

Human Intervention and Change of Landscape: History and Ecology in the High Range of Kannur Since 1920

THESIS

**Submitted to the University of Calicut
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DOCTOR OF PHILOSOPHY IN HISTORY**

Submitted by

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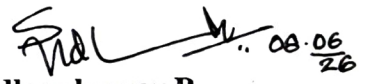
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I, Rajan P P, hereby declare that this thesis entitled “**Human Intervention and Change of Landscape: History and Ecology in the Highrange of Kannur since 1920**” is based on the original work done by me under the guidance of **Dr. Sudheerkumar P**, Research Supervisor, Post Graduate and Research Department of History, Govt. Arts and Science College, Kozhikode and has not been included in any other thesis submitted previously for the award of any degree. The contents of the thesis have undergone plagiarism check using iThenticate software at C.H.M.K. Library, University of Calicut, and the similarity index found is within the permissible limit. I also declare that the thesis is free from AI generated contents.

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This is to certify that this thesis entitled “**Human Intervention and Change of Landscape: History and Ecology in the High Range of Kannur since 1920**” submitted for the award of the Degree of Doctor of Philosophy in History, University of Calicut is a record of bona fide research carried out by Rajan P P, Research Scholar, P.G and Research Department of History, Govt. Arts & Science College, Kozhikkode, University of Calicut, under my supervision. It is also certified that no part of the thesis has been submitted for the award of any degree or title before.

Neither of the examiners has recommended any modifications or suggestions, and therefore, the original thesis is submitted as such. The soft copy attached is the same as that of the hard copy submitted.

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Abstract

The research examines the impact of human intervention in the high range of Kannur since 1920. The area of study is the Western Ghats portion falling in the Kannur district, i.e., the Eastern part of the district. Till the early decades of 20th century the high range region was relatively unoccupied or less occupied. As a result area was known for its rich vegetation and biodiversity. The inhabitants in the high range during the period were native people who were following traditional agricultural practices which can be corroborated with the colonial records available during the period. Present research tries to explore how the 20th century migration and the subsequent human interventions on the nature reshaped the landscape of the high range of Kannur. Coupled with this, the change in the traditional mode of cultivation and crops and the transition of rural economy are also looked into.

Population in the high range of Kannur in the early years of 20th century was very small. Hence, human intervention in the region was not much visible. Descriptive memoirs of various *amsams* in the east of the district give ample evidences regarding the existence of low population and the availability of unoccupied land in the high range. They engaged in traditional mode of cultivation known as *punam* and cultivated crops like paddy, pulses and spices like turmeric and plantain. Ever since the migration of peasant migrants from Travancore to North Malabar started, the scenario in the region began to change.

Migration of the peasants into the hinterlands of Kannur takes place in the late 1920s. Followed by this there was a large scale increase in population in the high range which may be observed through the census reports in the succeeding decades. Naturally, human intervention in the high range began to be more intense. More forest areas began to be cleared and brought under cultivation. Along with this the migrant people introduced here new crops like tapioca, rubber and cocoa which required new agrarian knowledge. Introduction of new crops by the migrant people eventually brought about the disappearance of the traditional agrarian practices and crops from the high range. What actually intensified the human intervention in the high range was the demographic transition in the region. The pattern of demography continued changing until about the end of 1970s. By this time the entire high range area had turned into rubber plantations and tapioca orchards.

People living in the high range, since the introduction of new crops , began to be attracted towards it and started practicing the new agrarian system introduced by the migrant people. The new crops had some positive impacts as far as the people are concerned. Firstly, tapioca was met as a source to meet poverty. Rural areas especially the high range had been reeling under poverty until about the end of 1980s. At the same time, rubber could ensure a regular income after a few years. Due to these factors, high range people started shifting their traditional agrarian practices to the new system. But, in the newly introduced practice, landscape got reshaped, especially with the expansion of rubber cultivation.

When the settlement process came to cease by late 1970s, the indigenous agrarian systems, knowledge and traditional crops all had disappeared from the high range. Demographically ,the region witnessed substantial changes. Number of house holds and the nature of construction underwent drastic changes. From earlier *cucca buildings*, they expanded into *pucca* buildings by 1990. From this period onwards human intervention in the high range reached next level by exploiting natural resources unwisely.

Mining of various dimensions comprising land mining, granite and laterite mining plays a pivotal role in reshaping the landscape of the high range of Kannur. Expansion of road network intensified by the democratic decentralisation, urbanisation etc. have key roles in changing the ecology and landscape of the high range.

Keywords: Highrange, Ecology, Landscape, Human Intervention, Demography, Migration, Anthropocene.

സംഗ്രഹം

1920 മുതൽ കണ്ണൂരിലെ ഹൈറേഞ്ചിൽ മനുഷ്യന്റെ ഇടപെടലിന്റെ സ്വാധീനം ഗവേഷണം പരിശോധിക്കുന്നു. കണ്ണൂർ ജില്ലയിൽ, അതായത് ജില്ലയുടെ കിഴക്കൻ ഭാഗത്ത് വരുന്ന പശ്ചിമഘട്ടമാണ് പഠന മേഖല. ഇരുപതാം നൂറ്റാണ്ടിന്റെ ആദ്യ ദശകങ്ങൾ വരെ ഹൈറേഞ്ച് മേഖല താരതമ്യേന ആളൊഴിഞ്ഞതോ അല്ലെങ്കിൽ കുറച്ചുമാത്രം അധിനിവേശമുള്ളതോ ആയിരുന്നു. തൽഫലമായി, സമ്പന്നമായ സസ്യജാലങ്ങൾക്കും ജൈവവൈവിധ്യത്തിനും പേരുകേട്ടതായിരുന്നു. അക്കാലത്ത് ഹൈറേഞ്ചിലെ നിവാസികൾ പരമ്പരാഗത കാർഷിക രീതികൾ പിന്തുടർന്നിരുന്ന തദ്ദേശീയരായിരുന്നു, ആ കാലഘട്ടത്തിൽ ലഭ്യമായ കൊളോണിയൽ രേഖകൾ ഉപയോഗിച്ച് ഇത് സ്ഥിരീകരിക്കാൻ കഴിയും. ഇരുപതാം നൂറ്റാണ്ടിലെ കുടിയേറ്റവും തുടർന്നുള്ള പ്രകൃതിയിലെ മനുഷ്യന്റെ ഇടപെടലുകളും കണ്ണൂരിലെ ഹൈറേഞ്ചിന്റെ ഭൂപ്രകൃതിയെ എങ്ങനെ പുനർനിർമ്മിച്ചുവെന്ന് പര്യവേക്ഷണം ചെയ്യാൻ ഇപ്പോഴത്തെ ഗവേഷണം ശ്രമിക്കുന്നു. ഇതോടൊപ്പം, പരമ്പരാഗത കൃഷിരീതിയിലും വിളകളിലും ഉണ്ടായ മാറ്റവും ഗ്രാമീണ സമ്പദ്‌വ്യവസ്ഥയുടെ പരിവർത്തനവും പരിശോധിക്കുന്നു.

ഇരുപതാം നൂറ്റാണ്ടിന്റെ ആദ്യ വർഷങ്ങളിൽ കണ്ണൂരിലെ ഹൈറേഞ്ചിലെ ജനസംഖ്യ വളരെ കുറവായിരുന്നു. അതിനാൽ, ഈ പ്രദേശത്ത് മനുഷ്യന്റെ ഇടപെടൽ അത്ര ദൃശ്യമായിരുന്നില്ല. ജില്ലയുടെ കിഴക്കൻ പ്രദേശങ്ങളിലെ വിവിധ ആളുകളുടെ വിവരണാത്മകമായ ഓർമ്മക്കുറിപ്പുകൾ ഉയർന്ന പ്രദേശങ്ങളിൽ ജനസംഖ്യ കുറവാണെന്നും ഒഴിഞ്ഞുകിടക്കുന്ന ഭൂമിയുടെ ലഭ്യതയെക്കുറിച്ചും ധാരാളം തെളിവുകൾ നൽകുന്നു. പുനം എന്നറിയപ്പെടുന്ന പരമ്പരാഗത കൃഷിരീതിയിൽ അവർ ഏർപ്പെട്ടിരുന്നു, നെല്ല്, പയർവർഗ്ഗങ്ങൾ, സുഗന്ധവ്യഞ്ജനങ്ങൾ തുടങ്ങിയ വിളകൾ അവർ കൃഷി ചെയ്തു. തിരുവിതാംകൂറിൽ നിന്ന് വടക്കൻ മലബാറിലേക്ക് കുടിയേറാൻ തുടങ്ങിയതിനുശേഷം, ഈ മേഖലയിലെ സ്ഥിതി മാറാൻ തുടങ്ങി.

കണ്ണൂരിലെ ഉൾപ്രദേശങ്ങളിലേക്ക് കർഷകരുടെ കുടിയേറ്റം 1920 കളുടെ അവസാനത്തിൽ നടന്നു. ഇതിനെത്തുടർന്ന് ഉയർന്ന പ്രദേശങ്ങളിൽ ജനസംഖ്യയിൽ വലിയ തോതിലുള്ള വർദ്ധനവ് ഉണ്ടായി, ഇത് തുടർന്നുള്ള ദശകങ്ങളിലെ സെൻസസ് റിപ്പോർട്ടുകളിൽ നിന്ന് കാണാൻ കഴിയും. സ്വാഭാവികമായും, ഉയർന്ന പ്രദേശങ്ങളിൽ മനുഷ്യ ഇടപെടൽ കൂടുതൽ തീവ്രമാകാൻ തുടങ്ങി. കൂടുതൽ വനപ്രദേശങ്ങൾ വെട്ടിത്തെളിച്ച് കൃഷി ചെയ്യാൻ തുടങ്ങി. ഇതോടൊപ്പം കുടിയേറ്റക്കാർ മരച്ചീനി, റബ്ബർ, കൊക്കോ തുടങ്ങിയ പുതിയ വിളകൾ ഇവിടെ അവതരിപ്പിച്ചു, ഇതിന് പുതിയ കാർഷിക പരിജ്ഞാനം ആവശ്യമാണ്. കുടിയേറ്റക്കാർ പുതിയ വിളകൾ അവതരിപ്പിച്ചത് ഒടുവിൽ പരമ്പരാഗത കാർഷിക രീതികളും ഉയർന്ന പ്രദേശങ്ങളിൽ നിന്ന് വിളകളും അപ്രത്യക്ഷമാകാൻ കാരണമായി. ഉയർന്ന പ്രദേശങ്ങളിൽ മനുഷ്യ ഇടപെടലിനെ യഥാർത്ഥത്തിൽ തീവ്രമാക്കിയത് പ്രദേശത്തെ

ജനസംഖ്യാ പരിവർത്തനമാണ്. 1970-കളുടെ അവസാനം വരെ ജനസംഖ്യാ രീതി മാറിക്കൊണ്ടിരുന്നു. ഈ സമയമായപ്പോഴേക്കും മുഴുവൻ ഹൈറേഞ്ച് പ്രദേശവും റബ്ബർ തോട്ടങ്ങളായും മരച്ചീനി തോട്ടങ്ങളായും മാറിയിരുന്നു.

പുതിയ വിളകൾ ആരംഭിച്ചതിനുശേഷം ഹൈറേഞ്ചിൽ താമസിക്കുന്ന ആളുകൾ അതിലേക്ക് ആകർഷിക്കപ്പെടാൻ തുടങ്ങി, കുടിയേറ്റക്കാർ അവതരിപ്പിച്ച പുതിയ കാർഷിക സമ്പ്രദായം പരിശീലിക്കാൻ തുടങ്ങി. പുതിയ വിളകൾ ജനങ്ങളെ സംബന്ധിച്ചിടത്തോളം ചില നല്ല ഫലങ്ങൾ നൽകി. ഒന്നാമതായി, ദാരിദ്ര്യം പരിഹരിക്കുന്നതിനുള്ള ഒരു സ്ത്രോതസ്സായി മരച്ചീനി ഉപയോഗിച്ചു. 1980-കളുടെ അവസാനം വരെ ഗ്രാമപ്രദേശങ്ങൾ, പ്രത്യേകിച്ച് ഹൈറേഞ്ച്, ദാരിദ്ര്യത്തിൽ വലയുകയായിരുന്നു. അതേസമയം, കുറച്ച് വർഷങ്ങൾക്ക് ശേഷം റബ്ബറിന് സ്ഥിരമായ വരുമാനം ഉറപ്പാക്കാൻ കഴിഞ്ഞു. ഈ ഘടകങ്ങൾ കാരണം, ഉയർന്ന റാങ്കിലുള്ള ആളുകൾ അവരുടെ പരമ്പരാഗത കാർഷിക രീതികൾ പുതിയ രീതിയിലേക്ക് മാറ്റാൻ തുടങ്ങി. എന്നാൽ, പുതുതായി അവതരിപ്പിച്ച രീതി അനുസരിച്ച്, ഭൂപ്രകൃതി പുനർനിർമ്മിക്കപ്പെട്ടു, പ്രത്യേകിച്ച് റബ്ബർ കൃഷിയുടെ വ്യാപനത്തോടെ.

കണ്ണൂരിലെ ഹൈറേഞ്ചിന്റെ ഭൂപ്രകൃതി പുനർനിർമ്മിക്കുന്നതിൽ കര ഖനനം, ഗ്രാനൈറ്റ്, ലാറ്ററൈറ്റ് ഖനനം എന്നിവയുൾപ്പെടെ വിവിധ മാനങ്ങളിലുള്ള ഖനനം നിർണായക പങ്ക് വഹിക്കുന്നു. ജനാധിപത്യ വികേന്ദ്രീകരണം, നഗരവൽക്കരണം എന്നിവയാൽ തീവ്രമായ റോഡ് ശൃംഖലയുടെ വികാസം ഹൈറേഞ്ചിന്റെ പരിസ്ഥിതിയും ഭൂപ്രകൃതിയും മാറ്റുന്നതിൽ പ്രധാന പങ്ക് വഹിക്കുന്നു.

സൂചകപദങ്ങൾ: ഹൈറേഞ്ച്, പരിസ്ഥിതി, ഭൂപ്രകൃതി, മനുഷ്യ ഇടപെടൽ, ജനസംഖ്യാശാസ്ത്രം, കുടിയേറ്റം, ആന്ത്രോപോസിൻ.

Chapter 1

Introduction

The horizon of historical studies and researches have widened these days. From the traditional mono discipline it has now entered the arenas of inter disciplinary and multi-disciplinary knowledge systems. Understanding historical phenomena from environmental perspective is now part of the discipline of history. Environmental history in its broadest sense is the history of complex interactions and changes that occur in terrestrial, aquatic and anthropological environment.¹ Geography and ecology have been playing vital role in shaping human history since the time of human origin. Right from the very early period itself geography and environment made man behave according to the surroundings. From a nomadic life to a settled life man was largely influenced by nature and its various components. Ever since human life started on this planet there is a close affinity between man and nature. In the early years of civilization human intervention in nature was for subsistence only and as a result of which the implication of the relation between the two was quite progressive. Early man made nature his abode and relied on it with an intention of making life more practical. Perhaps as early as Neolithic period human intervention upon nature may be seen. Even though there were many natural calamities that engulfed thousands of people, interesting fact about which is that they were not the impact of any unwise act of the humans upon nature.

When living conditions in the settled area mostly on the banks of rivers became unfavourable for human progression due to reasons including population pressure, paucity of food, shrinking of land, decrease in the fertility of soil, people started migrating to other regions where the conditions were conducive for founding

¹ N Balasubramanya and Gurdeep R Chatwal., *Environmental Studies* Himalaya Publishing House, New Delhi, 2007, p.3

new settlements. As a result, migrations of various dimensions² occurred in human history. This process is still continuing unabated across the world. Post renaissance period in Europe brought about significant changes in the life of the people. Followed by this, industrial and commercial revolutions made the situation in countries, where scientific innovations largely took place, unbridled. Coupled with this, the population explosion and demand for raw materials in the 19th century intensified the process of migration and thereby the multi faceted human act upon nature multiplied many times. Navigational explorations by the European countries to the Asian and Latin American continents perpetuated colonialism. Ever since colonial demands increased man's intervention upon nature also increased. When the colonial needs got intensified in the time of industrial revolution in the countries where it first started, in the colonies it took some time. It is in this context environmental studies and environmental activities begin in the 20th century. Evolution of historical studies from a multidisciplinary perspective actually takes place in the time of Annales School. Fernand Braudel a prominent Annales historian emphasised the role of environment in shaping human history. Braudel in his *The Mediterranean and the Mediterranean World in the age of Philip II* highlights the role of geography and environment in shaping human history. Emphasising the role of several factors such as political, economic, cultural, and geographical, Braudel explores the complex relationship between man and his environment. With the publication of this book environmental history began to be accepted as an important discipline. J.D. Bernal through his *Science in History* gives a thorough insight into the interplay of science and society in evolving the socio cultural structures. Thus by the middle of the last century more attention began to be given towards understanding historical phenomena from environmental perspective.

India was one of the richest colonies of the European powers with abundant supply of untapped natural resources. For the various industries in England, the English East India Company and its men eyed on the vast and rich natural resources

² Migrations are of various types such as inter national, internal, domestic, intra regional and so on. History of migration is as old as humanity. Human life spread across the continents on account of migration.

across their India. Making use of the cheap labour available in the Indian colony the Britishers extracted the precious resources like fauna and flora from the extensive and unexplored forests and minerals and metals. The greed of the colonial authorities hastened the intervention of man upon nature. Population explosion that occurred in the country in the 20th century made nature more prone to human onslaughts. Naturally increase in population led to the increased human movement from one place to another. When a new group of people reached a new destination the pressure they exerted on the region was immense in terms of environmental and ecological perspective. Change in the land scape is seen as a major implication of the human relocation.

As elsewhere in the world Kerala is also one such area where the movement of humans on a large scale may be noticed from the early decades of 20th century. This has left greater implications in the socio cultural life on the one hand and ecological and environmental on the other hand of the state.

A key theme of discussion in the history of modern Kerala is the migration of several waves of peasants from erstwhile Travancore to Malabar. Many trace that the migration began in the first half of 20th century and continued till the third decade of second half. Towards the end of 20th century, there was a tendency of reverse migration. The focal points of such studies included the causes for the migration, the condition of the migrants, impacts of migration, the literary imaginations, effects on migrations on specific villages and migration and gender, to name a few. These issues have been approached from different theoretical perceptions. Such perceptions included, economic history, environmental history, local history, cultural history, and gender history. All these studies have shed light on various aspects of the history of peasant migration such as economic changes, social and cultural transformations, development of education etc from Travancore to Malabar and the present research considers and values all of them. However, there still remain facets that had not received much attention from academic scholarship. One among such issues is the recreation of the landscape of highlands of north Malabar, especially Kannur and Kasaragod regions. How the 20th century migration and the subsequent human

interventions on nature reshaped the landscape of the high range of Kannur will be the major research question that the present research would address. Coupled with this, the change in the traditional mode of cultivation and crops and the introduction of new crops in the high range of Kannur leading to the change in the landscape and ecology are also under the research enquiry. These aspects too have not been properly studied so far. The present study would problematize all these issues and would try to link their relation with varying dimensions of human interventions.

RESEARCH PROBLEM

North Malabar in the early years was a land of rich vegetation with diverse flora and fauna. Oral sources and early colonial documents attest to this fact. There was not much habitation in the high ranges and those inhabited there subsisted on hunting, gathering and shifting agriculture. The hilly tracts of north Malabar especially Kannur and Kasaragod regions had been practicing *punam*³ cultivation by making use of only a small area of agricultural land. There was vast area of fertile but densely forested land left uncultivated. Geography of the region had played a role in shaping the rural life and culture of the precolonial north Malabar. However, during the colonial and post-colonial period, the subsistence pattern of the people who had been living there and of those who newly settled there achieved a different dimension. Thereafter, less than geography determining their subsistence, the human intervention began to shape and reshape the whole environment persistently. Scholarly interest to develop a position that challenges geographical determinism of history is not new. Meanwhile, the recent theoretical understanding developed by scholars like Dipesh Chakrabarty, especially the concept like 'Anthropocene', on the one side, and the recent disasters that Malabar experienced due to climate change, on the other, forces to read the impact of human intervention in the context of Migration happened in the high ranges of Kannur since 1920s.

³ *Punam* cultivation was a kind of cultivation generally practiced in the high lands of Kerala. It was also known as Slash and burn cultivation or shifting cultivation. Paddy was one important item among many other crops cultivated in *punam*.

In the early decades of 20th century, Kerala was divided into three political units such as Travancore, Kochi and Malabar. Travancore and Kochi were relatively in a state of economic development, whereas Malabar was in an arrested situation. Demographically Travancore had an upper hand over the rest of the regions. When the living conditions in Travancore became too difficult to meet the changing developments owing to too many reasons followed by the Great Depression of 1929 and the Second World War, people mostly peasants decided to find out new destinations where they could find their livelihood. Most of the peasants who migrated to North Malabar found the eastern part of Kannur as one of their favourite destinations.

Empirical studies provide ample information regarding the status of the high range region of Kannur in the early years of the 20th century. It is evident from various sources that the population in the highrange was very low in the beginning of 20th century. As the population was very less until the beginning of the 20th century the environment and geography remained rather unaltered for a pretty long time. While the environment and ecology of North Malabar remained unaffected by human intervention in the beginning, in South Kerala it was quite contrary. There was a population pressure on nature in central Travancore. Travancore in the beginning of 20th century had a greater number of population compared to that of North Malabar.

In the early decades of 20th century, Travancore was passing through adverse economic crisis. Economic changes caused by large scale commercialization of agriculture coupled with the great depression following the First World War pushed the peasants out from erstwhile Travancore and, Cochin to Malabar. They settled in almost all high range regions of North Malabar bringing large tracts of fertile land under cultivation. Though migration offered opportunities causing economic development and social changes it also created certain environmental problems causing drastic depletion of natural resources ultimately resulting in the destruction of geography landscape and its indigenous agricultural pattern and displacement of native population. Even though a lot of studies have been undertaken on the impact of migration from the economic and sociological perspectives, no historical study

has been made to look into the effects of demographic transition from an environmental perspective, focusing the change in land scape and terrain. The present study focuses on the impact of human intervention on geography, landscape and agricultural pattern, resulting in the ecological imbalance in the high range of present day Kannur since 1920. As the shift in the demographic distribution naturally takes place during the period in the high range of Kannur, such a study in a microscopic level has not been made so far.

REVIEW OF LITERATURE

There are many studies dealing with environment and ecology. They all give general descriptions about the origin of concepts and terms associated with human geography and ecology. *Politics and Anthropology* by Duncan Kelly is a thought provoking book dealing with the concept of anthropocene. It also deals with ecological and political crises. The work *The Alegories of Anthropocene* by Elizabeth M. Deloughrey is a book dealing with relationship between humans and the natural world. It tries to analyse how humans have made impact upon nature. *Ecology and Empire* by Tom Griffiths explores the relationship between ecology, imperialism and environmental degradation. It goes on exploring how European imperialism brought about drastic changes on nature by exploiting the natural resources of nations. Alfred N Crosby, an eminent environmental historian in his *Ecological Imperialism* explores how relation between humans and nature are created and how human interventions change environment globally. David Harvey's *Enigma of Capital* is a work that deals with human geography in the world context. Harvey a veteran in the field of geography analyses in the book the cause of the economic crisis of the world in the early years of 21st century through a critical analysis of capitalism. It gives a global perspective of human geography. The above works help us to understand the process of environmental degradation and the role of man in reshaping the land- scape from a global perspective. Coming to Indian context there are several studies dealing with the aspects of environmental implications of human intervention on a macro level. Dipesh Chakrabarty is an important figure in analysing environmental history in the context of human intervention. His *The Climate of History: Four Theses* investigates

the implications of the Anthropocene on our understanding. Rachel Carlson's *The Silent Spring* is another important work that focuses on the impact of unwise use of pesticide on nature. Human activities and exploitation of nature for his vested interests adversely affect the very existence of living organisms and the threats environment faces are the key aspects of the book. Elizabeth Kolbert's *The Sixth Extinction* is an important work that sheds light up on how human activities cause to the extinction of species of various kinds from the face of earth. *The Uninhabitable Earth* by David Wallace Wells explores the impact of climate change in the in reshaping human life. Climate change as a consequence of human intervention up on the planet is well exposed by the author. There are several works of the kind which seriously investigate the question of environmental issues across the world.

Migration of both international and internal character has been crux of most studies. But none of the works deals with environmental implications of migration upon the area. P K Michael Tharakan's *Migration of Farmers from Travancore to Malabar-1930-1960:An Analysis of its Economic causes*⁴ analyses the causes of migration from Travancore to Malabar and the impact of population pressure on agricultural land also the impact of Migration on Malabar. In his another work titled *Intra-Regional Differences in Agrarian Systems and Internal Migration :A Case Study of Migration from Travancore to Malabar 1930-1950*' he traces the demographic scenario of Travancore and Malabar during process of migration between 1930-1950. However these works are not dealing with the particular land scape change of Kannur in the context of migration. Another study on Malabar migration is K V Joseph's *Migration and Economic Development of Kerala* which evaluates the impact of migration on the economic development of Kerala. Economic development the high range of Kerala acquired mainly through the migration and the subsequent introduction of new agricultural knowledge in the region. But the implication of the introduction of new agricultural systems are not well addressed by the author. *Migration in South India* is a work edited by K S Mathew that looks on the various

⁴ P.K. Michael Tharakan, *Migration of Farmers from Travancore to Malabar from 1930 to 1960: An Analysis of its Economic Causes*, Unpublished M.Phil Thesis, Trivandrum, 1977.

aspects migration to Malabar. For instance S Grigory's *Migration Settlement and Native Alienation in Malabar- A Human Problem Requiring Humanistic Approach*, in K S Mathew(ed) deals with the displacement of the native tribal population as a result of migration. Joy Varkey's *Peasant Migration to Wayanad and Its Impact on Tribal People*" in K S Mathew(ed) *Migration in South India* is also an attempt to look in to the life and challenges the tribal people suffered during the course of migration.

Rama Chandra Guha's *Environmentalism:A Global History* deals with the concept of environmental issues which are the results of human intervention in nature. 'India's *Environmental History*' in two volumes by Mahesh Rangarajan and K Sivaramakrishnan contains collection of articles pertaining to various environmental issues related with various corners of India. N Balasubrahmanya and Gurdeep R Chatwal together wrote another work titled as *Environmental studies* gives a general picture of the environmental aspects the present world confronts in the context of global warming. This work is helpful in understanding the impact of human intervention in nature as a whole. Madhav Gadgil in his *Pascima Ghattam oru Pranayakatha (Mal)* discusses the features of the Western Ghats and the biodiversity of the mountain ranges. He laments about the rapid extinction of various species and decline of the biodiversity on account of human intervention. KC Zachariah, S. Irudayarajan, and E J Mathew wrote the *Dynamics of Migration in Kerala*. They discuss the out ward migration or international migration that took place in Kerala to the Gulf countries and the context of migration. The work gives a detailed picture of the Gulf Migration. Where as the work is not dealing with the internal migration that took place in Kerala and the consequent change in the ecology and environment. KSS Nair, et al., edited a work titled as *Eco Development of Western Ghat* which contains a number of articles dealing with various ecological and environmental issues on the Western Ghats including that of Kerala. The book again insists the need for actions for preserving the bio diversity of the Ghat region. Though many articles in the work deal with the changing nature of the Western Ghats in general, they do not give a detailed picture of the landscape of the Western Ghat region of Kannur. *History of Kerala: Prehistoric to the Present*' by Rajan Gurukkal and Raghava Varier gives an analysis of the evolution of Kerala history from the stone ages to modern times. Being

a general historical work it does not particularly discuss the ecology, geography or change of landscape in the highrange. KV Joseph in his '*Migration and Economic Development of Kerala*' analyses the impact of Migration on the economic development of Kerala. PT Sebastian's *Christian Migration to Malabar 1930-80*, an unpublished PhD thesis gives a detailed description of the course of migration process from southern Kerala to Malabar. Various socio economic and cultural impacts of the Christian migration are positively described in the work. But it does not fully explain the real ecological and environmental set up of the highland of North Malabar especially Kannur in the beginning of 20th century. The work narrates the factors leading to the Malabar Migration.

B Viju's *Flood and Fury: Ecological Devastations in the Western Ghat* is a work on the ecological and environmental devastations in Kerala in the context of the flood of 2018. But it also fails in analysing the effect of human intervention since the beginning of the past century. *Indigenous Farming of North Malabar* by S Mukundan, et al; gives a general picture of the traditional agrarian practices of Kasargod and Kannur. The book gives a general picture of the knowledge systems existed in North Malabar till recently. However what happened to these knowledge systems in the context of demographic transition is not the point of discussion in the work. Dr V P Raghavan's article *Degrading Commons: The Ecological Consequences of Migration-The Case of Kerala* is an attempt in this regard. M K Prasad's *Adivasi Samarangalude Arthantharangal* tries to put migration as the root cause of tribal people being landless. However this also does not give an in depth analysis of migration and the effects of the intervention in the ecology and environment.

S K Pottekkatt's Malayalam novel *Vishakanyaka* tries to portray the course of migration to Wayanad depicting the Geography of the region and the difficulties the migrant population had to face in the early years of 20th century. Even though a fictional work, it narrates the difficulties the migrant population had to face in the high range of Waynad. Though the work doesn't contain that historical analysis it helps to understand the geographical background and the hardships the migrant people had

addressed in the high range in the early years of 20th century. Mar Sebastian Valloppillil's autobiographical and historical sketch *Daiavam Nammodu Koode* is an interesting Malayalam work which gives a detailed picture of the migration process to North Malabar. It provides a vivid picture of the hardships the migrant people had to face in the course of their migration. The role of religion in the process of migration and the consequent socio economic changes in the high range of North Malabar is explained in the book. The work divided into three parts deals with the author's own life, the migration of the people from the south and the various settlements made by the early settlers in Kannur and Kozhikkode. Still the ecology and environment of the high range of Kannur are not available from the work. This work is insufficient to picturise either the geography or environment of North Malabar. *Malabar Kudiyettathinte Kanappurangal (mal)* by Sebastian Ayikkara is another historical work dealing with the process of Malabar Migration. This book also deals with the process of Christian migration from Central Travancore to North Malabar. One common aspect of all the works written so far about Malabar Migration is that none of them gives a detailed picture of the environmental impact that the large scale human intervention that occurred in the high range of North Malabar since the 1920s. In several fictions and stories Malabar migration has been the focal point of discussion. However these works are not sufficient enough to provide any historical input about the impact on the nature the migration has brought upon. Several articles written in connection with the issue hardly discuss the matter with a sense of historicism. None of the works however traces the impact of demographic transition followed by migration on geography and the apparent destruction it made. Dr K K N Kurup's *Adhunika Keralam* contains an article dealing with a peripheral and shallow analysis of migration to North Malabar. All the researches and studies discuss the general trend in migration and the positive impact it brought in the social and economic spheres of North Malabar. No serious and critical investigation has so far been conducted to understand how long the migration process acted in bringing about the destruction of natural geography and the traditional agriculture of North Malabar. K Panoor's *Keralathile Africa*, and *Keralathile America* are two Malayalam works dealing with the life of the tribal people in the high land of Kannur and Waynad. Apart from the

ethno- historical narration these works are not enough for providing ecological inputs to modern historical studies. Vinoy Thomas in his novel *Karikkottakkari* gives a detailed description of the struggles the migrant people had waged in the high range to build a new life along with the caste discrimination that had been prevalent in the Christian community during the years of migration. Kakkanadan's *Orotha* is another fiction written in the context of migration. However, all the above works give the common aspect the migrant people had faced in the new region. At the same time they provide to the researcher an idea of the geographical and environmental scenario of the high range in the 20th century.

Thomas Pazhe Parambil in his *Swapna Bhoomiyil* (Malabar Kudi yetta Charitram) (Mal), discusses the process of migration to Malabar and the quite unfavourable conditions the migrant people had to face with the environment and wild animals in Malabar. Various settlements made by the migrant people in North Malabar are available in the work. Published in 1975, the work fails to discuss the impact of migration on the environment. There are still several other works both historical and fictional in character to be included in the list which some how may give many answers to historical queries. Several other Malayalam works also shed light on the environment and ecology of Kerala. Balakrishnan Cheroopa in his *Jaiva vaividhyam: Jeevan Jeevitham* (Malayalam) gives a general description about the biodiversity of the land of Kerala. *Paristhithipatanathinu Oramukham* by A Achyuthan is a fundamental work for understanding the concept of ecology. MP Parameswaran in his *Kerala Vikasanam: Oru janapaksha Sameepanam* tries to discuss the concept of development and how it should be people oriented in the wake of natural destruction. K N Ganesh's *Prakritiyum Manushayanum* a Malayalam work tries to analyse the bond between nature and man from a materialistic point of view. In this way several works in both English and Malayalam are helpful to have a general understanding on the concepts like environment and ecology. At the same time, the literature review

SCOPE OF THE STUDY

Colonial intrusion into the hinterlands of North Malabar after 1792 opened up new arenas of exploiting the rich natural resources of Malabar. British forest policy greatly helped the colonialists to hegemonise the entire Malabar region for colonial motives. Followed by this there was a prolonged inflow of peasants from Travancore to Malabar. After independence many developmental and destructive activities have brought about drastic changes in the Western Ghats. A significant shift in the developmental perspectives put spoke to wheels of the environmental protection. It is in this context the present study tries to focus on the impact of human intervention upon the landscape and agricultural pattern in the high range of Kannur on which no study has so far been made.

With the increase in migration the settlements got extended to other regions thus restructuring the entire geography of North Malabar. The region in the early century or before was rich in vegetation and abundant with various natural resources. It had produced its own indigenous agricultural products with its own traditional modes of cultivation. Present day geographical and ecological scenario is more or less the impact of migration. The high range economy has evolved into a profit oriented agrarian economy with regard to geography and the shift in cultivation and change in landscape in North Malabar. This eventually brought about drastic changes in climate which ultimately resulted in natural calamities..Introduction of large scale rubber plantations and tapioca changed the social and economic life of the migrant people. But at the same time expansion of rubber and other cash crops eventually changed the landscape of the region. Transition from mixed agrarian practice to mono crop culture took place in the high range with the advent of the peasant migrants from Travancore. The scope of the study increases in this context.

Area of Study

Even though Western Ghats stretch along the eastern side of Kerala from North to South only the present day Kannur region through which it passes is taken for this study. The high land created by the Ghats in the Kannur area of North Malabar is important in shaping its environmental and ecological history of the region.. High

land villages from Kottiyoor in the South East to Pulingome in the North East along the Western Ghats come under the area of study.

Conceptual Frame Work

Certain key concepts have been essentially utilized for the conduct of the study which are quite significant in this research. The following are the major concepts.

- a. **Highrange:** Here highrange is defined as the high rise or upland region close to the Western Ghats. Even though high range is generally used to indicate the high land of Idukki the term cannot be exclusively confined to that area alone. Rather the areas through which the Western Ghats pass have high ranges. Hence the term high range is used to indicate the upland region of Kannur.
- b. **Landscape:** It is that part of the earth's surface that is visible. The geographical features of particular region determine the landscape of that region. In other words it is a large area of land, especially in relation to its appearance⁵. Landscape is featured by area differing in form, appearance and size.
- c. **Ecology:** Ecology is the study of relationships between living organisms including humans and their physical environment. The history of man is essentially the history of his changing interaction with nature. It is the study of the relationships between organisms and their environment and of the process that govern the distribution and abundance of organisms⁶.
- d. **Tradition:** Customs and practices together constitute the tradition of a particular society or a region. This may be economic tradition or cultural tradition. The present study focuses on the traditional aspects followed by the people in agriculture.

⁵ Cambridge Dictionary definition of landscape.

⁶ Encyclopaedia Britanica, 15th edition, Vol.4, p. 343.

- e. **Migration:** Migration is actually movement of humans from one place to another in search of employment, better living conditions, security or on account of various socio-economic and religious matters of the region where they are living. Migration is of many types. Here the term is used to indicate the domestic or internal migration of the set of communities from Central Travancore to Malabar including parts of Kannur.
- f. **Environment:** The term is used to understand the background that encompasses any living or non living thing. Environment the, the complex of physical, chemical, and biotic (such as climate, soil, and living things) that act upon an organism or an ecological community and ultimately determine its form and survival⁷. It is used in the study in the context of analysing the ecological degradation that happened as consequence of human intervention in the upland regions of North Malabar.
- g. **Anthropocene:** The term is used to refer to the impact of human intervention on nature. Even though it is a geological periodization, the term anthropocene began to be largely used in the beginning of 21st century. Anthropocene, the current geological epoch is characterised by profound impact of human activity on the Earth's environment and eco systems⁸.
- h. **Terrain:** Terrain means the structure and characteristics of land consisting of topography and various land forms. It may consist of hills mountains etc. which actually determine habitation.

Theory Applied

There have been much discourses on the environmental issues related with Kerala's environment in recent years. The development of environmental studies owes much to inter disciplinary efforts made by scholars. The movement of people

⁷ *Ibid.*, vol.6, p. 579.

⁸ Encyclopaedia Britanica, online Edition.

from one region to another and the implication of the process in nature is defined in terms of anthropocene⁹

Theoretical interpretations in terms of environmental studies are well emphasized in the post 1950 period in world history. Anthropocene is perhaps the only term of geological periodization that has been widely debated among humanist scholars¹⁰. Man is held responsible for the many changes in the planet. The term anthropocene is used to locate a quantitative shift in the relationship between humans and the global environment. Discussions of human impact on the highrange is the key aspect of the study.

AIMS AND OBJECTIVES

The main objectives of the proposed study are:

- To examine the changes on the geography of North Malabar in the 19th and 20th centuries, especially during late colonial period. Introduction of plantation crops and reduction of natural forests take place during the period.
- To examine the change on Landscape in the context of migration. The land and its terrain changed a lot due the introduction of new knowledge systems in agriculture. Transformation in the landscape of the highrange largely takes place in the 20th century.
- To understand traditional agrarian pattern in the highrange during the course of migration. The highland of the Western Ghats had been following traditional agrarian practices until they got changed in the last century. The system had been in practice here for a long period.
- To find out the change in the agrarian pattern in the proposed area with the transition in demography. When there was a large scale human influx and

⁹ *Anthropocene* refers to a geological phase characterised by human impact on the ecosystem of the earth.

¹⁰ Dipesh Chakrabarty, *Anthropocene Time in The Seventh History and Theory Lecture*, 57, No.1, March 2018, pp. 5-32.

subsequent intervention in the high land, the traditional mode of agriculture got altered and new crops were introduced. After a decade of the migrant settlements in the high range, the new crops began to dominate the area and gradually the traditional agrarian practices and crops began to vanish from the scene.

- To understand the course of transition of changes in the region under study in the last century. After 1970s the landscape of the high range has changed a lot. Impacts may be seen in many areas such as agriculture, urbanisation etc.
- To understand the causes of the change in Landscape in the high range of Kannur. Several causes like mining, urbanisation, housing pattern etc are visible cause that adversely affected the environment of the region.
- To analyse the impact of human intervention in the high range of Kannur.
- To see how the pattern of housing and urbanisation evolve in the high range during the period under study.

