: quality of housing, access to water, adequate sanitation, and electricity. The following indicators are utilized for constructing the index of deprivation:

Index of deprivation (D) = $[1/4 (d_1^{\alpha} + d_2^{\alpha} + d_3^{\alpha} + d_4^{\alpha})^{1/\alpha}]$

d_1 = percentage of households that do not own a house or live in uninhabitable dwellings

d_2 = percentage of households that lack access to safe drinking water

d_3 = percentage of households lacking a toilet or access to a clean toilet

d_4 = percentage of households without electricity

α = 3 (According to the human poverty index)

Table No: 5.45

Deprivation Index of Kadar, Kattunaykkan and Kurumba Tribes

Dimension	Values of deprivation				
	Kadar	**Kattunaykkan**	**Kurumba**	**ST average**	**General**
d_1	44.22	60.96	61.40	16.3	5.3
d_2	89.8	92.54	95.96	21.1	4.4
d_3	79.59	91.21	94.30	38.2	5.6
d_4	59.2	88.59	85.20	28.9	5.0
Index of deprivation	28.758	33.808	34.253	11.35	2.02

Source: Primary survey, 2023

Table 5.45 presents the deprivation index of the Kadar, Kattunaykkan, and Kurumba tribes in Kerala. The deprivation index for the Kadar tribe is 28.76 percent. The data indicate that 89.8 percent of Kadar households lack access to clean drinking water, and 79.59 percent do not have access to toilets. Additionally, 59.2 percent of Kadar households experience electricity shortages in their settlements. The situation of the Kurumba tribes is more severe than that of the Kadar and Kattunaykkan families. The deprivation index for the Kurumba tribes is 34.25 percent. Among Kurumba households, 95.96 percent lack access to clean drinking water, 94.30 percent do not have toilet facilities, and 85.20 percent experience electricity deprivation. The deprivation index for the Kattunaykkan tribe is 33.81 percent. In this group, 92.54 percent of households lack access to clean drinking water, and 91.21 percent lack toilet facilities.

According to the 2011 census, the scheduled tribe in Kerala has a deprivation index of 11.35 percent (16.3 percent are deprived of housing, 21.1 percent lack access to clean drinking water, 38.2 percent do not have toilets, and 28.9 percent do not have electricity). For the general population, the deprivation index is significantly lower at 2.02 percent (5.3 percent are deprived of housing, 4.4 percent lack access to clean drinking water, 5.6 percent do not have a toilet, and 5 percent do not have

electricity). Compared to both the general population and the scheduled tribe average, the deprivation indices for the Kadar, Kattunaykkan, and Kurumba tribes are substantially higher.

5.3.1 One-Way ANOVA Analysis of Deprivation Levels

To evaluate whether there are statistically significant differences in the levels of deprivation among five groups: Kadar, Kattunaykkan, Kurumba, Scheduled Tribe (ST) Average, and the General Population. A One-Way Analysis of Variance (ANOVA) was conducted using deprivation scores from four core dimensions (d1 to d4) for each group. This statistical test is appropriate for comparing the means of more than two independent groups on a continuous scale.

Table No: 5.46

The Deprivation Scores

Group	d1	d2	d3	d4
Kadar	44.22	89.8	79.59	59.2
Kattunaykkan	60.96	92.54	91.21	88.59
Kurumba	61.4	95.96	94.3	85.2
ST Average	16.3	21.1	38.2	28.9
General	5.3	4.4	5.6	5.0

Source: Primary survey, 2023

The ANOVA yielded an F-statistic of 26.02 with a corresponding p-value of 0.00000135. Since the p-value is significantly lower than the standard alpha level of 0.05, we reject the null hypothesis. This indicates that there are statistically significant differences in deprivation levels among the groups. Specifically, the tribal groups - Kadar, Kattunaykkan, and Kurumba - exhibit much higher deprivation scores compared to the Scheduled Tribe average and the General population.

The descriptive statistics show that the General community exhibits the lowest levels of deprivation across all dimensions. The One-Way ANOVA confirms that

disparities in deprivation exist across different population groups, with tribal communities facing a disproportionate burden. This finding underscores the need for focused policy interventions and inclusive development strategies.

Considering the severe levels of deprivation identified across housing, access to safe drinking water, sanitation, and electricity among the Kadar, Kattunaykkan, and Kurumba communities, it is imperative to implement targeted and integrated policy interventions. Housing schemes should be expanded to ensure that every household owns a safe and habitable dwelling, with special provisions for remote tribal settlements. Simultaneously, investments must be directed towards establishing reliable drinking water infrastructure, including rainwater harvesting systems and community-managed water sources, tailored to the geographical conditions of tribal areas. Inadequate sanitation facilities call for the urgent construction of hygienic toilets and the promotion of community-led total sanitation programs to improve public health outcomes. Moreover, electrification drives should prioritize tribal hamlets through the extension of the grid and adoption of off-grid renewable energy solutions where necessary. These interventions must be developed through participatory planning involving tribal communities to ensure that solutions are culturally appropriate, sustainable, and capable of bridging the glaring gaps in basic living standards highlighted by the analysis.

5.3.2 Post-Hoc Analysis Using Tukey HSD Test

The objective of the post-hoc Tukey HSD test is to determine which specific group differences are statistically significant after identifying an overall significant difference in deprivation levels through ANOVA. The Tukey Honestly Significant Difference (HSD) test was applied to deprivation data across five groups: Kadar, Kattunaykkan, Kurumba, Scheduled Tribe (ST) Average, and General Population. Each group had four deprivation scores corresponding to four different dimensions.

Table No: 5.47

The results of the Tukey HSD test

Comparison	Mean Difference	p-value	Confidence Interval	Significant
Kadar vs General	High	< 0.001	Yes	Yes
Kattunaykkan vs General	Very High	< 0.001	Yes	Yes
Kurumba vs General	Very High	< 0.001	Yes	Yes
Kadar vs ST Average	Moderate	0.006	Yes	Yes
Kattunaykkan vs ST Average	High	< 0.001	Yes	Yes
Kurumba vs ST Average	High	< 0.001	Yes	Yes
Kadar vs Kattunaykkan	Small	> 0.05	No	No
Kadar vs Kurumba	Small	> 0.05	No	No
Kattunaykkan vs Kurumba	Tiny	> 0.05	No	No

Source: Primary survey, 2023

The post-hoc Tukey HSD test reveals that there are statistically significant differences in deprivation levels between each of the tribal groups and both the Scheduled Tribe average and the General population. However, there is no statistically significant difference among the tribal groups themselves - Kadar, Kattunaykkan, and Kurumba. This finding suggests a uniformly high level of deprivation among the tribal groups, contrasting sharply with the lower levels found in the Scheduled tribe average and General population.

Section IV

5.4 Multidimensional Poverty Index

The Multidimensional Poverty Index (MPI) captures the diverse dimensions of deprivation experienced by individuals, analyzing both the incidence and the intensity of poverty. A single indicator is often inadequate to reflect the multifaceted nature of poverty. It is essential to identify the multiple and interconnected

dimensions of poverty for effective policy formulation. The M.P.I incorporates various dimensions of poverty and calculates poverty through the evaluation of the deprivation experienced by individuals. It identifies the percentage of people who are poor and the intensity of poverty they endure. This section will analyze the multidimensional poverty index of the Kadar, Kattunaykkan, and Kurumba tribes in the Thrissur, Wayanad, and Palakkad districts.

Table No: 5.48

Dimensions and Indicators of the Multidimensional Poverty Index (MPI)

Dimensions	Weight	Indicators	Weight
Education	1/3	1. Duration of Schooling	1/6
		2. School Attendance (Children)	1/6
Health	1/3	3. Child Mortality Rate	1/6
		4. Nutritional Status	1/6
Living Standard	1/3	5. Access to Electricity	1/18
		6. Improved Sanitation	1/18
		7. Safe Drinking Water	1/18
		8. Flooring	1/18
		9. Cooking fuel	1/18
		10. Assets	1/18

Source: Alkire, S., & Foster, J. (2011). *Counting and multidimensional poverty measurement.*

5.4.1 Deprivation on the basis of Health Indicators

Healthcare remains one of the most pressing challenges in the tribal regions of Wayanad, Palakkad, and Thrissur. The absence of clean drinking water, nutritional deficiencies, alcohol consumption, and tobacco-chewing habits significantly deteriorate the health status of tribal communities. In calculating deprivation based on health, two indicators are considered: child mortality and malnutrition. Child mortality is measured by identifying whether any child in the household has died within the five years preceding the study. Nutritional deprivation is assessed at the

household level, where the presence of at least one undernourished individual result in the entire household being classified as nutritionally deprived. This approach acknowledges the shared impact of malnutrition within a household, as inadequate nutrition for one member often reflects broader food insecurity and limited access to essential nutrients for the entire family (Alkire & Foster, 2011). Addressing household-level nutritional deficiencies is crucial for improving overall well-being and ensuring equitable access to food and healthcare resources.

Table No: 5.49

Deprivation on the basis of health among Kadar, Kattunaykkan and Kurumba tribes

Indicator	Kadar	Kattunaykkan	Kurumba
Nutrition (% of affected respondents)*	79.59 (n=117)	88.16 (n=201)	92.38 (n=206)
Child Mortality (% of affected respondents)**	5.44 (n=8)	4.82 (n=11)	16.59 (n=37)

Source: Primary survey, 2023

**any adult or child in the household malnourished (BMI, malnutrition, Hemoglobin, anaemia)*

*** Any child in the family has died below 5 year*

Table 5.49 indicates that 87.62 percent of tribes were nutritionally deprived, with the highest rates observed in the Kurumba (92.38) and Kattunaykkan (88.16) communities. Child mortality rates were 16.59 percent in the Kurumba tribe and 5.44 percent in the Kadar tribe. The prevalence of health issues in tribal regions is largely attributed to inadequate access to clean drinking water and sanitation facilities. Furthermore, a general reluctance among tribal populations to seek medical diagnosis and treatment was observed.

5.4.2 Deprivation Based on Education Indicators

Education and literacy are fundamental components of human development and play a crucial role in the Kerala model of development. However, Scheduled Tribes (STs) in Kerala remain among the most educationally marginalized communities, facing

significant deprivation in terms of literacy and schooling. Educational attainment is assessed using two key indicators: years of schooling and child school enrolment (Dreze & Sen, 2013).