IMPORTANCE OF THE STUDY:

Environmental studies and history have attained wider acceptance in recent years among scholars both being significant disciplines particularly in the interdisciplinary sense. In the 20th century environmental studies migration of the Syrian Christians and other communities from Travancore and Cochin to Malabar has been a subject for study among historians and sociologists. The studies conducted so far by various scholars in this domain have been focusing on the positive impact of the process of migration and the course of migration, focusing on the demography and socio-cultural aspects of migration and the economic development it has brought about in Malabar. None of the studies has attempted to analyse the geographical impact, transition in the topography of the region and shift in agricultural pattern of food crops, shift to profit-oriented agrarian economy or a semi capitalist economy. Present attempt is to examine how the geography and land scape and life are affected in the context of migration.

The significance of the study lies in the fact that it tries to deviate from the stereotype discourses on migration of people from the south and the topography of the western Ghat region of Malabar. No study ever discussed the changing land scape and allied life in the context of migration. Hence the present study is relevant in the context that land scape and geography are put to study in the backdrop of migration. Relevance of the study lies in the fact that it endeavours to get a vivid idea of changing pattern of agriculture and topography which would definitely add to our knowledge on social and environmental aspects of migration.

HYPOTHESIS:

As large scale peasant population migrated and settled in high range regions in Kannur after 1920s it led to the gradual but perpetual transformation of landscape and environment of the Western Ghats region. As the settlement areas in the district adhered to traditional and natural modes of cultivation the introduction of cash crops like rubber on a wide area indigenous agricultural pattern got affected very soon. Ecology was greatly damaged owing to large scale deforestation and conversion of paddy land for cash crops. Expansion of population growth and unwise human intervention in land led to the evolution of rural economy to a profit oriented agrarian economy which embodied the issue of food security. Fragmentation of the land in the later years for construction purposes largely reshaped the landscape. The real estate boom also degraded the landscape of the high range of the district of Kannur.

ANALYSIS OF SOURCES

For the successful completion of the present study a good number of both primary and secondary sources have been utilized. As the study is mainly environmental and ecological various primary sources scattered in different government departments across the state have been made use of. Primary sources available from various government departments and archives helped a lot for the study.

Various kinds of primary sources pertaining to the topic are available. from the Revenue offices, Kerala State Forest Central Library, Village offices, District

office of the Geology Department, Agricultural offices, Regional archives, and Local Self Government Institutions. Apart from these several administrative reports available in the Regional archives Kozhikode are very helpful in preparing the thesis. Census reports from 1881 onwards were very much useful for the study. Apart from these primary sources oral testimonies were also useful for the study. Interviews with several people living in the highrange of Kannur were conducted. Their experiences and knowledge were extremely useful for the study. Most of the persons from whom oral sources could be traced are above 80 years old so that first hand knowledge about the geography and landscape of the region prior to the advent of the migrant population from Travancore to Malabar information could be traced. About the early history and geography of the high range of Kannur much information is available from interviews which are not mostly found in the colonial records and other literary works. Oral information provided by the aged persons are trust worthy as their testimonies can be corroborated with census reports of various decades and descriptive memoirs of various *amsams* of the high range of Kannur prepared during the colonial period. Apart from these primary sources, secondary sources were also consulted for completing the research. Secondary sources are written in both English and Malayalam. Books, articles, journals, newspaper etc. come under this category.

METHODOLOGY:

To examine the impact of migration upon geography and landscape and the subsequent transition in agriculture in the high range the researcher has employed qualitative analysis, using various forms of sources. The research employs a genuine evaluation of sources tracing the benefits of conceptual insights, methodological sophistication embodied into modern social science. It is also a study of human geography as it deals with human intervention, activities and impacts on the environment. To satisfy the methodological experiment I have verified many primary as well as secondary sources. Primary sources are mainly available in State and Regional Archives, Revenue Department, State Forest Research Library Revenue Library Thalassery, and Field investigations. From these primary sources a clear picture about the transformation in the Western Ghats could be traced. As the area of

study falls in the highrange of Kannur for field study I made contacts with several people living in the high range villages of the district and collected oral sources.

CHAPTERIZATION:

The work is divided into 5 chapters besides introduction and conclusion. Chapter I Introductory part which deals with the structural frame work of the thesis such as general outline, objectives of the study methodology scope and relevance and review of literature scheme of chapters.

Chapter II : **Geography and Environment of Kannur :An Overview** gives account of the geographical features of Kannur before 20th century. Fauna flora climate rivers and other geographical features are discussed in the chapter.

Chapter III: **Malabar : Settlements though Ages** focuses on the various kinds of human races that had settled in the region in different historical period. Migration of people in different period after the advent of Brahmin is also discussed. The area had its own diverse life style agricultural pattern and peculiar geography enriched by the Western Ghats. Here, various types of people both natives and immigrants are discussed in detail..

Chapter IV: **Traditional Agrarian Knowledge of the Highrange:Memory as History** deals with the traditional mode of cultivation and crops which had been popular in the high range for a long time. A detailed study about the *punam* cultivation and traditional crops are discussed in this chapter.

Chapter V: **Transformation in Agriculture:Introduction of New Crops and Modern Agrarian Practices**, discusses the introduction of new agrarian practices and crops in the high range region of Kannur. The chapter discusses how the introduction of new crops like tapioca, rubber reshaped the landscape and how the ecology is affected by the migration of peasant population from central Kerala to Malabar from 1920s onwards. Present-day geographical and ecological scenario is more or less the impact of migration. The high- range economy is evolved into a capitalist agrarian economy according to the world capitalist order. The problem of food security with regarding to geography and the shift in cultivation and change in

landscape in North Malabar is elaborated. Traditional Malabar economy was transformed in such a way in which the dubious role played by migration is obviously explicit which is under examination in this chapter.

Chapter VI: **Changing Life and Withering Landscape: Causes and Impacts**

The chapter discusses the impact of human intervention upon the land scape and ecology of the high range of Kannur. The chapter also discusses how the high range has changed after the 1970s. Transformation of the land scape and terrain and the reasons for the same are investigated here.

Chapter 7 **Conclusion** is the inference reached into through the research activities under taken with the help of literature, field investigation and oral sources of both primary and secondary nature. It is an accepted fact that migration from erstwhile Travancore and Cochin to Malabar has brought radical changes in the field of economy, society and infra-structure. As a result of the large scale influx of the peasant migrants in the beginning of 20th century there was population pressure upon nature. Naturally the pressure exerted by human intervention upon nature brought about unprecedented change in the landscape and ecology of the high range of Kannur.

Chapter 2

Geography and Environment of Kannur:An Overview

The history of human being is significantly the history of his changing interventions with nature. It is widely conceived that there had been a perfect relation between man and nature for a long time in the past. However, during the past few decades the nature and the gravity of intervention of human beings in nature have undergone significant changes. Geography and chronology are said to be the two eyes of history. Region, or ecology all are the creation of geography. Ever since human being originated on the surface of earth, the history of mankind has been the struggle with nature for his survival. The earlier communities lived in walled spaces surrounded by thick forests. When their needs increased they started felling trees for fuel and timber for making dwelling and other house hold activities. On many occasions human existence faced many challenges. In the form of earthquakes, landslides volcanoes, flood and draught man faced challenges and at last he was successful in getting the best of nature. Still there are certain peculiar geographical factors which make human life quite unfit in those areas such as the Sahara desert. At the same time the mountain ranges, river valleys, evergreen forest regions have greatly moulded human life and its history. Had there been no Nile or Euphrates ofcourse there would not have been any Egyptian or Mesopotamian civilization in the world. Just like that the river Indus and the Himalayas played vital role in the evolution of the culture and civilization of the Indian Subcontinent. Geographical features like river, mountain, seas etc have significant part in the history of a particular region or nation.

Kerala a small region situated on the south west corner of India is the quintessence for the role of geography in shaping the life of the people of this tiny region. Humans with their tool use deliberate and planned actions are the prominent actors on earth and have shaped the landscape of the Western Ghats over many

millennia¹. This small area of land is embraced by Western Ghats on the east and Arabian sea on the west. It comprises just 1.2 % of the total land area of India with 38863sq.km. But at the same time it accommodates nearly 3% of the total population of the country. Generally speaking the high land of Kerala is full of hills and valleys. Unlike other parts of South India, except for a few tracts of land, there is little plain at all. Of the different ecosystems that have been subject to varying degrees of modifications and deviations, the high range ecosystems require urgent attention due to the significance of the ecosystems in the day to day life of the people. Among the two most significant ecosystems in the geo-eco history of the Indian subcontinent are the Himalayas and the Western Ghats.

Geography plays vital role in shaping the history of a particular region. It is geography that shaped the culture and civilization of the Egyptians, Mesopotamians, and the Indians. Mountain ranges play key role in moulding the culture. The Himalayas and the Western Ghats have played important role in the politico- economic life of India and Kerala respectively. As far as the history of Kerala is concerned, the place of Western Ghats is quite significant. For centuries, the Western ghats remained as a fortress keeping the Kerala from the rest of the South Indian states. It took many centuries for Buddhism and Jainism to reach Kerala though they had reached the other parts of South India centuries ago. The western Ghats played the role of a catalyst in the Kerala region enjoying a separate geographical entity from the rest of India. Western Ghats is the abode of many hill tribes and the treasure house of innumerable flora and fauna. Geographically, Kerala is divided into 3 categories as the high land, mid land, and the low land. This classification done on the basis of the nature of the land gives this land a unique identity which is different from other regions. The low land is about 7.5 m. above the Mean Sea Level, mid land is between 7.5m and 75 m above Mean Sea Level and the high land is above 75 m from mean sea level. Average height of the high land is between 950m and 1000m from Mean Sea Level. Generally speaking the highland is the region close to the Western Ghats. The present study focuses on the geography and environment of North Malabar

¹ Report of Western Ghat Ecology Expert Panel, chaired by Madhav Gadgil, Ministry of Environment and Forest, New Delhi, 2011, P.200.

in general and Kannur in particular. The Western Ghat portion in Kerala starts from the northern most part of Kerala that is Thalappadi and it ends in Kanyakumari in the South. Till 19th century the Western Ghats in the northern region was not much inhabited. Moreover the area had impenetrable forest which made local population hesitant to occupy the highland area. Those who lived in the close proximity of forest were the tribal people.

In the history of Kerala also the role played by geography and environment is so vital. 'Environment is natural richness of diversity and inseparability of life landscapes and ecosystems'². When the Arabian sea nurtured the culture of this region the Western Ghats protected this land from external aggression for a long time. Despite the small size of the region the biodiversity of the land made this unique among other states of the Indian Union. Unlike other land masses of Indian subcontinent, the land of Kerala is rich in geographical features like mountains, rivers, diverse fauna and flora, backwaters, lakes, etc. However, we have no much information about natural calamities till 1924³. When actually the word Kerala was ascribed to this land is not exactly known. One of the edicts of Asoka mentions about Kerala. Some literary works written after the Mauryas also carry the word Kerala. Still it is not evident whether the term was used to indicate the whole of present day Kerala. This small region from time immemorial has been the abode of several foreign travellers. Before this we have information about the types of flora and fauna. This land is called as Kerala because at one time coconut grew here abundantly. The name is believed to have been derived from 'Kera' meaning coconut, thus Keralam the land of coconut. This land also carries the epithet Malabar. Because of the peculiar geographical features, Kerala was from time immemorial the destination of foreigners like the Romans and Greeks. Yavanapriya⁴ was the most important item liked by

² Raghava varier and Rajan Gurukkal, *Cultural History of Kerala*, Vol. I, Dept of Cultural Publications, Trivandrum, 1999, p.31.

³ It was in 1924 that the land of Kerala as a whole experienced the great flood in its history which had caused much casualties to life and property.

⁴ The term *Yavanapriya* is used to refer to pepper as pepper was liked by the Romans and Greeks.

these foreigners. Pepper was grown wild⁵ here in the Kurinji⁶ region as per references seen in the early Tamil literature. In the early ages, Kerala was part and parcel of Tamilakam. At that time this land known as Chera chiefdom was divided into five micro-eco zones. In early times Chera territory did not fully comprise the modern territories that the state of Kerala consists of. The region between Potiyil Malai in the South and Ezhimalai in the North was what was known as Chera chiefdom. People of early Chera chiefdom largely depended on shifting cultivation owing to large forest regions. Kurinji was the high land region with full of thick and dense forest. Geographical features of the period kept the region aloof from the rest of Tamilakam in the early times. Geographical division had given it a separate entity. On account of the peculiar geographical features she had very little contact with north India in early times. As per the revised classification by Champion and Seth there are altogether 20 forest types distinguished in Kerala within 6 type Groups⁷.

In early times, the Western Ghats were considered as the protector of the land of Kerala from external aggression. But during the colonial period the Ghats region could to an extent be conquered and began to be looked upon as the main source of timber, condiments and ivory for colonial needs. The process of exploitation of the rich natural sources of the mountain ranges of Kerala and other regions lying on the Western Ghats took place unabated during the British colonial period. At the same time, we can see that the mountainous region is the source of many rivers in the peninsular India. Most of the rivers have their origin from the Eastern mountain ranges and they cut the land of Kerala into a lot of deltas. This particular topography has helped to produce pepper and other condiments on the west of highland in the Western Ghats and east of Arabian Sea. The land of Kerala is one among the many Indian states which are located on and demarcated by the Western Ghats. This land is watered by 44 rivers of which 41 are west flowing and 3 are east flowing. So many

⁵ Pepper as a garden crop is cultivated only after the sangam period.

⁶ *Kurinci* is one of the five Tinais or micro-eco zones found mentioned in the early Tamil literature. It means the hilly region. As per the reference the land of Kerala which was part of Tamilakam in the early times was part of *Kurinci*.

⁷ H.G. Champion and Seth SK, *A Revised Survey of the Forest Types of India*, Manager of Publications, Delhi, 1968, p. 404.

lakes and back waters with plenty of brooks and creeks nourish the land. Many high rise hills and mountain ranges enrich the scenic beauty of the region which make this land 'god's own country'.

Keralolpathy tradition says that this land was created by Parasurama. As per the story found in the *Keralolpathy*⁸ as a solution for the sin he had committed, he was advised to gift the land to Brahmins. Hence by throwing his axe into the ocean from Gokarna near Goa, to Kanyakumari in the South he reclaimed the land mass. The water between the region receded and a new land came from the sea and that is supposed to be the land of Kerala. This land as per the Parasurama legend, was divided into 64 Brahmin villages of which 32 were in Tulunadu and 32 in the region south of Tulunadu, that is Kerala⁹. This land also carries the epithet Malabar. Because of the peculiar geographical features Kerala was from time immemorial the destination of foreigners like the Romans and Greeks. At that time this land known as Chera chieftdom, was divided into five micro eco zones or physiographic divisions. The Western Ghats lying on the eastern side of Kerala is almost continuous and stand as a solid natural fort that has protected the region from external invasions till the colonial period. The mountain ranges have an average height of four thousand feet from Mean Sea Level in Kerala. In the Kerala part of the Mountain ranges the Western Ghats get cut in Palghat by creating a pass which is about 32 km long, known as the Palakkad pass or Palakkad Gap. From Palakkad, the mountain ranges heighten up and reach Idukki with the highest peak. Anamudi stands the highest peak situated in Idukki. From there it moves to further south and ends in Aruvamozhi. Arabian Sea is yet another important natural and geographical division that too has played vital role in shaping its history. As early as the Christian era, Kerala had maintained brisk trade relation with the outside world especially the Mediterranean and Persian Gulf regions as it had a very long coastal line along the Arabian sea. As early as the beginning of the Christian era, the Romans had reached the coast of this land for trade purposes. Moreover, in the medieval and modern times a lot of Asian and European

⁸ *Keralolpathy* is a Malayalam work considered to have been written in 16th or 17th century. It was later compiled by scholars like Gundert.

⁹ A Sreedhara Menon., *A Survey of Kerala History*, DC Books, Kottayam, 2000, P.5

powers had crept into this land. Thanks to the presence of the coastal line here. The process of cultural assimilation had started from the very early period itself due to the very peculiar geographical feature of Kerala. It is this feature that separates Kerala from the rest of the Indian subcontinent.

The Western Ghats: An Overview

Mountain ranges play key role in moulding the culture of a region. Just as the Himalayas stand as the longest natural fort that safeguard the North Eastern part of the Indian sub continent, South Western part of India also has one natural fort called the Western Ghats. As far as the history of Kerala is concerned the place of Western Ghats is very important. Western Ghats are the range of high hills that run along the west coast of peninsular India. The Ghats are about 1600 km long starting from Tapi in Gujarat and ending in Kanyakumari in Tamil Nadu¹⁰. For centuries the Western Ghats remained as a fortress keeping the Kerala region aloof from the rest of India. "It is one the world's richest biodiversity spots. Spreading over six Indian states, the Ghats form an unbroken relief dominating the Western Coast of the Indian peninsula. The average altitude of the Ghats is between 900m and 1500m. The Western Ghat sub region of Kerala covers over 28000sq.km in 29 taluks"¹¹. The Western Ghat region is characterised by hilly terrain and is composed of an assemblage of discontinuous hills and plateau like Bhimashankar, Mahabaleswar, Nilgiris and Anamalai¹². It is interesting to note that the western slope of the ghats receive heavy rainfall while the eastern part of the Ghats is relatively dry through out the year.

Climate of Kerala is highly depending upon the balance of the Ghats. The monsoon of this region is more the gift of the Ghats. It lies parallel to the Arabian sea in the West. At certain places the height goes upto 2000m. The highest peak on the Ghat is the Anamudi situated in the Idukki District of Kerala. Its height is 2695m. The Western ghat mountain range starting from the north penetrates to the Nilgiri ranges

¹⁰ V Ramachandran, *Approach to 'Development in Western Ghats'*, in KSS Nair; et.al., *Ecodevelopment of Western Ghats*, KFRI, Peechi, 1984, pp. 7-9.

¹¹ *Ibid.*

¹² *Ibid.*

which is like a table land. The Western Ghats pass through the eastern part of Kerala from the North to South and touches almost all districts except Alappuzha.

The origin of the Western Ghats, according to the geologists, is due to the drifting of continents. Geologists assume that these mountain ranges existed even before the formation of the Himalayas. It plays a pivotal role in determining the climate and weather of the region of Kerala. The region is peculiar with its hilly terrain and is formed by many discontinuous hills and plateau like Mahabaleswar, Nilgiris and Anamala. It is quite interesting that a mountain ranges can determine the life and climate of a region. Any change in the geology or geography of the mountainous region may adversely affect the life pattern of the region.

Any onslaught by humans on the Ghats may adversely affect the life ecosystem here. Till the coming of the colonial powers there was not much threat to the flora and fauna of the Ghat region. Ever since the European powers started pouring into the Kerala coast the fate of Ghat also began to be determined. The British colonial interventions in the forests of Malabar was the first great destruction of the forests of India for commercial interest.¹³ By the fag end of 18th Century Malabar virtually came into the hold of the English East India Company. Since then the flora and fauna life of the Western Ghat began to be affected. They started large scale plantation of monocrops like coffee, tea, cinchona, rubber, etc¹⁴. Ghats help the state a great deal in maintaining the ecological equilibrium by maintaining the availability of sufficient rain fall in this region.

¹³ Joshy Mathew, *Ecological Transformation in Western Ghats*, Manohar, New Delhi, 1924, p.234

¹⁴ *Ibid*, p235.

Figure 2.1: Rough extent of the Western Ghats Range



Source: Zoos' Print Journal, 2001

Till recently the area of reserve forests in Kerala was about 25% of the total land area¹⁵. Moreover, the area had impenetrable forest which made local population hesitant to occupy the highland area as the natives close to the high range regions had no much knowledge about the use of advanced tools of agriculture. Among the five micro-eco zones¹⁶ as mentioned in early Tamil heroic poems none of them is separate entity. Rather they are more or less interlinked with heterogeneous production relations. However, the *Kurinchi* zone as mentioned in the early Tamil literatures had a wider geographical entity as separate geographical division and this may be the Kerala portion of early Tamilakam. The *Kurinchi* region is full of ups and downs and this feature of the division had helped a good deal in developing a peculiar production processes. Kerala is rich in its water resources. Rain water received during the monsoon enriches the top level water sources and at the same time ground water level is also maintained with the help of heavy rainfall occurring between June and November every year. There are rivers, lakes, backwaters, form the conventional paths of transport. Geography and environment of Malabar were not exactly what they are today. Before 20th century, the Eastern part of Malabar in general and Kannur in particular remained less interrupted owing to lower number of people¹⁷. Moreover the soil was rather virgin and the traditional mode of cultivation kept the geography and environment intact. ‘*Unnuneeli Sandesam*’¹⁸ a 15th century literary work makes mention about rare species of paddy namely *kooran*, *chozhan*, *pazhavari*, *modan*, *ponkali*, *kiliyira* etc. It is evident that there were traditional paddy cultivation in the high range.

Major Walker states that there were more than fifty varieties of paddy in Malabar alone in the 19th century. However, most of these rare paddy varieties got destroyed or disappeared from Kerala. Ever since agrarian expansion started in Kerala

¹⁵ V Ramachandran, *op.cit*, pp.7-9.

¹⁶ Micro eco zones are mentioned in Early Tamil literature as *aintinai* and are found mentioned in works like *Patinenkilkanakku*, *Aintinai Aimpatu* etc.

¹⁷ C A Innes, *Malabar District Gazetteer*, Govt. Press, Madras 1905, p.112.

¹⁸ *Unnuneeli Sandesam* is a Manipravalam literature that developed before the Malayalam emerged as an independent language.

after 6th Century CE¹⁹, it is noticed that garden cultivation was started. The Tarisappali Copper Plate²⁰ grant of 9th century makes mention about some *Andilan thottam* and *Thorana thottam*. According to KN Ganesh these terms may be about coconut groves²¹. It is evident that early Kerala had a rich tradition of indigenous agricultural practices which was carried out for millennia. From the very early times the inhabitants on the highrange had engaged in agrarian practices which were quite crude and unscientific. Their subsistence did not simply rely upon agriculture. The inhabitants of the high land regions mostly depended upon the practice of food gathering also. Foreign travellers' accounts give ample evidences about the nature of forest in Malabar. Abulfida geographer and historian of 14th century makes mention about the geography and environment of Malabar²². He says that the land of Malabar was full of thick forests with most part occupied by mountain ranges and rivers. Nineteenth century colonial records like Administrative reports and gazetteers testify this statement. The environment and ecology of Kannur from 20th century is man made environment or manmade landscape²³. Human intervention in nature has led to the creation of what is known as cultural environment. CA Innes states that 'the North East of Chirakkal Taluk is roadless, sparsely inhabited and little known'²⁴. Highrange region of Kannur has a rich geographical and environmental history dating back before 20th century. The high range area is characterized by its hilly terrain, dense forests, and abundant biodiversity. Changes in nature occur even if there is no human intervention. Environment and geography are physical and cultural.

¹⁹ Agrarian expansion in Kerala is closely associated with the Brahmun settlements, after the Sangam age. Paddy cultivation on a systematic way takes place during this time.

²⁰ *Tarisapalli Copper Plate* grant issued in 849 CE, gives details about the various grants issued to the church and the trade guilds of Syrian Christians and Jews existed in Kerala during the period.

²¹ K N Ganesh, *Keralathinte Innalekal*, Dept.of Cultural Publications, Trivandrum, P.26.

²² Velayudhan Panikkasseri, *Sancharikal Kanda Keralam*, Dc Books, Kottayam, p.59

²³ N. Balasubramanya and Gurdeep R Chatwal, *Environmental Studies*, Himalaya Publishing House, NewDelhi, 2007.p.3.

²⁴ C A Innes, *op.cit*, p.391.

Physical environment is the product of nature where as cultural environment is man made. All kinds of man made features such as buildings, settlements, roads or plantations are aspects of cultural environment. From the 1920s onwards we can see substantial changes in the geography and environment of Kannur. These changes were mainly due to human intervention. By this time the demographic terrain of the region begins to change. To understand the changes in Geography and Environment of Malabar in General and Kannur in particular one will have to investigate into the records and memories available in the region in the 19th and 20th centuries. This change was effected by the increase in population in the highland of Kannur and there by the subsequent intervention. Census reports since 1921 onwards indicate this. Census reports of 1891 and 1901 clearly indicate that the population in the high range villages of Kannur was relatively very less. Where as from 1931 onwards we can see substantial increase in the population of the high land villages of Kannur. Currently the 'Western Ghat sub region of Kerala covers over 28000sq.km spreading over 29 taluks. Over 12.5million people live in this region as against the 40million in the entire western Ghat region'²⁵. Though there is a reverse migration tendency now a day, the density of population is the highest in the Kerala part of the Western Ghat region when compared to any other states in India through which the Western Ghats pass.

Geographical Divisions

Geographically, Kerala has been traditionally divided into three parts namely high land, mid land and low land. The hilly area in the Western Ghats is highland while the mid land is plains and low land coastal area. The hilly areas of Kerala were at one time rich in vegetation with diverse flora and fauna. Different kinds of spices were cultivated. In the early times this region was mostly used for cultivation of spices and to an extent paddy which was part and parcel of shifting cultivation or '*punam*'

²⁵ V Ramachandran, *Approach to Development in the Western Ghats* in KSS Nair, et al., (ed), *Ecodevelopment of Western Ghats*, KFRI, Peechi, 1986, pp7-9.

cultivation. Mountain range is passing through these regions parallel to the western sea coast.

The Western Ghat region is a complex with its peculiar bio diversity. Many species of rare nature are found here. A good number of species are on the brink of extinction now. Human encroachments into the ghats have to a large extent led to the depletion of natural resources and dwindling of the bio-diversity of the region. Centuries ago when there was only a small population and less demand for natural resources, ghat region remained as the most valuable and richest centre of nature. With the passage of time, population increased and there by the demand also. Apart from this the greed of man brought about the drastic depletion of the Western Ghats. Nature's retaliation for the unwise exploitation has often been so severe. There is a close complementary relation between nature and human beings. Many outbursts of nature recorded in this region have close association with human intervention on the delicate nature of this state. 'When we reached here in the valleys of the hills of Kannur we could find forest and wild animals every where', says Madakkampuram Thomas²⁶. It is evident from the experiences of several native and migrant people living in the high range of Kannur that the high range of Kannur in the early years of 20th century was ofcourse not exactly as it is now.

PHYSIOGRAPHIC FEATURES OF MALABAR

The state of Kerala was formed on linguistic basis on 1st November 1956. Before that the land of Kerala was divided into different political units. Until about the end of 19th Century there were many minor and major political fragments and hence no political entity. During the time of freedom movement there were only three major political units viz, Travancore, Kochin and Malabar. Kerala state was formed after amalgamating the Travancore- Kochin states and the Malabar district of Madras Presidency. The term Malabar now a days is used to indicate the region north of

²⁶ Interview with Madakkampuram Thomas aged 87 living at Chittarikkal in Kasargod on 8-04-2022.

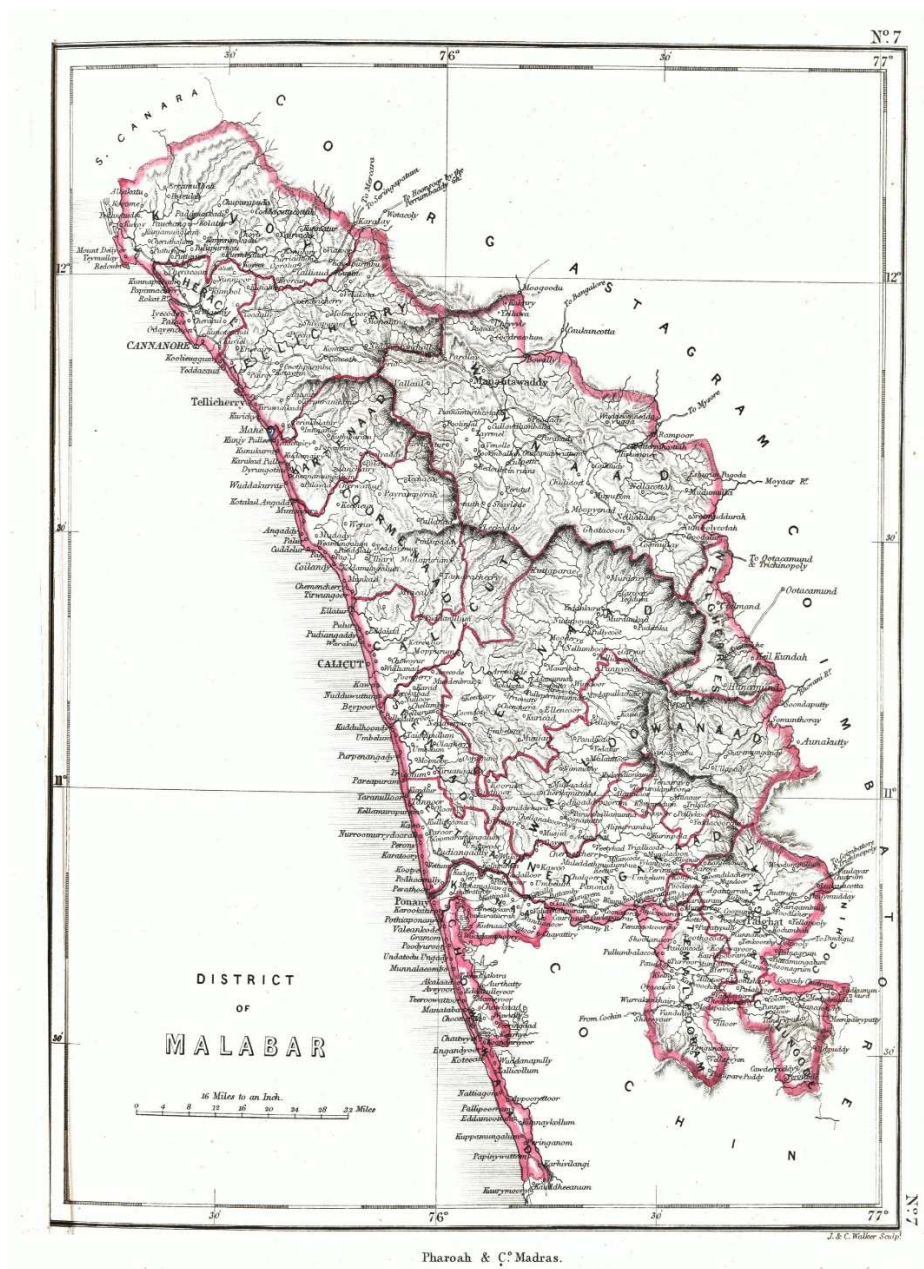
Thrissur. Malabar region now comprises 6 districts of modern Kerala. Malabar was in the pre-modern time the centre of trade and attraction for the Greco Roman, Chinese, Arabs and the Jews. Malabar was once the abode of spices and other articles. In the early years of Christian era the Greeks and Romans traded with this region. Muziris, Tyindis and Bacare were important port towns on the Kerala Coast during the period. Later in the early medieval and modern period several foreign traders came to this region. The Syrian Christians, Jews, Chinese, and Arab mercantile communities came to this land for trade purposes. The chief item of attraction to these mercantile communities was the pepper grown in the highland of Kerala. 'In the high ranges of Malabar pepper was grown even without cultivation',²⁷ says Friar Odoric. PK Balakrishnan on the contrary states that pepper was in cultivation in the high range during the period. The author might not have knowledge of the spice cultivation in the high range.

But what turned the destiny of the region was the advent of the European merchants in the tail end of 15th century. In the following years, several European powers came to this land ultimately leading to the victory of the English in the colonial and trade rivalries.

The name by which the district is known to Europeans is not in the general use in the district itself except among the foreigners and English speaking natives²⁸. Malabar extends from north to south along the coastal line with a distance of about 150 miles. Boundaries of Malabar are- in the north lies South Canara (present day Mangalore), in the east lies Coorg Mysore, Nilgiris, and Coimbatore, in the south lies, erstwhile Cochin State and in west is the Arabian sea. Following is the map of Malabar district in the colonial period.

²⁷ Velayudhan Panikkasseri, *Sancharikal Kanda Keralam* (Mal), Current Books, Kottayam, 2001, p.143.

²⁸ P.J.Chериан et al, (ed), *Malabar Manual, Vol.I*, KCHR, Trivandrum, 2000, p.1.



Source: Graem's Report on the Revenue Administration, 1822

Malabar came to the limelight during the colonial period from 16th century. It started regaining its position in international map of maritime trade since 16th century CE. Pepper and other spices of the highland of Malabar were in high demand from the Europeans. Invention of gun powder gave an upper hand to the colonial powers upon the trading partners which eventually helped them conquer the Afro-Asian territories. Ever since the British brought Bengal under colonial hegemony by the middle of 18th century the claws of colonialism and imperialism started spreading over

the rest of India. By the end of 18th century Malabar virtually came under British colonialism and was incorporated to Madras Presidency in which Malabar was a district. This status of Malabar as district continued until the formation of the state of Kerala on 1st November, 1956. Kannur till the formation of the state of Kerala was part of the Malabar District. Boundaries of Kannur in the first half of 20th century were South Canara in the north, Coorg in the East, Calicut in the south, and Arabian sea in the west.

Malabar has unique natural and climatic features. The mountains, rivers, climate, flora and fauna all are unique and fascinating every one. The climate of Kerala is dominated by the monsoon²⁹. The region experienced a tropical monsoon climate during 19th century.

‘The most obvious fact which strikes an observer is the uniformity of temperature through out the year as tested by thermometer’³⁰. It shows an average annual temperature on the sea coast, when compared to the temperature of 20th century. In the 19th century climate of Malabar was always hot but never very hot. One of the main factors in maintaining this high temperature was that the top soil of the region always get heated during summer. At the same time excessive rain fall make the soil rather delicate and susceptible of damage to all kinds of articles. The region’s topography influenced by the Western ghat contributed in variations in the rainfall through out the district. Long lasting moisture in the soil during the prolonged rainy season brings damage to goods of all item. The climate of Kerala shows always a regularity in its occurrence. Recently, undulations in the climate may be seen in the Kerala coast. Climatic change in Kerala may be noticed from the last decades of the last century. From June to November, the rainy season occurring in two phases helps a great deal in enriching the rich vegetation of this land. Towards the end of May or in the beginning of June, the south-western monsoon normally begins in Kerala and ends by October-November with the on set of north-eastern monsoon. Winter is

²⁹ Monsoon normally starts in Kerala by June and retreats by end of November. It comprises two types such as South West Monsoon from June to September and North East Monsoon from October to November.

³⁰ PJ Cheriyan, *opcit.* p.28.

normally shorter and not severe always as noticed in North India between November-February. Summer is hot but not hotter as compared to the severe heat of North India. Towards the end of March thunder storms begin to visit the dry soil of Kerala which continues till the end of May. It is with the beginning of June rainy season normally begins in the land during which the entire land is found to be green and lush, some times bewilders every one with its ghastly appearance of darkness with the thickness of vegetation. Rainy season is almost half a year in Kerala. Throughout the period the rivers, creeks and brooks are full of water which often tend to overflow, causing severe floods, taking away lives and property of lot many people. The eastern part of Kannur at that time was popular for the rich aromatic trees like Aloe and sandal. Teak is another important tree available in the forests lying on the high range of Kannur.

Flood of 1923

Perhaps the first recorded flood in the history of North Malabar is that of the flood of 1923. Heavy rains in July and August 1923 flooded the whole of the district causing much damage and loss³¹. CA Innes says that the rainfall in the taluks of Chirackal, Kottayam, Waynad and Kurumbranad was heavier than the rainfall recorded in the past 60 years³². Heavy damage and loss were recorded in North Malabar in the heavy rainfall that occurred between 1st and 11th August 1923. CA Innes gives a detailed description of the damage and loss occurred in the flood as follows:

“North Malabar suffered more than South and in Chirackal taluk, especially the country between Iritty bridge and Azhikode on the Valapattanam river, 3000 house, and huts worth two lakhs of rupees and crops on 2000 acres were ruined and timber stored in the river worth a lakh of rupees was lost”³³.

Flood of ‘99

Perhaps the deadliest flood recorded in the history of Kerala before 2018 was the flood of ‘99 as it is commonly known in the life of every Keralite. In 1924, there

³¹ CA Innes, *op.cit*, p.284.

³² *Ibid.*

³³ *Ibid*, p.285.

was a heavy flood due to the heavy rain, perhaps the past century never experienced any such a catastrophe before. Eastern side of Kannur experienced heavy rain in 1924. It happened in the Malyalam Era of 1099. It is commonly remembered by the old people as flood of '99. The heavy down pour continued for about 10 days. It is said that the rain started on 14th July and continued uninterrupted for several days³⁴. It hit the normal life of the people in Travancore, Cochin and Malabar. No part of the state was unaffected by the flood. The average rain fall during the period between July 14 and July 20, 1924 was 591.3mm³⁵ which was perhaps the highest ever recorded in the history of Kerala at that time. As Kerala at that time was divided into three separate political units such as Travancore, Cochin, and Malabar no consolidated or original data pertaining to the flood casualties are available. More over the transport and means of communication during the period were also meagre and the original picture of the flood and its consequences are not easily recorded. Still there are records in all the regions of Kerala about the gravity of the flood of '99. '*Vellapokkathil*'³⁶ the short story written by Thakazhi Sivasankara Pillai gives the true picture of the flood the people of Kuttanad had faced. In Malabar there was heavy loss to property of both movable and immovable nature. There were heavy casualties in all the regions of Kerala. Loss of lives of humans and animals, and loss of property have all been recorded. Both Iritty Bridge Kuttupuzha bridge were damaged heavily and the stone plaque³⁷ installed during the inauguration of the bridge was washed away and was found deposited in a cow shed after 60 years of the flood of '99³⁸. Several trees were uprooted and flown through rivers and at last these trees and coconut all reached in the West at places like Mattool, Azhikkal, Narath etc through the rivers. Steps were taken by the revenue department to auction all those items. One interesting thing that can be seen in the revenue documents is that most of the bidders on whose name the bid was fixed were Muslim timber merchants. For instance at Madakkara *desam* in Irinavu *amsam* timber that came through rivers during the flood of 1924 was auctioned

³⁴ *Mathrubhumi Daily*, 14-07-2024, p.6

³⁵ *Ibid.*

³⁶ *Vellapokkathil* is a short story written by Thakazhi Sivasankarapillai in the context of the flood of '99. The story gives the reader the gravity of the flood of 1924.

³⁷ The iron plaque is now kept at the Revenue Reference Library, Thalassery.

³⁸ *Mathrubhumi daily*, *op.cit.*

to one Pakkar kutty³⁹. It is evident from this that timber business was dominated by Muslim traders in the coastal region of Kannur as early as the beginning of 20th century. Even today in Kannur the timber trade is dominated by Muslim traders among which the names of Tellicherry Keyis occupies a special mention in the history of timber trade in Kannur. The timbers that were auctioned after the flood were mostly hard and soft wood. The bidding processes held at Kolassery amsam, Kalyattu amsam, and Kambilamsam in the Chirakkal Taluk in 1924 gives a detailed account of the trees that were uprooted in the flood of 1924. The logs belonged to *Teak*, *Anjili*, *Punna*, and soft woods like *poola*.⁴⁰ The heavy flood of 1924 thus largely affected the natural resources. In the report of the revenue Inspector of Ramanthali Amsam to the District Collector shows gravity of the flood. In his letter he states that the trees reached ashore from the sea in 1924⁴¹. These logs were also auctioned. Eventhough the food hit the highrange severely the auction procedures were mostly in the Western amsams like Ramanthali, Azhikode, Irinavu, Muzappilangad etc.⁴² At the same time movable properties from the high land region had been hit badly in the flood. Many house hold articles were washed away by heavy rain in 1924. In the plea of Kunjambu of Makreri amsam in Chirakkal Taluk, he mentions about the loss of many house hold articles.⁴³ In the plea of Apriyara veettil Rama Marar of Kalyat amsam he mentions that a huge *pathayam*⁴⁴ made of *eatti* (rosewood)and jack tree was washed away in the heavy flood of 1924 from the *pathaya purayil malika*.⁴⁵

Even before the peasant migration started to North Malabar in certain parts of the high range of Kannur some high rise areas were under control of the native people.