The years of schooling indicator reflects the literacy and comprehension levels of household members. A household is classified as educationally deprived if no member has completed at least five years of formal schooling. Similarly, child school enrollment acts as a vital indicator of educational access.

A household is considered deprived if at least one school-age child is not attending school (Desai & Kulkarni, 2018).

Table 5.50 presents the extent of educational deprivation among the Kadar, Kattunaykkan, and Kurumba tribal communities in Kerala, highlighting the disparities in educational attainment across these marginalized groups. Addressing these educational gaps requires targeted policy interventions, including improved access to quality education, scholarship programs, and community-driven initiatives aimed at increasing school retention rates among tribal populations (U.N.D.P, 2023).

Table No: 5.50

Deprivation on the basis of Education among Kadar, Kattunaykkan and Kurumba tribes

Indicator	Kadar	Kattunaykkan	Kurumba
Households with No Member Completing Five Years of Schooling (%)	31.97 (n=47)	39.03 (n=89)	52.47 (n=117)
Households with at Least One Child Not Attending School (%)	25.87 (n=38)	26.75 (n=61)	43.49 (n=97)

Source: Primary survey, 2023

Table 5.50 shows that 42.31% of tribal households were deprived in terms of years of schooling, with the Kurumba community experiencing the highest rate. 32.78 percent of households were deprived of school enrollment, which was also the highest in the Kurumba community. Among the Kattunaykkan community, 39.03%

of households lacked adequate years of schooling, while 26.75% had at least one child not attending school. 31.97 percent of Kadar households were deprived of years of schooling. The government has launched several programs aimed at advancing tribal education. Tribal Sub Plans emphasize tribal education; however, the problem of educational dropout remains higher among tribes compared to the mainstream population (Suresh, 2015). Relative to other states, Kerala is considered an educationally advanced state due to its high literacy rate and improved student enrollment. In Kerala, educational development indicators were above the national level, but the disparity between non-SC/STs and tribal communities persists (Suresh, 2015).

5.4.3 Deprivation Based on Standard of Living Indicators

The standard of living is a crucial dimension in assessing overall well-being, particularly among tribal communities. This dimension is assessed using six core indicators: electricity, cooking fuel, sanitation, flooring, access to clean drinking water, and household assets (U.N.D.P, 2023). These indicators collectively reflect the quality of living conditions and access to essential resources necessary for a dignified life. Table 5.51 reveals that 80.1% of tribal households experience deprivation in terms of electricity access, with the highest level of deprivation observed among the Kattunaykkan community. Electricity is a basic necessity that improves quality of life by providing lighting, enhancing safety, and enabling household activities after dark. The absence of electricity limits educational opportunities, economic productivity, and access to modern technology, further exacerbating socio-economic disparities (Sen & Dreze, 2013).

A household is classified as deprived in terms of cooking fuel if it relies on wood, coal, straw, or dung for cooking. Overall, 98.49% of tribal households were deprived in this category, primarily relying on firewood for cooking. Access to clean cooking fuel is a crucial aspect of improving public health and reducing environmental pollution. In response to the widespread dependence on traditional biomass fuels such as firewood, coal, and cow dung cakes, the Government of India launched the Pradhan Mantri Ujjwala Yojana (PMUY) in 2016 to provide liquefied petroleum gas

(LPG) connections to economically disadvantaged and rural households (Ministry of Petroleum and Natural Gas, 2023).

Table No: 5.51

Deprivation on the Basis of Standard of Living

Indicator	Kadar	Kattunaykkan	Kurumba
Households Without Electricity (%)	59.2 (n=87)	88.59 (n=202)	85.59 (n=190)
Households Using Traditional Fuel (%)	93.87 (n=138)	100 (n=228)	100 (n=223)
Households Without Proper Sanitation (%)	79.59 (n=117)	91.21 (n=192)	94.30 (n=188)
Households Without Durable Flooring (%)	44.21 (n=65)	60.96 (n=139)	61.40 (n=137)
Households Without Access to Clean and Safe Drinking Water (%)	89.79 (n=132)	83.33 (n=190)	61.88 (n=138)
Households Without Basic Assets (%)	49.65 (n=73)	77.63 (n=177)	59.64 (n=133)

Source: Primary survey, 2023

The Ujjwala scheme aims to alleviate the health hazards associated with indoor air pollution caused by the burning of solid fuels. Under this initiative, tribal and marginalized communities are provided with free LPG connections and an initial full gas cylinder to encourage the adoption of cleaner cooking methods. However, beneficiaries must purchase the stove independently, which poses a financial burden for many low-income households (N.I.T.I Aayog, 2022).

A majority of tribal households (102) practiced open defecation due to the lack of functional sanitation facilities. 83.11 percent of tribal households are deprived based on the sanitation indicator. This deprivation was particularly high in Kurumba (94.30 percent) and Kattunaykkan (91.21 percent) communities. Although toilets were constructed by the government near tribal settlements, acute water shortages

render them largely unused. Water availability is a significant challenge for tribal households. The lack of proper sanitation facilities and the use of open spaces by these tribes contribute to the outbreak of communicable diseases during the winter season, resulting in increased morbidity among these communities. Deprivation in terms of flooring is defined as households with dirt floors. 57.02 percent of households were deprived in this aspect, primarily using cow dung for flooring. This deprivation was highest in Kurumba (61.40 percent) and Kattunaykkan (60.96 percent) communities. The findings indicate that 76.92% of households lacked access to clean and safe drinking water in their immediate environment. This deprivation was particularly high in Kadar (89.79 percent) and Kattunaykkan (83.33 percent) communities. Asset holding is another indicator of the standard of living. 64.04 percent of households were deprived of asset holding, with the highest rates observed in Kattunaykkan (77.63 percent) and Kurumba (59.64 percent) communities.

5.4.4 Indicator wise deprivation of tribal communities

Table No: 5.52

Indicator wise Deprivation of Sample Respondents

Indicators	Kadar	Kattunaykkan	Kurumba
Years of schooling	14.23	13.49	14.05
Child school attendance	0.97	0.74	2.52
Child mortality	5.72	5.97	7.98
Nutrition	4.62	4.09	6.63
Electricity	10.58	13.56	12.96
Sanitation	14.23	12.89	12.82
Drinking water	16.06	12.75	9.41
Flooring	7.91	9.33	9.35
Cooking fuel	16.79	15.30	15.21
Assets	8.89	11.88	9.07

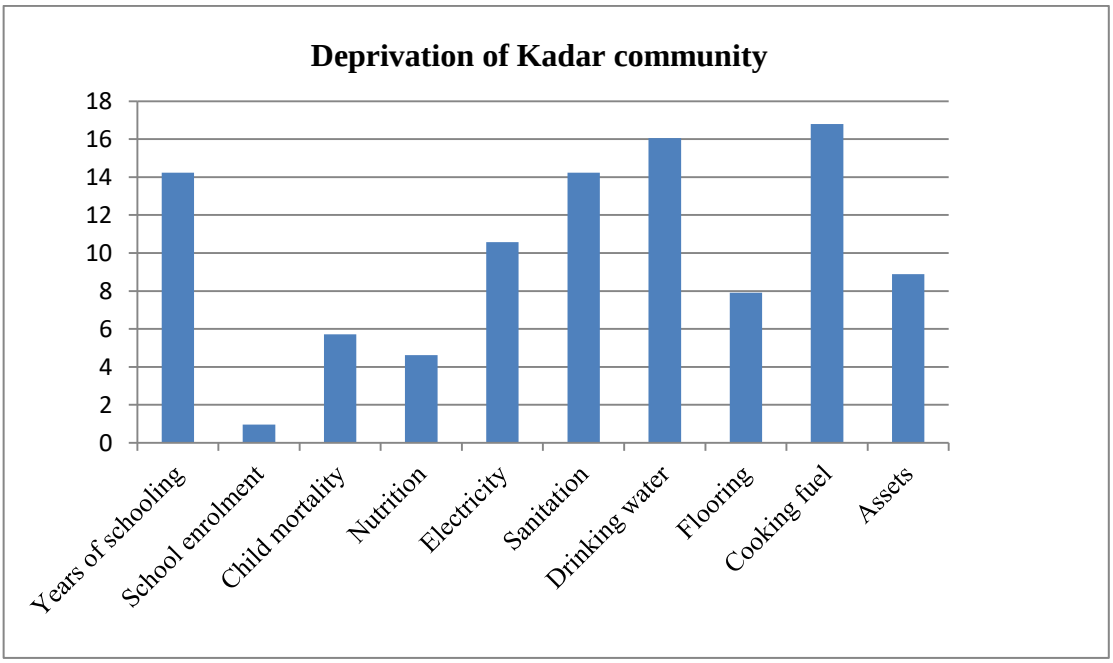
Source: Primary survey, 2023

Each community exhibits varying levels of deprivation across different indicators. Table 5.52 illustrates the deprivation of tribal communities based on these

indicators, elucidating the contribution of each indicator to the total deprivation among different communities.

Figure No: 5.1

Deprivation of Kadar Community

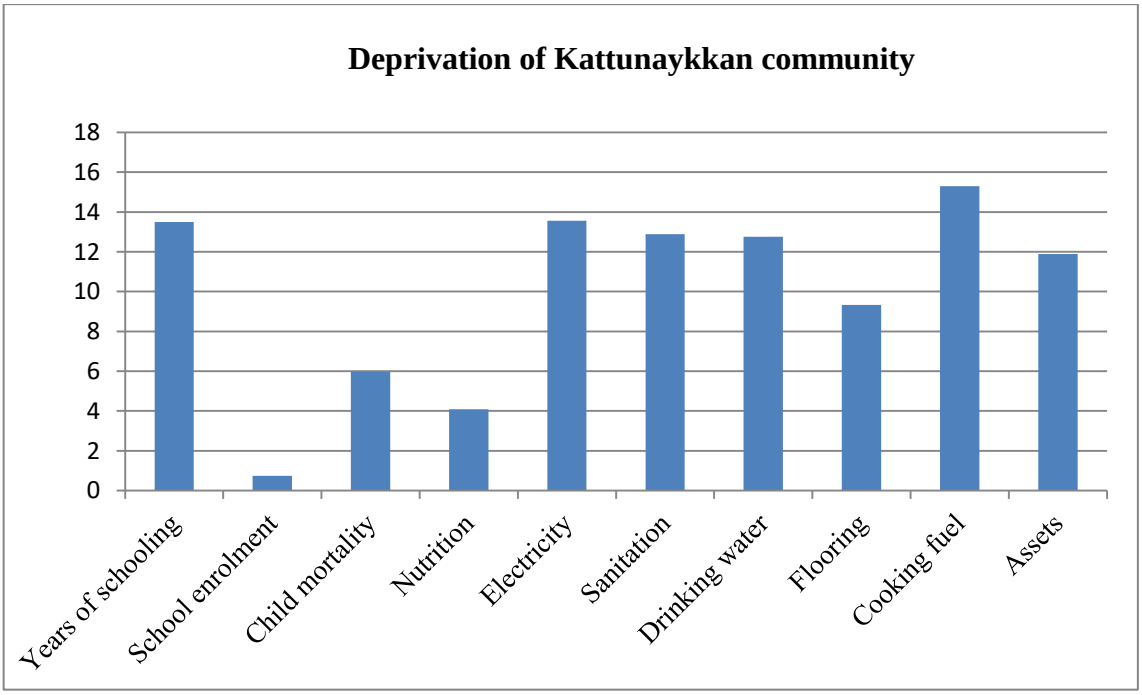


Source: Primary survey, 2023

The Kadar community is the most populous PVTG community in Thrissur district. This community experiences high levels of deprivation in drinking water and cooking fuel. The health dimension constitutes 10.34 percent of their overall deprivation. The majority of houses in the Kadar community were constructed using the PVTG package. However, many of these houses were built in the distant past and are now in a dilapidated state. Deprivation in other indicators is as follows: electricity (10.58 percent), assets (8.89 percent), sanitation (14.23 percent), years of schooling (14.23 percent), school enrollment (0.97 percent), and flooring (7.91 percent).

Figure No: 5.2

Deprivation of Kattunaykkan community

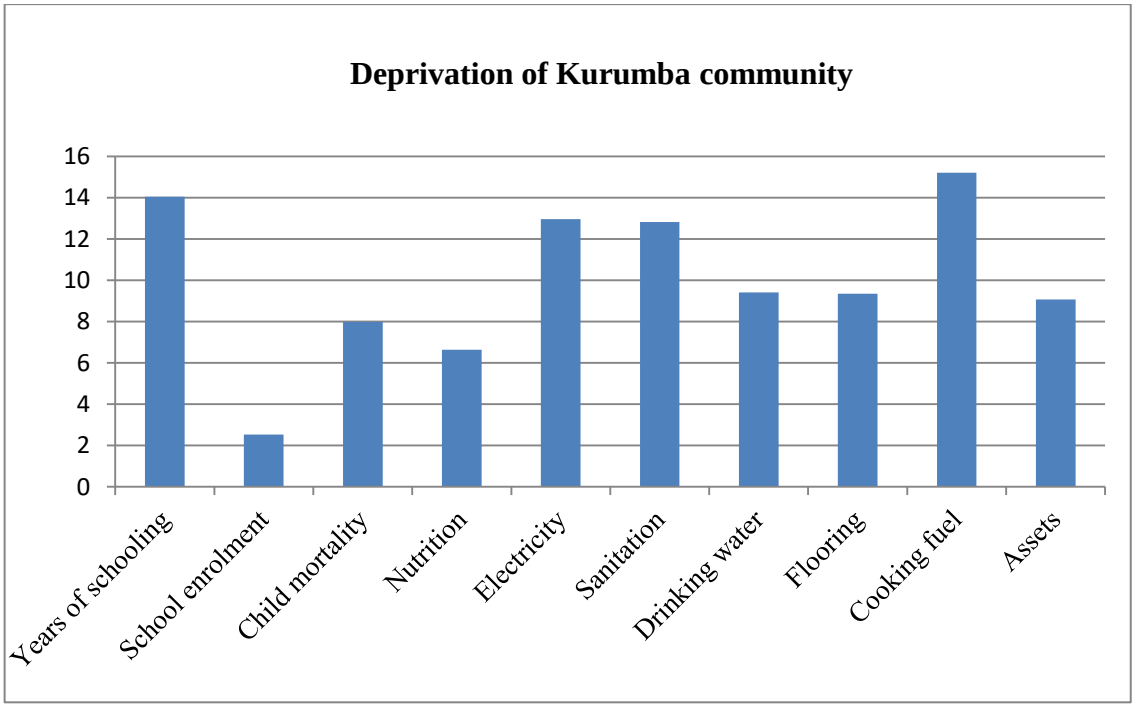


Source: Primary survey, 2023

The Kattunaykkan community is the most disadvantaged Particularly Vulnerable Tribal Group (PVTG) in the Wayanad district, experiencing deprivation across all ten indicators. The Kattunaykkan community exhibits severe deprivation in cooking fuel (15.30 percent). Deprivation in other indicators includes floor (9.33 percent), sanitation (12.89 percent), nutrition (4.09 percent), drinking water (12.75 percent), assets (11.88 percent), years of schooling (13.49 percent), school enrollment (0.74 percent), electricity (13.56 percent), and child mortality (5.97 percent).

Figure No: 5.3

Deprivation of Kurumba Community



Source: Primary survey, 2023

The Kurumba community is the most populous PVTG in Palakkad district. This community experiences significant deprivation in cooking fuel and years of schooling indicators. The health dimension constitutes 14.61 percent of their deprivation. The majority of houses in the Kurumba community were constructed using the PVTG package. The standard of living dimension accounts for 68.82 percent of deprivation (electricity 12.96 percent, assets 9.07 percent, sanitation 12.82 percent, safe drinking water 9.41 percent, and flooring 9.35 percent).

5.4.5 Dimension wise deprivation of tribal communities

The Multidimensional Poverty Index (MPI) is calculated based on three dimensions - health, education, and standard of living - each comprising specific indicators. Table 5.53 presents the dimension-wise deprivation levels among the Kadar, Kattunaykkan, and Kurumba tribal communities.

Table No: 5.53

Dimension wise deprivation of sample respondents

Dimension	Percentage of Kadar	Percentage of Kattunaykkan	Percentage of Kurumba
Health	15.21	14.23	16.58
Education	10.34	10.07	14.60
Living standard	74.45	75.70	68.82

Source: Primary survey, 2023

The study included 598 women respondents from the Kadar (147), Kattunaykkan (228), and Kurumba (223) communities in the Thrissur, Wayanad, and Palakkad districts. These respondents experienced varying degrees of deprivation across the dimensions of health, education, and standard of living. In the dimension-wise analysis (Table 5.53), Particularly Vulnerable Tribal Groups (PVTG) demonstrate high deprivation in the standard of living indicators, contributing 74.45 percent from Kadar, 75.70 percent from Kattunaykkan, and 68.82 percent from Kurumba tribes. The health dimension accounts for 15.21 percent in Kadar, 14.23 percent in Kattunaykkan, and 16.58 percent in Kurumba. All three communities were fully deprived in terms of cooking fuel, as they primarily relied on firewood for cooking.

5.4.6 Headcount Ratio of Kadar, Kattunaykkan and Kurumba tribes

The headcount ratio (H) represents the proportion of poor people, implying those deprived in at least one-third of the weighted indicators. Table 5.54 illustrates the headcount ratio of Kadar, Kattunaykkan, and Kurumba tribal communities.

Table No: 5.54

Headcount Ratio of Sample Respondents

Indicator	Kadar	Kattunaykkan	Kurumba
Total number of households	147	228	223
Number of deprived households	122	213	218
Percent of deprived	82.99	93.42	97.75
Head count ratio	0.829	0.934	0.977

Source: Primary survey, 2023

The headcount ratio of Kadar, Kattunaykkan, and Kurumba communities reveals that 82.99 percent of Kadar, 93.42 percent of Kattunaykkan, and 97.75 percent of Kurumba tribes are living in a multidimensionally poor state. They are deprived of all the indicators of a single dimension or a combination across dimensions.

5.4.7 The Intensity of Poverty of Kadar, Kattunaykkan and Kurumba tribes

The intensity of poverty represents the average number of deprivations experienced simultaneously by individuals classified as poor. This measure is vital in the Multidimensional Poverty Index (MPI), which evaluates poverty beyond income by incorporating dimensions such as education, health, and living standards (Alkire & Santos, 2010). The intensity of poverty (A) captures the average share of weighted indicators in which deprived individuals experience hardship. It is calculated by summing the deprivation scores of poor households and dividing by the total number of poor individuals (United Nations Development Programme, 2023). This method provides a more nuanced understanding of poverty, allowing policymakers to address specific areas of deprivation more effectively.

In the M.P.I framework, education and health dimensions are equally weighted at 1/6 (16.7%), whereas each standard of living indicator carries a weight of 1/18 (5.6%) (Oxford Poverty and Human Development Initiative, 2022). These weightings ensure that the relative importance of different forms of deprivation is adequately reflected, leading to a more comprehensive assessment of poverty levels across different populations.

Table No: 5.55

Intensity of Poverty of Kadar, Kattunaykkan and Kurumba tribes

Indicator	Kadar	Kattunaykkan	Kurumba
Weighted score of the deprived	69.94	126.05	137.16
Number of deprived households	122	213	218
Intensity of poverty	0.573	0.591	0.629

Source: Primary survey, 2023

Table 5.55 presents the intensity of poverty in Kadar, Kattunaykkan, and Kurumba tribal communities. The intensity of poverty is highest in the Kurumba community (0.629 percent), followed by Kattunaykkan (0.591 percent) and Kadar (0.573 percent).

5.4.8 Multidimensional Poverty Index of Kadar, Kattunaykkan and Kurumba tribes

The Multidimensional Poverty Index (MPI) is a comprehensive measure of poverty that considers multiple deprivations beyond income levels. It is calculated as the product of the headcount ratio (H)**,** which represents the proportion of people who are multi-dimensionally poor, and the average intensity of poverty (A)**,** which reflects the extent of deprivation among the poor (Alkire & Foster, 2011). Mathematically, the M.P.I is expressed as MPI = H × A**,** providing a holistic framework for understanding and addressing poverty (United Nations Development Programme, 2023).