³⁹ File No.190/25 Auction of Timber in the Flood of 1924, Revenue Reference Library Thalassery.

⁴⁰ *Ibid.*

⁴¹ Dis No.217/B-25/1-9-25, Revenue Reference Library, Thalassery, p.9.

⁴² Dis No.1019/B-24, Dis No.914/B-22-1-25, 916/B-24-25-1-25, Revenue Reference Library, Thalassery

⁴³ Dis No. 828/B-24, 2-9-24, Revenue Reference Library, Thalassery.

⁴⁴ *Pathayam* in Malayalam means a large box made of wood. It is the traditional wooden grain box used for storing grains and other things like coconut for future use, mostly in times of famine.*Pathayam* was normally found in large Tarvads and economically sound families in the early times.Usually it is made of durable and heavy woods like rose wood, Jacktree or, Teak.

⁴⁵ Dis No.1116/B-24.31.1.25, Revenue Reference Library, Thalassery.

Documentary evidences available at Revenue Reference Library mention about the native people holding proprietorship of land in the highland of Kannur. Kamalkutty Haji in his agreement with the revenue officials says that the logs uprooted in the flood of 1924 from his *mala*(hill) belonged to him.⁴⁶ After 1924, the availability of rain in Malabar is getting decreased. Meteorological study from the 20th century would make the things clear that the climatic condition of Kerala in general is largely changing which may be on account of various reasons that are mostly man made.

The following table regarding the average rain fall in the between 1870 and 1930 could make the picture more clear about the average availability of rain fall during the decades.

Table 2.1: Average rainfall in Kannur between 1870-1930

Name of Rain gauge Stations in Chirakkal Taluk	Average rain fall during 1870-1930 (In inches)												Annual rainfall
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep.	Oct	Nov	Dec	
Irikkur	0.23	0.18	0.44	2.02	8.65	39.25	48.68	29.48	10.46	10.84	5.58	0.94	156.84
Payyanur	0.23	0.03	0.4	1.51	7.16	40.51	49.69	28.02	8.49	6.1	2.6	0.95	145.33
Cannanore	0.22	0.24	0.25	2.14	7.6	38.19	36.45	20.08	8.55	7.74	3.79	0.62	125.89
Taliparamba	0.15	0.1	0.14	1.95	6.62	38.48	40.44	22.72	8.62	8.05	4.38	0.75	132.44

Since British occupation of Malabar in 1792, the year in which Malabar virtually came into colonial hegemony, depletion of natural resources on the Ghats increased at an alarming rate. Even though the depletion of natural resources and decline of the ecological and environmental balance maybe seen through out the Ghats region through which it passes, the rapid decline of the Ghat is more visible in Kerala

⁴⁶ Dis No1115/B-24-9-25, Revenue Reference Library, Thalassery.

than in any other part of India. This is more because of the human intervention on nature than because of any other factors such as pollution or any other aspects. Kerala is one of the Indian states where the density of population is high. Naturally the pressure it exerts upon nature is also considerable. Human settlements on the valleys and areas closer to the Ghats in Kerala are comparatively greater in number. Even though the larger portion of the Ghat is passing through other states environmental threat it faces is larger in Kerala. This is due to the fact that more people rely upon the Ghats for their livelihood. The mountain ranges are rich in natural resources with varieties of flora and fauna. Human greed and unethical exploitation of natural resources from the ghat region have now made it more vulnerable to natural calamities. The wrath of nature upon human settlements in the high range region in Kerala is exemplarily high these days. Highland regions from north to south are ecologically fragile due to the unwarranted human interventions. The flood that shook the state of Kerala in 2018 and the subsequent landslides that followed were beyond doubt the aftermath of human intervention in nature. As there was a steady increase in population in the high ranges in the 20th century exploitation of nature for the unlimited need of man increased at an alarming rate. Such interventions have brought drastic changes in the landscape and agrarian practices. Eastern part of Kannur is the best example that can be pointed out for the impact of human intervention which has resulted in the change of land scape and ecology. Unprecedented human intervention upon the nature in Kannur region may be noticed from the third decade of 20th century as the period witnessed large scale migration of people from the south into the hinterlands of North Malabar including Kannur. Environment is a broad concept of encompassing the whole range of diverse surroundings in which we perceive experience and react to events and change⁴⁷. It includes the whole gamut of physical and ecological environment. We can see that environment is not static. But, we can see it was from the 19th century that colonial intervention in the upland region of

⁴⁷ N.Balasubramanya and Gurdeep. R. Chatwal, *Environmental Studies*, Himalayan Publishing house, Mumbai, 2007, p.4.

Kannur took place. They started plantations especially teak plantations. Teak was the most precious tree that was in great demand in the European market primarily for ship manufacturing.

Among the various geographical features of Kerala, the western Ghat region with extensive forests needs special mention. Geographical position of Kerala in the colonial period is mainly known from many foreign travellers. Fr. Bartholomeo⁴⁸ says there were lot of trees in Kerala. As early as the Christian era, Kerala had maintained trade relation with the outside world especially the Mediterranean and Persian Gulf regions as she had a very long coastal line along the Arabian sea. Moreover, in the medieval and modern times a lot of Asian and European powers had crept into this land because of the presence of the coastal line here. The process of cultural assimilation had started from the very early period itself due to the very peculiar geographical feature of Kerala. It is this feature that separates this land from the rest of the Indian subcontinent.

Geography and environment of Malabar were not exactly what they are today. Before 20th century the Eastern part of Malabar in general and Kannur in particular remained less interrupted owing to lower population. Moreover, the soil was rather virgin and the traditional mode of cultivation kept the geography and environment intact. Ever since agrarian expansion started in Kerala after 6th Century CE, it is noticed that garden cultivation expanded on a large scale in Kerala. The land of Malabar was full of thick forests with most part occupied by mountain ranges and rivers⁴⁹. 19th Century forest description may be seen in the accounts of colonial administrators like Ward and Conner⁵⁰ William Logan, Innes and Evans.

⁴⁸ Fr. Bartholomeo was a foreign traveller who visited Kerala in the colonial period.

⁴⁹ Velayudhan Panikkasseri, *Snacharikal Kanda Keralam(mal)*, DC Books, Kottayam, 1999, P.176.

⁵⁰ Ward and Coner 's Descriptive Memoirs of Malabar, C A Innes 'Malabar District Gazetteer, and William Logan's Malabar Manual give detailed description of Malabar in the 19th century.

Kannur

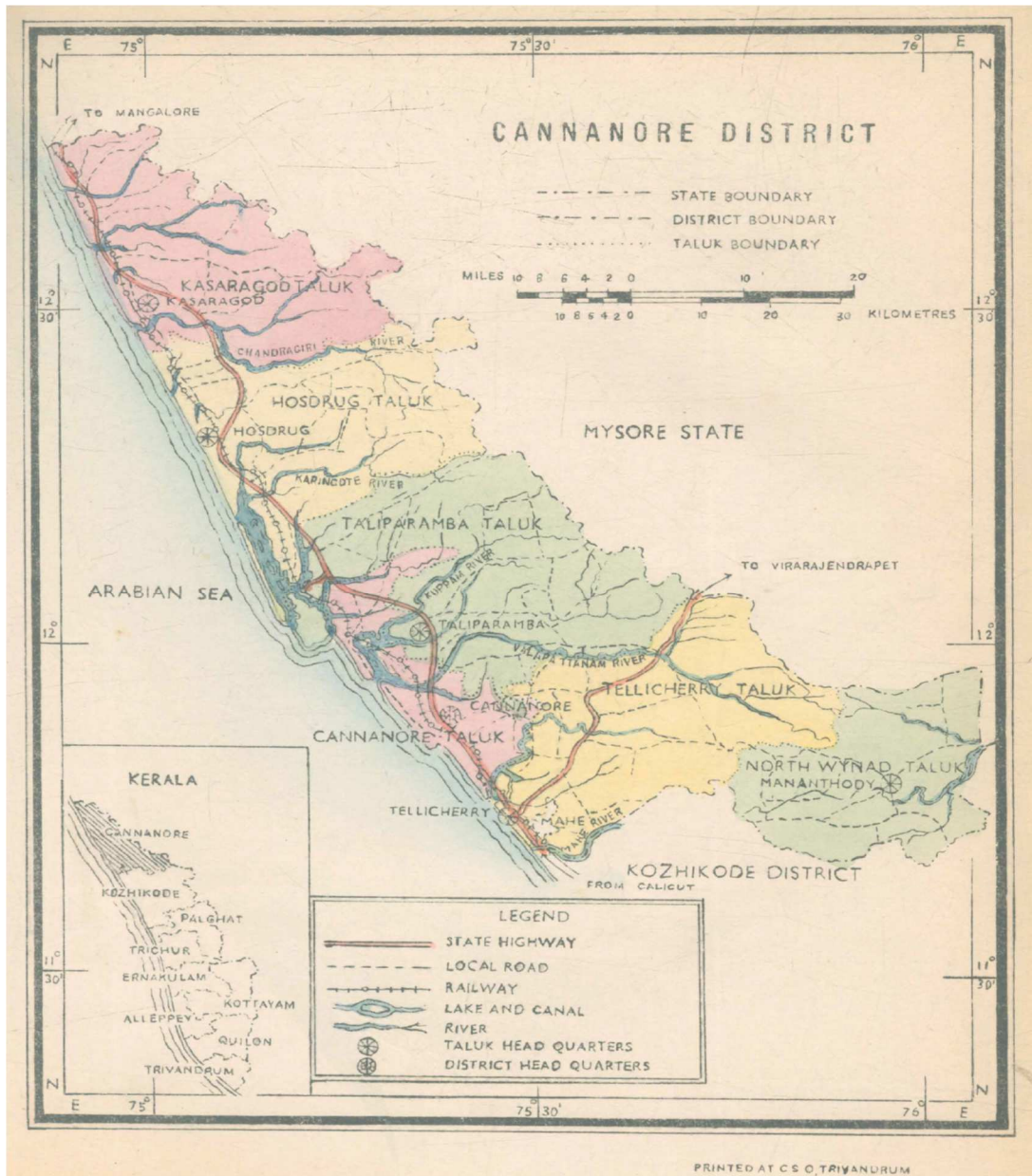
Kannur is the thirteenth district in the political map of modern Kerala. It is situated on the northern part of Kerala. It lies between the Western Ghats on the East and the Arabian sea on the West. It is bounded on the north by Kasaragod District, North by Waynad, On the east by Mysore District and Coorg (Western Ghatts), and on the south by Kozhikode district and on the West by the Arabian sea. Consequent on the re-organisation of States and the formation of the state of Kerala on 1st November 1956, the Malabar district except Minicoy Islands and Kasaragod Taluk of South Canara District was transferred to Kerala. In 1957, the Malabar district was trifurcated into Cannanore, Calicut and Palghat Districts. The high land tract of Kannur lies between midland and the western Ghats. The district comprises five Taluks at present. Earlier, before the district of Kasargod was formed, erstwhile Cannanore which was more extensive than it is today, had five Taluks. The erstwhile tract of the region consisted of Kannur, Thalassery, Taliparamba, taluks of Kannur and Kasargod and Hosdurg Taluks of Kasargod revenue districts.

The following figure shows the extent of the district as in 1971. When the district of Kasargod was formed in 1984, bifurcating Hosdurg and Kasaragod from the district, Kannur comprised of three taluks with Taliparamba, Kannur and Thalassery. Later two more taluks were formed with Iritty⁵¹ and Payyanur⁵² bifurcating Thalassery and Taliparamba. Thus the present day Kannur district consists of 5 taluks. When Thalassery, Taliparamba and Payyanur consist three geographical divisions such as high land, midland and low land the newly constituted Iritty taluk comprises only high land. For the present research, the geographical region coming under the present district is considered

⁵¹ Iritty Taluk was established as per GO.(MS)No.227/13/RD/dated 28-05-2013.

⁵² Payyanur taluk was formed as per GO(MS) No.1457/2018/17/o3/2018.

Kannur District in 1971

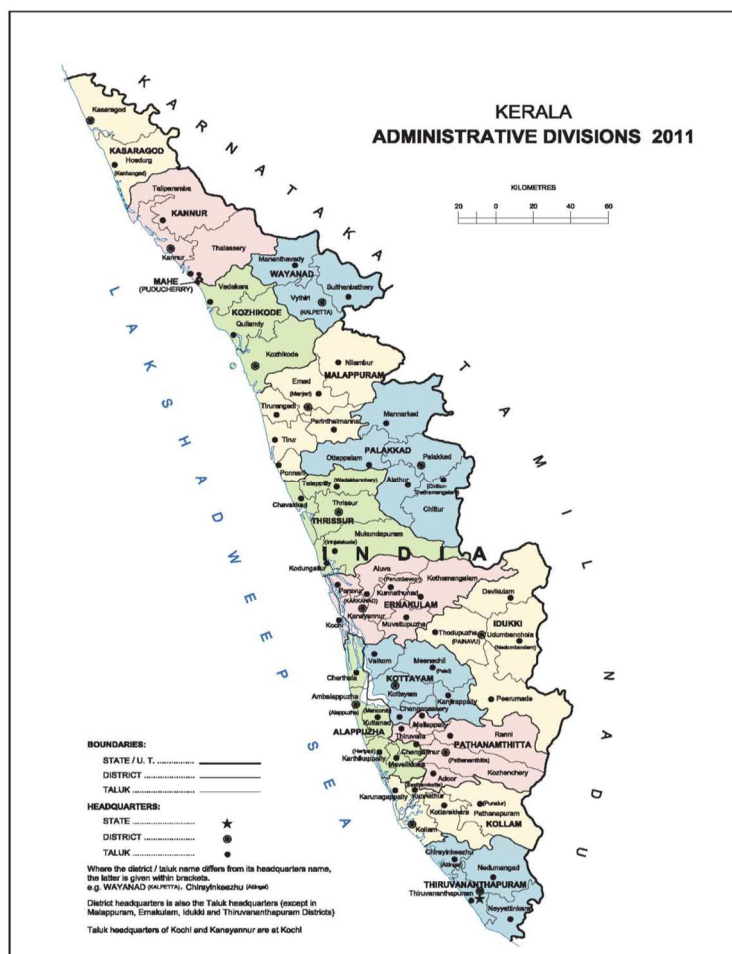


Source: District Census Handbook of Kannur, 1971

Kannur District in 2018.



Source: <http://kannur.nic.in>



Source: Census of India 2011

Before the formation of the state of Kerala erstwhile Kannur comprised parts of present day Kasargod district. It was called by the colonial people as Cannanore which is not in use now on account of Malayalam being the official language of the people of Kerala and every name is being pronounced in Malayalam. It was earlier part of the Chera kingdom as per the Tamil heroic poems. It has a long history of Pre historic age in the general history of Kerala. Geographically safeguarded by the Arabian sea in the west and , the Western Ghats in the east the land of Kannur was the abode of the pre historic human settlements. Archaeological evidences unearthed from different parts of Kannur underline the fact that the land was inhabited by many primitive tribes since ancient times. Most of the primitive evidences belong to the Megalithic period. Megalithic period also known as Iron age was characterized by the use of many large stones by the period. In Kannur, so many Megalithic sites have been identified. They are Panur, Mattanur, etc. Normally the period of the Megalithic age in Kerala is said to be between 1000 BCE and 300 CE. Megalithic remains give ample evidences about the nature of the life of the people during the period. The evidences like the iron ploughshare indicate the practice of agriculture and that of axe and sickle under line their use for clearing forests and there by making the land cultivable. The Sangam Literature, produced during the relatively developed stage of the Megalithic age in South India contains details about the hilly regions of Kerala. The eastern part of Kerala, largely mountainous region has found its place in the early Tamil literature. The northern part of Kerala that is Malabar is hilly in its physical feature with large mountain regions. For instance the Ezhimala and the high land regions like Kottiyoor, Peravoor, Kanichar Alakode etc are in Kannur. Vaithal mala which is almost 2900m high from sea level is in Kannur.

The district of Kannur was earlier the abode of several dynasties which ruled over the region at different times. Perhaps, the earliest dynasty which ruled over *Kolathunadu*⁵³ was Mushaka dynasty with its head quarter at Ezhimala. During the colonial period this region was visited by Portuguese and the English. Ever since Malabar came under British hegemony Kannur also became its part. Kannur was a

⁵³ Kannur, in the medieval and early modern period was known as *Kolathunadu* extended upto Ezhimala.

part of the Malabar district from 1792 to 1947. Before Malabar fell into the hands of the British Colonial power it was ruled by several native rulers. Ever since the Mysoreans made their inroads into this land it virtually came into their hands. Most of the native princes including Pazhassi Raja and the Zamorins were defeated and their territories were captured by the Mysorean rulers. But the Anglo-Mysore war changed the course of history of Malabar. In Kannur alone there were several ruling dynasties such as Kottayam Royal family, Arakkal Muslim Royal family, and Chirakkal Kovilakam. When Colonialism made its inroads into Malabar, the East India Company eyed on the rich natural resources of Malabar. They started marroding the rich forest resources of South Malabar especially the teak. Teak from the Nilambur forests are taller and stronger than from any other forests. Teak of Malabar forest was of great demand in England. Ships were largely manufactured from the teak of Malabar. Hence the colonial intervention in the environment of Malabar became rampant and as a result the natural resources of Malabar began to deteriorate very soon. British colonial forest policy was formulated with an objective of exploiting the rich forest wealth of the region restricting the intervention of native population in the forests. The East India Company started enforcing stringent rules upon the local population banning collection of forest resources even by the tribal people. Colonial forest policy in this regard was a deliberate attempt from the part of the colonial powers to restrict entry of local population into the forest. Forests of Kannur comprising the Kannavam and Kottiyoor had rich vegetations in the late 19th and early 20th centuries. The transformation of extensive forest landscape of Kannur during the past century is remarkable. Protected by the Western Ghats on the east, the forest remained rather unaffected by human intervention before the beginning of 20th century. The upland of Kannur during the period prior to the large scale influx of peasant population from central Travancore had a better environment favourable for traditional agrarian practices. The particular geography, soil, flora, fauna etc have their own roles in shaping the life pattern of the people in the region.

Geography and Climate of Kannur

a Geology

Geologically the region of Kannur has two types of rock formation namely laterite and crystalline type. Laterite is soft reddish layered rock filled with clay. Its surface is black with irregular grooves. This type of rock is mostly found on the midland and some parts of highland mostly at the foot hills. Many old constructions such as forts, palaces, many other buildings were all built of laterite stones. 'Laterite stones cut in rectangular sizes measuring about 12 to 14 inches long 10 inches wide and 6 inches height'⁵⁴, says P Ummer. In certain cases variations in size may be noticed. 'For Instance, several old buildings in Malabar in the 19th and early 20th centuries were constructed with laterite stones of varying dimensions different from the present dimensions'⁵⁵. For instances, the fort at Kannur, Bekal fort in Kasargod, the Central prison, Sub jail the municipal offices at Thalassery and Kannur etc are some remarkable monuments built during the 19th century or before. The interesting fact about these monuments are that they are all located on the low land in terms of geographical division. Naturally the stones for these constructions were brought from the midland regions. Probably from far off places. The terraced character of the laterite formations are quite common in Taliparamba and Thalassery taluks. Close to the Western Ghats we can see huge cliffs of granite stones.

The highlands of Kannur were characterized by lush forests, hills and diverse ecosystem before 20th century⁵⁶. Forest area in the forest division of Kannur is 29503.838 ha including 20638.847 ha of Reserve forest and 8864.991 ha of vested forests. These forests in the 19th century and early 20th centuries were not much under threat of human interventions. The region was known for its tropical climate with heavy rainfall fostering rich vegetation and bio diversity. The western Ghat mountain

⁵⁴ Interview with P Ummer, a mason of 78 years living Cherupuzha Panchayat on 20-11-2023.

⁵⁵ Interview with P Ummer on 20-11-2023.

⁵⁶ Accounts of Innes and Evens and Ward and Coner give ample references about the vegetation of Malabar in the 19th century. For more details see *The Malabar District Gazetteer* of CA Innes and *Descriptive Memoirs of Malabar* by Ward and Coner

range influenced the land scape creating a mixed natural features such as rivers, dense forests, valleys which provided a habitat for various flora and fauna. Agricultural crops like spices, garden crops, coffee, tea and spices were prevalent in the area. There is abundant number of wild varieties of economically important plants in the entire Ghat region. The Kerala portion of the Ghats is also not different. Of the 13000 species of higher plants identified in India about 3500 species are found in the Western Ghats.

During the 19th century there were different kinds of flora and fauna. Some of the fauna found in the high land of Kannur during the period included various species of mammals, reptiles, birds and aquatic animals. The environment and ecology of Malabar from 20th century is man made environment or man made landscape. Human intervention in nature has led to the creation of what is known as cultural environment. Changes in nature occur even if there is no human intervention. Where as in the high range of the district this is quite not applicable as there was greater human intervention since the second quarter of 20th century. From this period onwards we can see remarkable increase in the demographic pattern of the district. Environment and geography are physical and cultural. In this part I intend to perceive what exactly the geography and environment of North Malabar was before 20th century. Physical environment is the product of nature where as cultural environment is man made

All kinds of man made features such as buildings, settlements, roads or plantations are aspects of cultural environment. From the 1920s onwards we can see substantial changes in the geography and environment of Kannur. These changes were mainly due to human intervention. From the 1920s Population of North Malabar increases in many thousands and by 1951 it increased to lakhs. When early census reports reveal no substantial change in population, they register a sharp increase in population from 1920 onwards. This was due to the advent of Migrant population from erstwhile Travancore. Census report of 1931 shows an increase in the number of population of Malabar from mere thousands to lakhs. This large scale increase in population was due to the increase in migration. This naturally had its effect on nature. Village settlement registers of high land villages of Kannur show that the native

population was relatively small in number. The following figure associated with the Kuttiyeri *amsam* which is a high land region in the Kannur district of North Malabar would make things more clear with regards the population of the region limited only in the mainland. Western Ghat regions in the district of Kannur extent from Kottiyoor in the south east to Pulingome in the north east. The high land regions between these two place in the early years were not much occupied by human beings. The only human habitat that was made by those sons of the jungle otherwise called as tribal people. Still they were not conscious about the practice of conquering the forest and its resources for selfish interests. They depended nature for their subsistence only. They were mostly food gatherers just as the ancient *kurinji* people had done as per the references seen in the early tamil literature⁵⁷. The tribal people were not prone to agriculture. Hence agrarian practices were not much known to them as a result of which they were transformed into mere agricultural labourers with. Just as land grants effected the forced labour in the early medieval North India, the tribal people of Kerala were attached to land for a long time. The western Ghat region of Kannur is the abode of tribal people. Normally the hilly tribes consist of *Kurichya*, *Vettuva*, *Mavila* and *Paniya*. These people for a long time were not familiar to agricultural practices⁵⁸. Even today, except the *Kurichya*, the tribes like Vettuva, Mavila, and Paniya are not fully agriculturists. As the early Tamil Classical literature underline to the fact that they were food gatherers, there were converted to the level of bonded labourers with the passage of time. Advent of the European into the Kerala coast changed the existing scenario in this land. Ever since Malabar came into the direct control of the English East India Company by 1792, the socio political and environmental condition of North Malabar began to change. Those who were at the bottom of the social ladder were so mercilessly persecuted. They were even more kept aloof from the main stream. The depressed class was economically and socially exploited. Their life was in a state of servitude. Even in the 1970s in the Waynad and Eastern part of Kannur the tribal

⁵⁷ Early Tamil literature is generally known as Sangam Literature. The literature developed during the period between 3rd c.BCE and 3rd c CE. They make mention about the hill tribes depending upon nature for gathering food.

⁵⁸ Interview with Kelan, aged 100 years, a tribal resident living in Alakode Panchayat, on 27-10-2023.

people were facing abject poverty and slavery'⁵⁹. 'Until recently, it was a reality. However, the enlightened community was that much hesitant to accept the truth'⁶⁰. Even now the tribes are living a life of social and economic discrimination. From the 20th century onwards, the situation was further worsened by the influx of large scale population from the South.

The unique feature of the geography of Kannur in the early years of 20th century was that the Western Ghats and dense forest on the east and the narrow strip of the coastal region are intersected by many rivers like Perumpuzha, Kuppam, Valapattanam and Anjarakandy rivers on the west. In the early years as the trade was concentrated on the coastal line the settlements were mainly concentrated around the coastal towns. More over the population growth and its expansion were rather meagre on account of many rigidities forest areas remained unaffected by human intervention till the time. Apart from this, the ownership of land was perceived from a different perspective expansion of agriculture to the forest land was not permitted till the early years of 20th century. The forests of Kannur in the highland region had very innumerable number of Trees with many rare species of animals and climbers.⁶¹ In the early years of 20th century there were many rivers which all have their origin in the Western Ghats carrying with them plenty of water even during summer. The rivers originating in the East mostly flow west ward and after joined by several brooks and creeks finally lead to the Arabian sea. The nature was virgin at that time and there was scarcely any population in the highland region⁶²

People who came from erstwhile Travancore in the 1920s and 1930s had to fight with nature for their survival. Many writings on the struggle of the migrant people with wild animals and forest. Writings of S K Pottekkatu, and others give vivid

⁵⁹ K Pannor, *Keralathile Africa*, NBS, Kottayam, 1985, P 17.

⁶⁰ *Ibid.*

⁶¹ *Forest Working plan of 1901-10* pertaining to North Waynad forest division, 2010, Forest Central Library, Trivandrum.

⁶² *Descriptive Memoirs of various amsams* prepared in 1903 in the high range show a small number of population and occupied houses. For reference see the Descriptive memoir of Thimiri Desam of Chirakkal Taluk, in fasli 1313, Regional Archives Kozhikode.

pictures of the realistic nature of the natural scenario of the highland of North Malabar especially Waynad and Kannur. Western Ghats are well known for its forests, forest produces and plantation crops like coffee, tea, cardamom, pepper, rubber, teak etc. Most of these plantations were actually started during the colonial period. In the early years of occupation of the highland of Western Ghats people were not much aware of the importance of Western Ghats. As a result human intervention in the region was rather unwise which continued till the end of 20th century. Even though the highland of Western ghats is occupied for plantations, the Ghat is famous for the tropical forest for which little attention was paid by the people. The luxuriant climate and green vegetation constitute the highlight of the highland region of Western Ghats.

b. Forests

The forest wealth of Malabar falls naturally into five well marked zones varying in climate, soil, rainfall and resultant forest flora. The deciduous Forests of the plain and lower ghat slopes stretch in a continuous belt along the foot of the ghats from extreme north of the district to Palakkad Gap⁶³. Before 20th century the the high ranges of Kannur were rich in forest resources. These forests comprised a mix of tropical evergreen, semi-evergreen and deciduous forests supporting a diverse range of flora and fauna. The forests functioned as vital source of timber for construction, firewood for cooking, medicinal plants for traditional healing practices, and habitat for the wild life. More over, these forests played crucial role in regulating the local climate, soil fertility and supporting over all ecological balance of the region. The most evergreen forests of the ghat slopes climb from the foot to an elevation of 4000feet above sea level and are found both on their western and eastern sides. The eastern sides of the Western Ghat region in Kannur comprising the Karnataka forests carry abundantly very rich timber wealth. The trees which yield most valuable trunks are *irumbogan* or *urup*, white cedar, teak, rose wood, etc.

Traditional agrarian practices like shifting cultivation was quite prevalent among the indigenous communities. A close look at the early life of the people in the

⁶³ CA Innes, *op.cit*, p.238.

highrange of Kannur before 20th century would make things more clear. Forests in the highrange were integral part of the local ecosystem and livelihood. ‘*Punam* was the principal dry cultivation in the taluks of Kannur, especially Taliparamba’⁶⁴.

The eastern part of Kannur District comprised more forest tracts than agricultural areas in the early years of 20th century. Currently the forest division of Kannur comprises 120 panchayats, 13 Blocks and 8 municipalities. Changes in the forest areas may be noticed since then. This was mainly due to man’s dependence on nature to meet the growing needs due to change in the demographic trend since the third decade of 20th century. During the beginning of the past century, Kannur forest region was part of North Wayanad Forest Division. Kannur Forest Division was formed in 1990 bifurcating from erstwhile North Waynad Forest Division⁶⁵. During 1990, the Kannur Forest Division had a total of 29503.838Ha including 20638.847ha of Reserve forests and 8864.991ha of vested forests⁶⁶. The forest tracts fall within Kannur, Taliparamba and Thalassery taluks of Kannur Revenue District and Kasaragod, and Hosdurg taluks of Kasargod Revenue District. There are five ranges in the Kannur Forest Division as detailed below. These ranges at a time had been the abode of many native people who lived close to the forests living their livelihood with forest produces.

Table 2.2: Ranges and Their Head Quarters

No	Range	Head Quarter	Area(ha)
1	Kanhangad	Kanhangad	5405.773
2	Kannavam	Kannavam	8398.927
3	Kasasrgod	Kasargod	6046.150
4	Kottiyoor	Koothuparamba	7738.764
5	Taliparamba	Taliparamba	1914.224

⁶⁴ District census Handbook of Kannur, Census of 1961, p4

⁶⁵ GO (MS) 5/90 F&WLD, Dtd 29-1-1990.

⁶⁶ Working Plan of Kannur Forest Division, Kerala Forest Department, Trivandrum, 1990, p.1

Among these five ranges, only three fall in the area of the present study. They are Kottiyoor, Kannavam and Taliparamba. Understanding the geography and environment of the aforesaid forest ranges of the Division are helpful in re-configuring the landscape and ecology after a century. The Kanoth range includes the Kanoth reserve in the Kottayam taluk originally the property of Kannavath Nambiar one of the principal adherents of the Pazhassi Raja, the Kottiyur and Chinkanni valleys purchased from a private syndicate in 1903 and the evergreen forest near Periya in the west of Waynad taluk also part of Pazhassi escheat⁶⁷.

The Periya and Kottiyoor reserves and the eastern portion of Kanoth reserve contained valuable timbers of evergreen species. Teak plantations on an experimental basis was started in the Kanoth reserve by 1875. But due to the poor quality of soil, the attempt was abandoned later. Until the formation of the Aralam wild Life Sanctuary it was the part and parcel of Kottiyoor Reserve Forest. Aralam Wild Life Sanctuary was formed in 1984⁶⁸. As per the Government Order 2235.73 ha of Reserve Forest and 3264.27 ha vested Forest were bifurcated from the Kottiyoor Forests. Thus the Aralam Wild Life Sanctuary was constituted with 5000 ha. of forest land in the eastern side of Kannur where animal- man encounter has become order of the day.

c. Hills and Mountains

Physiographic features of the highland of Kannur make the region distinct from the rest of the districts. Number of mountains and rivers and diverse flora fauna make the region unique in the topography of Kerala. On account of the particular geographical features so many tourist destinations have been carved out by the Tourism Department and many thousands of people are pouring into these destinations every year. Of course this deviation in the development perspective is crucial in determining the ecological and environmental changes. Physically the highland of Kannur at eastward side with mountains culminate in the evergreen forests. With the exception of the flat country which does not extend more than 10 miles in a parallel the whole of the division may be considered hilly and

⁶⁷ C A Innes, *Malabar Gazette*, Govt. of Kerala Gazetteers Dept., Trivandrum, 1997, p. 240

⁶⁸ GO(P) 300/84AD.Dtd15-10-1984.

mountainous⁶⁹. Altitude of the highland region east of Kannur vary from 35m to 1230 m above average sea level. The highest peak in the highland in Kannur is Vaidal Mala in Taliparamba forest range with an altitude of 1230m. The slopes are in many parts laid open for *modan* cultivation⁷⁰. The other important peaks and hills of the three ranges of the Division are the following

Table 2.3: Name of peaks and their heights⁷¹

	Name of Peak	Height(in metres)
1	<i>Puvattankandy mala</i>	746
2	<i>Chennapoil mala</i>	486
3	<i>Chittari mala</i>	1047
4	<i>Parakkattu mala</i>	698
5	<i>Mangad mala</i>	456
6	<i>Neerkunnu mala</i>	629
7	<i>Kottappram mala</i>	401
8	<i>Karingali mala</i>	483
9	<i>Palukachi mala</i>	745
10	<i>Ottapilavu mala</i>	910
11	<i>Chandanakkampara mala</i>	600
12	<i>Vaidal mala</i>	1230
13	<i>Thurumbika mala</i>	804
14	<i>Varikkapara kunnu</i>	734
15	<i>Pullikkallu mala</i>	804
16	<i>Kottathalachi mala</i>	801
17	<i>Chedda mala</i>	623
18	<i>Alakattia mala</i>	752
19	<i>Maniyanimotta</i>	900

⁶⁹ Ward and Coner, *A Descriptive memoir of Malabar*, KCHR, Trivandrum, 2001, p.29.

⁷⁰ *Ibid.*

⁷¹ *First Working Plan Kannur Forest Division*, 1990, p.4

The most important mountain situated on the Western Ghats in Kannur is the Veidal Mala, otherwise colloquially known as *Paidal Mala*. This name, according to William Logan, derived from one Veidal Kumar who was a mighty robber used at one time to frequent this hill⁷². At certain seasons of the year-April, May and October –thunder storms of terrific violence rage on the western summit of this mountain⁷³. Today, *Veidal mala* is one of the most important tourist destinations in Kannur district.

d. Rivers and river valleys

The high range of Kannur is intersected by several rivers originating from the Western Ghats. These rivers would have been vital sources of water for drinking, irrigation and transportation for those living in the region in the early days. In addition to the major rivers, the highland area is criss crossed by numerous streams and tributaries flowing from the hills. These streams would have been essential for providing water to the surrounding forests, and sustain the biodiversity. As many as 44 rivers flow through the length and breadth of the state of which 3 are east flowing and 41 are west flowing. At a time these rivers carried full of water through out the year. With the change in climate and ecological issues due to human interventions, the life of rivers in Kerala is at stake. In the early period these rivers helped a great deal for inland navigation. Goods from far off places like the *kurinchi* and *mullai* regions were transported through these rivers to the port towns where ships of the Greco Roman traders had anchored awaiting pepper and other spices of the region.

Early Brahmin settlements were founded on the river banks in the early medieval period followed by the agrarian expansion. The distribution of the brahmin villages shows that they were invariably in the agro-climatic areas suitable for paddy which was the chief economic source of the period⁷⁴. Thus, in the evolution of medieval Kerala society and culture rivers played a vital role. Along with the rivers,

⁷² P.J Cheriyan, (ed), William Logan's *Malabar Manual*, Vol I, Kerala State Gazettees Dept., Trivandrum, 2000, p.5.

⁷³ *Ibid.*

⁷⁴ Rajan Gurukkal and Raghava Varier, *History of Kerala :Prehistoric to the Present*, Orient Blackswan, New Delhi, 2000, p.78.

backwaters also have played vital role in moulding its history and culture. Kerala is noted for the heavy rain it gets annually. The average quantity of rain in the region is about 3200 mm/year. Heavy monsoon caused due to the presence of the Western Ghats. Rivers of Kerala are largely fed by the rainfall occurring in the state namely South Western⁷⁵ and North-Eastern⁷⁶ monsoon between June and October every year. Because of the particular terrain of the land in summer the land often experiences draught on some occasions in summer. As there were little attempts in conserving the rainwater till recently, all the rain water flowed into lakes rivers and ultimately into the Arabian sea. Immediately after the rainy season is over, the high land regions suffer from water shortage. However the presence of the Western Ghats is vital in enriching the lives of the high range people.

Table 2.4: Rivers on the East of Kannur & Kasaragod⁷⁷ (Kannur Forest division)

No	River	Origin	Length (km)	Navigable (km)
1	Anjarakandi	Kannoth	48	27.2
2	Kariamkode(Cherupuzha)	Padinalkad	64	24
3	Kuppam	Padinalkad	82	24
4	Mahe	Wayanad Hills	54	24
5	Peruvamba	Pekkunnu	51	16
6	Ramapuram	Iringal	19	6.4
7	Eranjoly	Kannoth	28	21.6
8	Valapattanam	Brahmagiri	110	44.8
9	Bavali	Chekuthan thodu,	84	12.8
10	Bekal	Kaniyadka	11	
11	Chandragiri	PattiGhat	105	12

⁷⁵ South Western Monsoon in Kerala is generally known as *kalavarsham*. It starts in the beginning of June and continues till September.

⁷⁶ North Eastern monsoon in Kerala is commonly known as *Thulavarsham*. The period of this season is between October-November.

⁷⁷ Working Plan of Kannur District, 1990, p.5.

No	River	Origin	Length (km)	Navigable (km)
12	Chittari	Chettiamchal	25	
13	Kalnad	Chattamchal	8	
14	Kariamkode	Padinalkad	64	24
15	Kavvayi	Cheemeni	31	9.6
16	Kinanur	Kinanur	23	10
17	Kumbala	Yedanad	11	3
18	Mogral	Kanathur	34	
19	Nileswar	Kinanur	47	11
20	Shiriyā	Anekundi	67	4.8
21	Uppala	Virakamba	50	

All these rivers have their origin from the Western Ghat and flow towards the west. A few rivers at some point merge with other rivers and form larger ones. Valapattanam river is the largest and longest river in Kannur. Apart from these rivers there are several brooks, creeks and streams which take their origin from the Western Ghat. Eventhough all of theses streams carry lot of water during rainy season most of them dry up during summer. However in the early years of the last century these rivers carried plenty of water even during the peak days of heat in, March and April⁷⁸.

Anjarakandi River

Anjarakandy river originates from Kanoth at an elevation of 600m and flows through Kannavam, Vemmanal and reaches into the Dharmapattanam island. This river is the life line of several villages in Thalasseri taluk.

Karaiamkode River

It begins from Padnilkad of Coorg District at an elevation of 1520 m. and joins the Arabian sea North West of Chervathur Grama Panchayat⁷⁹. At Cherupuzha it is

⁷⁸ Interview with Narayanan Nair, aged 87 living at Cherupuha, on 12-08-2022.

⁷⁹ Working plan of Kannur District, 1990, p.6.

known by Cherupuzha river. During monsoon the river carries plenty of water, flowing through the forests from Karnataka. Originating from high mountains and flowing down the hills and later flowing quite ly through the midland, at some places near Cherupuzha town there are roaring water falls. Even though the name indicates as 'small' This river is not as small as the word carries. Many bridges of several metres of length have been erected over the river connecting two present day districts of Kannur and Kasargod. In monsoon season adventurous sport events like kayaking is conducted on this river⁸⁰. During the past several years Kayaking is being conducted in the river during the monsoon season.