Table No: 5.56

Multidimensional Poverty Index of Kadar, Kattunaykkan and Kurumba Tribes

Indicator	Kadar	Kattunaykkan	Kurumba
Head count ratio (H)	0.829	0.934	0.977
Intensity of poverty (A)	0.573	0.591	0.629
Multidimensional poverty index (MPI)	0.475	0.551	0.614

Source: Primary survey, 2023

Table 5.56 reveals the Multidimensional Poverty Index of Kadar, Kattunaykkan, and Kurumba tribes in Thrissur, Wayanad, and Palakkad districts. The findings indicate that the M.P.I score is highest in the Kurumba community (0.614), followed by the Kattunaykkan (0.551) and Kadar (0.475) tribes. Among the Kurumba, 97.7% of those identified as poor were deprived across all measured indicators. According to M.P.I thresholds, communities are classified into severe poverty (≥33.3), vulnerable poverty (20–33.2), and low poverty (<20). All three communities exhibit M.P.I

values of ≥33.3, indicating that they are experiencing severe poverty. As per N.I.T.I Aayog's report "The National Multidimensional Poverty Index: A Progress Review 2023", India's M.P.I stood at 0.066, while Kerala reported a significantly lower M.P.I of 0.002 for 2019–21. However, disparities remain within Kerala, with 0.003 of the rural population and 0.001 of the urban population identified as multidimensionally poor in 2019–21. This indicates that Kerala's performance is significantly better when compared to the national M.P.I value. The M.P.I values for Thrissur, Wayanad, and Palakkad districts are 0.001, 0.011, and 0.005, respectively. Nonetheless, tribal communities remain marginalized and continue to live under vulnerable socio-economic conditions. The study reveals that the M.P.I score of the Kurumba community is 0.614, followed by Kattunaykkan (0.551) and Kadar (0.475). These scores are considerably higher than the national average, indicating that Particularly Vulnerable Tribal Groups (PVTGs) are experiencing severe deprivation.

Section V

5.5 Institutional interventions and impacts associated with the development of PVTG tribes in Kerala

The Particularly Vulnerable Tribal Groups (PVTGs) in Kerala, including the Kadar, Kurumba, and Kattunaykkan tribes, have historically faced severe socio-economic disadvantages due to their geographical isolation, economic vulnerabilities, and lack of access to education and healthcare. To mitigate these challenges, the Kerala Scheduled Tribes Development Department (KSTDD), along with central and state-sponsored schemes, has implemented targeted programs to improve their living standards, education, healthcare, and economic self-sufficiency. Key initiatives include the Vanbandhu Kalyan Yojana (VKY), which focuses on infrastructure and livelihood support (Ministry of Tribal Affairs, 2020), and the PVTG Development Program, which promotes micro-projects to enhance sustainable agriculture and economic empowerment (National Commission for Scheduled Tribes, 2022). Additionally, educational interventions such as tribal residential schools,

scholarships, and skill training programs have contributed to improved literacy rates and employment prospects among PVTGs (Census of India, 2011).

These institutional efforts have significantly impacted the socio-economic conditions of PVTG communities in Kerala. Improved school access, lower dropout rates, and skill development initiatives have contributed to rising education and literacy levels. Health initiatives, including community health centers, maternal care programs, and nutrition support, have helped lower infant mortality rates and malnutrition levels among tribal populations (Kerala State Planning Board, 2019). Additionally, economic programs that promote livelihood diversification and financial inclusion have enabled PVTGs to transition from forest-dependent subsistence activities to structured employment opportunities. Infrastructure development, such as the provision of clean drinking water, electricity, sanitation, and housing, has further enhanced their overall quality of life (Government of Kerala, 2021).

Despite these positive developments, several challenges persist, including poverty, land alienation, and healthcare accessibility. These issues are especially severe among Kadar, Kattunaykkan, and Kurumba tribal women, who experience pronounced deprivation in education, employment, and healthcare. Limited access to maternal healthcare, higher rates of anemia, and lack of economic independence hinder their well-being and development (Planning Board, Kerala, 2017). Ensuring sustained policy implementation, greater community participation, and culturally sensitive development strategies remains essential for the holistic empowerment of these tribal groups. Strengthening institutional coordination and monitoring mechanisms can further enhance the effectiveness of these interventions, allowing Kadar, Kattunaykkan, and Kurumba tribal women to achieve greater social integration and economic independence while preserving their cultural heritage and traditional knowledge systems (National Commission for Scheduled Tribes, 2022).

5.5.1 Land

Landlessness is a critical issue among the tribes that needs immediate attention. Any shortcomings in the implementation of the land allotment program by the T.R.D.M

(Tribal Resettlement and Development Mission), known as "Aasikkum Bhoomi Aadivasikku Swantham," should be identified and rectified.

Table No: 5.57

Type of land in Kadar, Kattunaykkan and Kurumba sample respondents

Status of land	Kadar		Kattunaykkan		Kurumba	
	No. of respondents	Per-centage	No. of respondents	Per-centage	No. of respondents	Per-centage
Heriditary	7	4.76	24	10.53	58	26.01
Land under possession	62	42.17	55	24.12	11	4.93
Forest land without title	53	36.05	89	39.04	43	19.28
Own	3	2.05	11	4.82	4	1.79
Government rehabilitated land	21	14.29	32	14.04	5	2.24
Others	1	0.68	17	7.45	102	45.75
Total	147	100	228	100	223	100

Source: Primary survey, 2023

Land ownership is a vital determinant of the socio-economic well-being of tribal communities, influencing livelihood, housing stability, and eligibility for government schemes. The data on land ownership among the Kadar, Kattunaykkan, and Kurumba tribes reveal notable variations in land possession and access. Hereditary land ownership is relatively low among the Kadar (4.76%) and Kattunaykkan (10.53%) but significantly higher among the Kurumba (26.01%), indicating a stronger generational continuity in land possession within the latter community. A substantial portion of the Kadar (42.17%) and Kattunaykkan (24.12%) respondents possess land without legal titles, while this figure is much lower for the Kurumba (4.93%). Additionally, many respondents occupy forest land without ownership rights, with the highest proportion among the Kattunaykkan (39.04%), followed by the Kadar (36.05%) and Kurumba (19.28%). Private land ownership is limited among all three tribes, with legal titles held by just 2.05% of Kadar, 4.82% of Kattunaykkan, and 1.79% of Kurumba respondents. Government rehabilitation programs have provided land to 14.29% of Kadar, 14.04% of Kattunaykkan, and 2.24% of Kurumba respondents, indicating some level of state

intervention in land distribution. However, a significant proportion of the Kurumba (45.75%) fall under the "Others" category, suggesting reliance on informal or customary land arrangements. These findings reveal stark disparities in land access, as many tribal households lack legal titles, restricting their eligibility for financial credit and welfare schemes. Addressing these challenges requires policy interventions, including legal recognition of land rights and improved access to land redistribution programs to ensure the socio-economic development of these marginalized communities.

5.5.2 Housing

Housing is a fundamental necessity for every human being, providing security and facilitating understanding of their social life. It also reflects a person's economic status and overall quality of life. The materials utilized for constructing housing units are crucial determinants of quality of life. Individuals residing in substandard or slum-like housing conditions experience poor health, low educational attainment, and other adverse outcomes (Alkire, 2008).

Table No: 5.58

Housing status of Kadar, Kattunaykkan and Kurumba Sample Respondents

Type of house	Kadar		Kattunaykkan		Kurumba	
	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage
Pacca	82	55.78	89	39.04	86	38.60
Kutcha	65	44.22	139	60.96	137	61.40
Total	147	100	228	100	223	100

Source: Primary survey, 2023

The Tribal Development Department prioritizes the rehabilitation of landless and houseless tribal communities through land allotment schemes, housing projects, and sustainable livelihood programs aimed at improving socio-economic stability

(Ministry of Tribal Affairs, 2021). However, persistent issues like land disputes, bureaucratic inefficiencies, and poor infrastructure highlight the need for stronger policy enforcement and greater community involvement (Government of Kerala, 2022). The government spent four lakhs' rupees to allocate for the housing of each PVTG tribal household. The housing schemes for the Kadar, Kattunaykkan, and Kurumba tribes have been consistently implemented throughout all plan periods.

Housing conditions are classified as permanent (pacca) or temporary (kutcha). Table 5.58 indicates that 61.40 percent of Kurumba, 60.96 percent of Kattunaykkan, and 44.22 percent of Kadar households reside in Kutcha houses. The government-constructed houses (82 for Kadar, 89 for Kattunaykkan, and 109 for Kurumba) follow a similar construction pattern. It comprises two bedrooms, one central hall, a kitchen, and a small sit-out area. These structures, however, do not incorporate traditional elements or address specific tribal needs, instead mirroring urban Kerala housing designs. The project encompassed comprehensive house construction, including electrical connectivity.

5.5.3 Case Studies on housing status

Kattunaykkan: Panchami Colony, Wayanad

In a group discussion held at the Panchami tribal colony in Wayanad district, a tribal woman elucidated the situation regarding government-constructed houses. She explained that the houses were poorly planned, with leaking roofs being a common issue, especially during the monsoon season. The tribal women in the Panchami colony asserted that the construction contractors were corrupt and utilized substandard materials. They claimed that raw materials like sand and cement were improperly mixed, compromising construction quality. One tribal member stated that while they receive funds from government authorities for house construction, these are disbursed in instalments (the panchayat provides 50,000 rupees as the first instalment, Rs. 1,25,000 as the second instalment, Rs. 1,50,000 as the third instalment, and Rs. 75,000 as the fourth instalment). As a result, government funds alone are insufficient, requiring tribal households to contribute additional money to complete construction. They stated that they had never seen a government-

constructed house that fulfilled all basic living standards. The houses lack proper ventilation facilities. Doors and windows were not initially provided, and when present, were constructed of inferior materials. Chimneys were not installed in the houses, resulting in kitchens frequently filling with heavy smoke. The community members stated that despite repeatedly bringing these issues to the attention of authorities, they have not received adequate solutions. Residents expressed dissatisfaction with the overall quality of government-built houses, citing inadequate ventilation, absence or poor quality of doors and windows, and lack of chimneys, leading to smoke-filled kitchens. Despite repeatedly bringing these concerns to the attention of authorities, the community reported a lack of satisfactory resolutions.

Kadar house

Traditional house of Kadar tribes

Govt. Constructed house of Kadar tribes

5.5.4 Type of flooring

The type of flooring serves as an indicator of the standard of living in households. Roofing status is categorized as concrete, mud, cow dung, wood, red oxide, and tiles. The government-constructed PVTG houses feature concrete, tile, and red oxide flooring.

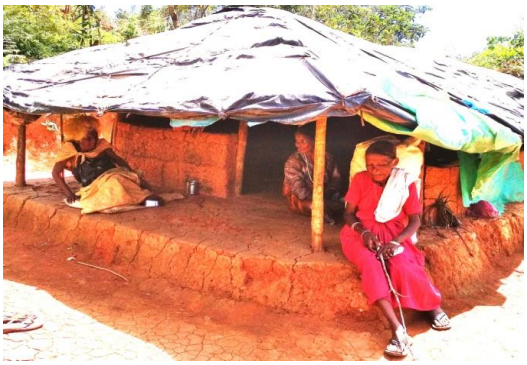
Table No: 5.59

Type of flooring in Kadar, Kattunaykkan and Kurumba sample respondents

Type of floor	Kadar		Kattunaykkan		Kurumba	
	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage
Concrete	39	26.5	27	11.8	43	19.3
Mud	23	15.6	59	25.9	62	27.8
Cow dung	28	19.0	57	25.0	52	23.3
Wood	14	9.5	23	10.1	23	10.3
Red Oxide	17	11.6	21	9.2	24	10.8
Tiles	26	17.7	41	18.0	19	8.5
Total	147		228		223	

Source: Primary survey, 2023

Table 5.59 presents the flooring conditions of the Kadar, Kattunaykkan, and Kurumba tribes. A significant proportion of Kattunaykkan (25.9%) and Kurumba (27.8%) households have mud floors in their homes. In contrast, concrete flooring is found in 26.5 percent of Kadar households. Additionally, 25 percent of Kattunaykkan residences feature cow dung flooring. Tiled and concrete floorings are common in Kadar homes, indicating that 55.78 percent of Kadar constructions fall under the PVTG (Particularly Vulnerable Tribal Groups) package.



Flooring type of Kattunaykkan Tribal Community in Wayanad

5.5.5 Sources of energy for lighting

Table 5.60 shows the lighting sources used by the Kadar, Kattunaykkan, and Kurumba communities. Electricity is the main source for 40.8% of Kadar, 17.5% of Kattunaykkan, and 38.1% of Kurumba households. A large portion of unelectrified houses is found in the Kattunaykkan community, where 10.1% of homes have solar panels. Solar panels are present in 10.1 percent of Kattunaykkan residences. The study revealed that solar lamps in most settlements are non-functional. The government has electrified 40 Kattunaykkan and 85 Kurumba houses, achieving 100 percent electrification in constructed dwellings. However, due to insufficient income, Kattunaykkan and Kurumba communities struggle to pay monthly electricity bills, resulting in disconnections for 14 Kattunaykkan and 52 Kurumba households. An analysis of the impact of these programs indicates that while physical implementation is reasonably successful, the utilization of scheme benefits falls short of expectations.

Table No: 5.60

Lighting status of Kadar, Kattunaykkan and Kurumba sample respondents

Source of Energy	Kadar		Kattunaykkan		Kurumba	
	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage
Electricity	60	40.8	40	17.5	85	38.1
Solar	0	0.0	23	10.1	0	0.0
Kerosene	22	15.0	41	18.0	65	29.1
Others	65	44.2	124	54.4	73	32.8
Total	147	100	228	100	223	100

Source: Primary survey, 2023

Solar panel construction in Kattunaykkan tribal communities in Wayanad

5.5.6 Drinking water

Table 5.61 explains the sources of drinking water for the Kadar, Kattunaykkan, and Kurumba communities. The Tribal Development Department has prioritized delivering drinking water facilities to Particularly Vulnerable Tribal Groups (PVTGs). Natural sources and tap water account for 60.55 percent of water consumption in Kadar households. The Jalanithi project implemented several years ago in Kadar settlements, was once a significant source of drinking water. However, this project is no longer operational, and most residents now rely on the Chalakudy River for their water needs. The river is used for washing, bathing, and drinking, potentially compromising water quality and increasing the risk of disease transmission. Natural sources serve as drinking water for 32.89 percent of Kattunaykkan families, who collect water from ‘Kuzhikkinar’ (a small excavation near the Karappuzha dam) and ‘Kolly’ (water falling from the hillside). Fifteen Kattunaykkan households possess private wells constructed under the M.G.N.R.E.G.A scheme. Natural sources and tap water account for 48.43 percent of water consumption among Kurumba tribes, while 34.08 percent rely on public taps for their water supply.

Table No: 5.61

Drinking Water Source of Kadar, Kattunaykkan and Kurumba Sample Respondents

Source of drinking water	Kadar		Kattunaykkan		Kurumba	
	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage
Own well	5	3.40	15	6.58	1	0.45
Public well	6	4.08	21	9.21	8	3.59
Public Tap	4	2.72	2	0.88	76	34.08
Natural source	0	0.00	75	32.89	11	4.93
Natural source and public well	43	29.25	67	29.39	19	8.52
Natural source and Tap water	89	60.55	48	21.05	108	48.43
Total	147	100	228	100	223	100

Source: Primary survey, 2023

Kattunaykkan consume water from Kuzhikkinar

Government constructed well for Kattunaykkan

5.5.7 Cooking Fuel

Table 5.62 indicates that 93.9 percent of Kadar, and 100 percent of Kattunaykkan and Kurumba tribal households utilized firewood for cooking. Only 6.1% of Kadar households use a combination of firewood and L.P.G for cooking. This data demonstrates a high level of deprivation among tribes regarding the use of firewood

as cooking fuel. The Kadar tribes may underreport L.P.G usage due to concerns about losing government benefits. The Ujjwala program provides free gas connections to tribal households; however, recipients must purchase additional components themselves. This requirement, along with the easy availability of firewood, contributes to the preference for using firewood as a cooking fuel. Collected firewood is stored in a designated area known as 'virakupura'.

Table No: 5.62

Cooking fuel status of Kadar, Kattunaykkan and Kurumba sample respondents

Source of Fuel	Kadar		Kattunaykkan		Kurumba	
	Respon-dents	Per-centage	Respon-dents	Per-centage	Respon-dents	Per-centage
Firewood	138	93.9	228	100	223	100
Gas and firewood	9	6.1	0	0	0	0
Total	147	100	228	100	223	100

Source: Primary survey, 2023

Source of cooking fuel, Kurumba tribes in Palakkad

5.5.8 Sanitation facility

Sanitation facilities serve as an indicator of living standards. Table 5.63 presents the sanitation facilities of the Kadar, Kattunaykkan, and Kurumba tribes. Only 42.9 percent of Kadar, 44.7 percent of Kattunaykkan, and 38.1 percent of Kurumba

households possess toilet facilities. Conversely, 61.9 percent of Kurumba, 57.1 percent of Kadar, and 55.3 percent of Kattunaykkan tribes lack sanitation facilities and rely on open spaces. The Kurumba, residing deep within the forest, utilize the forest for open defecation. For the Kattunaykkan community, toilets have been constructed through government schemes; however, the absence of proper doors has led to their repurposing for storage of household items. In numerous houses, latrines are used to store firewood. This scheme's ineffectiveness can be attributed to the authority's failure to educate the Kattunaykkan about hygienic living practices.

Table No: 5.63

Sanitation Facility of Kadar, Kattunaykkan and Kurumba Sample Respondents

Source of sanitation	Kadar		Kattunaykkan		Kurumba	
	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage	No. of respon-dents	Per-centage
Not advanced	63	42.9	102	44.7	85	38.1
no latrine	84	57.1	126	55.3	138	61.9
Total	147	100	228	100	223	100

Source: Primary survey, 2023

5.6 Conclusion

The human development status of Kadar, Kattunaykkan, and Kurumba tribal women reflects a complex intersection of socio-economic deprivation, multidimensional poverty, and policy-driven interventions. As members of Particularly Vulnerable Tribal Groups (PVTGs), these women face severe barriers in accessing essential resources critical to their overall well-being. Limited land possession, insecure housing conditions, inadequate access to safe drinking water, poor lighting facilities, and dependence on traditional cooking fuel contribute to their overall deprivation. The absence of legal land ownership among a majority of these communities exacerbates their socio-economic vulnerability, restricting their access to financial credit, agricultural opportunities, and government welfare schemes.

A multidimensional analysis of poverty among these tribal women reveals deprivation across various indicators, including education, health, and standard of

living. Low literacy, inadequate healthcare access, and limited employment opportunities continue to impede their socio-economic advancement. Institutional interventions, including government policies and tribal development programs, have sought to address these concerns by providing housing through rehabilitation schemes, ensuring basic amenities, and promoting livelihood opportunities. However, the impact of these interventions remains uneven, with many tribal households still struggling to attain sustainable development outcomes.

Targeted initiatives like Kudumbashree, M.G.N.R.E.G.A, and Scheduled Tribe welfare schemes have been instrumental in improving economic participation and self-reliance among tribal women. However, poor policy execution, bureaucratic delays, and social marginalization hinder the full realization of these benefits. Strengthening institutional frameworks, ensuring legal land rights, improving access to modern housing facilities, and enhancing basic infrastructure are imperative to uplifting the human development status of these tribal women. A rights-based, inclusive approach is essential for fostering long-term, sustainable development among Kadar, Kattunaykkan, and Kurumba tribal women.

CHAPTER VI

SUMMARY AND CONCLUSION

Kerala has achieved exceptionally high levels of human development with limited resources. The health and education attainment in Kerala is comparable to that of developed Western nations. However, it is widely acknowledged that the high human development indices reported by Kerala have not been equally distributed across all sections of society, with the Scheduled Tribes being a significant community that has been marginalized. The literacy rates for the general population and scheduled tribes in Kerala demonstrate notable disparities throughout the years, as evidenced by the figures of 78.85 percent, 89.87 percent, 90.92 percent, and 93.91 percent for the general population and 32 percent, 57.20 percent, 64 percent, and 75.8 percent for the Scheduled Tribe population during 1981, 1991, 2001, and 2011, respectively. There have been increasing reports of infant, child, and maternal mortality among scheduled tribes compared to their general counterparts. Kerala is home to thirty-six tribal communities; however, substantial intra-community differences and gender disparities exist among these communities concerning their socioeconomic status. Women in the Scheduled Tribe community face dual discrimination: discrimination based on caste and discrimination based on sex. Numerous governmental programs have been implemented for their betterment, but their status has not significantly improved. It is imperative to understand the developmental status of Scheduled Tribes, particularly that of scheduled tribe women, to implement policies directed at improving their status. The present work, titled 'Human Development Status of Scheduled Tribal Women in Kerala,' is an endeavour in this direction.