Kuppam river

It is also known as Matul river. It is the third longest river in the forest Division of Kannur. The river originates from the Padinalkadl of Coorg District. It flows westward through the amsams of Thadikkadavu, Kuveri, Thaliparambu before it merges with the Valapattanam River. It has a catchment area of 509 km² with an annual rain of 1266mm⁸¹.

Mahe river

It is another important river in the district. It originates from the Waynad hills at an elevation of 910 m and finally joins the Arabian sea.

Peruvamba river

It is a small river which originates from Pekkunnu at an elevation of 325 m. The main tributaries of the river are Macharuthodu, Mathamangalam, Challachal, Makkuttenkarachal and Niliringapuzha. Catchment area of the river is about 300km².

⁸⁰ During the past several years Kayaking, an adventurous sport is being conducted on the river at Cherupuzha.

⁸¹ Working Plan of Kannur Forest Division, p7.

Ramapuram river

It has its origin from Iringal at an elevation of 57 m. Its catchment area is about 52km².

Thalassery River

It originates from Kannothe at an elevation of 550m. Its main tributary is Dharmadam puzha which occupies an important place in the colonial history of Thalassery.

Valapattanam

It is the longest and largest river in the district. It originates from Brahmagiri Hills located some 15 km north of Mananthavady. It flows through the valleys of Iritty, Edakkannam, Perumana, Irikkur and Kalliassery and finally flows into the Arabian sea. Major tributaries of the river are Sreekantapuram river, Valiyapuzha and Aralampuzha or Bavalipuzha. More over several minor and major streams add water to the river thereby increasing the catchment area of the river into 1867Sq.km. In the early times the river always carried water full to its capacity. In the floods of 1924 the river overflowed causing many casualties. 'The high floods in the Valapattanam and Panamaram rivers resulted in the collapse of about 4000 houses and damage to crops on about 2000 acres of in the northern taluks⁸².

Studies prove that several sources of water have either disappeared or dried up on account of excessive intervention of mankind upon nature. This intervention largely takes place since the peasant migration started on a larger scale from the 1920s. As the demographic transition may be noticed in north Malabar from the beginning of 20th century, it is evident that man's interaction with nature for subsistence at one time and for meeting the greed at other time also started during the same time. People say that there were several streams and waterfalls in the early years of 20th century in the highland of Kannur. There were several high rise mounts from where the streams and small water falls had their origin, says Thomas, a native of

⁸² C A Innes, *Malabar District Gazetteer*, Kerala Gazetteers Dept, Trivandrum, 1997, p.285

Kelakam Panchayat⁸³. Most of such streams and waterfalls disappeared in the course of time owing to change in climate as an implication of human intervention in nature. Those now exist carried plenty of water and had more width than what they actually have today. Many water bodies in the later years of the 20th century either disappeared or reduced to water logged areas.

The shores of the rivers and streams were, unlike as they are now, lush in green and thick for the sun rays to penetrate into the interiors. Both banks of the rivers where bamboos grew in abundance were the abode of many poisonous snakes like vipers and king cobras⁸⁴. Even today such poisonous snakes may be seen on the banks of such rivers and often these snakes make visits to near by houses owing to changes that have taken place in the natural habitat of the snakes and other poisonous reptiles. In the early years of our settlement in the highrange, there were so many poisonous snakes and other wild beetles apart from the threats from epidemics like malaria and cholera⁸⁵. Many people who came to the highrange along with us lost their lives before they could make yheir settlements here⁸⁶. It is evident from the statements of native people living in the high range that till the early decades of 20th century the ecology landscape of the region were highly virgin and natural.

e. Flora and Fauna

Kerala is generally described as a land of rich natural resources. Resources of both flora and fauna abundantly grow here. The presence of the Western Ghat greatly boost the growth of vegetation and animal life. The forests were rich with large trees that grow of many years. During the rainy season a good deal of large trees and

⁸³ Interview with Thomas, aged 67 living in Kelakam near Kottiyoor. His parents and Grand parents migrated to the east of Kannur in the 1940s.

⁸⁴ Interview with M Kumaran aged 80 living in Cherupuzha Panchayat on 2-9-2022. His house is situated in a relatively undeveloped area in Vayakkara village. But the location is serene.

⁸⁵ Interview with Mannadappan Kuzhiyil Baby aged 83 who lives in Cherupuzha on 18/12/2022.

⁸⁶ Interview with Nhattuthottiyil Matahi aged 87 living in Alakode Panchayat on 13-09-2022

bamboos in rafts were floated down to Baliapattam and other places for sale and for constructions⁸⁷.

The forests of the highrange region would have supported a wide variety of wild animals. Until the beginning of 20th century the forest region of Kannur⁸⁸ was full of wild animals like tiger, boar, bison, deer, fox, elephant, monkey, birds, reptiles and many more⁸⁹. Naturally, the native people engaged in hunting of such wild animals like bison and wild boar, Malabar giant squirrel etc. Often it was carried out for pleasure rather than for eliminating the threat of wild animals which destroyed the farm and agricultural crops as they do now in the various high land regions of Kerala⁹⁰. In the early decades of 20th century, the more than 100 km long eastern highland region on the west of Western Ghat in Kannur was the abode of many hundreds of wild animals and creatures some of which are most peculiar to the Ghat region only. Snakes like king cobra, Indian rock python, various species of vipers and cobras, pit viper etc are commonly found in the high range. 'Vipers are common guests found in thatched houses of the high land during the monsoon season'⁹¹, says Kelan a centenarian of the highland region in Alakode. There is no surprise in this remark of the old man. As the premises of the region were un occupied or less occupied by the native people, increase in the number of wild animals was quite natural. Only the tribal people who dwelled in the jungle or at close proximity intruded into the forest in search of food. The Cholanaikar⁹² and the Mavila⁹³ In the midst of their search for

⁸⁷ Interview with Abdul Hameed, a native of Taliparamba aged 82 years on 19-11-2022.

⁸⁸ Before Kannur forest division was formed, it was part of North Waynad Forest Subdivision. Entire North Malabar forest areas were under the North Waynad Forest Division.

⁸⁹ Interview with Kelan aged 100 years, a native of the highland of Kannur in Alakkode Panchayat, on 27Nov.2021

⁹⁰ Interview with Narayanan Kanichar aged 85 on 08-11-2021.

⁹¹ Interview with Kelan aged 100, on 27-11-2021. living in Alakode Panchayath

⁹² *Chola naikar* mainly found in the Waynad region are still the most primitive tribe found in Kerala. They still live in the midst of forest and depend on forest produce for their livelihood.

⁹³ *Mavila* is yet another hill tribe found in the highranges of Kannur and Kasargod who often earn by hunting.

food, they often encountered with wild animals and in that encounter the latter were killed. Quite often these animals like boar was used for some sacrifices and rituals. Even today several tribal communities hunt wild animals as a part of their ritual and spiritual performances. Traditional folk arts are closely associated with the natural life of these communities. In most of the folk arts especially *theyyam* of the tribal people are closely linked with animal sacrifices. For instance, the *Mavila* community have their own deities and they perform theyyam in areas where they settle in large number. For instance the *Vayanattukaulavan*⁹⁴ story speaks about how significant was hunting in their life.

Ever since the advent of the Syrian Christians from Travancore to the high land of Malabar, tapioca became an important crop for subsistence of the people. Tapioca was cooked and eaten with green chilly⁹⁵ ground in traditional grindind stone. As the land was largely surrounded by forest regions they faced the threat of wild boars and bison. To meet the challenges of these wild animals destroying their hard earned agriculture they hunted down them. Boars and bison became an important item of the daily food⁹⁶. Even today the high range farmers face grave threat from wild animals like elephant and boars which destroy agricultural crops. The highland of Kannur some decades ago was infested with wild animals and birds which on certain occasions caused threat to the agricultural crops the farmers grow during the prime of their age. Due to the unwise poaching and hunting of birds like peacock, boar, porcupine, monkey, bison, deer etc their number diminished alarmingly. Till the enactment of the Wild Life (Protection) Act 1972, the population of wild animals in the forests close to human settlements was very low⁹⁷. High range people say that it was after the enactment of the law, that the clash between man and animal increased

⁹⁴ Vayanattukulavan is the Theyyam being performed in many kavus of Kannur and Kasargod. As per tradition Vayanattukulavan is associated with hunting.

⁹⁵ Small chilly usually grown in and around residential areas has very strong pungency. This chilly in the early years of the past century was not commonly cultivated, rather it is grown as such in the garden.

⁹⁶ Interview with Joseph Munjanattu, aged 92 living at Chungakkunnu, Kelakam Panchayat. on 18/12/2022.

⁹⁷ Interview with Mannadappan KuzhiyilBaby, aged 82 a native of Cherupuzha Panchayat, on 17-10-2022.

in the high range where currently human –animal is a severe problem. Surprisingly, the number increased many times in case of boar, bison and monkey after the enactment of the law. Apart from these animals found on the land there are several amphibians peculiar to the high land of Kannur. Malabar gliding frog, Malabar tree frog, and various toads, caecilians, are inhabiting in the forest and streams.

After 1990, the general consciousness that was created through widespread propaganda and administrative intervention, poaching diminished or ceased to exist. And now the threat of these wild animals has become even more severe than it was in the past decades⁹⁸. Recently the state government issued order for killing of boars that destroy crops. Still the danger could not totally be eliminated. Many farmers residing on the proximity of the forests in the Western Ghat in Kannur suffer from the threats of wild animals. They destroy not only agricultural crops but endanger human lives. Many people in the Aralam Wild Life Sanctuary have lost their lives at the hands of elephants.

In the areas close to the forests in Kannur we can see different types of land and crops. Most of those crops and land have now disappeared. There were wet land, dry land, garden land, un occupied land, occupied land, government land etc in Malabar in the 19th century. It is evident from the colonial accounts of 19th and early 20th centuries that the land of North Malabar had a different physical character which is different from that of the post 1950 period. As per the census taken in fasly 1216 (1805-06), the population of Malabar except Waynad was 684864⁹⁹. Even after a century the population in the entire Malabar did not show much increase. More over greater number of population concentrated in the coastal and midland. In the uplands of the Western Ghat the number of population was very low. The inhabitants were

⁹⁸ Interview with Kunnumpurath Krishnan, aged 82 living in Cherupuzha panchayat, on 17-01-2023.

⁹⁹ J Rejikumar (Ed), *Graeme's Report on the Revenue Administration on Malabar-1822*, Kerala State Archives Department, Trivandrum, 2010, p.27.

mostly native Hindus. There are no compact village or town in Malabar except along the coast which are generally inhabited by Moplah merchants¹⁰⁰.

The descriptive memoirs¹⁰¹ of many *desams* in both Kottayam and Chirakkal Taluks of Malabar district give description of the population and house holds in each *desam*. For instance, the number of house holds in Malappattam *desam* was 194 in 1891 and 176 in 1901¹⁰². Population of the *desam* in the decades was 907 and 953 respectively¹⁰³. The land as per the report was divided into wet, dry, garden etc where different types of traditional crops were cultivated¹⁰⁴. In the wet land, there were many crops like paddy, pulses and other grains. In the garden, crops like plantain, jackfruit, coconut, arecanut, and several other crops were cultivated. Jack trees were quite common in the garden land of highland area of Kannur¹⁰⁵. In times of poverty jack fruit was largely used to meet the grave situation¹⁰⁶. Often jackfruit seeds were kept for long time to pass the famine months of June and July by smearing mud on the seeds¹⁰⁷. These seeds would last for a long time without any damage or decay. People in the highland had their own technology and knowledge to meet the situations. Till the dawn of 20th century there were thick forests along the eastern side of the Kannur District. By the side of the forests, there were paddy fields and garden lands. Rice and coconut were grown in these lands. On the other side, we can see forests which before 20th century were mostly private that belonged to the janmis. Naturally, an average janmi was anxious to turn his trees into money¹⁰⁸. Forests of Kannur were

¹⁰⁰ Ward and Conner, *A descriptive Memoir of Malabar*, (Re print) Kerala State Gazetteer Department, Trivandrum, 1995, p.3

¹⁰¹ *Descriptive memoirs* are the revenue Settlements made by the Colonial Administration in 1903 or fasli 1313 (1903).

¹⁰² *Descriptive Memoir of Malappattam Desam* No.104 of the Chirakkal Taluk, p.2

¹⁰³ *Ibid.*

¹⁰⁴ *Descriptive memoir of the report of Malappattam Desam* No.104 of Chirakkal Taluk, p.2.

¹⁰⁵ Interview with Joseph Munjanattu aged 90 living in Kottiyoor Panchayat on 20-5-2022.

¹⁰⁶ Interview with Kunhiraman aged 93 living in Cherupuzha on 13-05-2023.

¹⁰⁷ This was a practice followed by the native people of Malabar to preserve jackfruit seeds for long time without any decay.

¹⁰⁸ CA Innes, *Malabar Gazetteer*, Kerala Gazetteers Dept. Trivandrum, 1997, p.237.

divided into Kannoth range comprising ever green and deciduous trees. Kannoth range in the Kottiyam Taluk was originally the property of Kannavath Nambiar a strong adherent of Pazhassi Raja¹⁰⁹. After the capture of power in Malabar, the British began to intervene in the natural resources of the region.

Plantations on an organized basis in Kerala was initiated in as early as 19th century. The British as soon as got their political hegemony in the region of Malabar began to focus on the forests of the region. Large scale felling of trees by the British for finding resources for railway, ship building, and buildings was initiated by them. Felling of trees and clearing of forest for agricultural purposes largely affected the environment of the highland of Kannur in the later years.

f. Rainfall and Climate

Kerala has a unique climatic condition with a relatively longer monsoon season that extends for six months starting from June to November. The region has a tropical monsoon characterised by heavy rainfall during the South West monsoon (June to September). During this period the entire part of Kerala receives heavy rain. Colonial accounts of late 19th century shows that there was heavy rainfall in the taluks lying in North of Malabar district. During 1870-1889 average rain fall in Cannanore, Tellichery was 122.13 inches and 131.50 inches respectively¹¹⁰. Over the whole of South Canara and the Northern part of Waynad the rainfall of the year exceeds 125 inches¹¹¹. Between 1870 and 1930 the average rain fall reported at the Cannanore, Irikkur, Payyanur and Taliparamba centres in the Chirackal taluk was 125.80 inches, 156.84 inches, 145.33 inches, 132.44 inches respectively¹¹². By this time the rainfall in the region is explicitly high. Since the change in population especially the high range, rainfall is getting decreased. By the end of 20th century average rain fall in the district began to show a decline. As per the Ground Water Information Booklet of

¹⁰⁹ Ibid p.240,

¹¹⁰ R-361 *An Account of the Normal Distribution of Rainfall in the Madras Presidency*, Supdt. of Govt. Press, 1892, p.23, RAK.

¹¹¹ *Ibid*, p10

¹¹² K N Krishnaswami Ayyar, *Malabar District Gazetteer*, VolII, 1934, p.141, RAK.

Kannur¹¹³, average rain fall in the district in the year 2000 was 128.27 inches only¹¹⁴. Change in the availability of rainfall adversely affect the eco system of the region.

Geography and environment in the high range region of Kannur are largely depended on the monsoon. There are two phases in the monsoon in Kerala. The south west monsoon¹¹⁵ and the North East monsoon¹¹⁶. There was significant rain fall in the region in the early years of 20th century. High land agriculture largely depended on the monsoon rain fall and the streams that originate after the heavy down pour.

As there was less human intervention the region remained to be rather dense and dominated by wild animals. 'We used to go for hunting in our young ages. We had used barrels and guns with group of a few people we would set out our journey to the wild and hunted boars, deers, and bison'¹¹⁷, says Kelan, a resident of the high land village of Alakode. The animals they hunted were shared among themselves. On the walls of many old houses in the high ranges of Kannur stuffed heads or large horns of deer may be seen. Feathers of wild hen or cocks also hang from the ceiling of the house. Even though the hunting practices were largely for entertainment, the absence of strict enforcement of forest laws could reduce the threat of wild animals. More over, the region was practicing traditional mode of cultivation until the advent of the peasant population from the Southern Kerala. The traditional mode of agriculture was mainly *punam* cultivation which was the basic livelihood of the highrange people. They had in their custody many types of rice seeds, tubers, pulses. All these types of crops were for a long time in use in the region. But the change in climate and variation in rainfall affected the agricultural life of the people of the high range.

¹¹³ Central Ground Water Board, Ministry of Water Resources, Govt. of India, 2005.

¹¹⁴ Central Ground water Board, *Ground water Information Booklet of Kannur District*, Ministry of Water Resources, , Govt. OF India, Faridabad, 2005, p.7.

¹¹⁵ South west Monsoon in Kerala is generally known as *Edavapathy*. Normally monsoon starts here by the end of May every year which is the month of Edavam in KE.

¹¹⁶ North –East Monsoon is the beginning of Thulavarsham in Kerala. It normally begins in the month of Thulam in KE, (October-November in Gregarian Calendar.)

¹¹⁷ Interview with Kelan aged 100 living in Alakode Panchayat, on 21-12-2023.

By around the end of 1980s, the traditional mode of farming had disappeared from the region on account of several reasons of which the large scale influx of peasant migrants from the Central Travancore to North Malabar was the most important reason. As a result of all these developments, the area under vegetation got reduced at an alarming rate. The shortage of forest cover, conversion of the forest land, bewildering growth in of population in the region in the 20th century, and the inroads into the jungles all brought about drastic changes in the ecological and environmental balance of the Ghat region in the district.

Chapter 3

Malabar: Settlements Through Ages

Unique geographical features of Kerala make this land distinct among the Indian states. Kerala is geographically protected by the Arabian Sea in the West and the Western Ghats in the east. This unique geographical feature largely helped in formulating the conspicuous cultural composition of this land. The evolution of such cultural pattern may be traced back to the early stone age. During the stone age in history several human races had emerged in several parts of the world. Pre historic age in Kerala as elsewhere is divided into Paleolithic, Mesolithic and Neolithic and proto historic period as Copper, Bronze and Iron Ages. Understanding the different human races that came and settled in Kerala is quite interesting and surprising. Right from the very early period Kerala was the home of different human races. They lived in different parts of Kerala mostly on hill tops, mountains and valleys. Being a part of Kerala, Malabar also had accommodated different racial groups that came to this region at different points of time. Different human races had their abode in Malabar making a cultural symbiosis. The Negritos, Proto-Astraloids, Mediterranean and the Aryan races were the earliest inhabitants of Kerala who made this land an ethnological museum. The Negrito element is considered to be the earliest human race found here. The tribal people like the *Kadar*, *Malapandarams*, the *Ullatans*, etc belong to the *Negrito* group found in Kerala. Hill tribes like *Irular*, *Kurichyar*, *Karimpalas*, etc constitute the *Proto-Astraloids*¹. Later the Mediterranean group of people who are believed to have migrated to India in the very early period before the Christian era, came to South India and is believed that they constitute the main race of South India -the Dravidians. *Nairs*, *Ezhavas* *Kammalars*, and the *Vellalars* form the main Dravidian group in Kerala. Aryans² were the last racial group who are believed to

¹ A. Sreedhara Menon, A Survey of Kerala History, DC Books, Kottayam, 2011, p.16.

² Aryans who migrated to Kerala are known in Kerala history as Namboodiris.

have migrated to Kerala in the early period of the Christian era. Migration of various groups of people into Kerala had started from the stone age. Their advent was one after another and they did not constitute same ethnic group. Differences in their physical appearance customs, rituals and rites, life pattern all make them peculiar to this land. Early inhabitants came to this land in different time slots of history. Later, the process of migration became frequent and this was mainly due to the tolerant attitude of the early settlers. Present day rituals and rites of many tribal people in Kerala show close affinity with those in Tamil Nadu which according to anthropologists and historians are due to the fact that those tribes in the early period might have migrated to Kerala from Tamil Nadu and other parts of South India³. Stone age people had only a few settlements in Kerala. The Paleolithic, and Walayar, Malampuzha, Mankara etc were all Mesolithic sites⁴. Mesolithic people had their settlements to a limited extent only. For instance, at Nirmalagiri and Madayippara in Kannur, Compared to the settlements in North India stone age settlements down the Deccan remained to be relatively small in size and extent. From the Megalithic period onwards we come across larger settlements through out South India. Kerala was no exception in this regard. Many Megalithic sites in Kerala have been unearthed from sites like Chirakkal in Kannur, Waynad, Marayur, Porkalam, etc. Burial structures like *Topikkallu*, *Dolmens*, *Cists*, *Kudakkallu*, etc are found across these sites as Megalithic remains. Almost all these remains found in Kerala are supposed to be part of burial practices followed by the Megalithic people.

After the very early settlements the Arabs, the Phoenicians, and the Jews reached here as a part of their trade requirements. There were trade contacts with the ancient civilizations like Mesopotamia. Spice was in great demand in the Western world right from the very early time itself. In the pyramids of ancient Egypt remains of spices had been unearthed. Spices like pepper were kept with the mummy of the

³ Ibid, p.17.

⁴ P.Rajendran, *PreHistory of Kerala*, in KK Kusuman (ed), Issues in Kerala Historiography, International Centre for Kerala Studies, University of Kerala, Trivandrum, 2003, pp1-12.

pharaohs in ancient times. Followed by this the, Jews⁵ reached here. Christians reached here under St.Thomas⁶ in the very first century of the formation of Christianity. But there are no reliable documentary evidences regarding this. However, tradition speaks that in 52CE St.Thomas and a group of Christians came to Kerala.This was necessitated by the religious persecution during the time of Roman Empire. Followed by this the Arabs⁷ came to Kerala. ‘There are a few records both in the East and West which refer to the existence of Christians in India in the ancient times’⁸. Advent of the Chinese and the Jews during the early medieval ages was mainly for trading purposes.

Kerala witnessed migration and settlement of Namboodiri brahmins who came to this land in the early medieval period. Brahmin migration to Kerala occurred mainly through Malabar from South Canara and another battalion came through Palakkad from Tamil Nadu. Tradition is that these Brahmins were brought here by Parasurama⁹.Even though the historicity of Parasurama Legend¹⁰ is questioned by scholars it is an accepted fact that the Namboodiri brahmins at one time had migrated to this land which may be between 6th and 8th centuries of CE¹¹. Migration settlements stretched from north to south¹². They made 32 settlements¹³, all on river banks. The

⁵ Jews the natives of Israel were traders from the very beginning of their culture and travelled to different parts of the world.

⁶ St.Thomas tradition says that in 52 AD the Christians came to this land of Kerala and in later years his followers in Kerala came to be called as knanaya Christian or St.Thomas Christians.

⁷ Early Arab travellers who came to Kerala for trade purposes are mainly from Africa.

⁸ Rajan Gurukkal and MR Raghava Varier., *Cultural History of Kerala*, Vol. I, Directorate of Cultural Publications, Trivandrum, 1999, p.267.

⁹ Herman Gundert, *Keralolpathi*, Bhasha Institute, Trivandrum, 2014, p2

¹⁰ As per Parasurama Legend the land of Kerala was created by Parasurama and he brought the Namboodiri Brahmins into this new land and settled them in 32 villages.

¹¹ For more details see, Kesavan Veluthatu, *Brahmin Settlements in Kerala*, Sandhya Publications, Calicut, 1978.The book tries to trace the advent of Brahmins and their settlements in Kerala.

¹² It is assumed that the first batch of settlers came from the north of Kerala, probably from south Canara.

¹³ Altogether there were 64 Brahmin settlements as per Tradition of which 32 were in Tulunadu and 32 in Kerala. For more details see Kesavan Veluthattu, *op.cit*.

distribution of the brahmana villages shows that they are invariably in the agro-climatic areas suitable for paddy which was the chief economic resource of the period¹⁴. This process was never in one single point of time. Rather, they came in small groups and settled in South India¹⁵ and to this region from the Northern and Eastern part of Kerala¹⁶ during the period between 6th and 8th centuries. Migration of different ethnic groups and communities eventually resulted in the cultural assimilation and formation of a common cultural pattern in the later years in life styles, food habits, costumes, rituals and rites and many cultural celebrations. There were brahmana villages outside the list of 32 settlements and their village assembly was known as *sabha* in contemporary inscriptions¹⁷.

Most of the early settlements are scattered in different parts of Kerala. In Malabar, many centres may be seen as abode of the early inhabitants. Successors of those who migrated to Kerala are seen in large number in different parts of Malabar. Ever since the migration of the Christians in the early years of the Christian era, so many religious groups and tribes migrated to this land. Eastern part of Malabar is closely connected with the Western Ghats. The Ghats which is still the dwelling place of scores of hill tribes sheltered all of them and fed them with the rich and wild edibles. Many hill tribes of the very ancient age are largely found in the high ranges of Wayanad and Kannur. Apart from the hill tribes, other castes of the Hindu religion, Muslims, a few number of Jains, etc are seen in Malabar from the early medieval period itself in Kerala. Even though demographic distribution of these people varies in number they all constitute a synthesis of cultural pluralism.

¹⁴ Rajan Gurukkal and Raghava Varier, *History of Kerala :Pre History to the Present*, Orient Blackswan, Hyderabad, 2018, P.78.

¹⁵ PK Gopala Krishnan, *Keralathinte Samskarika Charitram*(Mal), Kerala Bhasha Institute, Trivandrum, p.211.

¹⁶ Migration of Brahmins to Kerala probably first took place from the North, as Payyannur is considered to be their first settlement in Kerala. For more details see Keasavan Veluthat, op.cit.

¹⁷ *Ibid* p.79.

Colonial Period

From the second half of 15th century Europe underwent unprecedented changes in the socio political and economic sectors with the dawn of modern era. These changes were the outcome of the Renaissance which began in Europe in 15th century with the fall of Constantinople to the onslaughts of the Ottoman Turks. As a part of this, several changes began to be noticed in the scientific, industrial and technological sectors. In the international scenario voyages were undertaken by the early European imperialist powers as they were in high demand of the eastern condiments. This was actually on account of the downfall of Constantinople¹⁸ to the Ottoman Turks. The geographical explorations inaugurated in the last two decades of 15th century opened up new trade routes to the European countries. Ever since geographical explorations were carried out on a large scale, Kerala also experienced its impact with the advent of Europeans. By the fag end of 15th century, European presence could be noticed in Kerala. Portuguese were the first modern Europeans to reach Kerala coast under their navigator Vasco da Gama in May 1498¹⁹. Since then, lot of Portuguese came to this land and some of them chose this land as their home. Many settled in Cochin which was the most important settlement of the Portuguese in Kerala. One notable difference in the overseas trade relation of the Europeans with Kerala was that in the early years of the Christian era they were interested in the spices and other condiments of this land while the Portuguese made the availability of their goods here sure by establishing their settlements and developing trade relations with local rulers and through political interventions. Actually they enjoyed trade monopoly on the Kerala coast by way of military power over the local *nadus* and *swaroopams* through out 16th century.

Followed by the Portuguese, the Dutch, the French and the English came to this land with an intention of establishing trade contacts with this land in the 17th

¹⁸ Constantinople was the capital of Eastern Roman Empire since the division of the Roman Empire into the Western and Eastern Roman Empires.

¹⁹ When the attempt of Columbus to reach the East failed miserably, it was the Portuguese navigator Vasco da Gama who first found out a new sea route to the East by sailing eastward from the West.

century. Until the end of 18th century these colonial powers had engaged in trade and political rivalries which continued for about three hundred years. There were clashes between the foreign traders and native rulers on the sea and land for supremacy of trade and political hegemony. For instance, the Portuguese and the Zamorins of Calicut quarreled each other for a long time over the issue of trade monopoly of Calicut and the special patronage the Kunjalis²⁰ had enjoyed under the Zamorins. After this there were wars and rivalries between the Portuguese and the Dutch in the 17th century. After that, the French and the English waged a series of battles in India which ultimately led to the victory of the English East India Company. They since then began to enjoy the trade monopoly and political hegemony in India. The Dutch and French had their settlements here from the 16th and 17th centuries onwards. Even though these Europeans came with a motive of economic interests, the political conditions of the land was favorable for their interventions in the internal affairs of the native principalities. Colonial settlers had selfish and imperialist motives of exacting maximum return out of their service or time spent here. Situation here was quite conducive for colonial settlements in the 16th and 17th centuries owing to the particular political power structure. Politically and economically colonial powers could establish their hegemony over the region by utilizing their knowledge in technology and science. Even though the advent of Europeans into this land is generally explained in terms of colonialism and imperialism it is in one way or another a kind of international migration. When Vasco da Gama came in for the second time, more than a thousand people accompanied him to India with a motive of getting trade with the east especially in the trade monopoly of pepper on the Kerala coast.

Human history is history of the struggle for existence through ages with quite unfavourable atmosphere. During the long history of man kind man has made long marches from one place to another in search of new pastures, new land where they could find secure living, new destinations where they could find job opportunities, etc. Several factors are responsible for ousting one group of people from one region

²⁰ *Kunjalis* or the *Kunjali Marakkars* were the naval chiefs of the Zamorin of Calicut. It is said that there were four Kunjali Marakkars as the naval chiefs.

to another. This may be famine, drought, insecurity, etc. Both push and pull factors might have been pursued by the those who made inroads into the region. The conditions of a particular region might be favourable to the immigrant people who after some times of sojourn settle down and become the natives of the region. During the long history of human habitation in the land of Kerala several number of people belonging to different culture, nationality, geography language, race, etc have come over here and made this land their home for a pretty long time.

Inhabitants of Kannur

Kannur especially the high land region has a rich tradition of early inhabitants. “The hill terrain was occupied by hill tribes since many centuries ago”²¹. The region was primarily inhabited by the tribal communities such as *Malayans, Mavilas, Vetuva, Kurumbas* and other hill tribes. Most of the tribal communities which may be seen in the high range of Kannur now are the descendants of the primitive tribes who inhabited in the region. As per the references found in the early Tamil literature entire Tamilakam was divided into five physiographic divisions called *tinai*s²². The land of Kerala known as Chera kingdom or chiefdom²³.

In modern times the trend of migration is multifaceted. In both inter national and internal migration the main factor that pushed them out may be the requirement of jobs and better living opportunities. With the dawn of 20th century the world over witnessed many changes that brought in remarkable transformation in the socio - political structure. Political polarization on one hand brought the whole world on the battle field and famine and poverty put the lives of the common man on the frying pan. Political rivalry for establishing hegemony over the rest of the world in the early years of the last century brought the continents face to face in the form of I world

²¹ Joshey Mathew, *Ecological Transformation in Western Ghats*, Manohar, New Delhi, 2024, p.11.

²² *Tinai*s also known as *Aintinai*, are the geographical divisions based on the nature of land scape of the region.

²³ Rajan Gurukkal and Raghava Varier call the region as chiefdom instead of kingdom. For more details see Raghava varier and Rajan Gurukkal, *Cultural History of Kerala, op.cit*, 2000.

war. In the post First World War scenario the world was terrible and the political fabric was rather delicate. There was famine, poverty, loss of life and the great economic depression. The 1920s and 1930s engulfed the world with all the miseries of life. People were struggling hard to subsist with the limited quantity of resources. The pathetic situation that followed First World War made millions across the world leave their native places for good and all. As a result there were migrations of all dimensions -international, internal, intra- regional, outward and inward etc.

Kerala experienced one such migration on account of the consequences of First world War. This was internal migration from southern Kerala to northern Kerala commonly known as *Malabar Kudi yettam*. From the 1920s there was a large scale peasant migration from central Travancore to Malabar headed by Syrian Christians and other communities that settled in different parts of Malabar especially, Kozhikode, Waynad, Kannur and Kasaragod. Migration of people from the south to north was caused due to many factors which are mostly the outcome of the I World War. And the internal strife created by the particular socio economic conditions during the period. The First World War left unpredictable impact upon world economy and society. The entire world in the late 1920s was under the grip of what is generally known as the 'Great Depression'²⁴ of 1929. Even though India was under colonial hegemony, she was reeling under the consequences of famine and poverty. People in Travancore had to face grim situations like unemployment as the land mostly belonged to the Janmis and the land under their holding was very less. More over in Travancore by the beginning of 20th century nuclear families had emerged and as a result of which the availability of agricultural fields for cultivation was quite meagre. Hence they were forced to flee in search of new areas where they could find better opportunities. A conducive place was found in Malabar by the people of Travancore. When in Travancore the land was already measured and the land revenue fixed as early as the time of Marthanda Varma, in Malabar it took still many decades

²⁴ After the First World War the world passed through grim situations in which the economies of nations across the world were badly affected. There was hardly nay nation at that time which was not affected by the economic crisis. This situation is generally termed as the *Great Depression* of 1929.

to complete the process. Even after the settlement process was completed by the British in Malabar the area of occupied land was very less in the region. It is to be assumed that people of Malabar were not much concerned about fixing of the ownership of the land. For instance in South Malabar the *Azhvanchery Thambrakkal* the supreme leader among Brahmins had not held legal ownership of a large area of land till 1970²⁵. This 'unoccupied' land was believed to have been held by the family. More over the tribal people in the high range of North Malabar did not occupy any land even after the revenue settlement was over in 1905²⁶. Agriculture as of now did not develop the high land much in the early years of 20th century. People engaged in traditional agricultural practices with conventional crops. There was extensive forest in Malabar which in the 19th century was largely controlled by the British colonial power. This forest was cultivated by the native population on a meagre level with vary native and traditional crops. 19th century and early 20th century colonial records make it clear that the people of Malabar engaged in the cultivation of traditional crops like pulses , spices, paddy plantain, coconut etc²⁷. It was in this context that the British colonial government initiated by the fag end of 19th century the settlement process in Malabar District. That process was over by 1905 by which the land was divided into different types such as *dry, wet, occupied, unoccupied*, etc²⁸. Initiation of the settlement process was undertaken by the British so as to ensure the collection of maximum revenue from the Malabar District.

When the revenue measures were introduced by the colonial power in Malabar the population of the region was comparatively low in number. Census reports of 1881 and 1891²⁹ would make it clear that the native population of the high land

²⁵ The family of the *Azhvanchery Thambrakkal* was assigned the ownership after the period. See Appendix VII.

²⁶ For details see the revenue Settlement Registers of the high range villages of Kannur of fasli 1313.

²⁷ Settlement registers of fasli 1313 pertaining to the high land of Kannur and other regions of North Malabar make mention about the traditional crops cultivated in the high lands.

²⁸ For details see the settlement registers of the various *amsams* of Kannur available for the period 1903.

²⁹ Census reports pertaining to the District of Malabar in 1881 and 1891 gives the detailed report of the demographic condition of various high range *amsams* of Kannur.

Malabar was quite nominal. More over the number of Christian³⁰ population was quite at a small number or was it near zero. High land villages of Kannur from 1891 to 1931 did not show any Christian population. For instance in the Kalliyat *amsam* the total population in 1891 was 568 of which 29 were Muslims and the rest Hindus³¹. This state of affair was not associated with one particular village. Rather almost all high land villages of Kannur in the late years of 19th and early years of 20th Century showed the same tendency³². Census reports from 1881 to 1921 explicitly underline the fact that the population density of Malabar region was not at all high. Population growth in Malabar registered an increasing tendency only from the census of 1931 onwards. A marginal increase in the number of Christian population in Malabar may be noticed from 1931 census onwards in which the number of Christian population considerably increases. Early settlement registers pertaining to the highland *amsams*³³ of Kannur unequivocally state the presence of only two communities in the region viz, Hindu and Muslim. No settlement register of the early years of 20th century would mention about the presence of Christian community in the high land regions of Kannur. It is evident from the later revenue re-settlement registers that Christian community may be seen from or after the 1920s. A steady increase in population and shortage of land in the dwelling areas forced a large number of people to migrate to highland regions by trespassing into the forests and bringing the land for cultivation. The availability of abundant supply of uncultivated land in the high land region in Kannur was a boon as far as the new settlers were concerned.

From the census reports from 1931 onwards substantial increase in the number of Christian population may be seen. Till the early years of 20th century, population pressure in Malabar was comparatively at a lower level and the supply of uncultivated land for a pretty long time was more than what was required. The high land

³⁰ Here Christian population is taken as a key factor as the migration process to Malabar was initiated under the Syrian Christians in the late 1920s of the Christian era.

³¹ Settlement Register of Kalliyat Amsam of Tellicherry Taluk in fasli 1313, Regional Archives Kozhikode.

³² Villages from Kottiyoor in the south east to Pulingome in the North East of Kannur as per the settlement registers.

³³ For instance the *amsams* of Irikkur and Arangam clearly show that there was not even a single person belonging to other religion other than Hindu and Muslim in the regions.

regions of Malabar including Waynad, Kannur and Kasargod had vast areas of land which was un inhabited or uncultivated. Native people during the early years of 20th century did not own much land. It is evident from the settlement registers of fasli 1313 that the families that occupied land in the high range were mostly upper caste Hindus. Those who were dwelling near the mountain ranges were mostly the tribes and they were least skilled and experienced in agrarian practices.

Ever since the migration process from the Southern Kerala occurred in the third decade of 20th century the demographic pattern of high range changed considerably.

Following table shows the population and variation in percentage in 1941 and 1951 respectively.

Table 3.1: Product Variation in Percentage in 1941³⁴

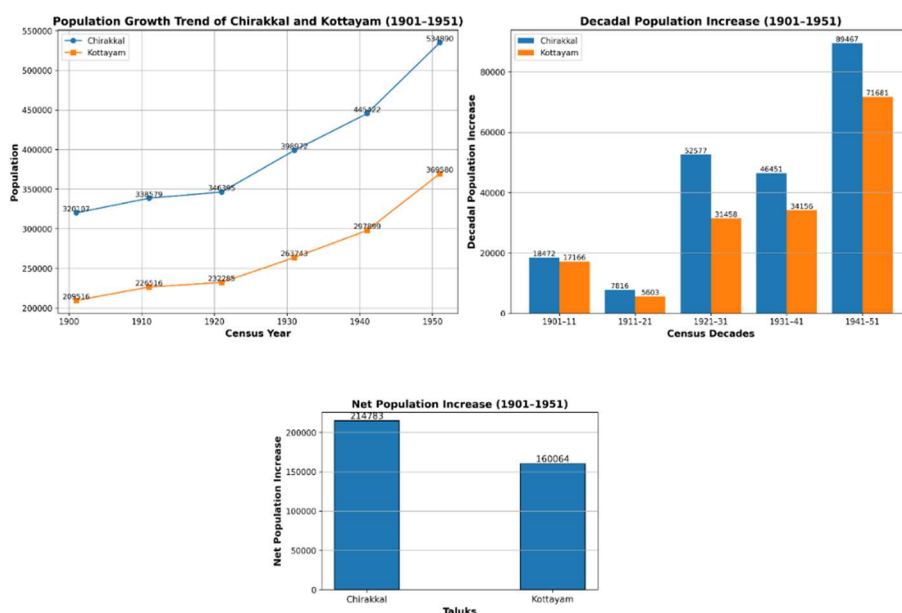
Name of District	Taluk	Population in 1941	Population in 1951	Percentage of variation
Malabar		3, 929, 435	4, 758, 342	21.1
	Chirakkal	445, 423	534, 890	20.1
	Kottayam	297, 899	369, 580	24.1

It is evident from the table that in North Malabar there was relatively a greater number of population growth in the taluks of Chirakkal and Kottayam during 1941 and 1951. This demographic transition was obviously in the high range of the taluks. Again, the population growth in the taluks of Chirakkal and Kottayam in the first half of the 20th century was in lakhs. Following table clearly shows the change in number of population in the taluks between 1901 and 1951.