The study encompasses four primary objectives: to analyze the human development status of Particularly Vulnerable Tribal Group (PVTG) communities in Kerala based on a rights-based approach; to examine the methodological issues related to understanding the human development status of the PVTG community in Kerala in terms of established development indices; to calculate the human development

indices, namely Human Development Index (H.D.I), Deprivation Index, and Multi-dimensional Poverty Index for the PVTGs in Kerala; and to analyze the institutional interventions and impacts associated with the development of PVTG tribal communities in Kerala. Kerala is home to 36 tribal communities. Five communities belong to the Particularly Vulnerable Tribal Group (PVTG): Kadar, Kattunaykkan, Koraga, Kurumba, and Cholanaickan. The present study describes the human development, poverty, and deprivation status of Kadar, Kattunaykkan, and Kurumba tribal women in the Thrissur, Wayanad, and Palakkad districts. This study utilized both primary and secondary data to ensure a comprehensive analysis of tribal communities in Kerala. Primary data was collected through field surveys, structured interviews, and focus group discussions with tribal households and key stakeholders. Secondary data sources comprised official publications**,** including the Human Development Reports, Census Reports, N.F.H.S-5 Reports, P.L.F.S Reports, and various studies on the socioeconomic status of Scheduled Tribes in Kerala. Additionally, the Kerala Human Development Report provided critical insights into developmental trends and policy impacts on tribal communities. These diverse sources of data enabled a rigorous and evidence-based assessment of tribal development indicators in the region.

The study employed a multistage random sampling method to select relevant samples. For the primary data analysis, 598 PVTG tribal women (147 Kadar, 228 Kattunaykkan, and 223 Kurumba) were considered. The human development index was calculated using the United Nations Sustainable Development Group methodology. The human development status of tribal women is assessed through indicators such as educational attainment, health status, employment patterns, and access to physical assets (including housing, potable water, sanitation facilities, electricity, and cooking fuel). Opinions regarding human development status were recorded on a five-point scale. The multi-dimensional poverty index and deprivation index are calculated using the U.N.D.P methodology.

6.1 Findings of the Study

Low human development has been one of the challenges experienced by numerous indigenous populations globally. India has over 100 million tribal inhabitants, who represent one of the most underserved segments of the country's population (I.C.M.R, 2023). To obtain a comprehensive understanding of the human development status of tribal communities, a primary survey encompassing 598 Particularly Vulnerable Tribal Group (PVTG) women (147 Kadar, 228 Kattunaykkan, and 223 Kurumba) was conducted. Age is a significant variable influencing the activities of a group. 34.11 percent of the female respondents (34.01 percent of Kadar, 37.28 percent of Kattunaykkan, and 30.95 percent of Kurumba) fall within the age group of 30-40. The marital status of the selected sample indicates that widowhood is most prevalent among Kattunaykkan tribes.

Education plays a crucial role in the socio-economic development of tribal women. 72.24 percent of the female respondents are illiterate (53.1 percent of Kadar, 79.8 percent of Kattunaykkan, and 77.1 percent of Kurumba). Only 3.68 percent of the female respondents have attained S.S.L.C and higher secondary education.

There are inter-community differences in the principal occupation of the sample Scheduled Tribe (ST) women. Kadar tribes primarily depend on the forestry sector and collect non-timber fibre products. Kurumba tribes rely on both the forestry and agricultural sectors. Kattunaykkan tribes predominantly depend on non-agricultural activities.

The Mahatma Gandhi National Rural Employment Guarantee Act (M.G.N.R.E.G.A) employment constitutes the primary employment opportunity for scheduled tribe women across all communities. 38.1 percent of Kadar women, 69.4 percent of Kattunaykkan women, and 59.5 percent of Kurumba women engage in M.G.N.R.E.G.S activities.

Thirty-five percent of the respondents obtain employment for fewer than 10 days per month (42.60 percent of Kurumba, 35.97 percent of Kattunaykkan women, and 21.76 percent of Kadar women). Only 6.12 percent of Kadar, 4.82 percent of

Kattunaykkan, and 1.35 percent of Kurumba women are employed for 25-30 days per month.

47.5 percent of the Kurumba community, 39.7 percent of Kattunaykkan, and 26.4 percent of the Kadar community consume food only twice a day. Rice is the primary food item of the sample respondents. Meat, fish, milk, and eggs are infrequently consumed by the majority of tribal women. Lower intake of milk, meat, fish, and eggs results in reduced nutritional status among women. Malnourishment and related health issues have been frequently reported in PVTG tribal communities in Kerala.

In the study area, 21 sample women from Kadar, 13 from Kattunaykkan, and 19 sample respondents are pregnant. All these pregnant women receive supplementary food from Anganwadis. 71.69 percent of the sample respondents express a lower preference for supplementary food during their pregnancy period.

Indigenous populations often demonstrate a lack of concern regarding their health during the initial stages of illness, seeking medical intervention only in advanced stages. Among the sample populations, 36.73 percent of Kadar women, 15.79 percent of Kattunaykkan women, and 30.49 percent of Kurumba women reported experiencing fever. Additionally, 39.03 percent of Kattunaykkan women were affected by dermatological conditions. The high prevalence of skin diseases among Kattunaykkan women may be attributed to their engagement in fishing activities along the banks of Karappuzha dam. Unhygienic living conditions also contribute to allergies and other dermatological issues.

The study indicates that 47.61 percent of Kadar, 46.15 percent of Kattunaykkan, and 42.10 percent of Kurumba pregnant women exhibit mild anaemia. Furthermore, 26.32 percent of Kurumba pregnant women present with severe anaemia.

Regarding health insurance coverage, 69.39 percent of Kadar, 60.08 percent of Kattunaykkan, and 51.12 percent of Kurumba sample women respondents possess R.S.B.Y cards.

The majority of the sample scheduled tribe women are categorized as Below the Poverty Line (B.P.L). 92.47 percent of the sample female respondents (91.8 percent

of Kadar, 89 percent of Kattunaykkan, and 96.4 percent of Kurumba) possess Anthyodhaya Anna Yojana (A.A.Y) cards.

Kudumbashree activities are considered a significant measure of women's empowerment. The majority of the sample tribal women demonstrate awareness of Kudumbashree. 85.96 percent of Kattunaykkan, 83.67 percent of Kadar, and 72.19 percent of Kurumba sample women households are members of Kudumbashree. The study reveals that 85.62 percent of the sample women respondents have bank accounts, with 43.94 percent of Kadar, 32.84 percent of Kattunaykkan, and 51.96 percent of Kurumba sample women initiating banking accounts through Kudumbashree.

The study primarily focused on evaluating the human development status of PVTG tribal women using a human rights-based approach. This approach was examined through seven aspects and twenty-three indicators, including housing, education, occupation, economic opportunities, consumption, health and family welfare, transport, communication, and information. The findings revealed that all indicators in the human rights-based approach demonstrated weak performance across the Kadar, Kattunaykkan, and Kurumba tribes. The average S-index values corresponding to 23 indicators of 598 samples indicated that 22 indicators were at low levels. Health awareness was the sole indicator exhibiting a high score. Another related observation was the low average index values for each facility (T-index) with minimal variation among the values. The average U-index value for all samples, derived from all T-index values, suggested that the study area ranked low in human rights-based human development. The findings indicate that the H.D.I score is lowest in the Kurumba community (1.56), followed by the Kattunaykkan (1.79) and Kadar (1.80) tribes.

Kerala consistently ranks as the leading state in India in terms of human development, with a Human Development Index (H.D.I) of 7.5, as reported in the Economic Review 2023 by the state government. However, there exists a significant disparity between the general population and Scheduled Tribes (STs) in the state. According to Census 2011, the H.D.I of Scheduled Tribes in Kerala stands at 3.7**,**

which is lower than the national average. Further analysis in this study highlights even greater disparities among specific Particularly Vulnerable Tribal Groups (PVTGs), with the H.D.I of Kadar (1.80), Kattunaykkan (1.79), and Kurumba (1.56) tribes being significantly below the overall scheduled tribe average in Kerala. These findings underscore the persistent socio-economic disadvantages faced by tribal communities, necessitating targeted policy interventions to bridge the development gap (Government of Kerala, 2023; Census of India, 2011).

Poverty is a condition in which individuals or households are unable to meet the basic necessities of life, including both consumption and non-consumption essentials required for a sustainable livelihood. It is a significant determinant of health outcomes, as impoverished individuals are often compelled to live in substandard environments that lack adequate shelter, clean water, and proper sanitation facilities, all of which contribute to ill health (World Health Organization, 2018). The Multidimensional Poverty Index (M.P.I) categorizes poverty based on three key dimensions: health, education, and standard of living, which are assessed using ten indicators. To measure multidimensional poverty among Scheduled Tribes in Kerala, the study employs the Alkire-Foster methodology, a widely accepted approach for computing M.P.I.

The findings reveal a high prevalence of multidimensional poverty among Particularly Vulnerable Tribal Groups (PVTGs) in Kerala. Specifically, 82.9% of Kadar, 93.4% of Kattunaykkan, and 97.7% of Kurumba tribes fall under the Multidimensional Poor category, as indicated by the Headcount Index. Among the three M.P.I dimensions, the Standard of Living contributes the most to overall poverty levels, accounting for 74.45% among Kadar, 75.70% among Kattunaykkan, and 68.82% among Kurumba tribes. The high contribution of Standard of Living to M.P.I is due to its composition of six key indicators, namely cooking fuel, sanitation, water facility, electricity, residential floor area, and household assets, which collectively hold more weight in the M.P.I framework. This influence is particularly pronounced in the Kattunaykkan tribal community, where living conditions significantly impact their overall poverty status.

Based on these findings, it can be inferred that multidimensional poverty will likely persist among PVTG communities unless targeted interventions are implemented to improve their living conditions. The continued prevalence of these deprivations could undermine efforts toward sustainable and inclusive economic growth, rendering them ineffective in addressing the structural disadvantages faced by these tribal groups. Therefore, it is imperative that the government and concerned authorities prioritize interventions focusing on enhancing the six key indicators of standard of living to ensure meaningful socio-economic upliftment of PVTG tribes in Kerala (Alkire & Foster, 2011; W.H.O, 2018). The study reveals that MPI score of Kurumba community is 0.614, followed by Kattunaykkan (0.551) and Kadar (0.475). These score are very high while compared to the national average. These scores imply that PVTG tribes are living in a very worst condition.

The index of deprivation measures the deprivation in the four basic necessities of wellbeing such as quality of housing, access to water, good sanitation and electricity. According to the 2011 census, the scheduled tribe in Kerala has a deprivation index of 11.35 percent (16.3 percent are deprived in housing, 21.1 percent have no access to clean drinking water, 38.2 percent do not have toilet and 28.9 percent do not have electricity). For the general population, the deprivation index is very low, that is 2.02 percent (5.3 percent are deprived in housing, 4.4 percent do not have access to clean drinking water, 5.6 percent do not have a toilet and 5 percent do not have electricity). Compared to the general population and the deprivation index of the scheduled tribe population, the deprivation index for the Kadar (28.76 percent), Kattunaykkan (33.81 percent) and Kurumba (34.25 percent) tribes is very high.

The analysis reveals substantial disparities in deprivation levels, with the Kadar, Kattunaykkan, and Kurumba communities showing markedly higher scores across all four dimensions compared to both the Scheduled Tribe average and the General population. The ANOVA results confirm these differences are statistically significant ($F = 26.02$, $p < 0.001$), indicating that deprivation is not evenly distributed among social groups. These findings highlight the urgent need for

targeted interventions to address the deep-rooted inequalities faced by these particularly vulnerable tribal communities.

The Tukey HSD post-hoc analysis confirms that deprivation levels among the Kadar, Kattunaykkan, and Kurumba groups are significantly higher than both the General population and the Scheduled Tribe average. While the differences between tribal groups and non-tribal groups are statistically significant ($p < 0.001$), no significant variation is observed among the tribal groups themselves ($p > 0.05$). This suggests that although the tribal communities experience severe deprivation, their internal disparities are minimal, indicating a shared pattern of exclusion.

The implementation of housing schemes has played a significant role in improving the living conditions of Particularly Vulnerable Tribal Groups (PVTGs), who were originally forest dwellers and lacked adequate housing. Due to financial constraints and limited access to resources, none of these tribal communities could construct their own houses. However, field observations and interviews indicate that the housing conditions among the Kattunaykkan and Kurumba tribes remain substandard. Several factors contribute to this issue, including poor construction quality and inadequate maintenance. Although government schemes allocate funds for house repairs, inefficiencies in fund utilization, and the involvement of intermediaries hinder the effectiveness of these initiatives. Consequently, many houses continue to deteriorate due to a lack of proper upkeep.

Access to sanitation facilities remains a challenge among PVTGs, with only 41.81 percent of households having latrines. However, even in cases where latrines are available, their usage is minimal, as many households repurpose them for firewood storage instead of sanitation. This underutilization of sanitation infrastructure highlights a critical gap in awareness regarding hygienic living practices. The failure of this initiative can be attributed to the lack of effective awareness campaigns by authorities to educate the PVTG communities about the importance of proper sanitation and hygiene (Government of Kerala, 2020).

Additionally, the quality of housing infrastructure varies significantly across tribal groups. A substantial proportion of the Kattunaykkan (25.9 percent) and Kurumba

(27.8 percent) communities still reside in houses with mud floors, which are prone to damage and do not offer adequate protection from environmental hazards. This further exacerbates their vulnerability to health and safety risks. Addressing these challenges requires a more transparent and accountable approach to housing scheme implementation, coupled with targeted awareness programs to promote better living conditions among PVTG communities (Planning Board, Kerala, 2019).

Electricity serves as the primary source of lighting for 40.8 percent of Kadar, 17.5 percent of Kattunaykkan, and 38.1 percent of Kurumba households. The government has electrified 40 Kattunaykkan and 85 Kurumba houses, achieving 100 percent electrification in constructed dwellings. However, due to insufficient income, Kattunaykkan and Kurumba communities struggle to pay monthly electricity bills, resulting in disconnections for 14 Kattunaykkan and 52 Kurumba households. The study revealed that a significant number of solar lamps in Kattunaykkan settlements are non-functional. Many of these lamps have been found in a completely damaged and unusable state, rendering them ineffective in meeting the intended objectives. An assessment of the impact of these programs suggests that while the physical implementation of solar lamp schemes has been relatively successful, their actual utilization and long-term benefits remain below expectations.

The Tribal Development Department has undertaken targeted initiatives to ensure the provision of safe drinking water facilities for Particularly Vulnerable Tribal Groups (PVTGs). These efforts aim to address the water scarcity challenges faced by these communities and improve their overall health and well-being. Natural sources and tap water account for 60.55 percent of water consumption in Kadar households. The Jalanithi project implemented several years ago in Kadar settlements, and it was a significant source of drinking water. The drinking water projects discontinued with restrictions, and in many Kadar colonies, the preferential system was discontinued due to damage to equipment, problems with people's committees, etc. The project will not be conducted during the dry season. Most of the Kadar respondents depend on water from rivers and dams for domestic purposes. Natural sources serve as drinking water for 32.89 percent of Kattunaykkan families,

who collect water from ‘Kuzhikkinar’ (a small excavation near the Karappuzha dam) and ‘Kolly’ (water falling from the hillside).

The study demonstrates a high level of deprivation among tribes regarding the use of firewood as cooking fuel. 93.9 percent of Kadar and 100 percent of Kattunaykkan and Kurumba tribal households utilized firewood for cooking.

6.2 Suggestions

Various tribal welfare schemes are available for the advancement of tribal populations. These schemes are also applicable to PVTG. The primary requirement is not the proposal of new schemes but the effective implementation of existing ones. The majority of tribal welfare programs are implemented without adequate comprehension of the PVTG community's culture, customs, and requirements. The ineffectiveness of well programs for potable water, electrification with solar lamps, and sanitation facilities serve as examples. Cultural practices cannot be altered immediately through the implementation of schemes. Awareness programs and appropriate training should gradually modify the cultural practices of PVTG tribal communities that impede their development.

The government may consider entrusting this responsibility to organizations dedicated to voluntary service, ensuring the effective implementation of welfare programs. Following the initiation of such programs, it is essential for the concerned authorities to conduct systematic follow-up assessments to sustain and maximize their benefits. To enhance oversight, a local-level monitoring unit should be established at the panchayath level in every region with a significant tribal population to evaluate the execution of tribal welfare schemes. Additionally, existing monitoring units at the state, district, and panchayath levels should be mandated to publish annual performance reports, providing transparency and accountability in the implementation of tribal welfare initiatives.

Education plays a pivotal role in human development by fostering awareness of rights, thereby acting as a safeguard against various forms of exploitation. Despite numerous governmental initiatives, the educational attainment among Particularly

Vulnerable Tribal Group (PVTG) women remains significantly low. To bridge this gap, it is imperative to engage committed and skilled educators who can provide practical, nature-oriented instruction tailored to the occupations and lifestyles of these tribal communities. Additionally, prioritizing both formal education and vocational training is essential for empowering PVTG tribes, ensuring their social and economic upliftment.

A more practical way of dealing with such kinds of problem is to provide skills and training to women through self-help groups or other means which will help them in building up of self-sustainability and independency. Self-help groups in Kerala play a tremendous role in empowering women where women work to bring about a change in their own identity at the local level and beyond that. Thus increasing the educational attainments and providing more opportunities for gainful employment for tribal women will enable in bringing about a change in the status of tribal women in Kerala.

6.2.1 Health

- Improve healthcare access by establishing mobile health units and community health centres in tribal settlements.
- Implement awareness programs on maternal and child healthcare, reproductive health, and nutritional needs.
- Ensure the availability of essential medicines and trained healthcare professionals in tribal areas.
- Promote traditional healthcare knowledge alongside modern medical practices for holistic well-being.
- Special attention should be given to setting up primary health centers for all tribal villages and appointing specialized doctors such as general medicine, orthopaedics, gynecology and paediatrics and necessary paramedical staff.
- Pregnant women should take special care in their prenatal exams checkups.

6.2.2 Education

- Strengthen tribal education by establishing more residential schools and ensuring culturally inclusive curricula.
- Provide scholarships and financial support to encourage higher education among tribal girls.
- There are a high number of school dropouts at the secondary level, higher secondary level and at the vocational and technical level. A comprehensive scholarship or fellowship program should enable the PVTG tribal students to pursue their higher educational pursuits.
- Implement special bridge courses to address learning gaps and reduce dropout rates.
- Recruit teachers from tribal communities to improve communication and cultural understanding in classrooms.
- While appointing teachers for the tribal area, teachers who are well versed in the tribal dialects must be appointed in the tribal areas.
- Identifying and improving indigenous knowledge in collaboration with higher education institutions, conducting research in the forest areas and obtaining patents for products and knowledge.

6.2.3 Livelihood

- Promote skill development and vocational training in handicrafts, eco-tourism, agriculture, and forest-based industries.
- Provide microfinance and self-help group (SHG) initiatives to support tribal women entrepreneurs.
- Strengthen access to markets and fair pricing for tribal products through cooperatives and e-commerce platforms.
- Encourage sustainable use of forest resources while ensuring legal protection of tribal land rights.

- Diversification of livelihood options, value addition of forest products and marketing etc. should learn the best methods to add value to their products through training. Research paths for value creation opportunities for various products should be carried out. An export orientation marketing strategy should be started in the PVTG colonies.
- Systematic harvesting of NWFPs will increase employment opportunities among PVTGs and sustainable collection, utilization and commercialization are the key drivers in promoting sustainable livelihoods.
- Introducing microcredit to support livelihoods of PVTG tribes in collaboration with various government departments.
- MGNREGA needs to become popular among the PVTG tribes. Grama Panchayat should provide employment opportunities to the tribe.
- To promote agriculture, introduce pepper cultivation and cardamom cultivation in the colonies. Organic certifications, export regulations and geographical labeling of products can also be implemented with the help of other organizations.

6.2.4 Development

- Strengthen the implementation of government welfare schemes tailored for Particularly Vulnerable Tribal Groups (PVTGs).
- Promote cultural preservation initiatives that respect and integrate tribal traditions into development programs.
- Establish grievance redressal mechanisms to address social and economic issues faced by the tribal women.
- Enhance digital literacy and technology access to bridge the information gap and increase participation in mainstream society.
- All welfare programs of the tribe must be properly monitored through a social audit. Monitoring cells need to be set up in tribal settlements to assess the implementation of tribal welfare programmes.