³⁴ Census Hand Book of Malabar 1951, p.7

Table 3.2: Change in Number of Population 1901-1951³⁵

Taluks	Census Year	Population	Decadel Variation	Net Variation 1901-1951
Chirakkal	1901	320107	----	214783
	1911	338579	18472	
	1921	346395	7816	
	1931	398972	52577	
	1941	445422	46451	
	1951	534890	89467	
Kottayam	1901	209516	-----	160064
	1911	226516	17166	
	1921	232285	5603	
	1931	263743	31458	
	1941	297899	34156	
	1951	369580	71681	



³⁵ Ibid, p.8

Above table explicitly shows the fact that in both the taluks of Malabar, which currently are parts of Kannur district, register growth in the number of population from the 1930s onwards. From the census of 1941 the increase in the number of population is high. This takes place in the context of Malabar migration. From the 1940s onwards migration of peasants from Travancore was soaring and that significantly brought about a transition in the demographic scenario of North Malabar.

After 1931 the numerical strength of population in the high range varied largely. “Even though there was no Christian population in the highland of Malabar till the census reports of 1931, people of the region had shown little interest in the traditional mode of cultivation in the land occupied by them”³⁶, says Kumaran a native peasant of the high range of Kannur. This may be because of their backwardness in the scientific knowledge of cultivation. More over the land occupied by the natives in the high range was relatively very low.

At the same time, the scientific knowledge system in agriculture was dominated by the migrant population. Along with the traditional crops, the migrant people started cultivating new crops brought with them to the new land. Along with the cultivation of garden crops like coconut, plantain, jack fruit etc the migrant people introduced such crops like tapioca and the scientific cultivation of the crop was only known to them during the period.

Early census reports indicate that Christian population in the highland villages of Kannur is not visible. Till 1911 Christian population is found only in the Town and Municipal area of Kannur. Highland villages of both Chirackal and Kottayam Taluks till 1911 had no Christian population. Village settlement records available from the beginning of 20th century in these areas explicitly indicate the dominance of native population in the early census reports. By 1960 the nature of demographic transition may be quite visible from the census reports. Census report of 1961 gives

³⁶ Interview with Moolayail Kumaran, aged 84 living in Cherupuzha Panchayat, on 12-8-2022.

religion wise classification in the rural areas of Kannur. Following table gives the religion wise classification in the rural areas in Kannur in 1961³⁷.

Table 3.3: Religion-wise Classification in 1961

Sl.No	Taluk	Christian	Hindu	Muslim
1	Cannanore	4190	176536	57373
2	Hosdurg	4812	148898	57864
3	Kasaragod	5927	149572	71166
4	North Waynad	21510	46591	21560
5	Taliparamba	39497 ³⁸	203869	54513
6	Tellicherry	32752	317805	80269

It is evident from the above Table that there was a cardinal change in the population structure. Naturally the density of population also increase in the uplands of Kannur by this time. Again the census report of 1961 clearly shows the change in density of rural population. There were only 5 villages in Kannur with less than 250 persons per square kilometer³⁹. There were 27 villages with a density of population between 250 and 499⁴⁰. The pressure exerted by the increase in population in the decades after 1920 was heavy and the implication it left was so alarming upon the nature.

The following table explicitly indicates the variation in population during the period between 1901 and 1961⁴¹.

³⁷ Census of 1961, District Census Handbook, Govt Press, Trivandrum 1965, p.53.

³⁸ Compared to other Taluks of North Malabar largest number of Christian population is in Taliparamba. The interesting fact is that till 1903 there was not even a single Christian found in the region which was part of Chirakkal Taluk.

³⁹ *Ibid* p.52.

⁴⁰ *Ibid*.

⁴¹ *Ibid* p.53

Table 3.4: Variation in Population 1901-1961

Year	Population	Variation(in decade)
1901	787352	-----
1911	841782	+54430
1921	865447	+23665
1931	997057	+131610
1941	1123054	+125997
1951	1375081	+252027
1961	1780294	405213

There was steady increase in the population in each decade between 1901 and 1961.

The following table shows the population density in various towns by natural regions of erstwhile Kannur district in 1961⁴².

Table 3.5: Population Density in Various Towns 1961

Sl.No	Midland/Low land	Population
1	Kumbala	1272
2	Manjeswar	2793
3	Taliparamba	3877
4	Kasargod	4291
5	Puzhathi	4322
6	Trichambaram	4707
7	Chovva	5332
8	Chalad	6349
9	Tellicherry	14871
10	Kanhangad	1896
11	Nileswar	2067
12	Pappinisseri	2204
13	Azhikode	3911

⁴² Ibid, p63.

Sl.No	Midland/Low land	Population
14	Chirakkal(puzhathi)	3982
15	CannanoreCantonment	4143
16	Chirakkal	5878
17	Baliapatam	7273
18	Cannanore Municipality	11029

It is evident from the table given above that in the beginning of 1960s there was not even a single town in the high land region of Kannur. That is, the transformation of villages into towns in the upland regions of Kannur normally takes place after the 1960s. Hence the change in the landscape is closely associated with the emergence of towns and urban centres in the region which actually takes place by the last phase of the migration processes into the region.

Migration of Syrian Christians and other communities to Malabar.

In the early years of 20th century, Travancore was going through many socio-political and economic changes. Social reform movement was sweeping the streets of Travancore. Spread of education and there by the spread of social consciousness created great opportunities among the native population of Travancore. The Syrian Christians and some Hindu communities like the Ezhavas and Nairs migrated to North Malabar in the third decade of 20th century. The first destination of the migrants was Kolayad, a small village, some 30kms east of Tellicherry⁴³.

Causes of Migration

a. Push and pull factors

Travancore in the first half of 20th century was going through grim situations. The impact of the First World War had far reaching consequences upon the socio-economic life of the people of the world. World economy collapsed owing to the great depression of the 1929. Depression had its impact upon the rural economy of

⁴³ Sebastian Valloppilli, *Daivam Nammodukoodu*, (Mal), Shadow Print, Calicut, 1999, p.107.

Travancore. Unemployment and famine gripped the rural folk. More over the population increase in Travancore coupled with the fragmentation of land made the native people think of an alternative to cope with the situation. Even though Malabar during the period of migration was going through the same situation there were some positive aspects which attracted the people from Travancore to new land. There were several conducive factors of Malabar attracted the people from Travancore. Firstly availability of land in plenty largely attracted people from the south into the high land of Malabar. As the colonial administrators have noted, most of the land in the region remained unoccupied. More over the un occupied land was left un cultivated⁴⁴. Naturally when there was migrant people from the south had no challenge here in occupying the land other than the threat of wild animals'. As the forest was dominated by wild animals, they often raised threat to both the native and migrant people. Push and pull factors together made the people of Travancore especially the poor peasantry set out their journey to Malabar. Migration of peasant population from the south to Malabar including the uplands of Kannur had a far reaching impact upon the nature and its environment. Before the migration took place in the third decade of 20th century it's environment and geography were quite unaffected by human intervention which may be evidently substantiated by colonial records especially settlement registers prepared in the early years of 20th century. 'After the Second World War migration became a necessary condition and the migration processes gained momentum in the 1940s and 50s. But later it became a necessity for the natives for ensuring better living conditions.

b) Economic Crisis

Travancore after First World War I was reeling under severe economic crisis which was comparatively higher in the south when compared with that of North of Kerala. Even though there were attempts to migrate to the high range of Idukki large scale migration took place in Malabar. It takes place during the last years of 1920s and gained momentum in the 1930s and early years of 1940s. Travancore which was

⁴⁴ For more details refer to the settlement registers pertaining to the high range villages of Kannur available at the Regional Archives Kozhikode.

politically more powerful than any other princely state in Kerala was also reeling under the economic depression of 1929. When Japan invaded Burma the food channels to India were blocked. This had its repercussions upon the life of the people of Travancore also. Situation in Travancore was worsened by the changes in the demographic figures along with the fragmentation of land. Population of Travancore in the 1930s and 1940s was much more than what it was in Malabar. The pressure exerted by increase in population upon the social and economic life of the people of Travancore was higher than in any other part of Kerala. On one hand there was a severe issue of unemployment and on the other the availability of cultivable land was very less. As per the law of inheritance of the Syrian Christians the property was fragmented among the family members. Each family member got small tract of land which was not sufficient enough to meet their requirements ⁴⁵.

As there were so many members in a family fragmentation of agricultural fields was imminent. As a result small pieces of land were held by each family member which adversely affected agricultural output. Shortage of food grains along with unemployment extended pressure on to seek an alternative. They began to move to some other places where resources were sufficient. These places did not have that much population pressure at that time. High lands of Idukki in the South and Malabar in the North in those days were less inhabited. Naturally attention of the people turned towards these regions. The migrant people sold off their property at the price they received and left for Malabar.

c) Favourable conditions in North Malabar

Malabar, situated in the North of Kerala during the period, was not having much population pressure. More over the region was rich with natural resources and extensive forest region which was peculiar with rare species of flora and fauna. Various kinds of animal and plant lives maybe seen in the forests of Kannur. Major forests of Kannur are the Kottiyoor and Kannavam. Census reports from 1891 onwards underline the fact that population of the various *amsams* of the high land of

⁴⁵ Varghese Thottakkat, *Malabar Kudiyettathinte Nalvazhikal in Malabar Kudiyettam*, Kerala Bhasha Institute, Trivandrum, 2019, p. 30.

Kannur are very few in number. For instance, the population of Thimiri *Desam* of old Kutt이어i Amsam in 1891 was merely 329⁴⁶. In 1901 this shows a marginal increase to 517⁴⁷. Naduvil Desam of Chuzhali Amsam also had the same situation in the early years of 20th century. In 1901 there were 2605 people in Naduvil *desam*⁴⁸. Taking all the villages on the western Ghat side of Kannur together would make it clear that the population of Western Ghat region in Kannur was relatively very low in the early decades of 20th century. Original inhabitants of the region were native people who were mostly the tribal and other backward people with very little knowledge about the scientific and organized agricultural practices. It is evident from contemporary colonial accounts and records that high range in the early years of 20th century was mostly left unoccupied.

In the Kannavam forest which is situated in the Mananthavady Forest Division there lived hill tribes like the Kurichiyas. They lived a life of loneliness in the forest. They themselves maintained isolation and untouchability in the early years of the 20th century.

When the migrant people came to this land in the early years of 20th century the highland regions of Kannur were less occupied by humans. According to Joseph Munjanattu, an erstwhile peasant now living a 'retired' life, the native population was quite less in the high land of Kannur⁴⁹. Mathew Mukulel another migrant from Changanasseri says that even in the 1950s the native people of the region were not that much aware of the proper way of scientific method of cultivation⁵⁰. They used only traditional tools and seeds for cultivation and the techniques they used were rather poor and out dated⁵¹. As the land was mostly sloppy and surroundings were full of thick forests, threat of wild animals like elephant, and boars was so severe in

⁴⁶ As per the village Settlement register of Desam 64 of Thimiri of Kutt이어i Amsam of Fasli 1313.

⁴⁷ *Ibid.*

⁴⁸ *Naduvil desam Revenue Settlement Register of Fasli 1313.*

⁴⁹ Interview with Mathew Munjanattu on 12-08-20 at Kottiyoor, Kannur.

⁵⁰ Interview with Mathew Mukulel aged 87 held on 26-12-2022 at Kanichar near Peravoor.

⁵¹ Interview with Mathew Mukulel aged 87, held on 26-12-2022 at Kanichar, near Peravoor.

the areas. It was into these areas that the peasant population from Central Travancore came and made successes in a short span of time. The first batch of migrants came to Calicut first. It was in the late years of 1920s. Journey to Malabar was rather perilous and adventurous in those days as Malabar was reeling under economic and infrastructural backwardness. Early settlers were mostly from present day Kottayam district. They relied upon various modes of conveyances for moving towards Malabar. “From Travancore the migrant some how reached Eranakulam or Alwaye by bus or boat. From there they reached Shoranur or Thrissur by train. Again from there they caught another train and reached Thalassery, Kannur, Valapattanam, Payyanur, and Nileswaram in North Malabar’’⁵². Afterwards they caught buses and left for their destinations. Actually buses did not run up to the destinations. Buses had their stops some miles away from their actual destinations. After getting down at distant places they moved towards their destinations with all their bags and baggages bare foot. Quite often they made use of rivers to reach the eastern part of Kannur and Kasargod. In the beginning of migration people travelled through Karayamkode river and Kuppam river to the highranges in Kannur and Kasargod after alighting at Nileswaram and Kannur railway stations respectively. The journey was of course perilous and troublesome. Their journey continued for days through narrow pathways and often through forests till they reached their destinations. Early settlement of the people from the south to Malabar was from Kottayam Those who came to the upland areas of Kannur in the early decades of 20th century alighted at Thalassery, Kannur or Payyanur railway stations and from there most probably continued their journey through Valapattanam river, Kuppam river or *Perumpa Puzha*⁵³ to the highland. After that they moved towards the extensive land which was free from any human occupation and habitation. The land on the foot hills of the Western Ghats was infested with wild animals and impenetrable for humans as it was full of thick forests and high mountains. East of the Pulingome Amsam which is the northern most *amsam* in the Chirakkal Taluk is surrounded by Karnataka forest. Even today Karnataka reserve

⁵² Interview with Thomas Njattuthottiyil aged 83, on 12/07/22

⁵³ *Perumpuzha* now known as Perumpa River is the first settlement of the Brahmins in Kerala in the early medieval period.

forest surrounding the entire districts of Kasargod, Kannur and Waynad remain as the most impenetrable forest region in the entire South India. On the premises and often in the interiors lived native population who enjoy little connection with outside world. During the early years of the 20th century most of the inhabitants belonged to the *Thiyya, Nair, Maniyani, Muslim*, and several tribal people like *Mavila, Vettuva* etc. The *mavila and vettuva* tribes lived in remote areas away from the main habitats of the other native population. As has been mentioned earlier these tribal people did not largely engage in agriculture. More over the other communities were mostly agricultural labourers. Hence the availability of vacant land in the highland of Kannur was very high.

Later, peasants from Travancore came to different places in Kannur. Alakode was an important destination of the peasant migrants. Particular socio economic conditions that the southern Kerala experienced during the 1920s and 1930s played vital role in the migratory processes. In the Alakode region there was lot of uncultivated area. Further, this was mostly unoccupied by the local population. Vayattuparamba near Alakode was the first region where the migrant peasants first migrated in Kannur district. It was in 1928 that one P J Thomas from Kuruvilangad first settled in Vayattuparamba. He purchased nearly 12000 acres of land. Those who came in the subsequent years also purchased land. They all gave away a major portion of the purchased land to farmers who were too poor to get a piece of land of their own.

A turning point in the migration history of Kannur was the advent of P R Rajavarmaraja of the Poonjar royal family. He came to Alakode⁵⁴ in 1936. In the economic and infrastructural development of Alakode role of Rajavarma Raja is important. After coming here he purchased about 22000 acres of land in and around Alakode. He transformed the vast land into plantations and sold a portion of the land to the landless peasants. Changing scenario of landscape may be noticed from this period onwards in the Alakode area. Soon after coming over here Alakode Raja as

⁵⁴ Alakode is situated in the north east of Kannur. It is about 20 Km away from Taliparamba town which was the earliest centre of trade during the early years of migration. Alakode still remains as the most important centre of migrant population in Kannur district.

Ramavarma Raja is popularly known among the people of the settlement region, the land he purchased was converted to plantation. Introduction of new plantation crops increased human intervention in nature and naturally more areas began to be brought under cultivation. Rubber was the most important plant relied by the migrant people. Later, very soon the native people also began to turn their attention towards rubber plantations as it ensured minimum income to their hard work. Rubber was introduced into the region at a time when the native people in the upland regions were finding it hard to subsist due to poverty.

In the following decades migration to the north east of Kannur increased on a large scale and in many groups peasants from Travancore migrated to Malabar. Earliest settlements in the high range of Kannur were Peravoor, Kolayad, Kottiyur, Kelakam, Kanichar Ambayathode, Edur, Chemperi, Vayattuparamba, Alakode, Udayagiri, Cherupuzha, and Josegiri. Earliest settlement in Kannur was at Vayattuparamba in 1928. Migration to the high land of Kannur was not as easy as we think. As the terrain and landscape of the high range of the district were challenging to the new comers, they were forced to meet many challenges. In Kannur, the peasant migration takes place in 1928⁵⁵.

Peravoor is an important destination of the peasants from Travancore. Situated some 45 Km North East of Thalassery. Peravoor was the abode of native people before the advent of migrants from the south. Manathana where Pazhassiraja had fought battles is between Kottiyoor and Peravoor. Earliest settlers of Peravoor were Charam Thottiyil John Kutakkachira Joseph, Kunnumpurath Joseph⁵⁶. Later, peasants from the south migrated to the nearby places of Peravoor like Kolayad, Edoor, Kunnoth, Nellikkampoyil, Madampam, Vayathoor⁵⁷. Most of the early settlers were Syrian Christians from the South. Within a short span of time, the migrant population outnumbered local population. Census reports from 1921 onwards provide

⁵⁵ Sebastian Vallooppilly, *opcit*; p.106.

⁵⁶ They are peasants who migrated to North Malabar from central Travancore.

⁵⁷ These are all settlements of the Peasant migrants in and around Peravoor in the east of Kannur.

statistical evidences of different religious groups in Malabar in which Kannur is not an exception.

Native People – Castes and Communities

In Malabar particularly in Kannur the opportunities were higher when compared to the rest of the state of Kerala⁵⁸. We can notice the change in the ecology and landscape of the uplands of Kannur possibly due to human intervention. Early revenue settlement registers would explicitly make things clear that population in the highland of Kannur was very low. More over the population in the highland mainly consisted of Hindu and to a little extend Muslim population also. No mention about Christian population in the high land may be seen in the revenue record of 1905 even though Christian population in large number may be seen in the lowland of Kannur especially Tellicherry and Kannur. Hence the native population in the highland of Kannur was mainly constituted by the Hindus or various caste groups of Hinduism.

On the eve of migration there were several tribes and castes in Kannur which are purely native people at that time. There were both polluting and non polluting communities in Malabar during the early years of 20th century. *Namboodiri, Nair, Nambisan, Poduval, Adiyodi, Nambiar*, are certain upper castes who mostly lived in the coastal and midland regions of the district. There were two important Namboodiri settlements in Kannur in the early medieval period. Payyanur and Perumchellur (Taliparamba) are the earliest settlements made by the Brahmins in Kerala. On the contrary the, ‘polluting’ castes all lived in the highland of the district⁵⁹. The *Tiyan* or *Thiyya* lived in the mid land and highland. Interestingly, in the high land of the district *punam krishi* was almost done by the lower castes like the *Thiyya* and *Pulaya* communities. Even today, most of the native people in the highrange belong to the *thiyya* community. Another polluting caste, the *Mukkuva* lived in the coastal areas. North of Cannanore therewere some fisher men known as *Mugavans* or *Mugayan*. They are presumably the same as *mukkuvan* or fisherman community. One aboriginal

⁵⁸ K C Zackariya, etal; *Dynamics of Migration in Kerala*, Orient Longman, New Delhi, 2003, p.12.

⁵⁹ Interview with Vengayil Paru Amma, aged 89 years on 26-08-2023.

polluting caste in the Chirakkal Taluk was the *Pulaya* caste. Pulayas, as they are agrestic slaves are said to be divided into one endogamous and 11 exogamous groups.

Land revenue documents pertaining to various *amsams* of the highland of Kannur give ample evidences about the changing nature of demography. Before the advent of the peasant migrants the native population of the highland of Kannur belonged to various castes and communities. In the close proximity of forests in Kannur there were hill tribes like *Mavila*, *vettuva* and *kurumar* as inhabitants who led rather 'primitive' life. However they often engaged in agricultural activities. They did not occupy land of their own, rather they remained under land lords and cultivated their land as tenants. Apart from the tribal people there were other castes such as *Thiyya*⁶⁰, *Nair*, *Nambiar*, *pulaya*, *mavila*, and several other castes. Traditional inhabitants of North Malabar were these communities that had not much proficiency in agriculture. Hence the area of land occupied by them was very less. Those who were socially at the lower strata of the society engaged in bonded labour in the colonial period. Once they were employed in the land tillers there was no other way to these poor men to escape from the life long bondage. Implication of such deplorable conditions may be seen in the peasant movements of 1930s and 1940s in Kerala.

In the areas close to the forests people mostly tribals engaged in food gathering and often engaged in primitive agricultural practices such as cultivation of tubers which are mostly available in the forests⁶¹. Native people as found in the census report from the early decades of 20th century were largely Hindus and to a limited extent Muslims. While the Hindus in the highland areas engaged in cultivation in the land of the janmis while the Muslims mostly engaged in non agricultural activities. Trade was one of the important occupations of the muslim community even at that time in Kerala. Many census reports from 1921 onwards indicate a steady increase in the population of Christians in the highland villages of Kannur. By 1940, there was a considerable rate of increase in the population of highland of Kannur due to migration

⁶⁰ Thiyyas are one of the native backward castes who during the early years of 20th century were mostly working class people. They tilled the land for the janmis and lived in the kutis. Toddy tapping and coconut plucking were their traditional occupations

⁶¹ Interview with Raman aged 74 living in Alakode Panchayat on 17th May 2022.

from south Kerala. As evident from the census reports and corroborated by the re-settlement registers, the demographic transition in the region in the later years had greater implications upon the socio political and ecological transformation of the region.

Early 19th century colonial accounts describe about many castes and communities in Malabar. However, there is no reference about the presence of the Christian population in the upland of Kannur. There were other native castes which are mentioned in the colonial reports. But most castes of the period in Malabar were treated as slaves. 'Throughout Malabar, a sort of vassalage was established among the cultivating and labouring class of *Teers*⁶² which not amounting to slavery but placed in a kind of dependence upon some superior Lord⁶³. However muslims and merchants and professionals were not attributed to this character owing to their varying places of residence. An individual under the state of dependency was called an *udian* which literally signifies a slave⁶⁴. Social status of various kinds of castes mostly lower castes was at the lowest ebb of the society. The *thiyya*, *mukkuva*, *cherumar*, *mavila*, *vettuva pulaya* are some castes found mentioned in colonial accounts. The *cherumar* and *pulaya* *Karimpala*, *Paniya* castes were at that time generally treated as slaves. They were forced to engage in cultivation of rice lands and plantations⁶⁵. *Cherumar* is the most prevalent designation of the slaves of Malabar⁶⁶. The tradition is that slavery was introduced here by Parasurama for the tillage of the ground that he gave to the Brahmins. Slaves may be sold with or without the soil and in a different place from that of their birth or of their usual residence they may be disposed of in another Taluk. H S Graeme's report gives a vivid account of the process of transaction of slaves during the early years of 19th century. The following table gives a clear picture of the transaction and value of each category of slave in each Taluk in North Malabar.

⁶² *Teer* is the word used by CA Innes in his *Malabar Gazetteers for Thiyya* of Malabar.

⁶³ J. Rejikumar (ed), *Grameme's Report on the Revenue Administration of Malabar 1822*, Kerala State Archives, Trivandrum, 2010, p.53.

⁶⁴ *Ibid.*

⁶⁵ *Ibid.*p.63.

⁶⁶ *Ibid.*

Table 3.6: Value of Slaves in Each Taluk in North Malabar during 19th Century

Taluks	Caste of the slaves	His description	Amount for which generally leased	Mortgage Tenure under which generally mortgaged	Amount for which mortgaged	Value of a slave when sold
Tellicherry	Poleyan, mavilan karimpalan and paniccar	Men	10 Fanam			120
Cherical	Pulayon, Parayan, Ooralees	Men	5 Silver Fanam	Wottee	70 Silver Fanam	
		Boy	-----	Kanam, Panaya	50 Silver Fanam	
		Women	-----	Panaya		
		Girls	-----	Panaya	60 Silver Fanam	
Cavoy	Karimpalen, Mavilan	Men	50 Idangazhis of Paddy	Wottee	From 100 To 200 Silver Fanams	300 Hundred Silver Fanam
		Women	50 Idangazhis of Paddy	-----	From 100 To 200 Silver Fanams	300 Hundred Silver Fanam
	Vatoovan, Taloomavilan,	Man	Do	Wottee	200 Silver	60 Silver
	Polayan & Parayan	Man	60 Idangazhis of Paddy	Wottee	150 Silver	60 Silver
		Woman	60 Idangalis	Panayam	40 Silver	200 Silver
Remaining hobbles of Waynad	Panior and Adiyar	Man	5 Poddies of Paddy	Wottee Kanam	27 1/2 Rupee	35 Rs
		Boy	1 Poddi	-----	15 Rupee	12 Rs
		Girl	1 Poddi	-----	52 Silver	3 Rs
	Moopen and Naikn	Man	4 Silver Fanams	Wottee Kanam	30 Silver	64 Silver Fanam
	Poleyan	Man	----	Wottee Kanam	10 Rupee 6rupees	12 Rupees

Source: HS Graeme's, Report of the Revenue Administration on Malabar, 1822

According to CA Innes in the interior of Chirakkal Taluk of Kannur there were only two hill tribes, the *Vettuvans* and the *Mavilons*⁶⁷. This description is in the beginning of 20th century. But even before this there were the presence of hill tribes and other castes in the high land of Kannur. Presence of the *Kurichiyas* is noted in the Kottayam Taluk in the census report of 1881⁶⁸. In the interiors of Chirackal and Kottayam Taluks there were other hill tribes which unfortunately could not be noticed by the colonial administrators. There might have been other hill tribes like, *Kurichia*, *Paniya*, *Malayan*, and *Kuravan* apart from the two communities mentioned by the colonial administrators in the region even before the beginning of the last century, says Vazhappillil Bhaskaran, whose family migrated from the highland of Kottayam Taluk in the 1940s⁶⁹. Kottiyoor, Kelakam, Kanichar, Peravoor, Iritty, Aralam, and Payam Panchayats of the district have several of the tribal colonies of the Paniya, Kurichya and other tribes. Aralam farm⁷⁰ is now one of the major tribal settlements of North Malabar. Of course, these tribal people are not migrants into these areas. Rather they were natives to the land centuries ago. As the colonial records do not make mention about these it is evident from the fact that the high land regions of this area of erstwhile Kottayam and Chirackal taluks were rather impenetrable to them. We could see good number of mavila and vettuva families in the hilly regions in Alakode and Cherupuzha Peringome Vayakkara, Kankol Alapadamba in the beginning of 1950s⁷¹. Even today tribal population are mainly found in the highlands of Cherupuzha, Alakode, Naduvil, Sreekandapuram, Payyavoor, Ulikkal, Iritty, Payam, Aralam, Kanichar, Kelakam and Kottiyoor Panchayats of the District⁷². “Eastern part

⁶⁷ C A Innes, *Malabar Gazetteer*, Kerala Gazetteers Department, Trivandrum, 1997, p.417.

⁶⁸ Census Report of 1881, p347.

⁶⁹ Interview with VP Bhaskaran, aged 87 living in Alakode panchayat on 3-5-2020.

⁷⁰ Aralam farm and wild life sanctuary situated in the eastern part of Kannur is not only the habitat of several wild life animals and centre of bio- diversity it is the abode of several hill tribes in North Malabar.

⁷¹ Interview with Manoharan aged 78 living in Alakode Panchayat on 28-08-2023. His family migrated to the high land of near Iritty in Kannur in the 1940s.

⁷² These are all the panchayats situated on the high land of Kannur

of Kannur is largely inhabited by the *adivasis* in the early years of 20th century’’⁷³. It is quite evident from the study of various project reports of the highland panchayats of the district that these people were the original inhabitants of the region prior to the migration of the peasants into the uplands of the district. Historically, this area was purely part of *kurinji* region as mentioned in the Tamil heroic poems. Prior to the migration the forest premises were mostly dwelled by various tribes whose means of subsistence was not agriculture. ‘At that time we lived on hunting and food gathering’, says Kelan a centenarian of Alakode Panchayat⁷⁴. Before the modern migration of the peasant population from the south takes place to Malabar, the native population was comprised mainly by these communities. In the erstwhile Chirakkal and Kottayam taluks there were *kuruvan*, *panan* communities⁷⁵. In the entire Malabar Taluks they accounted 4933 male and 5047 female in 1881⁷⁶. One interesting fact about these hill tribes is that they were quite expert in the manufacture of baskets of and other house hold articles made of bamboo and splinter which were locally available, especially on the banks of small streams, rivers and creeks, and sometimes from the forests.

Migration of peasants from central Travancore into Malabar especially Kannur probably came to an end by the end of 1970. Till the fag end of 20th century the settlers continued their stay in the high range. After then the reverse migration processes started in the upland regions probably from the late 1990s owing to the economic transformation that happened. Lack of modern facilities and development of new consciousness contributed by English education played vital role in making the successors of the migrant people think of a retreat. Population of the highrange is now a mixed community. By the time the migration from Southern Kerala ceased

⁷³ *Kudiyettathinte Charitram*, Arch Diocese of Tellicherry, 2005, p.25.

⁷⁴ Interview with Kelan aged 102 years living in Alakode Panchayat on 08-04-2023. He belongs to Mavila tribe.

⁷⁵ Census Reports of 1881, pp.347-350.

⁷⁶ *Ibid* p.350.

by the end of 1970s the dominant communities in the highrange consisted of Christian, *Ezhava*, *Nair* and Muslim population. Still the Christian community constitute the major number in many of the high range villages. In the beginning of the 20th century high land population mainly consisted of Hindus and a limited number of Muslims. In the 1930s the Muslim population in the high land was mainly concentrating in the relatively lower areas of the upland region. For instance, population of Irikkur *amsam* in the 1930 consisted of mainly the Muslims⁷⁷. Even before 20th century, Irikkur even though a high land village had a good number of Muslim population. On the contrary in other *amsams* of Chirakkal village we can see quite a less number of muslim population in the late 19th and early 20th centuries. For instance, as per the census report of 1891 and 1901 the number of Muslims in the Thimiri village of Chirakkal Taluk was 14 and 13 respectively⁷⁸. This situation prevails in many of the high range villages of Kannur in the early years of 20th century. In most of the high range villages of Kannur, the population was mostly dominated by the Hindus except a small number of Muslim population as seen in the settlement registers pertaining to various *amsams* of the high range.

After 1950, we can see the population of highland showing a steady increase. Even though it was Syrian Christian people came to this area in the beginning, later several other communities from the South began to cast their lot. In the 1940s and 1950s a lot of Nair and Ezhava and a small number of Muslims migrated to this region. Census reports from 1951 onwards indicate the presence of migrant population in large number. The rate of growth of population in Kannur compared to other adjacent districts was higher. This is a clear indicative of the volume of migration in the first half of 20th century into North Malabar. The following table⁷⁹ will give us the difference in the rate of growth of population.

⁷⁷ As per the settlement register pertaining to the Irikkur Amsam of Chirakkal Taluk there was a larger number of Muslim population in the eginning of 20th century.

⁷⁸ Descriptive Memoir of Desam no.64 Of Thimiri of Chirakkal Taluk fasli 1313, p.2.

⁷⁹ District Census Handbook, Govt Press, Trivandrum, 1965, p.49

Table 3.7: Difference in the Rate of Growth of Population 1901-1961

District	Rate of growth between 1901-1961 (in percentage)	Rate of growth between 1951-61 (in percentage)	Average annual growth rate during 1901-61 (in percentage)
Cannanore	126.11	29.47	2.1
Coorg	78.75	40.72	1.3
Calicut	127.19	26.72	2.1
South Canara	14.07	17.50	1.2

The above table shows that during the period between 1901 and 1961 the rate of growth of population highest among all the districts is in the district of Kannur followed by Calicut. Migration of peasant population from the south to North Malabar was chiefly into these two regions. However, the Muslim population found in the high land is not migrants from the south. They were actually living in the midland and low land of the Northern region of Kerala even before Malabar virtually came under colonial hegemony. More over they had chosen certain locations like Irikkur and Sreekandapuram for their settlements which are geographically high land regions. But these regions were trading centres even before 20th century. At the same time even before the migrants from the south came to Waynad, Muslim population may be seen there. Colonial records available in the beginning of 19th century corroborate the fact that there were large number of Muslim population in the high land of Kannur. At the same time it is to be understood that they were not traditionally agriculturists. Basically they were traders engaging in the transactions of farm produce and crops like pepper in the high range regions.

By 1950, the demography of the highland region of Kannur exhibits a shift from the earlier statistics. Until about the resettlement period, that is 1933, the high land of Kannur had no people from out side. But the situation in the highrange began to change after the period. It is evident from the descriptive memoir of Kottur *desam* for instance. In Fasli 1343 the total population of Kottur *desam* was estimated at 479

of which 447 were Hindus and the remaining 37 muslims⁸⁰. Even in the census report of 1931 we can't see any Christian population in the high land villages, though a few may be seen in the low land villages of Kannur municipality and Payyanur village⁸¹. The following table shows the actual picture of the demographic distribution in some high, mid and low land villages of Chirakkal Taluk⁸² in the beginning of 1930s.

Table 3.8: Demographic distribution in the beginning of 1930s

Sl.No	Name of Village	Physiographic Division	Religion Hindu	Muslim	Christian	Others	Total
1	Malappattam	Highland	694	226	-	-	920
2	alapattanam	Low land	1045	2924	11	-	3980
3	Adur	Midland	677	782	-	-	1459

It indicates that there were no other community in the *desams* during the period. As the period 1933 was experiencing the low wave of migration of peasant population from the south the demography did not make a transition. Rather the period was making a rudimentary beginning of transition. Coming to the 1940 situation began to change in the high range.

Until about the middle of 20th century, as evident from the colonial and native accounts the high range of Kannur was dominated by the native population and from the beginning of second half of 20th century the region began to witness transition. From the census reports of 1961 onwards we can see that the high range region was a blend of both native and migrant population.

⁸⁰ Descriptive memoir of Kottur *desam* of Chirackal Taluk in fasli 1343.

⁸¹ For details see the Census Report of 1931, Village Statement of Chirakkal Taluk.p, 5.

⁸² Census of 1931, Village Statement Chirakkal Taluk, pp1-5.

Chapter 4

Traditional Agrarian Knowledge: Memory as History

Ever since Human society started community life the development of agriculture also started which was, during the Neolithic period, probably by 10000BCE. Since then human beings have been experimenting with different kinds of food grains and crops according to the changing climate. In the initial period of the agrarian experiment human settlements were on the banks of rivers where rich alluvial soil was abundantly available. However, the limited knowledge about agrarian practices and edible food grains and left behind to the posterity a rare treasure house of information regarding the past. According to the situations, early mankind experimented with different kinds of crops which were not systematically or scientifically cultivated. But man knew the use of certain things that are still in relevance in social life. In India the Western Ghats play vital role in enriching the natural resources in the regions through which the it passes. Those resources which are available in nature are actually found mainly in the high ranges and forest regions. They are mostly forest resources and metal ores, etc. Human intervention has helped a great deal in producing resources. Even though the high range region was rich in natural resources both flora and fauna we can see that Human intervention in nature in the early years was comparatively very less. Agricultural practices in the high range were not so common in the early years of Christian era¹. Our forefathers might have practiced systematic agriculture, ever since the use of iron in their life. This happened from the Megalithic age, in the last phase of which the Sangam period falls in South Indian history. Material evidences show that iron came into the life of the Megalithic people by the beginning of first millennium BCE². Our knowledge about the

¹ K.N. Ganesh, *Keralathinte Innalekal*, (Mal.), Dept. of Cultural Publications, Trivandrum, 1997, p.60.

² Rghava Varier and Rajan Gurukkal (ed.), *Cultural History of Kerala*, Dept.of Cultural Publications, Trivandrum, 1999, p.103.

settlement pattern about the Megalithic people is comparatively very poor as we have not been successful in unearthing any habitation site of the period except the burial sites. However, the life of a tribal descent group precludes the possibility of the settlement of a totally dispersed kind³. There are ample evidences in the early Tamil heroic poems⁴ about the cultivation of various kinds of crops. References in the poems indicate that crops like rice, millet, sugarcane, pepper, plantain etc were largely cultivated in the Kurinci⁵ region of Tamilakam. Even though various hill tribes like *Vetar*⁶, *Kuravar*⁷ etc in the age of Sangam literature are mentioned *Vellalar*⁸ community only engaged in the practice of cultivation. From the very ancient period itself we can see the people of Kerala had been following traditional mode of cultivation. Those engaged in agriculture were not known in different name in the early years of the Christian era. In the later years the *vetar* and *ayar* turned towards agriculture⁹. There were different types of land as mentioned in early Tamil poems. They are *venpulam*¹⁰ and *vanpulam*¹¹, the two types of land found mentioned in the Tamil literature. *Menpulam* is the centre of earliest agricultural practices in the chera territory. The hilly tracts of the chera territory had rather a dry land scape where shifting cultivation was largely followed by the people. Crops like wild pepper, paddy,

³ *Ibid*, p.130.

⁴ Early Tamil heroic poems are also known as Sangam literature. Period of sangam literature is the late phase of Megalithic age.

⁵ *Kurinci* was one of the five micro-eco zones of Tamilakam. As per references *Kurinci* was constituted by the Chera chiefdom.

⁶ The term *Vetar* is used to indicate the particular tribal community engaged in hunting

⁷ *Kuravar* is also considered to be hunter gatherer group living in the mountain region in the early years of christian era.

⁸ *Vellalar* is first found mentioned *Paripadal*, an early Tamil literature which considers them as land owners.

⁹ K.N Ganesh, op.cit, page.61

¹⁰ *Venpulam* means the cultivable land.

¹¹ *Vanpulam* means uncultivable hilly and forest land.

plantain, coconut etc. were cultivated by the *cera* people in almost all the *tinais* except that of *palai*¹². Agriculture was carried out simply depending upon nature.

The natural resources found abundantly in the high ranges and forest regions provide ample accommodation to those dwelling in the close proximity of forest. They are mostly forest resources and ores, etc. Human intervention has helped great deal in producing resources. Even though the high range was rich in natural resources with both flora and fauna that human intervention in nature in the early years was comparatively very less. Agricultural practices in the high range was not so common in the early years of Christian era¹³. Even though there was extensive area of land in the Western Ghats in the Kannur region of Malabar, most part of the land was unoccupied and left uncultivated and uninhabited. This region was mostly inhabited by the tribal people who were not much aware practices of agriculture. They were mostly living on hunting and food gathering. The *Kurichiyas* who from time immemorial have lived in large numbers in forests¹⁴ to a little extent they were served as indentured labourers¹⁵. Still the high land was not much brought under cultivation by them. There were wild animals, and threat of jaundice, malaria, cholera, small pox, which took lives of lot of people in the early years of 20th century. S K pottakkatt in his *Vishakanyaka*¹⁶ gives a vivid picture of the gravity of such diseases in the high ranges of Wayanad in the beginning of the migration processes in North Malabar during early 20th century. The migrant people were the victims in the beginning because the region to which they migrated was relatively backward and wanting any infrastructural development like good roads. Even though the tribal people were conscious of

¹² *Palai*, one of the five micro eco zones of the early Tamilakam was a arid zone where no kind of cultivation was possible. People of the region took to plundering and theft for subsistence.