- Explore the possibilities of community-based ecotourism through collaboration with research organizations and the District Tourism Promotion Council.

6.2.5 Housing

- Ensure the implementation of government housing schemes for tribal women to provide safe and sustainable homes.
- Construct houses using eco-friendly materials that align with tribal cultural practices.
- Improve road connectivity to facilitate access to essential services like healthcare, education, and markets.

6.2.6 Women Empowerment

- Strengthen self-help groups (SHGs) and cooperative movements to enhance financial independence.
- More Kudumbasree units need to be set up exclusively for the PVTG tribal women.
- Conduct gender awareness programs to address issues like early marriage and domestic violence.
- Increase representation of tribal women in local governance and decision-making bodies.
- Facilitate legal aid services to protect women's rights and prevent exploitation.

6.2.7 Drinking water

- Establish community water supply projects to provide clean and safe drinking water.
- Develop rainwater harvesting and water conservation projects to ensure sustainable water availability.

6.2.8 Sanitation

- The availability of water in the sanitary facilities can be ensured.

- When providing sanitation facilities to families, the cultural habits of the tribes should be taken into account.
- Build adequate sanitation facilities, especially in schools and healthcare centres, to improve hygiene and prevent diseases.
- Conduct hygiene awareness programs to encourage the use of toilets and proper sanitation practices.

The human development status of Kadar, Kattunaykkan, and Kurumba tribal women in Kerala reflects both progress and persistent challenges. Despite Kerala's achievements in social development, these Particularly Vulnerable Tribal Groups (PVTGs) continue to face disparities in health, education, livelihood, and overall well-being. Limited access to healthcare facilities, high malnutrition rates, and inadequate maternal and child healthcare services contribute to their poor health status. While government interventions have improved immunization and nutrition programs, further efforts are needed to ensure accessibility and awareness among tribal women.

Education remains a critical area of concern, as high dropout rates, lack of infrastructure, and socio-cultural barriers hinder the educational progress of tribal girls. Although residential schools and scholarships have been introduced to promote literacy, more inclusive policies and culturally relevant curricula are required to bridge the educational gap. Economic hardships and lack of sustainable employment opportunities keep many tribal women in poverty. The role of Self-Help Groups (SHGs) and Kudumbashree has been instrumental in improving financial independence and entrepreneurship among tribal women, helping them engage in small-scale businesses, handicrafts, and forest-based livelihoods. However, strengthening these initiatives with better market access and financial support can further enhance their economic stability.

The standard of living among these tribal communities remains low due to poor housing, lack of sanitation, and limited access to clean drinking water. Government housing schemes and sanitation programs should be implemented effectively to improve living conditions. The political participation of tribal women has been

increasing, with representation in local self-governance institutions; however, greater awareness and capacity-building programs are required to ensure active involvement in decision-making processes.

To achieve holistic development, a multi-dimensional approach addressing health, education, livelihood, and empowerment is essential. Sustainable and inclusive development policies must be strengthened to uplift the socio-economic status of Kadar, Kattunaykkan, and Kurumba tribal women, ensuring their rightful place in Kerala's development framework.

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APPENDICES

Interview Schedule

Human Development Status of Scheduled Tribal women in Kerala

Location

District: …….....……

Block: .....……

Name of tribal community…….....

Gram Panchayath…….....……

Village…….…….....…..

Hamlet….....……...

I. Socio Economic Profile

1. Name of the Respondent:……

2. Sex: ☐ 1 = Male, 2 = Female

3. Religion: ☐ 1 = Muslim, 2 = Christian, 3 = Hindu

4. Number of Members in the Family:……

5. Age: ☐

6. Colour of ration card: ☐ 1 =Yellow, 2 = Pink, 3 =Blue, 4 = White

7. Education, Occupation, and Income of the members of the family.

Relation	Sex	Age	Education	Occupation	Average monthly Income

8. Ownership of Assets

Physical Asset	**No**	**Present Value**
Land owned		……..cents
Vehicle owned		
Radio		
Phone		
TV		
No assets		

9. Details of Housing Facilities and Standard of Living

Ownership of the House ( ) 1= own, 2= Rented, 3=Joint Family, 4= others

Type of House ( ) 1= Pacca, 2= Kutcha, 3= Hut

Type of Floor ( ) 1=Concrete, 2= Mud, 3=Cow dung, 4= Wood, 5= Redoxide, 6=Tile

Source of lighting ( ) 1=Electricity, 2= Solar, 3= Kerosene, 4= others

Fuel used for Cooking ( ) 1= Cooking gas, 2= Kerosene, 3= Fire wood, 4= All these

Source of Drinking Water ( ) 1= Own Well, 2= Neighbour's Well, 3= Public Well, 4= Public Tap, 5=Public Pond, 6= other

Sanitation Facility (Types) ( ) 1= Advanced, 2 = Not Advanced 3 = Shared latrine (Public)

Accessibility of health services ( ) 1= Adequate, 2= Inadequate

10. Details of Employment (Yes/No)

11. Are you an active income earner for your family'? yes/no

12. Which of the following category of occupational status you belong to?

13. (a) Agricultural labour

14. (b) Cultivator

15. (c)NREGA

16. (d) Labour in forest department

17. (e) Forest related works

18. (f) Unemployed

19. (g) Others (specify)

20. What is your subsidiary occupation?

21. (a) Collection of minor forest produces

22. (b) Gathering

23. (c) Rearing of cattle

24. (d) Nothing

25. What is your income per day?

26. How many days in a month do you get employment?

27. What is your estimated monthly income?

28. Consumption expenditure

Items	Expenditure
Food	
Non food	

29. Details of Saving and Liabilities

Name	Saving		Liabilities			
	3	4	5	6	7	8
	Mode	Amount	Source	Amount	Purpose	Mode of Repayment

Column 3 and 5: 1= Bank, 2= , 3= Post office, 4= SHGs,
5= Private Financial Institutions, 6= Money lenders, 7= KSFE, 8= others.

Column 7: 1= Construction, 2= Agriculture, 3= Business, 4= Education, 5= Marriage,
6= Purchase of land / property, 7= Medical expenses, 8= others (specify)……

Column 8: 1= Daily, 2= Weekly, 3= Monthly.

Details of Health

30. How far is it your primary health care center? ☐
Specify in meters

31. Do you get treatment from there when you are in need? ☐
1= Yes, 2= No

32. Do you make use of family planning system? ☐ 1= Yes, 2= No

33. Do you any child has died in the family in the five year period? ☐
1= Yes, 2 = No

34. Any member in the family died before age 40? ☐ 1= Yes, 2= No

35. Detail of incidence of illness during last one month

Name	Type of Disease	Treatment			
		Type	Place	Distance from Residence	Duration of treatment

Type of Disease: 1= Water borne diseases, 2= Infection, 3= Chronic, 4= skin diseases, 5= others

Type of treatment: 1= Ayurveda, 2= Allopathic, 3= Homeo, 4= others

Place of treatment: 1= Govt, 2= Private, 3= others

36. How do you manage the expense of health? ☐

1= Through public health center, 2= By our own income, 3= Lending, 4= by the help of medical insurance, 5= Any other (Specify)……

37. Do you have medical insurance for the treatment? ☐ 1= Yes, 2= No

38. Details of Education

1	2	3	4	5	6	7	8
No	**Family Member**	**Education**	**Nature of ownership of the institution**	**Gender**	**Mode of trans-port**	**Accessibility**	**Grants or Scholar-ships**

Column 3: 0= NA, 1= Illiterate, 2= Literate, 3= LP, 4= UP, 5= HS, 6= SSLC,

7= Plus Two, 8= Degree, 9= Diploma, 10= PG, 11= Professional, 12= others.

Column 4: 1= Govt, 2= Private Aided, 3= Private Self financing, 4= others

Column 5: 1= Male, 2= Female

Column 6: 1= by walk, 2= Cycle, 3= Two wheeler, 4= School bus, 5= Bus,

6= Private Vehicle, 7= others

Column 7: 1= Very Difficult, 2= Difficult, 3= neither easy or difficult, 4= Manageable, 5= Easy

Column 8: 1= Lump sum grants, 2= Stipend, 3= Fee concession, 4= Scholarship,

5= any other- (specify)…….

39. Any member in the family aged 10 or order are not completed 5 years of Schooling? ☐

1= Yes, 2=No

40. Any school aged child is not attending school up to class 8? ☐

1= Yes, 2=No

41. Number of Adults in which they are illiterate? ☐

42. Did you face difficulty in admitting your children to school? ☐

1= Yes, 2= No

If Yes, Reason ☐

1= Lack of qualifying mark, 2= Lack of proper record, 3= Lack of co-operation from authorities, 4= illiteracy of the parents,

5= anything else (Specify)……

43. Are you able to manage educational expenses? ☐ 1= Yes, 2= No

44. Did you have problems in getting grants? ☐ 1= Yes, 2= No

If Yes, the reason ☐ 1= Non cooperation from authorities, 2= Corruption,

3= Lack of proper document, 4= any other (specify)…….

Human Right approach to Human Development

Please use the following codes

Column No 4: 1 = Disagree, 2 = No opinion, 3 = Agree

Column 5 to 11: 1 = Very bad, 2 = bad, 3 = Neither bad nor good, 4 = good, 5 = very good

Q No	Facilities	Indicators	Do you consider it has your right essential for a life of worth and dignity	Process formal					Process effective	
				Availa-bility	Ade-quacy	Accessi-bility	Afforda-bility	Posse-ssion	Qua-lity	Usage and Mainte-nance
1	2	3	4	5	6	7	8	9	10	11
45	Housing	Own house								
46		Drinking water sources								
47		Lighting								
48		Cooking fuel								
49		Sanitation								
50		Safe and secure residential environment								
51	Education	Educational institutions from primary to higher levels								
52		Home environment for studies								
53		Intrinsic skill development								
54	Occupation	Opportunities for work								
55	Economic opportunities	Ownership of asset								
56		Income								
57		savings								
58		Insurance								
59		Credit								

60	Consumption	Food								
61		Non food								
62	Health and family welfare	Health care institutions								
63		Health awareness								
64		Programs for family welfare								
		Disease Control								
65	Transport, communication, and information	Road and transport facilities								
66		Facilities for communication and information								