¹³ Early Tamil poems that mention about certain kinds of crops of *Kurinci* like paddy and pepper which were grown wild in the early years of the Christian era.

¹⁴ C A Innes, *Malabar Gazetteer*, Kerala Gazetteers Dept, Thiruvananthapuram, 1997, p.241.

¹⁵ In the time of Pazhassi Revolt the *Kurichyas* were employed in the military of the Raja in the last decades of 18th century.

¹⁶ *Vishakanyaka* is a fiction by Novelist S K Pottekkat in which nature, environment and humans are the main Characters. For more details refer to the book.

traditional medicinal practices, they were always the major victims of epidemics through out the course of human history across the world. 'In the high range inhabitants mostly tribal people had always been victims of epidemics as they were highly superstitious and prone to traditional practices like black magic and rituals'¹⁷. More over, they easily fell victims to threats of wild animals and natural calamities. Landslides and heavy and incessant rainfall hit the normal life of the people of the region. Those who held proprietorship of the land dwelled in the midland region which was relatively safe for inhabitation.

Sources for pre-modern and early modern ecology and environmental history are indeed scarce. But the linear narrative of landscape transformation in the high land of Kannur in the context of mounting demographic pressure demands for resources. From the sources available from 9th to the 12th centuries it may be assumed that there might have been two types of crops in the fertile land of Kerala. The first crop might be in the month of *Kanni*, *Kollam Era* (September-October) and the second crop in *Makaram* (January-February). However, these crops are mostly associated with paddy cultivation. Whereas these types of crops are not purely confined to the high land regions. They are mostly particular to the midland area where more wet lands are available. Sources available between 17th and 18th centuries underscore the fact that the form of cultivation which was prevalent in the early medieval period, continued until then. From this we can assume that the pattern of cultivation remained unchanged until then. In the late medieval period there were different varieties of crops like gingely, and rice seeds. Literary sources of the period like *Unniati charitam* and *Unnuneeli sandesam* mentions about such types of crops and the colonial accounts like the Graem's Report and the *Malabar Gazetteer* of CA Innes corroborate these narratives. However, about the mountain cultivation we don't have much literary evidences other than these colonial accounts. Buchanan's description of Malabar also gives details about the length of the cultivation the people of the upland region had practised. Normally the upland cultivation started in the month of March-April and the entire process of cultivation ended with the harvesting in August –September.

¹⁷ Interview with Kelan a tribal resident of Alakode Panchayat aged 100 years on 12-05-2022

The high land of North Malabar had only locally available vegetation till the fourth decade of 20th century CE. Even though it is a herculean task to ascertain the actual demographic status of Kerala prior to the second half of 19th century it is presumable that the human community in its early period had gone through different stages of production and production relations.

To understand the early agrarian practices in the highland regions of Kannur, it is vital to understand the location of various taluks of the district. Only erstwhile Chirakkal and Kottayam taluks had very extensive high land along the Western Ghat. “The most northerly taluk of erstwhile Malabar on the frontiers of Coorg and South Canara is included in the northern division of the district. The North East of the Chirakkal taluk is roadless sparsely inhabited and little known”¹⁸. Even though the statement may appear to be surprising, it was a reality that the transport system was very less in the high range in the early years of 19th century.

Before the peasant migration and introduction of modern agricultural practices in Malabar, the people of the highland had been following the traditional ways of cultivation which had been in existence in the hilly regions of Kannur till the early decades of 20th century. Most parts of the high land villages of Kannur were unoccupied¹⁹. The eastern highland had developed its own mode of cultivation which was appropriate to its climate and geography. Early Tamil literature makes mention about the peculiar forms of agriculture as early as the beginning of the Christian era or before. The micro eco zones of early Tamilakam had their own agricultural practices and way of life. *Tinai*s are really the indigenous cultural forms where quite distinct form of cultivation had been in existence. For instance the slash and burn cultivation followed in the *Kurinci* which is now treated as the Highland region, was quite distinct form of cultivation. “Hunting and food gathering as well as shifting

¹⁸ CA Innes, *Op.cit*, p.417.

¹⁹ Irikkur and Kalliyatu village settlement registers give references about the un occupied land in the two villages in Kannur in the 19th century.

agriculture were the main subsistence strategies”²⁰. This also known as *Punam*²¹ cultivation which was in prevalence in the high land regions of North Malabar reasonably quite well till the 1970s, started disappearing very soon after that period²². This was caused by the change in the demographic factor and the introduction of mono crops like rubber, coffee and cocoa. Introduction of mono crops on a large scale started after the large scale influx of migrant population since 1920²³. Human intervention in the highland of Kannur increased from the 1920s onwards. Before the beginning of 20th century, North Malabar had its own peculiar indigenous crops which were cultivated by the local population. Early village settlement records pertaining to the highland villages of Kannur explicitly recorded the various indigenous crops cultivated both in the wetland and dry lands of the Western Ghats region of Kannur. Medieval Kerala literature describes about various kinds of indigenous crops. *Unnuneeli Sandesam*, a 13th century *Manipravalam* literature mentions about 50 types of crops cultivated in Kerala. Till the end of 19th century these indigenous crops had been in existence here. With the coming of the Europeans to the Kerala coast by the end of 15th century they introduced certain crops here which within a short span of time, the foreign crops became indigenous and the indigenous crops began to lose their popularity and upper hand. Crops like coffee, tapioca, tea, rubber Teak were introduced in Kerala by the European powers during the period of colonialism. Verysoon these crops began to be primary crops in the agrarian practices of the people in the high range. *Punam* was a very old traditional agrarian practice followed by the people of high ranges. Kerala also had a rich tradition of the *punam* cultivation for a long period of time. It was a practice that was quite common in the

²⁰ Rajan Gurukkal and Raghava Varier, (ed), *op.cit.*, Dept.of Cultural Publications, Trivandrum, 1999, p.167.

²¹ *Punam* is an upland cultivation also known as slash and burn cultivation. Perhaps this was the first kind of cultivation started by the early man. High land of Kannur largely depended upon Punam cultivation till late 1970s.

²² Interview with Madakkampuram Thomas aged 84years living in Chittarikkal Panchayat, Kasaragod on 18-5-2022. He says that by 1970 the migration from the south had reached its zenith.

²³ First migrant settlement was seen in Vayattuparamba in 1928. Even before that at Kolayad on the foot hills of Waynad hills.

sloppy Western Ghat region which is corroborated by the early Tamil poems. One common type of indigenous agricultural pattern in all these regions is the *punam* cultivation.

Punam in other words, was the slash and burn cultivation which the ancient people practiced here. First, they cleared the land and then burnt the dry leaves and twigs and make the land ready for cultivation. The *Kurinci* people in the early years of the Christian era had practiced this. Main crops cultivated in this method included paddy²⁴, black gram, green gram, Bengal gram, turmeric, etc²⁵.

Large tracts of forest land was brought under *punam* cultivation in the early period with the expansion of iron technology. Forest area was quite large and had spread to larger areas. In this way forest regions had maintained the natural landscape which was peculiar to its particular geography and environment. The Kottiyoor forest range and Kannavam forest range are the two reserve forests in the Kannur region where the British had absolute control over the resources. 'In the areas bordering the forests the native people had cultivated traditional crops like yam, turmeric, pepper, pulses, and other tubers often found in the forest'²⁶. These people did not practice any technologies in agriculture. Rather what they used in agriculture was the traditional way of their knowledge in agriculture by applying the organic manure and primitive techniques of ploughing, sowing, weeding, harvesting etc. Naturally the yield from this was not upto the mark. It is into this situation peasant population from the south find their way and apply new and advanced techniques in agriculture.

It is to be assumed that till the colonial advent the people of Kerala had been practicing indigenous mode of cultivation and crops only. Even though the midland population had practiced certain kinds of agricultural techniques and indigenous

²⁴ Paddy cultivated in the *punam* method was not the kind of paddy cultivated in the usual paddy fields(wet land).Here it was dry land crop for which not much water is required.

²⁵ Interview with Kunnumpurath Narayanan, aged 83, living in Alakode Panchayat, on 11/09/2023. Same kind of responses had been shared by several other peasants living in the high range of Kannur.

²⁶ Interview with Kelan aged 100 yrs, living in Alakode Panchayat, on 12-10-2021.

knowledge systems in agriculture, the natives who lived in the high land were still not that much proficient in cultivation till the advent of peasant migrants. Even though slash and burn cultivation was the prominent mode of cultivation that too was confined to a limited extent in the highland. The main reason for this was that most of the areas of the highland on the Western ghats was dense forests with wild animals. And hence those who were staying close to the forests did not always engage in the agricultural processes²⁷. They were mostly tribal people living more on food gathering and hunting in thick forests. 'We along with our friends used to go deep into the forests in search of honey, and wild animals which continued until the mid 20th century, and hunted animals like boar, deer etc²⁸, says Kelan, a native of Alakode panchayat. 'It was the main sport of the every male in the high range at that that time'²⁹, says Kunhikkannan, a native of Peringome Panchayat. 'Almost all families which were economically sound had possessed 'country rifles'³⁰, says Kunnumpurath Narayanan another native of Alakode Panchayat³¹.

As we see references in the early Tamil heroic poems the people of *Kurinci* region did not always practice cultivation. Even though the region had pepper³² and paddy as its chief crops, they grown wild. It indicates that the practice of agriculture was not much familiar to them. Even if there was a little awareness that was not general every where.

²⁷ Interview with Raman, aged 72 living in Cherupuzha Panchayat, on 18-08-2024.

²⁸ Interview with Kelan aged 102 years, now living in Alakode Panchayat is perhaps the oldest person who has rich experiences with the nature of the forests of the high range of Kannur.

²⁹ Interview with PV Kunhikkannan aged 72, living in Peringome –Vayakkara Panchayat. on 19-12-2023

³⁰ Country rifles are rifles made locally without licence. Till the Arms Act of 1959 it was common in the rural areas of the country. Arms Act of 1959 made licence for the possession of arms and ammunitions was made mandatory.

³¹ Interview with Kunnumpurath Narayanan, aged 83 living in Alakode Panchayat, on 18-07-2023

³² Pepper in the early years of Christian era was grown in the highland of Kerala as a wild crop. Pepper wines were found in the forests of Kerala.

Material remains unearthed from different parts of Kerala belonging to the iron age culture indicate that on a scanty scale the primitive people had used ploughshare for cultivation. But that was not so common to be practiced on a regular basis. As a result, for subsistence people had engaged in hunting and food gathering as an easy way of food collection. This process continued until about the beginning of the early *cheras*. Ever since the advent of the *Namboodiri* Brahmins, the agrarian pattern and culture began to change. Systematic agriculture with the advent of the Brahmins was started here. Earlier paddy fields were generally scattered among hills and hillocks³³. Expansion of agriculture with paddy being cultivated on a large scale takes place during this time. Cultivation of paddy on a scientific manner become quite familiar with the Brahmin migration. Paddy cultivation along with production of existing crops like pepper, ginger and pulses co existed here at that time. Agrarian expansion with paddy as dominant crop takes place during the 8th century. It is to be noted that Brahmin migration and their settlements in Kerala takes after the Kalabhra interregnum³⁴.

“Marshy land was converted into cultivable land by draining out the water. This was the way how early people created wet land for cultivation which with the passage of time became a dominant aspect of the landscape of Kerala. During this time many foreign accounts make mention about the expansion of paddy cultivation and rice as the staple food’³⁵.

Along with the wetland cultivation, garden crops also began to be introduced by around 8th or 9th century CE³⁶. When Wetland cultivation started in Kerala around the early medieval period, often by digging canals and diverting water from the rivers through the canals and quite often the marshy land was also made suitable for

³³ Rajan Gurukkal and Raghava Varier, *History of Kerala: Prehistoric to the Present*, Orient Blackswan, Hyderabad, 2018, p.126.

³⁴ Kalabhra interregnum is a priod in Kerala history marking the discontinuity of political system after third century CE.

³⁵ Rajan Gurukkal and Raghava Varier, *History of Kerala*, op.cit. p.128

³⁶ 9th century foreign travellers and inscriptions mention about the existence of paddy cultivation and plantation crops.

cultivation by draining out the water from it³⁷. In this way wetland paddy cultivation on a large scale started during the medieval ages in Kerala.

During the megalithic period, paddy was cultivated in Kerala in the *Kurinci* as well as *marutam*³⁸. The high land regions of Kannur lying on the Western side of the Ghat had many wetland spots. Evidences for those wet land regions may be found in the settlement registers made by the British authorities³⁹. But in most occasions the people of the period practiced slash and burn cultivation. It is evident from Sangam Literature that organized agricultural practice was not known to them. Iron had played a vital role in the agrarian life of the people of the stone age, especially that of the Megalithic age in Kerala. As early as the new stone age, *punam* type of agriculture might have evolved. Material remains like husks found in various Megalithic sites indicate the development of agriculture in the midland region.

Coming to the early agricultural pattern in the high land of Kannur, we have little evidence of any historical value except from the settlement registers prepared by the British colonial administration in the beginning of 20th century⁴⁰. Certain colonial records available from the late 19th century onwards give some valuable information regarding the early agricultural pattern existed in the highland regions of Kannur. Before the introduction of plantation crops the highlands had been practicing traditional mode of cultivation and crops. Coconut, plantain, ginger, and turmeric were the important crops cultivated. The region was thickly forested until the early years of the last century.

³⁷ Rajan Gurukkal and Raghava Varier, *History of Kerala :Earliest to the Present*, Orient Black Swan, NewDelhi, 2016, p.79.

³⁸ *Marutam* is one of the five physiographical divisions mentioned in the Early Tamil heroic poems which were composed between 3rd century BCE and 3rd century CE. *Marutam* is a wet land region corresponding to modern midland region of Kerala.

³⁹ For the first time in Malabar preparation of revenue settlement registers was initiated in fasli 1313(1905) by the British authorities.

⁴⁰ The British Administration in Malabar took to the task of preparing the revenue settlements in the tail end of 19th century and was ultimately prepared in 1905, (fasli1313).

While the highland had slash and burn method or *punam* type of cultivation, the midland had garden cultivation as the main type of cultivation. In the age of Megaliths, iron implements have been unearthed which might have largely been used for hunting rather than for agricultural purposes. Later, when the expansion of iron larger areas occurred during the post megalithic period agriculture practice became systematic. This transition in the agrarian practices takes place in the context of Brahmin migration to Kerala during the post *cera* period. Garden cultivation along with the expansion of paddy takes place during the period. Impact of human intervention upon nature till the commercialization and industrialization of the agrarian sector seemed to be rather meager. Exploitation of nature just for subsistence did not largely affect the ecological balance. Colonial accounts of 18th and 19th centuries give a vivid account of the geography and landscape of highrange and a large portion of which was relatively uninhabited and unoccupied. Descriptions seen in the colonial accounts are corroborated by the experiences of the native people who were born after 1930 in the high range.

Coming down to the pre modern period we can see wider transition in the agricultural practices in the highland regions of North Malabar. After the colonial occupation of Malabar in the fag end of 18th century Malabar's economy was totally under control of the British. We can see that the colonial advent in the late years of the 15th century was mainly due to the greater demand for pepper. But even before the colonial advent there were cash crops in the high and mid lands of Kerala. Our sources speak profusely about fields of sugarcane and extensive gardens of coconut, areca nut, and pepper gardens⁴¹. References about early agricultural practices are available from colonial accounts. As early as 19th century the British authorities started studying the particular land relations existed in Malabar. H S Graeme, who was the collector of Malabar district in the first decade of 19th century studied about the land revenue system and various crops that were cultivated by the people of the high land of

⁴¹ Rajan Gurukkal and Raghavarier, *History of Kerala, op.cit.*, p.127.

Malabar including that of Kannur⁴². He, after a thorough analysis of the land assessment system and the revenue policy, gives detailed analysis of the history and culture of the people of Malabar and the real and pathetic condition of the agrestic slaves of Malabar. Lower caste people at that time were agrestic slaves who were tied to the agrarian land in Malabar. “The population of Malabar in 1807 was 707556 of which 94786 were slaves”⁴³. Still it is evident that after the colonial advent Malabar largely witnessed the expansion of garden cultivation. Colonial records available from the beginning of 19th century onwards give ample evidences regarding the growing practices of cultivation of crops in the highland of North Malabar. Francis Buchanan gives account of pepper cultivation in the upland of Malabar. According to him ‘pepper wines are raised on a great variety of trees but the one in most common use is *Murica*’⁴⁴. Accounts of Ward and Conner and Innes provide us with details of various kinds of crops cultivated in the high land regions of North Malabar. In the early years of 20th century there were many indigenous crops in the high land regions of Kannur. It is evident that before the Malabar migration the agrarian scenario in the high lands of Kannur was characterized by a mix of traditional farming practices and cultivation of crops suited to the region’s geography and climate. Rice cultivation was prevalent along with other staple food items like pulses, and various vegetables. Cash crops like coconut, arecanut, spices like pepper and cinnamon were also cultivated but mostly as garden crops. By this time pepper cultivation had become systematic and household item. Pepper by this time had become garden crop. More over the high land economy during this time was likely to be self- sufficient with farming becoming the back bone of local livelihood and exchange. These crops were vital for both subsistence farming and contributing to the region’s economy and cultural practices. If any excess produce was there they transported it to the local markets which were

⁴² HS Graeme’s, *Report of the Revenue Administration* on Malabar gives a detailed account of the practices and assessment pattern of Malabar in the 19th century.

⁴³ *Ibid.* p.37.

⁴⁴ Francis, Buchanan., *A Journey through the Districts of Mysore Canara and Malabr*, Vol.II, Asian Educational Services, NewDelhi, 1999, p.520.

never at par with modern concept of markets. More over colonial accounts state the absence of any market in the east of Malabar. Ward and Conner state that ‘there were no compact villages or towns in Malabar except along the coast which are generally inhabited by the Moplah merchants’⁴⁵.

People, normally native peasant workers working in the land of *Janmis* of various taluks of then Kannur engaged in cultivation of various crops. In the land of Vengayil Nayanar *taravad*⁴⁶, native peasants used to cultivate various crops. “The land being upland we practiced *punam* cultivation starting in the months of May-June”⁴⁷. Along with upland paddy, pulses of various kinds such as black gram, Bengal gram, beans, and chick bean were largely cultivated. Until about 1980 these crops were in existence in the region as part of *punam* cultivation. But with the expansion of humans and their settlements and new life patterns, these crops became extinct. “In my early days my parents cultivated crops like Bengal gram urud dal or black gram, beans and several other pulses, but they have now disappeared”⁴⁸. It is now a ground reality that several of the early crops which had been the part and parcel of day to day life of the people of the time have come to extinction.

“Before rubber was introduced in the high land of Kannur, native people engaged in *Punam* cultivation”⁴⁹ for their livelihood. It was in this practice that most of the crops which the traditional agriculturists cultivated and distributed. During the first three or four decades of ‘Malabar migration’⁵⁰ tapioca was also an important item

⁴⁵ Ward and Conner, *A Descriptive Memoir of Malabar*, Kerala Gazetteers Department, Trivandrum, p.3

⁴⁶ Vengayil Nayanar Taravad was the largest land lord(janmi) of the entire land North East of Chirakkal Taluk in the 20th century. The Family owned nearly 200, 000 acres of land during the colonial period.

⁴⁷ Interview with P P Lakshmi aged 84 years living in Kadannappally- Panapuzha Panchayat on 21-9 -2023

⁴⁸ Interview with Viswan age 76 years living at Thirumeni on 15-02-2021.

⁴⁹ Interview with Narayanan Kunnumpurath aged 83 living at Manjakkad on 20 -06- 2022.

⁵⁰ This is the common epithet given to the migration of peasant migrant from Travancore to Malabar since 1920s.

of *punam* cultivation. During the 1950s and 60s high range peasants introduced tapioca into the *punam*. When tapioca became a staple crop gradually other crops especially tubers began to lose their relevance. Dried tapioca and tapioca half boiled and dried in sunlight had a longer life and could be preserved for future consumption. Transformation in the agrarian pattern in the high range areas with the introduction of tapioca had a greater impact upon the landscape and economy of the region. 'When tapioca became the staple food of the high range people on an extensive area it began to be cultivated as a mono crop by around 1950'⁵¹. Naturally from this phase onwards, a transition towards the transformation into mono crop system from multiple farming techniques and evolution of the rural agrarian economy towards a capitalist economy dominated by the cash crops can be witnessed.

Along with these crops, there were plenty of garden crops in the highland areas in the district. From the Settlement registers pertaining to various villages of the highland in Kannur it is evident that there were many garden crops in the highland areas. There were jackfruit, mango banana, pepper, coconut etc in the category. For instance the Settlement register of Thatikkatavu *Amsam* of Chirakkal taluk describes about crops like punam, pepper, jack, coconut, arecanut, plantai, and gingely⁵². Thatikkatavu is purely a high land region situated some 20 Kilometres north east of Taliparamba. One important aspect of the punam cultivation is that it requires little irrigation. Actually there is little scope for irrigation facilities. As the region is sloppy and rocky source of irrigation is very poor. In such cases it is not that possible to undertake irrigation facilities. Early agriculturists hence may be because of this reality that they relied on cultivation of such crops that require very little water for their growth. There were several kinds of rice which were cultivated as 'punam'⁵³.

⁵¹ Interview with Kumaran aged 88 on 23-12-2023

⁵² Settlement Register of Thatikkatavu *Amsam* of ChNo.63 of Chirakkal Taluk in Fasli1313(1903).

⁵³ Interview with P P Janaki aged 82 living in Cherupuzha on 27Aug.2022.

Table 4.1: Name of Paddy Cultivated in the Highrange

Sl.No.	Variety of Paddy
1	<i>Navara</i>
3	<i>Chitteni</i>
4	<i>Malayadamban</i>
5	<i>Malakkaran</i>
6	<i>Mayilon</i>
7	<i>Orkayma</i>
8	<i>Karimala</i>
9	<i>Kuthir</i>
10	<i>Karinchan</i>

The unfortunate situation is that none of the paddy varieties given above are not currently cultivated in the highranges of the district because the region has now totally transformed into areas of cash crops like rubber.

People in the high range of Kannur followed many traditional agricultural practices in which most of the practices and crops are extinct today. For instance in the 19th century there was a special type of rice cultivated in the upland Malabar which was called as '*Modan*'⁵⁴. In several *desams* of the highland of Kannur there was *modan* in the early years of 20th century. Even in the decades before 1950 people had cultivated particular paddy in the highland of Josegiri, a highrise location some 25kms away from Peringome⁵⁵. Even before the advent of the peasant migrants from Travancore, the inhabitants of the hilly regions like Udayagiri, Josegiri, Alakode Payyavur, Paisakkari Chemperi etc had engaged in traditional mode of cultivation like *punam* cultivation. Apart from the paddy and pulses, *Punam* cultivation consisted of crops like yam, turmeric, ginger, black gram, and other tubers which were quite indigenous crops. Black gram was the most common crop cultivated in the *punam*

⁵⁴ *Modan* was an upland rice type cultivated by the people of the high range of Kannur and other parts of Malabar. It requires very less water.

⁵⁵ Interview with John Ayanthikkal, aged 85 living in Cherupuzha Panchayat, on 15-05-2023.

through- out the high lands of Western Ghats in Kannur as well as Malabar. There are certain place names which derived from the names of crops cultivated in the high land regions of Kannur. *Thuvarakkunnu*⁵⁶ for instance is a small village near Udayagiri which is an important migrant centre in Kannur, got its name from the term *thuvara*⁵⁷. ‘‘The place *Kappimala* got its place from *kaappi* (coffee) which the migrant people cultivated here for the first time’’⁵⁸. Many local place names in the high range evolved their names from similar crops or persons closely associated with migration. Places like Kottiyoor, Peravoor and Pulingome thus believed to have derived their names from traditional garden crops coffee and pepper.

Before tapioca was introduced in the highland areas of the district people largely depended on *yam* and other indigenous tubers to meet poverty⁵⁹. When there was no means of modern mode of cultivation and technology people living in the high land of the district relied on traditional tools made of iron like spade, axe, pickaxe, etc for digging the land and making it fit for cultivation. Often the native peasants took water from small ponds and creeks atop of hills and carried down the hill through tubes and hoses. Digging of well was not easy on hill tops as the land is largely deposited by hard stones like granite, etc. This was the chief source of water for drinking and irrigation. Even in summer in these days people living in hill tops mostly rely on such water sources for both drinking and irrigation. However, these water sources are now mostly under threat on account of unprecedented human intervention on the upland regions for various kinds of agrarian activities. Opening up of quarries, change in the agricultural pattern and introduction of new crops which consume more water than the native trees and natural groves hitherto unknown in

⁵⁶ Interview with John Ayanthikkal, aged 85 living in Cherupuzha Panchayat, on 15-05-2023.

Thuvarakkunnu is a place near Udayagiri. People of the place say that *Thuvara* (pigeon pea) was largely cultivated in the early years of 20th century.

⁵⁷ *Thuvara* is known in English as pigeon pea a kind of pulse which is highly nutritious was grown in *punam* in the highland areas of Malabar.

⁵⁸ Sebastian Valloppilly, *Daivam Nammodukoode* (Mal), Thalassery, 2005, p.129.

⁵⁹ Interview with Kelan aged 100 years living in Alakode Panchayat on 12-06-2022 at his residence.

the upland areas played decisive role in the reduction of water resources. Field investigation and interaction with peasants in the high range reveal the fact that spread of rubber cultivation and deviation from the traditional agrarian practices largely led to the reduction in the water resources.

Both settlement and re-settlement registers pertaining to the highland villages of Kannur show that there were only traditional crops in the area till first half of 1930. Settlement registers of Pulingome *amsam* situated in the extreme North East of Kannur to Kottiyoor in the South East, underline the fact that there were only traditional crops in the beginning of 20th century which is corroborated by the revenue re-settlement registers of fasli 1343(1933). But at the same time, there were wet lands in almost all *amsams* on the east of the district of Kannur. Evolution of the wet land might have taken place, as Rajan Gurukkal has stated, in the post sangam period in Kerala. Any way, wet land is seen not only in the midland areas, but also in the highland of the areas of the state of Kerala. In these, wet land paddy was cultivated by the settlers, mostly the native population. The arable land in the highland of the district was wet, dry and garden. Both Revenue settlement registers of 1903 and resettlement registers of 1933 make it clear that the high land cultivable land comprised these categories of land. The following table gives the area of each class of land in the plain Taluks of Chirakkal and Kottayam in thousands of acres⁶⁰.

Table 4.2:Category of land in Chirakkal and Kottayam Taluks

Taluks	Category of Land			
	Wet	Garden	Occupied Dry	Unoccupied Dry
Chirakkal	53	50	35	275
Kottayam	21	45	29	82

The great preponderance of unoccupied dry lands would at first glance reveal that immense field is available for the extension of cultivation. As the population of the area during the early years of 20th century was relatively very low, the area of

⁶⁰ C A Innes, *op.cit*, p.208.

occupied land was also very small. This is corroborated with the settlement registers of many *amsams* on the high land of Kannur. In Payyavur *desam* of Chirakkal Taluk the area of unoccupied land in the early years of the 20th century was estimated at 16451.23 acres which is apparently more than 98 percent of the total land area of the *desam*⁶¹. In the survey map No 104 of Malappattam *amsam* of the Chirakkal Taluk of the total 1350.58 acres of land unoccupied dry land was 878.48 acres⁶². Wet land in the high land *amsams* of the district was fairly very small in size when compared to those in the western side of the district. In almost all the high land regions of Kannur the area of wet land was found recorded relatively high when compared to the total area of occupied land in the beginning of 20th century. In both Payyavur and Nuchiyatu *desams* of Chirakkal taluk there were wet lands even though both the *desams* are situated at a high point. In the Nuchiyatu *desam* the area of wet land was estimated at 11 acres and 39 cents of the total of 6191.14 acres of land in the *desam*⁶³. However, a close analysis of the memoir would make one clear that the garden land in the upland regions was much more than the wet land. Many upland villages in the beginning of 20th century had relatively better land scape with traditional agricultural practices which included quite traditional crops. In almost all the upland villages of Kannur had more or less the same pattern of land type such as occupied and unoccupied. In most cases the area of unoccupied land was larger than that of the occupied area. Till the introduction of plantation crops and other crops which are hitherto unknown to the native people. They cultivated food grains pulses, pepper, turmeric, ginger, paddy, coconut, jack fruit arecanut etc.

A peculiar feature of Chirakkal and Kottayam taluks till the early years of 20th century is *kaipad*⁶⁴ cultivation. But this practice was not common in the high land regions. *Kaipad* cultivation is practiced in the western side of the taluks close to the coastal region. Its peculiarity is that in the hot weather season the soil is heaped in

⁶¹ *Descriptive memoir of Payyavur Desam No.84 of Chirakkal Taluk, p.1*

⁶² *Descriptive Memoir of Malappattam Amsam of the Chirakkal Taluk p.1.*

⁶³ *Descriptive memoir of Nuchiyatu Desam No.85 of Chirakkal Taluk in fasli 1313, p1.*

⁶⁴ This method of wet cultivation is largely practised on the low lying lands near the coast subject to inundation from backwaters.

small mounds upon which the seedlings are planted. This practice is still followed by the people living in the low lying areas. Even though there is a little change in the agrarian practices in the area the land scape has started changing on account of large scale human intervention in the 20th century. Large scale filling of the fields for construction of buildings and conversion of the land as garden where coconut and plantains are grown by the people now leads to the sudden fall in the area of wet land in the mid land. Different from the upland cultivation in the low lying areas during summer practiced cultivation of cucumber, brinjal, chilly, pumpkin, bitter gourd, peas and other vegetables. On the other hand in the upland regions of the taluks of *Kottayam*⁶⁵ and Chirakkal in the 19th century and early decades of 20th century the people cultivated horsegram, sweet potato, green gram, red gram black gram, pigeon pea, and plantain especially *nendra*⁶⁶ type as it is known in Malayalam. Even though *Nendran* plantain is still cultivated in the high land of the districts, other crops as aforesaid are rare in the region on account of change in the land scape and introduction of new agricultural crops. Till the mid of 1930s the high land of Kannur was purely following garden cultivation along with *punam* which are evident from settlement registers pertaining to the high land villages of the district. Even though the gardens on the east of Tellicherry were small in area they were mixed up with jack and mango trees⁶⁷. As per the memoirs of the Chepparamba *desam* of Chirakkal taluk, there were both punam cultivation and garden crops⁶⁸. There were crops like coconut, areca nut, jack, pepper as garden crops⁶⁹ and paddy, gingely and plantain as wet land crops in the region⁷⁰ occupied dry land was very low. It was just 45.39 acres of occupied dry land in the Chepparamba *desam*⁷¹. At the same time the area the Naduvil *desam* of

⁶⁵ Before the Tellicherry Taluk was formed it was known as Kottayam also known as Malabar Kottayam now.

⁶⁶ *Nendra* is a variety of plantain commonly known in Malayalam, The fruit is large and peel is coarse. Raw banana is used for curries and making chips. It is long

⁶⁷ A 327 Madras Agricultural Department, Year Book, 1918, Govt. Press Madras 1918, p.132.

⁶⁸ *Descriptive Memoir of Chepparamba Desam No.71 of Chirakkal Taluk fasli 1313*, p.2.

⁶⁹ *Ibid.*

⁷⁰ *Ibid.*

⁷¹ *Ibid.*

Chirakkal taluk the area of dry land was fixed at 30549.78 acres, while the wet land was 49.52 acres, and garden was 230.35 acres⁷². The surrounding villages in the high land had the same state of affairs with regard to the occupation of cultivable land. It was more unoccupied dry land rather than the occupied dry land. For instance, in the Nitiyenga the area of private *janmam ryotwari* was 83 acres 7 cents of land while unoccupied dry land was 4893.99 acres in fasli 1313⁷³. But the interesting thing that can be observed is that till 1933 in almost all the high land villages of Kannur the settlers engaged in the cultivation of traditional crops. When the production of paddy became short of the requirements, poverty was met with products like tubers where tapioca was not in the list. Tapioca came to the scene only after 1930 with the migration of peasant community from the South. It is evident from the re settlement registers that tapioca was not there in any of the high land *amsams* of the district⁷⁴.

Again, a close scrutiny of the various descriptive memoirs pertaining to the upland villages of Kannur district make it clear that there were different types of land in which various crops were cultivated. There were garden, dry and wet land in almost all upland villages⁷⁵. The garden land was mostly used for cultivation of fruit bearing trees in which jack tree and mango tree are prominent⁷⁶. Evidently in almost all the high land villages there were only traditional crops about which references are found in the revenue settlement registers prepared by the colonial powers in the fasli year 1313, probably 1903 of the Christian era. In Chengalayi⁷⁷ and Malappattam⁷⁸ there were Paddy *punam*, pepper, arecanut, coconut, jackfruit, plantain, etc. as traditional crops. Interestingly, there is no reference of any other crops, which became popular

⁷² *Descriptive Memoir of Naduvil Desam of Chirakkal Taluk of fasli 1343, p.1*

⁷³ *Descriptive memoir of Nitiyenga Desam No70 of Chirakkal Taluk in Fasli 1313.p.2.*

⁷⁴ For more details see the resettlement registers of various *amsams* of the highland regions of Kannur prepared in fasli 1343.

⁷⁵ *Descriptive memoirs of the high land villages of Kannur.*

⁷⁶ *Descriptive memoirs pertaining to amsams like Timiri, Chengalayi, Manatahana, Payyavur Nuchiyatu etc give details about various garden crops cultivated during the early years of 20th century. For more details see Desam No.64-Timiri, Eruvessi Desam No.Arangam Desam etc of Chirakkal Taluk of Fasli 1343.*

⁷⁷ *Descriptive memoir of Chengalayi No109 of Chirakkal Taluk of Fasli 1313*

⁷⁸ *Descriptive Memoir of Malappattam Desam No104 of Chirakkal Taluk of fasli 1313*

and extensively cultivated in the later years, in the settlement registers during the first decade of 20th century. It is understood that until the introduction of new cash crops in the high range the inhabitants followed mixed crop pattern either in the *punam* or *garden* crop.

Modes of Cultivation in the Early Years of 20th Century

Till the early 20th century, inhabitants in the high land of Kannur resorted to several traditional modes of cultivation which on account of penetration of external culture and practices of farming quite vanished from the area gradually. A close look at the early agricultural practices of the people in the upland regions of the Western Ghat valleys in Kannur would give the following modes of practices employed by them.

a) Shifting Cultivation /*Punam* Cultivation

This kind of cultivation was quite familiar to human community right from time unknown. This was perhaps the oldest mode of agricultural practice followed by the inhabitants in the upland regions. In Kerala *punam* cultivation was perhaps the most important traditional mode of cultivation by those who lived at the foot of the Western Ghats. It was a regular method of farming in the hilly tracts of North Malabar until 1980s⁷⁹. Cultivation is normally done in the Ghat slopes. Traditionally in the early years *punam* cultivation was done consecutively for some years and later left fallow for some time. 'At the same time in certain areas where land was not easily available *punam* cultivation was continued for years in the same land'⁸⁰, says Sivan a native of Peringome Panchayat. It was not easy for all the farmers to get more agricultural land under their ownership nor was it possible for them to get the land for lease easily. Land in the high range either belonged to the Janmis or was it under control of the colonial government as most of the high land was forest land. In certain cases, the local *janmis* leased out the land to some notable persons or did they sell the

⁷⁹ KM Sreekumar, etal; *Indigenous Knowledge of Farming in North Malabar*, Foundation Books pvt.Ltd, New Delhi, 2006, p.41.

⁸⁰ Interview with Sivan Vazhappalli, aged 81 years living in Peringome Vayakkara Panchayat.

land to those who could pay an amount to the local *janmis*. On this soil the peasants toiled by engaging in various kinds of cultivation employing quite traditional mode of techniques.

During this time, the cultivators usually the hill men and other settlers move to some other places where the same process is repeated. Hence this practice is also known as shifting cultivation. This was possible at a time when there was unoccupied dry land available sufficiently in the high land regions of North Malabar. This is evident from the descriptive memoirs of various *amsams* prepared by the colonial govt in Malabar in the beginning of 20th century. Settlement registers prepared in the fasli year 1313 pertaining to Chirackal, Kottayam Taluks of erstwhile Malabar district obviously state that a lion share of the total area of each *amsam* was unoccupied dry land⁸¹. *Punam* cultivation as such was in existence in Kannur till about the end of 1970s⁸², but the practice of shifting was not possible because by this time there was little unoccupied land in the district. Migration of the peasant population from central Travancore to this region had reached at its zenith. *Punam* cultivation consisted of mixed cropping of various kinds of vegetables, pulses and cereals. Along with hill rice, mostly *modan* type, millet, plantain and various pulses were also cultivated. Virgin soil in the east of Kannur was surprisingly rich and alluvial suitable for new farming that would yield high production. It is evident that *punam* cultivation in the two taluks of Kannur in the early 20th century was quite common. This was a regular method of cultivation in the high range of Kannur probably till 1980⁸³. In this type of cultivation the forest or cultivable land was leased out to the tenants once in twelve years. One important thing that can be seen here is that no artificial manuring system was applied by the cultivators. Rather they relied upon the inherent fertility of the soil. For this the land after cultivation was left uncultivated for some time by the natural fertility of the soil could be regained. With the passage of time when there was a

⁸¹ For details see descriptive memoirs of various *amsams* of Chirackal and Kottayam Taluks prepared in fasli 1313.

⁸² By this time the living condition of the people began to change along with the change in the land scape. Interview with M Kumaran aged 83 living in Cherupuzha on 12-09-2023

⁸³ Interview with A P Kalyani aged 76 living in Cherupuzha Panchayat, on 27-04-2022

decrease in the availability of cultivable land forest land was converted to cultivable land. This process was accentuated with massive migration to this region from South Kerala by organized and unorganized groups of people especially Christians and to a lesser extent by the Hindus.⁸⁴

For *punam* cultivation the land was prepared by clearing the shrubs and small trees by December-January and burnt into ashes. Then the soil was tilled with traditional tools like *ulikkottu*⁸⁵ and *kaikottu*⁸⁶. *Punam* cultivation is usually done by communities of large population. Hence this farming also like the farming in the wet land paddy cultivation has songs sung by folks. Folk songs are sung during the time of sowing of the seeds⁸⁷. Songs are normally sung with fast notes. One such song is as follows :

“viruddhatha vervittingu viravodutharikayennu,
Poruthamay kelpichappoltharam tharam nelvithellam
Koduthithu inthiranumappol
Inthiranod vangiya nelvithukal
Innanellella menu chol palla
Antharamenthi vangina vithukal
Anakodazhana adityan, mundakan nellu,
Moorikkuruva’”..

The songs describes about various kinds of rice cultivated in the dry land. This song is often found in the ‘*poorakkali pattukal*’⁸⁸.

⁸⁴ KM, Sreekumar., etal, *op.cit*, p.41.

⁸⁵ It is an iron tool used by traditional agriculturists to dig the soil. It is about 1 foot long and 2-3 inches wide.

⁸⁶ It is also known as manvetti. It is more or less like a square or rectangular iron blade attached to a wooden handle of about 1 metre long.

⁸⁷ Interview with P P Thambayi, aged 87, living in Cherupuzha Panchayat on 19-03-24.

⁸⁸ *Poorakkali pattu* is sung in Poorakkali a ritualistic folk art performed in the Kavus of Northern Kerala. The peculiarity of the performance is that it is performed by men only and normally performed in March –April every year.

Several types of rice are used in early times during the *punam* cultivation. Most of these rice types have different periods of growth and size. One important characteristic of the *punam* cultivation is that paddy seeds are sown mixing with seeds of pulses. Gram is The most important item among the pulses grown in *punam* cultivation. There are three types of gram grown in the upland regions of Kannur in the early decades of 20th century. They are white gram(*vellathuvara*), black gram(*karithuvara*), red gram(*manjadi thuvara*). Along with this, two types of *chama*⁸⁹ are cultivated. *Nelchama* and *pulchama* are the two types cultivated. *Nelchama* has erect stem and strong panicles, where as *pulchama* has weak stem and small panicles. A good number of rice are suitable for *punam* cultivation.

Rice Varieties used for *punam* Cultivation in the early years of 20th century⁹⁰ are given as follows.

Table 4.3: Rice varieties cultivated in punam

Sl. No.	Name of Rice	Characteristics
1	<i>Adukkan</i>	Has a very short period from germination to harvesting.
2	<i>Arikayima</i>	It grows upto a height of 1meter.
3	<i>Cheerappala</i>	Grains are small and the yield is high
4	<i>Cholapperuvith</i>	It requires a short time for yielding.
5	<i>Eron</i>	It requires the longest time for yielding. It takes nearly 175-180 days from germination to yielding.
6	<i>Kariyadukkan</i>	It requires nearly 150 days for yielding.Grains are black and it grows upto a height of 120-125 cm.
7	<i>Kayma</i>	It requires about 150 to 175 days for yielding. The grains are red slender.It grows upto a height of 125 -150cm.
8	<i>Kozhivalan</i>	It needs about 6 months for yielding.Among the punam rice it is the tallest plant with 150-1175 height. Yield is average.
9	<i>Palkayma</i>	At the base the plant is reddish, but the grains are thin and whitish

⁸⁹ Chama is millet.Often used as a dietary food for rice, mostly used by diabetic patients.

⁹⁰ KM Sreekumar, *Op.cit*, pp43-44

Sl. No.	Name of Rice	Characteristics
10	<i>Poothakkali</i>	The grains are black.It grows upto a height of 125 cm
11	<i>Prakkunji vithu</i>	Grains are small.Plant grows upto a height of 125 cm.
12	<i>Punnakkuruva</i>	Grains are small and ball like. In four months it starts yielding.
13	<i>Thadichi</i>	It takes six months for yielding.Grains are both white and red
14	<i>Thirumundakan</i>	It requires more water.Hence it's seeds are sown where more water is available.
15	<i>Thokkan</i>	A small plant that grows upto a height of 125-150 cm. Grains are white.
16	<i>Thovvan</i>	It requires a short period for yielding. Grains are red-brown in colour
17	<i>Vella choman</i>	It takes nearly 130 days for yielding.Often this rice is selected for ceremonies like <i>puthari</i>
18	<i>Vellapperuvazha</i>	Has good vegetative growth.Grains are white

Along with these kinds of rice, various kinds of Tubers like *chena*⁹¹, *sweet potato*⁹² etc were cultivated in the high range in the early years of 20th century. One interesting aspect of *punam* cultivation is that there was community participation in cultivation. As paddy was the main item of subsistence before tapioca occupied its position, people in groups engaged in farming. During the time of preparing the land and sowing seeds and harvesting community participation and social interaction among the rural population was largely visible⁹³. Since the land in the high range belonged to land lords in the early years of 20th century such harmonious relation among the cultivators was peculiar to the region.

⁹¹ *Chena* is the Malayalam name of elephant yam which before tapioca was introduced in the high land was the chief food item to meet poverty.

⁹² It is called so because the tuber is sweet which is rich in fiber content. Though regularly cultivated in vast paddy fallows in garden land too it was cultivated, Now a days it has almost vanished from garden lands.

⁹³ KM Sreekumar, *op.cit*, p.49.

b. Terrace Farming

One notable aspect of the terrain of the land Kerala is that it has a an extensive area of high land with thousands of meters height at certain areas from sea level making cultivation an uphill task. Inhabitants of this region in the 20th century adopted a different kind of farming known as terrace farming. This was practiced in agrarian areas with relatively long and uneven slopes. Normally terracing was used to create flat areas for cultivation. As population was very less in the high land area of Kannur in the early years of 20th century, this mode of cultivation was not so common and not much area of land was brought under this type of farming. This system required much labour and skill. Till the migration of peasantry from central Travancore only a meagre quantity of land was transformed. ‘We transformed the sloppy land into terrace for making our hutments⁹⁴’ says Kelan who was a witness to the large scale influx of peasant migrants to the highland of Alakode region. With the advent of peasants from southern Kerala, terrace farming began to be largely used by the migrant people for rubber and other cash crops cultivation⁹⁵. Transformation in the agrarian sector of high land in Kannur may be seen mostly in the context of Malabar Migration. Until their coming the agrarian practices of the region was rather crude and undeveloped. Hence it may be assumed that the practice of terrace farming could be the contribution of the migrant peasants as they were very much aware of the practice of systematic farming. “New knowledges in farming in the high land were the contribution of the migrant people”, says Mathew, a native of Cherupuzha⁹⁶ which was one of the most important destinations of the migrant people.

As the high land is rather sloppy and many hundred meters above the sea level there was little scope for irrigation through canals or construction of any dams. Perhaps in the remote highland regions like Thabore, Udayagiri, Muthuvam, Josegiri, Pathanpara, Kudiyanmala, Palchuram, Elappeetika, Karikkottakkari, Kuunathurpadi,

⁹⁴ Interview with Kelan aged 102, living in Alakode Panchayat on 12-8-2023.

⁹⁵ Interview with Madakkampuram Mathai aged 84 who now lives in Chittarikkal panchayat, on 5-7-2022.

⁹⁶ Interview with Mathew aged 81 years living in Cherupuzha Panchayat on 8-4-2024.

etc inhabitants of the region relied on the conventional type of cultivation as used by those in the early age without any irrigation facilities, using relatively poor technology in cultivation etc. Eventhough the practice seems to be ‘uncivilized’, that did no harm to nature or humanity. Rather, the traditional agrarian practices enriched the soil and helped it maintain its natural fertility. Human greed at that time did not play any role in the evolution of agrarian practices. They relied on traditional modes of cultivation for subsistence on the eve of Malabar Migration. Almost all the crops cultivated on the high land of Kannur were consumables. At the sametime ‘a well established rotation of crops is a noticeable feature of cultivation in Malabar’⁹⁷, says CA Innes. Cultivation was mostly in the dry land as irrigation was not that easy in the region. And hence, the most important dry crops are *punam*⁹⁸ and *modan*⁹⁹.

***Poothada*¹⁰⁰**

Poothada refers to the upland rice cultivation in places with moderate slopes near the home steads¹⁰¹. This is similar to the *punam* cultivation and clearing of the land, making it useful for cultivation that is done on the same pattern. As in the case of *punam*, land is prepared by *Medam* and sowing of the seeds is done after the first shower is received. This may be mostly in the month of May. Harvesting is done in *Kanni*(September-October).

Traditional Crops Cultivated in the Highland of Kannur

Agricultural improvements used by the native population in the high land areas comprised conservation of cattle manure and concentrated oil cakes etc to improve the fertility of the soil. Use of chemical fertilizers was not known to the people till the first half of the 20th century. Even though CA Innes mentions about the use of

⁹⁷ C A Innes, op.cit, p.215.

⁹⁸ CA Innes considers punam as a kind of upland rice cultivated in North Malabar.

⁹⁹ CA Innes, op.cit.p.215

¹⁰⁰ *Poothada* is an upland rice cultivation method done mostly on moderate slopes.

¹⁰¹ K M Sreekumar, opcit, p.48.

chemical fertilizers like super phosphates and ammonium sulphate¹⁰² in Malabar, in general, it is not sure whether the inhabitants of the high land people used such chemical fertilizers in the late 19th century or early 20th century. Interviews with the very aged personalities who are either natives or migrants make it clear that even in the 1940s and 1950s there was scarcely any such practice in the region. As early as 1905 an agricultural Experimental station was set up at Taliparamba in the Chirakkal Taluk in response to the demand from the farmers in Wayanad. This station was set up to conduct study on various aspects of pepper and control the attack of pests on the crop. As a result of the studies on pepper, paddy and other crops were undertaken. However the work done on pepper made quite a slow progress while there was a greater demand from the people on paddy¹⁰³. There were many traditional crops in the high land of Kannur till about late 1970s¹⁰⁴.

a. Paddy

In the upland areas of the district paddy cultivation was done in the dry land with varieties of rice seeds that could resist the dry weather conditions due to the lack of irrigation. *Modan* is the one grown on the low hills'. Preparatory works for *modan* normally starts in *Karkitakam –Chingam* and sowing of the seeds begin *Medam* and harvest is reaped in *Chingam –Kanni*¹⁰⁵. C A Innes says that *Modan* is sown in April and harvested in September¹⁰⁶. In certain places, instead of rice, *chama* is cultivated. "The *sama* is sown in *Maidum*(April-May)and cut in *Karkkidakam*, a period of about three months"¹⁰⁷.

¹⁰² *Ibid*.p.214

¹⁰³ *Ibid*.

¹⁰⁴ Migration from Central Travancore reached its culmination by this time and the punam cultivation also had started declining in the highrange of the district.

¹⁰⁵ Interview with Thayale Purayil Gopalan, aged 92 living at Vadasseri, in Kankol-Alapadampa Panchayat on 23-12-2022

¹⁰⁶ CA Innes, *op.cit*.p.216.

¹⁰⁷ *Graem's Report of the Revenue Administration of Malabar*, para 65. *Sama* is the same as *chama*

Even though in the highrange areas paddy was cultivated normally in the dry land there was wet land also. In the late 19th century British Government in Malabar initiated revenue settlements and the process was over by 1905. These registers related to various *amsams* of Malabar district substantially establish the wet land areas found in the upland regions of Malabar. In Kannur alone in the upland region there was a good tracts of wet land in the beginning of 1905. In the Nuchiyattu *desam* there was an area of 11 acres 31 cents in 1905 as wet land¹⁰⁸. At the same time in some other *amsams* like Chengalayi situated on the bank of Sreekantapuram river, a tributary of Valapattanam river has a relatively larger area of wet land in 1905. In Chengalayi, the wet land area as on 1905 was 166.6acres¹⁰⁹ of land which is quite a larger area as far as the location of the area is concerned. In these wet land areas there was paddy cultivation along with other vegetables abundantly in the early years of the 20th century. The following table will give a picture of the wet land and crops cultivated in the highrange of Kannur in the early decades of 20th centry¹¹⁰.

Table 4.4: Area of Wet land and Garden Land

Sl.No	Name of Desam	Area of Wet land in acres	Area of garden land in acres
1	Sreekantapuram	33.8	103.33
2	Nedumkotta	42.2	47.35
3	Thadikkadavu	11.20	192.74
4	Naduvil	49.94	124.90
5	Thalavil	26.84	42.74
6	Thimiri	12.24	97.86
7	Eruvessi	42.65	729.95

It is evident from the given table that all the *desams* are in the highland of Kannur, situated at the foot hill of the Western Ghats. A close analysis of the

¹⁰⁸ *Descriptive Memoir of Nuchiyattu Desam No.85 of Chirackal Taluk of Fasli 1313*, p.1.

¹⁰⁹ *Descriptive memoir of Chengalayi Desam no.109 of the Chirackal Taluk in Fasli 1313*, p.1

¹¹⁰ As seen in the *Descriptive memoirs of Sreekantapuram, Nedumkotta, Thadikkadavu, Naduvil, Thalavil, Thimiri, Eruvessi Desams of Chirakkal Taluk* in fasli 1343.

descriptive memoirs of the various desams in the highrange of Kannur reveal the fact that paddy was cultivated in more areas than the actual area of wet land in those areas¹¹¹. That means that there were more cultivable land in the highrange area of Kannur where paddy and other cereals could be cultivated prior to 1940. The following table gives the particulars regarding the area of paddy cultivation in the high land areas of Kannur in the early years of 20th century.

Table 4.5:Area pof Paddy cultivation¹¹²

Sl. No	Name of Desam	Area of paddy in acres
1	Sreekantapuram	200
2	Nedumkotta	42
3	Thadikkadavu	220.3
4	Naduvil	130.6
5	Thalavil	131.73
6	Thimiri	820.80
7	Eruvessi	827.2

The above table illustrates that paddy had been a vital crop in the high range of Kannur in the first half of the 20th century. Paddy was cultivated in more areas than the total wet land in the high land areas. It may be because paddy was cultivated in both wet land dry land. Till tapioca was introduced in the high range, rice and ragi to a limited extend, remained the staple food of the people of the highrange.

b. Ginger

Among the various spices of Malabar, ginger occupies a vital role in the history of its spice trade. Ginger was a very valuable crop. Cultivation of this crop depends upon soil and climate. As it is dry land crop it naturally depends upon a timely rain fall. Hence the process begin in the month of May. The ground is cleared

¹¹¹ For reference see the descriptive memoirs of various *amsams* of the high range of Kannur prepared in fasli1343, RAK.

¹¹² *Ibid.*

of stones and ploughed with the help of iron spade or *kunthali* ¹¹³. Cultivation of ginger is typical. Towards the end of the month of May ginger tubers are planted in small pits made on raised soil beds of about 8 feet long, 2.5 feet wide and 1 foot high. One significant thing in the cultivation of ginger in the high range is that there is little change in the mode of cultivation even today, even though the area of cultivation is relatively very small when compared to the period in the early years of the 20th century. CA Innes gives vivid account of the mode of ginger cultivation in Malabar in the beginning of 20th century. He narrates as follows:

“In these beds shallow pits about 4 inches square are made at intervals of one foot and in each pit a tuber is placed on a small quantity of cattle manure. The tubers are then covered lightly with earth and are protected from sun by covering of leaves and branches’¹¹⁴.

By *Dhanu* ME (December-January) the ginger tubers mature and harvesting is done there after. Perhaps ginger remained as the vital crop of the people in the high range till the coming of the migrant population from the South.

c. *Pepper*

Pepper is also a traditional crop cultivated in almost all parts of the state. Right from the very ancient times pepper cultivation was in existence here. Pepper and other spices grew in the wild, on the fertile slopes of the Western Ghats watered by the copious monsoon rains¹¹⁵. Though it was grown wild in the *kurinci* later it became one of the important garden crops. Right from the early years of the Christian era pepper was in great demand in the Western world. The Roman were the earliest to trade with the Kerala coast, even though the concept of Roman trade with Kerala is under critique¹¹⁶. When pepper became part of garden crops many new varieties of pepper

¹¹³ *Kunthali* is traditional iron implement used in agriculture for ploughing the dry land where ploughshare cannot be used. This is a common tool in every house hold in the highrange region. It's width at the tip is about 3 to 4 inches and at the bottom about 6 inches and about 10 inches long.

¹¹⁴ C A Innes, op.cit, P.217.

¹¹⁵ T R Venugopalan, *A History of Medieval Kerala*, Current Books, Thrissur, 2022, p.25.

¹¹⁶ *Ibid.*

are seen in the high range and on an extensive area. Those types are quite indigenous varieties. These varieties had specific characteristics. Some of these varieties are Narayakodi, Chorakodi, Kumbakodi, Munda, Irumaniyan, Malakotta, Arivally, Uthiri, Karimkotta Neelimunda, etc¹¹⁷ which were the indigenous pepper found in the high range of the district in the early years. Unfortunately most of these varieties have now vanished from the area and new varieties hold the position.

d. Ragi

Ragi was yet another kind of cereal cultivated in the high land region of Kannur. Ragi is an annual crop that grows up to a height of 1 to 2 metres. It has slender stem and very narrow leaves and bears very small grains. Ragi is an important crop in many parts of the world. In the early years of the 20th century ragi was cultivated along with paddy, though not at par with it. 'Before tubers like sweet potato and tapioca became the chief items of cultivation ragi was cultivated as mixed crop in which rice, and other items like condiments, pulses etc. This was earlier the baby food of the economically backward people living in the highland areas.

e. Chembu

Chembu (*caladium esculentum*) or colocasia was the chief food item of the people after rice. *Chembu* was often grown as a mixed crop, mostly grown along with ginger. Its tubers are long and tube or club like. Tubers are planted in small pit of about 1 foot depth and 1.5 feet width. The process of planting the crop is just like how ginger and turmeric are planted. Normally cultivation takes place in the month of April-May after the first rain in summer. Only difference in planting the tuber is that for both turmeric and ginger beds are made with soil upon which they are planted. Soil preparation, planting and harvesting everything takes place in the same period similar to ginger and turmeric. Till the introduction of tapioca in the high range, chembu was an important item cultivated in *punam*. Even when tapioca became popular in the high range the native people largely depended upon *chembu* to meet poverty¹¹⁸.

¹¹⁷ KM Sreekumar, *op.cit.*, P.83.

¹¹⁸ Interview with Kumaran P P, native of Panappuzha aged 90 years, on 15-11-24

f. *Turmeric*

Among the spices of Kerala turmeric occupies an important position. Like ginger and pepper, turmeric is a vital property in the food and medicinal items of the people of Kerala. In the traditional healing practices this is widely used. It is a versatile plant with wide range of culinary, medicinal, and cosmetic uses making it highly valued in many cultures around the world. Turmeric is characterized by its yellow vibrant, yellow-orange rhizomes. Generally it grows in tropical and sub tropical climates. It is typically grown from rhizomes which are planted about 7 to 10 cm deep in the soil bed as in the case of ginger. In the early decades of 20th century the high range people in Kannur largely engaged in the production of turmeric. Its cultivation is normally done as in the way ginger is cultivated. Emergence of Towns like Payyanur, Taliparamba, Sreekantapuram and Iritty¹¹⁹ largely depended up on the hill produce from the high range. With the introduction of cash crops in the high range of Kannur the emerging towns revived momentum in its growth. When rubber began to be cultivated on a large scale small towns got extended and some of them grew into municipalities. Cash crops produced by the high range people were sold in these markets.

g. *Plantain*

Plantain was also a traditional crop cultivated in almost all parts of the district right from the very early period of the past century as found from the early settlement registers prepared by the colonial authorities in the beginning of 20th century. Even though plantain is still cultivated in the high range villages of Kannur even after the process of migration is over by around the end of 1970s, descriptive memoirs pertaining to various up land *amsams* of the high range regions of Kannur indicate that plantain was an important item of crop cultivated in the region¹²⁰. Following

¹¹⁹ All these towns which are now municipal towns emerge in the context of expansion of high range cultivation in the field of cash crops and the development of trade.

¹²⁰ Descriptive memoirs of Nuchiyattu, Thalavil, Payyavur, Nitiyenga, Thimiri, Thadikkadavu and several other *amsams* of Chirakkal Taluk of fasli 1343 give descriptions about the cultivation of various crops including plantain.

table gives the details of various plantains cultivated in the high range of Kannur in the early years of 20th century¹²¹.

Table 4.6: Varieties of Plantain cultivated in the high range

	Variety	Planting time	Duration (months)	No. of Suckers that can be taken	Average weight per bunch (kg)	Unique features	Other features
1	<i>Njalipoovan</i>	Last week of May	8	6-7	13	Shade loving and tolerant to bunchy top diseases	Golden coloured fruit used for offering in temples
2	<i>Annarakkannan</i>	Last week of May	9	1-2	12	Drought resistant and require less water	Round fruit
3	<i>Chundilla Kannan</i>	Last week of May	9	1-2	10	Waterloving, fingers widely spaced	
4	<i>Mysore poovan</i>	Last week of May	10	3-4	15to 17	Tall plant, susceptible to pest and diseases	Young thizom is used for treatment of chicken pox in children
5	<i>Kadali</i>	Last week of May	10	8-9	10	Shade loving, earlier it was widely cultivated in garden farm	Round fruit, thin skin, treated a a sacred variety for pooja, juice of rhizome used has medicinal properties.

¹²¹ KM, Sreekumar, etal: *Opcit*, pp.95-96.

	Variety	Planting time	Duration (months)	No. of Suckers that can be taken	Average weight per bunch (kg)	Unique features	Other features
6	<i>Mannan(venthapa cha)</i>	May last or October	7	6-7	15	Green colour of fruit, Big plant resistant to diseases.	Suitable for baby food preparations and fruit given to small pox patients
7	<i>Erachivazha</i>	Last week of May	9	6-7	15-20	Resistant to pests and diseases	Highly suitable for curry preparations and it tastes like meat
8	<i>Kalluvazha</i>					Wild species	Seeds used for treatment of urinary infections
9	<i>Kara nendran</i>	October	9	4-5	12	Cultivated in areas where irrigation is not easily available.	Used for preparing chips and baby food.
10	<i>Nana nendran</i>	August-September	9	4-5	12	Requires more water	Suitable for chips and baby food
11	<i>Adukkann</i>	June September	10	2-3	12	Fruits are longer than njali poovan	Used for making baby food

Most of the types of plantain given in the table had earlier been cultivated in the high ranges of Kannur. “A few years later, after coming to the high ranges, we had planted many types of plantain in the farm land like *njali poovan*, *Annarakkannan*, *Mysore poovan*, *nendran*, *mannan* etc in our farm land and they yielded heavy return

after 8 or 9 months”, says Valyaparambil Parameswaran, a migrant farmer¹²². At least one or two varieties of plantain would be there in the homestead of a native¹²³.

h. Pulses

In most of the high range amsams of Kannur pulses had been important crops which were grown as mixed crops along with rice in the *punam*. ‘Red gram, black gram and *uzhunnu* were cultivated in the high range along with rice and other crops like turmeric and plantain’¹²⁴. In times of poverty, how the people in the high range met deficiency of protein might be with the help of pulses they cultivated. In this way, *punam* served as an important means of subsistence of the high range people

i. Amara Payar (Dolichos Beans)

It was a popular type of beans cultivated in the high land regions with *punam* farming. It is said that in earlier times each house hold had an *amara pandal*¹²⁵. By following quite a traditional mode of cultivation using cow dung and water amara cultivation ensure regular supply of its beans as the plant is resistant to pests and insects. As the population increased and the land got transformed into other purposes this kind of traditional crops disappeared from the high ranges.

j. Choorikumbalam

Choorikumbalam is a local variety of ash gourd, generally trailed to trees and roof tops. It is a high yielding variety and pests and insect resistant vegetable mostly found in the garden and *punam* farming in the high ranges of Kannur in early days¹²⁶.

¹²² Interview with Valyaparambil Parameswaran, aged 87, on 18-10-2023.

¹²³ *Ibid.*

¹²⁴ Interview with Paru aged 92 years living at Kakkode in Cherupuzha panchayat on 30-07-2023. She along with other women of same age engaged in the *punam* cultivation in the 1970s and 1980s.

¹²⁵ *Amara* plant is normally a creeper and generally creeper vegetable plants are trailed over a pavilion.

¹²⁶ KM Sreekumar, *op.cit*, p.117.

An important aspect of the landscape of high range of Kannur apart from the dry and wet land is the garden land. Garden land in the early years of the 20th century and before was used for cultivation of crops like cocoa, arecanut, coconut. The following table shows the wide range of plantain cultivated in the high range of Kannur. Most of them were found cultivated till the fag end of 20th century. Shift in the agrarian practices and introduction of new crops into the region largely destructed the traditional crops and the pattern of agriculture.

After some forty or fifty years of migration drastic changes began to take place in the agrarian sector of high range. People began to turn their attention towards cash crops which would ensure a regular income along with the changes in education'', he says¹²⁷. Apart from the plantain several other crops had been cultivated in the high range areas in the first half of 20th century. The following table gives clear picture of the crops cultivated in the high ranges of Kannur and other parts of Malabar before 1940¹²⁸.

Table 4.7: crops cultivated before 1940

Sl.No	Crops Cultivated	Desams in the High range of Kannur where traditional crops were cultivated till fasli 1343.					
1	Paddy	Nuchiyattu	Payyavur	Kooveri	Thimiri	Naduvil	Vayakkara
2	Pulses	Nuchiyattu	Payyavur	Kooveri	Thimiri	Naduvil	Vayakkara
3	Gingely	Nuchiyattu	Payyavur	-----	-----	Naduvil	-----
4	Pepper	Nuchiyattu	Payyavur	Kooveri	Thimiri	Naduvil	Vayakkara
5	Coconut	Nuchiyattu	Payyavur	Kooveri	Thimiri	Naduvil	Vayakkara
6	Plantain	Nuchiyattu	Payyavur	Kooveri	Thimiri	Naduvil	Vayakkara
7	Horse gram	Nuchiyattu	Payyavur	-----	-----	Naduvil	Vayakkara

¹²⁷ *Ibid.*

¹²⁸ As found in the descriptive memoirs of various amsams in the high range of Kannur in fasli 1343.

It is evident from the above table that almost all crops were cultivated in the the *desams* of the given list. This was not confined to a few *desams* or *amsams* of Kannur.

The other *amsams* on the east of the district cultivated the same type of crops until about the end of fasli1343. “In my earlier days we could see every where in the high range of Kannur only traditional crops being cultivated by the native people which continued un altered until the end of 1970s”¹²⁹, says Narayanan Nair a native of Cherupuzha Panchayat. Even in the early years of migration traditional crops were on a large scale cultivated in the high range regions. But with the increase in the waves of migration from the south and the subsequent increase in the introduction of new crops hither to unknown to the region naturally made inroads into the traditional crops and their gradual disappearance from the traditional agrarian history of Kerala. With the disappearance of a good number of crops and seeds a rich tradition the high land people had cherished is also gone. Oral testimony given by many aged persons who are truly indigenous people undoubtedly underline to the fact that the regions west of the Western Ghat in Kannur had a very rich and purely indigenous knowledge of agriculture.

This indigenous knowledge is to be valued. The peasants from the south brought their knowledge that was quite ‘modern’ to the natives of the high range of Kannur. Traditional crops were cultivated for subsistence and the new entrants had to cultivate for profit. A sense of money making attitude could gradually be penetrated into the conscience of the native people. Owing to the lack of education and new techniques and knowledge in agriculture they failed miserably in maintaining the system to posterity except the memories of some grand old personalities.

¹²⁹ Interview with Narayanan Nair aged 83 years, living in Cherupuzha Panhayat on 11-08-2023.

Chapter 5

Transformation in Agriculture: Introduction of New Crops and Modern Agrarian Practices

In early days apart from being the sources of many water bodies the Western Ghats were considered as the supplier of many kinds of natural resources such as timber, ivory spices, etc. Exploitation of the forests of the Western Ghats on a large scale started with the British period¹. They exploited the evergreen and deciduous forests for railway sleepers, for valuable wood species like rosewood, and for fuel wood². Even though the forests on the Western Ghats were largely affected by colonial intervention, the areas close to these forests experience unprecedented change in landscape and ecology from the beginning of 20th century.

Information found in the settlement registers of 1905 pertaining to the high land of Kannur reveals the fact that human intervention in the region was not very intense during the period as there was abundant supply of unoccupied land. It is evident from the records that the high land of Kannur situated in the northern part of Kerala and eastern part of the district was historically known for the traditional crops that sustained agriculture in the region for generations. However with changing environmental conditions, market demands technological advancements and demographic transitions there can be seen a shift in the existing pattern of agriculture towards new cropping pattern that was quite contrary to the agrarian practices of early 20th century. Even though the new mode of cultivation could ensure sustainability, and productivity and economic self reliance it resulted largely in reshaping the landscape of the area.

¹ V Ramachandran, 'Approach to Development in the Western Ghats', in KSS Nair;etal, (ed), *Ecodeveloment of Western Ghats*, KFRI, Peechi, 1986, pp7-9.

² *Ibid.*

From the environmental point of view Kerala is one of the most favoured monsoon tropical regions on the west coast. It is one of the Indian states with abundant supply of biomass resource among the Indian states and possibly this might have been even better during the olden times. This would have helped people for natural manuring and agricultural practices in early days. This might have been continued for a long time since the beginning of such practice. Structural change in the agrarian practices did not take place until the beginning of 20th century. Probably this happens in the beginning of 20th century with large scale human intervention upon nature. Demographic transition played key role in transforming the agrarian sector.

Agricultural pattern in the highland of Malabar in general and Kannur in particular considerably changed with the dawn of 20th century. From this period onwards we come across notable changes in the terrain and land scape of highland region. At one time people of this region had engaged in the traditional mode of cultivation with indigenous crops that continued for a long period. The population of the highland region was relatively very less till 1921. The census reports of 1931³ indicates increase in the high land population. Demographic transition altogether brought about drastic changes in the socio-economic and cultural life of the high land of North Malabar. Advent of the peasant migrants from the south and subsequent intervention in the local life of the region caused agrarian transformation and cultural assimilation and dominance in the high range. Many of the traditional crops and pattern of agriculture were thrown out of the daily life of the native people with the introduction of new crops into the region. Experiment of new items of both food and cash crops in the high range altered the existing pattern of farming⁴. Several factors were responsible for introduction of new crops in the high land of Kannur. Climate change, alterations in the temperature, rain fall pattern, and extreme weather conditions can effect the sustainability and productivity.

³ Census Handbook of Malabar, 1931

⁴ Interview with Kelan aged 100years, living in Alakode Panchayat on 20-12-2023.

In place of the traditional crops new crops were largely cultivated in the eastern parts of Kannur district from the fourth decade of 20th century⁵. Earlier tapioca, rubber, coffee and, cashew were first introduced by the Europeans by the end of 15th century in Kerala. They got greater acceptance in Malabar only by the beginning of 20th century. North Malabar was relatively undeveloped during the early years of 20th century when compared to the rest of Kerala. Hence introduction of such crops as mentioned earlier took some time. It is from the early decades of 20th century that tapioca, cocoa, rubber, cashew, etc were introduced on a large scale in the region. In 20th century we can see remarkable transformation in the environmental surroundings of highland region of Kannur happened owing to the intervention of man in nature. Even though there was a close contact between nature and human beings since the time of stone ages, that relation turned out to be a threat since the time of industrial revolution in Europe. Ever since capitalist oriented development began to conquer human society, the human intervention in nature was with a selfish interest. This began with the renaissance period in Europe from the second half of 15th century. Geographical explorations started in the far end of 15th century following the innovations during the renaissance period. When the geographical discoveries followed by industrial revolution opened up way for search of more rooms for imperialist aspirations colonization of territories became reality. Ever since the European advent into the Kerala coast in the modern times the economy and natural resources began to be exploited indiscriminatorily. European interest in the commodities of Kerala was with an interest of selfish motive which they implemented by intervening in nature. While procuring natural resources like pepper, they introduced their native crops here. It was in this context tapioca, rubber, cashew, tea coffee etc were introduced here by the Europeans.

But, after industrial revolution turned, things turned upside down. There was a huge demand for raw materials of various kinds. The great demand for commodities prompted European to undertake explorations to the nook and corner of the world.

⁵ In the resettlement registers of Thadikkadavu, Thimiri and allother high range villages of Kannur in fasli1343 no reference about any new crop is found. Hence new crops in the region might have been introduced after 1935.

Along with them people from the West migrated to Asian and African countries through which they brought about shift in the agricultural pattern of the Eastern countries by introducing new crops that would ensure regular supply of raw materials to European firms. Introduction of new crops as per European tastes necessitated shift in the traditional agrarian practices. At large the new crops could offer more profit to the Europeans. Plantations of coffee, tea and teak were maintained by the British which could meet their economic as well as material requirements at the cost of the colonies. Alfred Crosby in his *Ecological Imperialism :The Biological Expansion of Europe 900-1900* establishes that European imperial success was driven more by ecological and biological factors than by their military or technological advancements. Crosby's argument is that transformation of the colonial ecology and economy happened in the wake of their introduction of new things such as animals, crops and pathogens in the colonized regions. As far as British India is concerned, this was quite true in terms of the colonial economy as well as ecology.

From the last decade of 15th century onwards, various European powers like the Portuguese, the French and the English had close contact with Malabar. In the colonial rivalry, the English became victorious and got control of Malabar by the end of 18th century. Ever since these European powers reached here, their crops also got their conducive place and climate here. Introduction of rubber and tapioca had greater role in shaping the economic and environmental life of Malabar. Crosby's perspective towards the colonial transformation is accurate in the transformation of the economy and ecology of the high range of North Malabar. When there was surplus production and the European markets got piled up with these products European countries were forced to find out new markets outside Europe and ultimately they reached Asia, Africa and Latin America.

When the political situation was favorable for colonial expansion, the European powers began to play the game of both treachery and double standards. They started intervening the internal affairs of local rulers by offering military support

⁶ Portuguese were the first modern Europeans to reach the Kerala Coast. They reached here in 1498 under the leadership of Vasco da Gama.

on one hand and economic on the other. This eventually brought the local princes under the yoke of colonial hegemony. Once they got political hegemony, they began to intervene in the traditional agricultural practices by introducing new and new crops which would ensure profit to them. Their immediate attention was to raise sufficient revenue to run colonial machinery. Introduction of various revenue policies were to be looked into in this context. At the same time they often insisted people to cultivate crops that would satisfy their needs. Their intention was to restructure the native agriculture by transforming the traditional mode of agrarian practices and crops into commercial crops that would suit the then market demands and it was in this context teak plantation was introduced in the Nilambur region with the purpose of ensuring regular supply of strong and durable timber for British ship building industry. At the same time by the middle of 19th century railway was also introduced in India. Naturally, in the early years of its introduction trees were largely used for railways. 'As a result large quantity of evergreen and deciduous forests were cut down for railway sleepers'⁷. Growth of railways in India largely affected the forest wealth, especially in the Western Ghats. 'Between 1860 and 1947 forests were a strategic raw material crucial for imperial interests such as railway expansion and the world wars'⁸. A look into the forest wealth of the state would make the things clear that "by the middle of 19th century the destruction of forests reached an alarming state due to over- felling of selected species and uncontrolled clearance of forests for cultivation"⁹. At the same time exotic plants also began to be introduced in the hinterlands of the Western Ghats. Naturally this brought about decrease in the local vegetation there by leading to decrease in the migration of birds, butterflies and different kinds of animals and insects. More over introduction of new plants from outside to the natural habitat here killed the natural vegetation.

⁷ V Ramachandran, opcit, pp.7-9

⁸ Madhav Gadgil and Ramachandra Guha, *The Use and Abuse of Nature*, Oxford University Press, New Delhi, 2005, p.193.

⁹ CK Karunakaran, "Ecodegradation of Kerala Forests: Historical Facts" in KSS Nair, OpCit, pp104-109.

Since the introduction of rubber in the late 18th century, the economy of Kerala began to change. Actually, when the expansion and processing of rubber became so rapid, the economy of Kerala began to revolve round it in the second half of 20th century. Land and terrain of the region underwent greater changes from the 20th century onwards. Owing to large scale migration from Southern Kerala to the Malabar region human intervention in the environment became more aggressive which eventually brought about drastic changes in the land and terrain of North Malabar, especially eastern part of Kannur in the Western Ghats. Progress in agriculture and industry is taken as the criterion of development of any country. As a result of which every attempt has been taken to exploit natural resources. Modern agricultural practices instead of the traditional have brought certain negative impacts upon environment and ecology. The major problems that have arisen due to the modern agricultural practices are related to fertilizers pesticides, waterlogging etc¹⁰. As far as Malabar region is concerned the introduction of modern agricultural practices and crops created some of the aforesaid problems in the region. For instance the eastern part of Kannur after the second decade of 20th century witnessed the introduction of new crops like rubber and tapioca on a large scale. It has left behind far reaching impact upon the land scape of this region. The topography of the region has undergone changes largely due to the unprecedented absorption of new crops into the region. Cultivation of rubber actually requires the clearing of all growths in the proposed area. As we know that the high land region before the introduction of new crops was mostly dense forests. As rubber is an upland crop these forest regions were cleared and set ready for rubber cultivation. Before the land is set ready for the cultivation all trees and under growths are removed. Later pits of nearly 1 metre depth are dug and in this way the topography altogether got changed. When this process repeats in every 15 or 20 years the natural vegetation is never regained. Recent studies have brought to light the grim reality that Kannur after Idukki and Palakkad is the most fragile

¹⁰ N Balasubramanya and Gurdeep.R. Chatwal, Environmental Studies, Himalaya Publishing House, Mumbai, 2007, p.21.

region and most prone to land slides¹¹. As per the SEOC¹² the landslide prone area in the district of Kannur is 168.7sq.km¹³. This alarming reality may be the outcome of the introduction of cash crops in the region after 1920 along with the emergence of large scale quarrying of granite and laterite stones on the upland regions of Kannur. Many high land regions of the district are prone to land slides. For instance the Kottatahalachi Mala, Josegiri, Thabore, Kudiyanmala, Kottiyoor, Kanichar, Kunnaythurpadi etc have witnessed several landslides in the past decades. 'I have witnessed one severe land slide in my early age in the 1980s' on the slopes of Josegiri, says Mannappankuzhiyil Baby¹⁴. Census report of 1961 shows a steady increase in the production of rubber from 1955 onwards. The following table will show how the two crop rubber and tapioca gain monopoly over the rest of the native crops¹⁵ since the first migration.

Table 5.1: Rubber and Tapioca cultivation 1955-61

Year	Production of Rubber in tons	Production of Tapioca in tons
1955-56	----	62000
1956-57	243	38000
1957-58	848	43500
1958-59	960	41693
1959-60	960	45364
1960-61	1049	48425

The given table shows marginal increase in the production of rubber and tapioca during the decade. Ever since the first migration into the high land of Kannur the hitherto unknown crops were introduced by them. Early revenue records carry no reference about any 'foreign' crops in the high land of Kannur. Settlement records of

¹¹ *Analysis by State Emergency Operations Centre (SEOC), Department of Disaster Management, Govt. Of Kerala.*

¹² *State Emergency Operations Centre under the Dept. of Disaster Management.*

¹³ *Ibid.*

¹⁴ *Interview with Mannadappankuzhiyil Baby aged 82 on 12-6-2022*

¹⁵ *Census of 1961, District census Handbook Kannur, Govt Press Trivandrum, 1965.*

the early years of 20th century carry information about the traditional crops like pepper, plantain paddy, coconut etc. No reference about the cultivation of crops like tapioca or rubber is seen the records¹⁶. Rather the early revenue records make it clear that the high land regions of Kannur had been practicing traditional crops like paddy, plantain, pepper, turmeric, ginger, etc, depending upon natural climate and traditional manuring system¹⁷. More over the early records would clearly indicate the area of available wet land where paddy cultivation was possible. Almost all settlement records of the high land villages of Kannur in the beginning of 20th century clearly indicate the presence of wet land regions. This is a clear indication of the fact that human intervention and subsequent change in the landscape in nature during the early period of the last century was quite less in the region. In other words, the population of highland region of Kannur was relatively very less in number. Further more, the change in landscape naturally occurs in the high land region of the district from the second half of 20th century. This was mostly on account of the change in the cropping pattern followed by the migrant population. The period immediately after 1950 began to observe a sharp decline in the forest land and the increase in the area under cultivation of various crops registers an increase in the high range during the same period. The following table about the various crops of Kannur in the second half of 20th century shows the real condition of Kannur in the time of Migration.

Table 5.2: Area in Ha under forest and principal Crops in Cannanore District from 1957 to 1981

Year	Forest	Citrus	Cardamom	Coffee	Rubber	Cashew	Coconut
1957-58	74,974	210	364	1175	4924	6045	45522
1960-61	67231	1863	387	1320	10382	6574	48414
1961-62	67231	1863	392	1747	12304	6364	46472
1962-63	67231	1863	392	1734	12442	28254	66744
1963-64	67099	1863	392	1789	12441	28353	67239

¹⁶ *Descriptive memoirs of various amsams* of the high range of Kannur available in 1903 and 1933.

¹⁷ *Settlement registers of fasli 1313 and 1343* give ample evidences about the native crops cultivated in the high ranges of Kannur.

Year	Forest	Citrus	Cardamom	Coffee	Rubber	Cashew	Coconut
1964-65	65932	1863	392	2185	12734	21115	69944
1965-66	65932	1863	392	2645	12834	31542	73716
1966-67	65932	1863	392	2072	12913	32275	76071
1967-68	65932	1863	392	3441	13714	26273	78571
1968-69	65932	1863	392	3582	14018	36709	90393
1969-70	65932	1863	392	3771	14759	38150	93931
1970-71	65932	1863	14022	4635	15079	40361	93235
1971-72	65932	1863	14961	4712	15259	41596	88575
1972-73	65932	1863	15410	4958	16160	42428	91223
1973-74	65932	1863	392	5432	18961	42611	91223
1974-75	63932	1863	392	5817	19223	44921	92227
1975-76	83656	NA	1113	8126	22125	109057	92198
1976-77	83656	NA	1265	8944	20559	NA	NA
1977-78	83656	NA	1305	17169	20935	NA	NA
1980-81	83656	NA	1226	18741	23934	68917	72980

Source: Govt. Of Kerala, Statistics for Planning Bureau of Economics and Statistics, 1983.

The above table however does not reveal true nature of forest. Still the table would make it clear that how the area of traditional crops is getting decreased and the area of cash crops like rubber and cashew are increasing after 1950. This very clearly indicates the fact that changes in the traditional agricultural land is being increased with the increase in population after the 1920s. Migration to highland over a period of 60 years changed the demography and ecological structure of the area¹⁸. There was a steady increase in population in the highland of Kannur during the period of migration. At the same time, a shift in the agrarian practices from traditional crops to commercial or cash crops may be noted here. One important factor that led to the shift was intervention of wild animals apart from the migration of the peasants from the south. The Administrative report of the forest Department for the year 1927-28 describes that wild animals like boar, porcupine, bison, sambhur and elephants

¹⁸ V.Biju, *Flood and Fury*, Penguin, Gurgaon, 2019, p.8

continued to damage to young planters¹⁹. These animals come out from the forests into the gardens bordering the forests and crops like plantain and tubers are widely destroyed beyond any hope. “Even today there is no change in the situation, rather the disturbances of wild animals have increased enormously in the high range’’²⁰, says V.P Dasan , a farmer. When there was a steady increase in the population they opted for experimenting new agricultural crops in the region. Introduction of new crops may be first seen in South Malabar in the 19th century. From teak plantations, rubber on an experimental basis started in the South.

Where as, the spread of new crops further north takes place in the 1920s. This was mainly in the context of the migration of peasant population from Travancore to North Malabar. Perhaps, the earliest crop introduced by the migrant population in North Malabar was tapioca. By the time migrants reached here, the region was going through acute poverty and famine. People were struggling hard to make both ends meet as employment opportunities were quite rare except farming in the land of *janmis*²¹. As a result of scarcity of food, death and diseases gripped the inhabitants of the region. Tapioca was planted on the sloppy areas of the highland in Kannur. Early settlers from the south came to the rather highland of the district. The areas included Alakode, Sreekantapuram, Chemperi, Peravoor, Kottiyoor, Kolayad etc. These regions are very close to the Kottiyoor and Kannavam forests. These Forests during the period of migration were under Sub Division of North Wayanad. Areas which were very close to forest were left un occupied by the local people for fear of animal attacks. Hence they remained mostly uninhabited and uncultivated also. Naturally, the migrant people got golden opportunity to occupy and cultivate these uncultivated areas. They had very good knowledge about the methods and time of cultivation of different crops. The most important item of edible crop they brought with them was

¹⁹ *Annual Administrative Report of the Forest Department for 1927-28* Vol.II, p.198, RAK.

²⁰ Interview with VP Dasan, aged 72 years living in Alakode Panchayat on 16-4-2023

²¹ Interview with Paichadathil Lakshmi, aged 92, living in Cherupuzha Panchayat on 12-5-2021.

tapioca, and coffee. Tapioca in Travancore on the eve of migration was the most important item with which they fought poverty and famine.

During the time of World War export of Tapioca was banned by then government of Travancore as there was a greater demand for tapioca for producing starch for cotton mills²². Such a notable position tapioca had enjoyed in Travancore in the early years of 20th century. But the post First World War scenario was not favourable to the people of Travancore as unemployment and famine put their lives in absolute crisis. This grim situation they faced in Travancore was an impetus to tackle the grave problems they had to meet in Malabar.

As a result they decided to make use of the opportunities in Malabar. As far as Kannur was concerned, there was plenty of uncultivated land at that time. Attempts from the part of the colonial government at the fag end of 19th century and the dawn of 20th century to prepare revenue settlements in the Malabar district help us to understand the land and terrain of Malabar including that of Kannur. There was no much transport facility to the east from Tellicherry or Kannur in the beginning of 20th century. But, since 1920s the situation in the highland of Kannur began to change rapidly. Road facilities connecting Tellicherry with Coorg got improved. By 1930 there were many buses plying between Tellicherry and Coorg. These buses from Tellicherry reached Coorg crossing the Iritty bridge which was built in 1889 by the British Govt²³. However, by 1930 the safety of the bridge became in danger. Thus, it was decided to reconstruct the Iritty bridge in 1931 by acquiring more land from both sides of the bridge. In 1931, Executive Engineer of West Coast Division wrote to District Collector of Malabar seeking urgent action for reconstruction of the Bridge due to increase in motor and other vehicles²⁴. Accordingly, Land was acquired in Payam and Keezhur *amsams* for constructing approach road on both sides of the Iritty

²² *Report of Tapioca Enquiry Committee*, Travancore 1921, p.2.

²³ A metal plaque kept at the Revenue Library in Thalassery mentions the date of construction of the Iritty Bridge.

²⁴ Sl. No.37-File No R Dis11921/1930, 12-02-1931. Revenue Reference Library, Thalassery

bridge²⁵. Generally speaking, the land and terrain of the highland region of Kannur got transformed due to colonial intervention also. It is evident from the records of the Local Bodies, the way the region in the high land of Kannur was changing²⁶. Assessment registers available in Peringome Vayakkara Panchayat²⁷ in the 1970s give ample evidences regarding the type of constructions taking place in the region²⁸. In 1970s there were X Wards in the Panchayat and there was only one building Assessment register during the period²⁹. Most of the buildings were thatched and the walls of which were made of mud³⁰. Ever since Malabar came under colonial hegemony in 1792³¹, developmental activities with colonial motives since then on a large scale have been undertaken by the colonial government. Nature was the worst hit area of the expansion of colonial interests. From the beginning of 19th century a lot of development activities were thus initiated by the East India Company. In the Kottayam and Chirakkal taluks of Malabar District, a large area of land was acquired for various development projects. Revenue records of 19th and early 20th century kept in the archives pertaining to colonial authorities give ample evidences in this regard³². Acquisition of land for granite quarries³³ and construction of *amsam cutcheri*³⁴ in North Kottayam and Chirakkal Taluks were initiated by the British as early as 1930. This happens in the context of colonial intervention in the political affairs of the Malabar District. The developmental perspective of the colonial powers by this time

²⁵ *Ibid.*

²⁶ Assessment Registers pertaining to local bodies give ample evidence regarding the nature and types of constructions taking place in their jurisdiction

²⁷ Peringome Vayakkara Panchayat is situated about 22KM east of Payyanur and the panchayat had an extent of more than 25 KMs from its head quarter till 2000CE

²⁸ Large buildings found in the 1950 in the Panchayat were tiled and the walls were all made of laterite stone.

²⁹ For details see the building assessment Register of Peringome Vayakkara Panchayat for the period between 1972-1978.

³⁰ *Ibid.* For more details see Appendix.

³¹ After the third battle of Anglo- Mysore war Tipu was defeated treaty was signed in 1792. As a part of the treaty Malabar was ceded to the East India Company.

³² Administrative Reports on Malabar published in 1902

³³ Sl.No.58, R Dis No.5470/31 Dated 5-5-1932, Revenue Reference Library, Thalassery

³⁴ Sl.No 46 R Dis no. 422/31 Dated 15/9/1931, RR Library, Thalassery.

got diverted from the urban areas to the rural areas. Even though the British had engaged in large scale constructions like bridges public buildings like Revenue offices the main purpose of these constructions was to exact maximum revenue and resources from the rural areas to the urban areas and ultimately to their home land.

These crops in the following decades played vital role in shaping the socio economic life of the people of Malabar. Rubber and tapioca began to be largely cultivated in the area. *Vishakanyaka*³⁵, closely depicts the economic condition of Malabar during the early years of 20th century. Living conditions of North Malabar were rather pathetic in those times³⁶.

a. Tapioca³⁷

Change in land use was yet another aspect that takes place during the phase of Syrian Christian Migration in the uplands of North Malabar, especially Kannur. The influx of migrants led to the large scale clearing of forests and bringing the cleared forest land under cultivation. Hitherto uncultivated land was brought under cultivation of new crops unknown to the region thus resulting in the change in the land use pattern. When new crops were introduced in the area diversification of agricultural land scape was quite inevitable. In place of the traditional way of agrarian practices new techniques employing newer methods of utilising land for agrarian purposes were initiated by the migrants.

Perhaps, the greatest change in the landscape during the migration period was effected on account of the terracing of hilly or sloppy land by the migrant people. Techniques for terracing the high land were introduced by the migrant people to make the land fit for cultivation and other utility purposes. By constructing terraces on steep slopes they created flat surfaces for planting crops such as cash crops like rubber and food crops. This method even though prevents soil erosion and conserves water by

³⁵ *Vishakanyaka*, a novel written by S.K Pottekkatt, describes in detail the early cultivation of crops like tapioca in the newly migrated areas of Malabar especially Waynad.

³⁶ Interview with P Lakshmi, aged 92 years in Cherupuzha Panchayat, on 12-7-2020.

³⁷ Tapioca, a tuber crop is basically a native of Latin America.

capturing rainfall, the method played vital role in reshaping the landscape of the highland.

Natives in the region were generally following the traditional modes of cultivation in which there was greater space for multiple cropping or as such in the region. This practice had its own implications in the life of the people. The land is used for cultivation of many crops and when they are harvested the peasant had to wait till next season. Until then he had to subsist with what had been produced. If the production is less he had to be content with and face the grave reality of poverty. Francis Buchanan in the beginning of 19th century observed the same situation. He says :

“*Cadatinadu* is better cultivated and is naturally a rich country containing a large proportion of rice ground ;but the grain produced in it is not adequate to the consumption of the inhabitants and an importation takes place from the southern parts of *Malayala* and from *Mangalore*”³⁸.

Naturally, in most cases the production was not satisfactory even in the 20th century. The reason for low production was mostly due to ignorance about new and productive techniques like manuring and high quality seeds. More over, the traditional mode cultivation consisted of all traditional crops generally done in gardens. Revenue records available from the beginning of 20th century give ample evidences about the prevalence of garden crops in the high land areas of Kannur. The migrant population who were quite known for multiple cropping of various diverse crops began to introduce the system here also. Multiple cropping was a practice of growing different crops in the same land at a time. In most cases different crops would be having different life periods. These were annuals and biennials. One vital aspect of this practice is that it was sufficient enough to increase the fertility of the soil and thereby increase the productivity. Risks associated with crop failure could be avoided in this practice. In the early years of migration this practice stood by good stead in the life of the migrant people. However that was not sufficient enough to meet the

³⁸ Francis Buchanan, *A Journey from Madras through the Districts of Mysore, Canara, and Malabar, Vol.II*, Asian Educational Services, New Delhi, 1999, p.510.

requirements of the people. In place of the traditional mango, jack, etc they introduced here coffee, tea, guava, *kudampuli*³⁹, nutmeg, cocoa and several types of pepper, etc were introduced here by the migrant people in the first half of 20th century. Even though these crops were not cultivated commercially in larger areas they began to be cultivated as garden crops in the form of mixed crops. 'In our farm land there were several of these crops and quite often many of the harvests such as cocoa and nutmeg had of no much use, says V P Bhaskaran, a native of Alakode panchayat. It is evident from this that among the many garden crops which were started cultivated in the mid of 20th century, many crops were cultivated casually by the farmers. But after 1950 many farmers began to turn towards planting more trees with the rise of more towns and marketing centres in the high range of Kannur. However, in the beginning the harvest did not earn them much profit as the knowledge about the processing of the seeds of cocoa and nutmeg was not known to the new migrant and native farmers. 'Poverty was still a major concern among the high range people even in the 1940s and 1950s' ⁴⁰, says V P Bhaskaran.

Migrant people who came to this region in large battalions could not completely subsist with the output. So, they received experimenting new crops here. It is in this context that they started cultivating tapioca on a large scale. When tapioca found out to be a great success. Started after 1930, tapioca spread to vast area in the high range. When poverty could be met with tapioca the migrant people began to turn their attention towards introduction of other crops which would earn them regular income.

Basically, tapioca is a native of Brazil and it is believed that its cultivation started some seven millennium BCE ago. Even though Brazil is the birth place of tapioca, its cultivation has now spread to all tropical countries of the world⁴¹. It

³⁹ *Kudampuli*, commonly known as Malabar tamarind is sour fruit with yellowish colour when ripe. It is largely used by the migrant people in Malabar at times of preparing curries, especially fish curry.

⁴⁰ Interview with VP Bhaskaran, aged 87 living in Peringome Panchayat on 6- 07-2020.

⁴¹ PR Krishna Pillai, *Tapioca in Kerala*, Bureau of Economics and Statistics, Trivandrum 1972, p.5.

normally grows under a warm humid climate as it is generally found in the south west of India. The crop can be grown up to an elevation of 914 metres in the tropical belt⁴². Tapioca is known in different names in different countries. For instance in America it is known as *cassava* or *manioc* and in the Philippines it is known by another name as '*camoty cashy*'⁴³. Tapioca also known as *kappa*⁴⁴ or *maracheeni*⁴⁵ in Kerala was introduced by the Portuguese in the 16th century. Because of the multifaceted features of tapioca it soon became familiar among the native as well as migrant population in times of famine and poverty.

Tapioca was introduced in the highland of Kannur probably after 1933⁴⁶. In the early years of its cultivation in Malabar Tapioca was used by the people as an alternative to rice to meet poverty. Very soon the cultivation of tapioca spread to every nook and corner of Malabar. Apart from the migrant population, the native people also began to engage in the cultivation of tapioca after 1930s. As the land was virgin and conducive for new crops like tapioca, the yield was very high. When the people could find an alternative in tapioca for staple food, they started cultivating this continuously widely along the eastern side of the district. Very soon it spread throughout the highland area where native population also soon joined hands with the migrant people. Tapioca in Travancore in the early years of 20th century was very costly and its export was banned in Travancore for a while during the time of post First World War period⁴⁷. It has long been a familiar crop in the midlands of Travancore State and was chiefly raised by poor cultivators for subsistence as who found it necessary to supplement their meagre rice supplies⁴⁸. At the same time tapioca was in great

⁴² *Ibid*, p.7.

⁴³ *Camoty cashy* means tree of sweet potato

⁴⁴ In north Malabar tapioca is commonly called by the natives as *kappa*.

⁴⁵ In the south especially in Travancore area tapioca is called by the natives as *maracheeni*. However with the advent of the migrant peasants from the south to Malabar *maracheeni* is also used widely to mention tapioca.

⁴⁶ Till 1933 there is no mention about the presence of tapioca in the highland areas of Kannur in any revenue record.

⁴⁷ *Tapioca Enquiry Committee Report*, Trivandrum, P.1

⁴⁸ *Ibid*. P.1

demand for manufacturing starch. Till the out break of the Second World War there was import of starch of maize and potato from countries like USA, New Zealand etc⁴⁹. When restriction was imposed upon import of textiles, factories of India were hit hard. Scarcity of adequate starch made the government of Travancore put restrictions upon the export of Tapioca⁵⁰. As good quality starch could easily be manufactured from tapioca and there by the price could be put on hold.

It was in this context that the migration of peasants from Travancore to Malabar takes place. Naturally tapioca as their staple food at that time was taken with them and soon introduced in the migrated region. In the initial years of migration tapioca was largely cultivated in the upland region of Kannur. Until about 1970 tapioca was abundantly produced in the highland. But with the change in the economic scenario from the second half of the 20th century more people in the high land began to turn their attention towards more income yielding crops like rubber. In case of famine and poverty condition of Malabar was also not different from that of Travancore during the post First World War period and the Second World War period. As tapioca was easy to be cultivated and can easily be used as a substitute to rice to meet the shortage people who came from Travancore began cultivating this on a large scale in the virgin soil of Malabar. More over, production of rice was not sufficient in North Kerala during the time. Even though there were paddy cultivation in the low and midland regions, in the high range it was in the form of *punam* and that too was not sufficient enough to meet the requirements of the high range people. Hence, very soon tapioca became the most important food crop of the people of North Malabar which continued up to the early 1990s⁵¹. Tapioca actually saved the lives of the people from famine in the early 1940s. By 1970 one interesting thing noticed is that in Kannur alone the total out put of tapioca from 7000 acres of land was

⁴⁹ *Ibid*, p2.

⁵⁰ *Ibid*.

⁵¹ Introduction of Globalization effected larger impact upon the agrarian sector from the 1990s onwards.

160000tons⁵². It indicates enormous volume of production of tapioca and the extent of the area of land cultivated. The changes in the economic order as happened across the world and it affected the life pattern and culture of the people here. For cultivation of tapioca, the preparation of land was a serious and herculean process. The sloppy land of the high range region is slashed and burned before heaps of soil are made. This is how the land is prepared ready for tapioca cultivation. Tapioca is cultivated normally in the month of May with the beginning of first rain. Cultivation process is quite simple after the heaps of soil is prepared. It is done by fixing a small piece of the stem of about 15cm to 20cm long of the plant. The long stem of a tapioca plant are cut down when the plant is ready for harvesting and kept for replanting in the next season. Naturally the cultivation of tapioca on a large area brought about unprecedented impact not only in the social life but also in the economic life of the people of high range region.

There were many varieties of tapioca in the beginning of 20th century. Most of these varieties were brought to this land by the migrant people. 'We largely cultivated *rotti*⁵³*kappa* in our early days of migration'⁵⁴. It is so called because after tapioca is boiled it becomes as soft as bread (*roti*). There was yet another variety of tapioca which was known as *Kattan*⁵⁵. It is so called because it has huge amount of harmful substance equal to poison. If the tapioca is not boiled three to four times it is harmful to health. Hence *kattan kappa* is consumed by boiling and removing the water three or four times. If the leaves of the plant are eaten by cattle they may lose their life. Another variety of tapioca commonly found in the high range *Vellakkyyan*⁵⁶. *Vellakkayyan* was a locally available variety. The peel of the tuber is rather pale and

⁵² K Kunhukrishnan, *Kudiyettakkarude Gramathil* (Mal), Mathrubhumi Weekly, Vol.XIV, March21, 1971.

⁵³ *Rotti* is a variety of tapioca commonly cultivated in the high range of Kannur during the time of migration. Bread is also known as *rotti* in Malayalam.

⁵⁴ Interview with VP Bhaskaran on 15-09-2020.

⁵⁵ *Kattan* was a local variety of tapioca widely cultivated in North Malabar in the 20th century. This variety is now almost extinct today.

⁵⁶ *Vellakkayyan* is tapioca variety that was available in the high range in the 1980s and '90s

the when boiled it will be as soft as butter and very tasty. The stem of the plant does not grow too high.

Rural economy at that time largely revolved round the income mobilised out of the sale of the excess production in the high range towns like Iritty, Sreekantapuram, Payyanur, and Taliparamba at that time. Economic sustainability to an extent could be gained in the high range areas on account of the excess production of tapioca. At one time, it served as the supplier of food to the people in times of famine especially in the period of monsoon and at some times it provided enough money immediately after the harvesting is over by selling of the surplus in the form of dried tapioca. Dried tapioca is made in two ways, viz, drying up of raw tapioca in the sunlight after removing the peel and semi boiled tapioca is also dried up in the sun light. Both types of tapioca will remain for months without any damage and hence it serves as the bread of the people in the high range people. Till 1971, tapioca along with rice was the staple food of the people of the taluks of Thalassery and Taliparamba⁵⁷. With the expansion of rubber and development of new food culture all these varieties of tapioca have gone extinct from the high range⁵⁸. In 1984-85, tapioca was cultivated in 2.03 lakhs ha in the entire state⁵⁹. But this tendency in the increase in area could not be maintained. Within an period of 20 years after 1985 the area of tapioca cultivation decreased to 0.88 lakh ha in Kerala⁶⁰. It is evident from the field studies that after 1990 the tapioca cultivation registers a steep fall and this may be because of the transition in the life style of the people of Kerala following the large scale outward migration and the subsequent flow of foreign exchange into this land. People began to move away from agriculture and new health consciousness to an extent made them keep tapioca away from their menu.

⁵⁷ *Census Handbook of Kannur* 1971p, 28.

⁵⁸ Interview with VP Bhaskaran, aged 87 on 21-10-2022.

⁵⁹ *Kerala Agriculture Statistics* 2005, p.3

⁶⁰ *Ibid.*

b. Rubber

Like tapioca, rubber also is a South American origin. It is believed that rubber was grown thousands of years ago in the Amazon basin in South America. Introduction of rubber was a turning point in changing the agricultural pattern. Shifting of agriculture from subsistence crops to cash crops altered the economy of the countries. Kerala's agricultural sector underwent significant changes since 1970s. Farmers started moving towards perennial crops in place of annual crops. More over, they were more concerned with price of commodities they produce. Perennial crops earn them more price than annual crops like rice, plantain, turmeric, ginger, etc. The transformation in the cropping pattern of the state towards perennial cropping is evident from the fact available in 1998- 99 that this crop accounted for more than 63 percent of the cultivated area⁶¹. Rubber was first introduced in Malabar in the 19th century in the Nilambur region of South Malabar⁶². Colonial records reveal the fact that the rubber plant was in the early years of 19th century was grown as an annual plant. C A Innes in his Malabar Gazetteers gives ample evidences about the way rubber was planted here in the 19th century CE. The first trees of rubber planted in South India were some Ceara⁶³ plants sent from Kew to Nilambur teak plantations in 1878⁶⁴. Followed by this there were several attempts by the British in several parts of Calicut like Thamarasseri, Puthupadi and Waynad. But ignorance of the best method of cultivation and tapping effected no result. With the dawn of 20th century the situation began to change. In South Malabar 9247 acres of land was under rubber by 1930⁶⁵. Introduction of plantation crops by the colonial had a definite fiscal as well as ecological impact upon the state.

⁶¹ S.Lakshmi and K Tharian George, 'Expansion of Natural Rubber in Kerala: An Exploratory Analysis' in *Indian Journal of Agricultural Economy*, vol.II, 2003, pp.219-220.

⁶² *Annual Administrative Report of the Forest Department for 1927 -28*, vol II, p.198. Forest Central Library, Trivandrum.

⁶³ Ceara is so called after a province in Brazil. It is one of the three types of rubber introduced in Kerala by the Europeans.

⁶⁴ C.A. Innes, *op.cit*, p.227

⁶⁵ Ibid, p.228.

Rubber was the more income yielding crop in the high range compared to other perennial crops like areca nut or coconut. Rubber as a cash crop began to be cultivated only quite late in the highland in Kannur precisely after 1930 only. One important contribution of the migrant community to the economy of the high range of Kannur is that rubber was introduced by them. Rubber was probably introduced in the high range of Kannur only after 1933. Rubber as a crop is not found mentioned in the Resurvey Settlement Reports of 1933. Descriptive memoirs of various *amsams* in the high range of Kannur for the fasli year 1343 make mention only about the traditional crops prevalent in the region. Even before the settlement of the migrants people of Malabar engaged in agriculture and pastoral activities. ‘In the presidency of Madras a whole the census of 1921 showed that 71.9 % of the population engaged in agriculture or pastoral works while in Malabar the percentage is 62.1%’⁶⁶. But a close watch on the life of the people of the high range of the district would reveal the fact that more than the figure recorded by the British engaged in agriculture. Actually there was no alternative to the people including the natives for subsistence other than agriculture or allied livelihood. ‘Malabar population was even less concentrated in large towns than in most other districts’. C A Inness enumerates various non agricultural pursuits that occupy a large proportion of the people. By 1950 rubber cultivation had been extended to vast areas in Malabar including the high range of Kannur where the rural economy was making a slow progress only by that time. Rubber statistics of 1961 indicate the volume of rubber cultivation in Malabar which was interestingly a higher figure in terms of its growth and expansion. Earlier by 1951 rubber cultivation was just started in Kannur. As per the census statistics of 1951 the total area of rubber cultivation in Chirakkal taluk was in just 213 acres⁶⁷. At the same time in Kottayam taluk it was little more extensive. The total area of rubber cultivation in Kottayam taluk was estimated at 1335 acres⁶⁸. By the end of past century there was a tremendous increase in the production of rubber and other crops in Kannur district. At the end of 20th century high range of Kannur by and large evolved into monocrop

⁶⁶ R324-Report on the re Settlement in the Malabar District Eight Plain Taluks, 1930, p.13

⁶⁷ Census Report of 1951, Malabar District, p.13.

⁶⁸ *Ibid.*

pattern where rubber gained the upperhand. At the same time there was some economic set back to farmers of rubber cultivation due to price fluctuations in the market. Following table gives the detailed account of rubber production in India during the year 1940.

Table 5.3: Rubber production in India during 1940

Sl.No	District	No.of Estates on 31 st December	Total Area under rubber during the year(ha)	Quantity of rubber produced (lbs)
1	Madras	No	No	No
2	Salem	4	134	6512
3	Malabar	53	13611	3568
4	Nilgiri	8	881	200578
5	Madura	1	422	35000
6	Coimbatore	2	644	31111
	Total	68	15692	3851002
7	Coorg	7	3056	813169
	Total British India	75	18748	1654261
8	Mysore	9	620	22415
9	Travancore	14392	104513	25827802
10	Cochin	145	13798	3985149
11	Total India	14621	137679	35490627

Statement of area and production of Rubber in India during the year 1940⁶⁹.

It is evident from the statistical records of the colonial Government that till about 1940 there was hardly any rubber cultivation in North Malabar and it is also evident from the oral sources obtained from field surveys that rubber as a plantation crop got introduced in the high ranges of Kannur only after the migration attained momentum in the 1940s and 1950s. The table given above shows that even when

⁶⁹ Indian Rubber statistics, 1941-42, Department of Commercial Intelligence and Statistics, pp.8-9

rubber was largely cultivated in the high ranges of Coorg it was not seen in Kannur even though Kannur is located at a close proximity to Coorg.

Average rain fall in the region is above 3200mm which is apparently a high rate, but for nearly half of the year the region witnesses rather a dry spell during the period from December to May. “Cultivation of annual or biennial crops are not profitable and favourable in such a climatic condition in the upland region”⁷⁰. Naturally the farmers are forced to find an alternate crop which could withstand the unfavourable climatic conditions. It is in this context crops like cashew and rubber are experimented in the high range of Kannur as both crops are adapted to warm humid tropical conditions. High lands of the Western Ghat are having this kind of climate conditions. Even though coconut is also grown in the high land regions the area under cultivation is very less. This is owing to some economic factors like sharp fall in the price of coconut the decrease in the area of coconut cultivation is observed. Over the years farming in the high range of Western Ghat has been transformed from the traditional mode of cultivation to modern intensive agricultural techniques adopting mono- crop cultivation with the introduction of rubber and cashew. When Garden farming did not provide as much income as expected farmers in the high range began to turn their attention towards other crops which would earn them regular income. Introduction of rubber in the high range of Kannur is to be looked into in this context. “In the initial years of our coming to the high land of Kannur we had no means for subsistence. So we started cultivation of tapioca. But that able to meet the poverty stricken days that was not able to provide economic security. In this context we started to look into other options that would ensure economic gain. Rubber came to the scene in search for alternate crops”⁷¹, says Nahttuthottiyil Thomas a migrant farmer. It is evident from the fact that in 1940 the area under rubber cultivation was 13464 acres⁷². In south Malabar rubber was in cultivation even before it was introduced in North

⁷⁰ Interview with Narayanan, aged 83 living in Cherupuzha Panchayat on 13-9-2023.

⁷¹ Interview with Nhattuthottiyil Thomas aged 92 living in Alakode Panchayat on 23-12-2022.

⁷² *Indian Rubber Statistics 1941 and 1942*, Department of Commercial intelligence and Statistics, India, p.6.

Malabar. It is evident that rubber as a money earning crop had a wider acceptance in the Malabar region during the colonial period. The following table would explicitly reveal the pace at which rubber planting in Kannur increased in the 1960s⁷³.

Table 5.4: District wise classification of rubber in Kerala and Madras State between 1963-64 and 1966-67⁷⁴

Name of District	1963-64	1964-65	1965-66	1966-67
	Area in acres	Area in Acres	Area in Acres	Area in Acres.
Trivandrum	11597	11952	12464	13364
Quilon	61169	61723	65327	66867
Alleppey	6711	6774	7068	7441
Kottayam	115321	116007	118513	123268
Eranakulam	48031	48664	55255	57167
Trichur	18254	18581	19516	19835
Palghat	17296	18093	20187	21265
Calicut	49008	49610	52604	54959
Cannanore	28959	29743	31776	33857
Kerala State	356346	361147	382710	398023
Kanyakumari	15229	16264	17740	18386
Madurai	377	377	377	377
Nilgiri	605	605	605	605
Coimbatore	546	546	546	546
Salem	56	56	56	56
Madras State	16813	17848	19324	19970

It is evident from the above table that all districts of Kerala made remarkable advance in rubber cultivation during the period compared to the other parts of South India. This may be because of the particular climate condition of this region from rest

⁷³ For more details see *Indian Rubber Statistics. Vol 10*, 1967, Rubber Board, Kottayam, 1967

⁷⁴ *Indian Rubber Statistics, Vol.10*, Rubber Board Kottayam 1967, pp.10-12.

of South India. In the southern districts the area of rubber under cultivation is higher than that of the northern districts owing to the fact that in the South rubber had been introduced many years before it was introduced in the North. Where as in North Malabar rubber came to the scene only quite late in the 20th century.

It is quite clear from the table that Rubber production in both Travancore and Cochin had gone a long way among all the rubber producing states in British India in 1940. Even though the table shows a huge production of rubber in Malabar it is actually in South Malabar. As early as 19th century rubber production had started in South Malabar. By 1940 rubber in south Malabar had become a monocrop indication of which may be seen in the number of estates estimated in Malabar. Total number of rubber estates in South Malabar was estimated to be at 53 which is of course a big number when compared to Travancore and Cochin where the number of estates was estimated to be at 14392 and 145 respectively.

Though introduction of rubber in North Malabar was quite late when compared to Travancore and Cochin it began to be cultivated very widely in the high range of Kannur and Kasaragod. “After 1950, rubber crop started to peep into the remote villages of the high range of the district”⁷⁵. By the end of 1960s rubber became one of the major crops in the district. Following table shows the extend of rubber cultivation in the district in 1967.

Table 5.5: Statistics of Area under Rubber in Kannur District in 1967⁷⁶

Sl.No	District/Taluk	Holdings(Acres)	Estates(acres)	Total
1	Cannanore	182	--	182
2	Tellicherry	758	1651	9234
3	Thaliparamba	12314	3383	15697
4	Hosdurg	3541	2828	6369
5	Kasaragod	586	593	1179
6	North Waynad	1136	60	1196

⁷⁵ Thomas Pazheparambil, *Swapnabhumiyl*, (Mal), Mar Mathews Press, Muvattupuzha, 1978, P.121.

⁷⁶ Indian Rubber Statistics, *op.cit*, P.9.

The above table shows that Tellicherry and Thaliparamba have the largest number of holdings and area of rubber under cultivation. Before the present day Iritty⁷⁷ and Payyanur⁷⁸ taluks are constituted these two Taluks constituted the entire eastern part of Kannur district. When migrants from the south first came to North Malabar they moved towards east of the district either from Tellicherry or from Thaliparamba. Hence the most number of early migrant settlements are east of Tellicherry and Taliparamba. Moving some 20-25 kilometres east of Taliparamba and some 25-30 kilometres south east of Tellicherry we can reach the main centres of migrant settlers such as Sreekantapuram, Chemperi, Alakode, Payyavur, Peravoor, Iritty, Kelakam etc. It is in these areas that rubber is mostly cultivated. Lion share of the district's Rubber production come from a dozen or two panchayats belonging to the migrant settlements. Kottiyoor, Kelakam, Kanichar, Peravoor, Kolayadu, Malur, Iritty, Payyavur, Ulickal, Sreekantapuram, Chapparapadavvu, Eruvessi, Naduvil, Alakode, Cherupuzha etc are some important panchayats where rubber is largely cultivated. It is a grave situation that with just 20 or 30 years more than 33000 acres of land got transformed into rubber plantations in the entire district by 1967⁷⁹. Either the traditional cultivating farm land or unoccupied land was transformed into new farm land. The very transformation of the high land regions was owing to the introduction of new crops and cropping pattern. Huge tracts of farm land is brought under cultivation of single crop. In the case of Kannur it was rubber that played a crucial role in its transformation. When the standard of living of the migrant people who engaged in rubber cultivation changed positively, the native people also began to follow the suit. Within just two decades of its introduction in the high range of Kannur, rubber got a wider acceptance among all the farmers of the district. In the initial years of migration rubber cultivation was mainly done by the migrant farmers only as the native people had no knowledge about how rubber is cultivated. "In my early days only the migrant farmers engaged in rubber cultivation and the native people were rather reluctant towards engaging in such type of agriculture as it requires

⁷⁷ Iritty Taluk was formed in 2013 as per Go (Ms) No.317/2013/RD dated 21/03/2013

⁷⁸ Payyanur Taluk was formed in 2018 as per GO (Ms) No. 317/2013/RD dated 21/03/2013

⁷⁹ Rubber statistics 1967, p.9

much labour and care in the initial years of its planting until about 5 to 7 years’’⁸⁰, says Mathayi Madakkampuram, a migrant farmer. “Migrant people who came to this land had strong and powerful tools with them and they were not scared about wild animals or the forest. So they could easily clear the areas which were left un occupied by the native people and bring them under cultivation of various crops of which some crops were not familiar to us’’⁸¹, says Kunnumpurath Narayanan, a native farmer of Alakode. ‘While rubber was introduced for the first time in our area, we were engaging in *punam* cultivation in which ragi was an important item along with other cereals’’⁸², says Lakshmi a peasant worker who in her youth had engaged in *punam* cultivation. In the high land of Waynad the impact of rubber plantation and subsequent destruction of forest may be seen in the life of native people especially the tribals. “The *Kurichyas* who had earlier engaged in the cultivation of ragi lost their land on account of migration and deforestation and introduction of cash crops’’⁸³. “The land where the *adivasis* practiced ragi cultivation was encroached by the migrant people and they started cash crops there’’⁸⁴. “lienation of the tribal population in the Wayanad region was mainly on account of migration and the subsequent encroachment into the land that was earlier cultivated by the tribal population like the *Kurichyas*’’⁸⁵. “Introduction of cash crops and disappearance of ragi cultivation adversely affected the health of the tribal population’’⁸⁶. Similar changes may be noticed in almost all areas where the migration occurred. From the high ranges of Kannur several traditional crops disappeared following the migration and introduction of cash crops.

⁸⁰ Interview with Mathayi Madakkampuram aged 82, living in Chittarickal on 16-9-2022

⁸¹ Interview with Kunnumpurath Narayanan, aged 84, living in Alakode Panchayat on 18-11-2023.

⁸² Interview with Lakshmi Paichadathil aged 89 living in Cherupuzha Panchayat on 14-09-2022.

⁸³ P K Prakas, *Anyadheenappedunna Bhumi*, (Mal), Pustaka Prakasana Sangham, Mavoor, 2025, P.33.

⁸⁴ *Ibid.*

⁸⁵ *Ibid.*

⁸⁶ *Ibid.*

Over the years the high range has undergone unprecedented changes in the agricultural pattern and landscape. The period after 1970 is a watermark in the ecological economic and political life of the people of high range region. The land use pattern during this period totally changes during this period on one hand and the practice of keeping the land fallow increases on the other. At the same time there is an alarming tendency among the people of entire Kerala that they put the land to non agricultural use⁸⁷. On analysing the data on land utilization, it can be seen that the land put to non agricultural use increases from 370322 to 455897 hecets in 2019-20⁸⁸. During the period under consideration, that is the period from 2005 -06 to 2019 -20 intensity of cropping is decreasing which may probably indicate the increasing tendency of urbanisation⁸⁹. But, a close watch at the current population in the high range region in the district shows a reverse migration. The descendants of the migrant people now show a tendency to move down the high range and settle down in areas where facilities of all kinds are at their disposal. Urbanisation in the settlement areas is hence the outcome of this reverse migration too. It is a fact that during the past 50 years Kerala has experienced an increasing tendency of urbanisation. Ecological changes and demographic transitions over the years underline the fact that Kerala is one of the most urbanised or getting fast urbanised states in India. Even though there are 941⁹⁰ Grama Panchayats in Kerala most of them have now grown to the level of town panchayats. Along the eastern line of the Western Ghat portion in Kannur there are many towns which have been elevated to the status of Municipalities.

Kottiyoor, Kelakam, Peravoor, Iritty, Ulikkal, Payyavoor, Chemperi, Sreekantapuram Karuvanchal, Alakode, Cherupuzha etc are some major towns on this

⁸⁷ *Agriculture Statistics* 2005-2020, Dept.of Economics and Statistics, Govt.Of Kerala, 2022 p, 1.

⁸⁸ *Ibid.*

⁸⁹ *Ibid*, p.12.

⁹⁰ Earlier in 2000, the number of Gramapanchayats in Kerala was 978. After the delimitation of 2010 many Panchayats were either converted as Municipalities or merged with municipalities and the number limited to 941.

line. It is interesting to note that coconut is the major crop under cultivation in the district. But the point is that all these crops are largely cultivated in the low and midland regions of the district. Where as in the case of rubber and cashew which together constitute a total area of 62398ha in the district both are highland crops. Even though cashew to a limited extend may be seen in the midland along with rubber cashew is another major crop in the high land of Kannur. A critical examination of the situation of why this kind of cultivation is followed in the high land of Kannur will reveal the fact that the climatic condition of the region is unfit for cultivation of other crops apart from the particular terrain of the region which was of course the net result of human intervention.

The following table would give a clear picture of the extent of rubber cultivation and other crops in the Kannur district during 2004-05⁹¹.

Table 5.6: Extent of rubber cultivation and other crops in Kannur during 2004-05

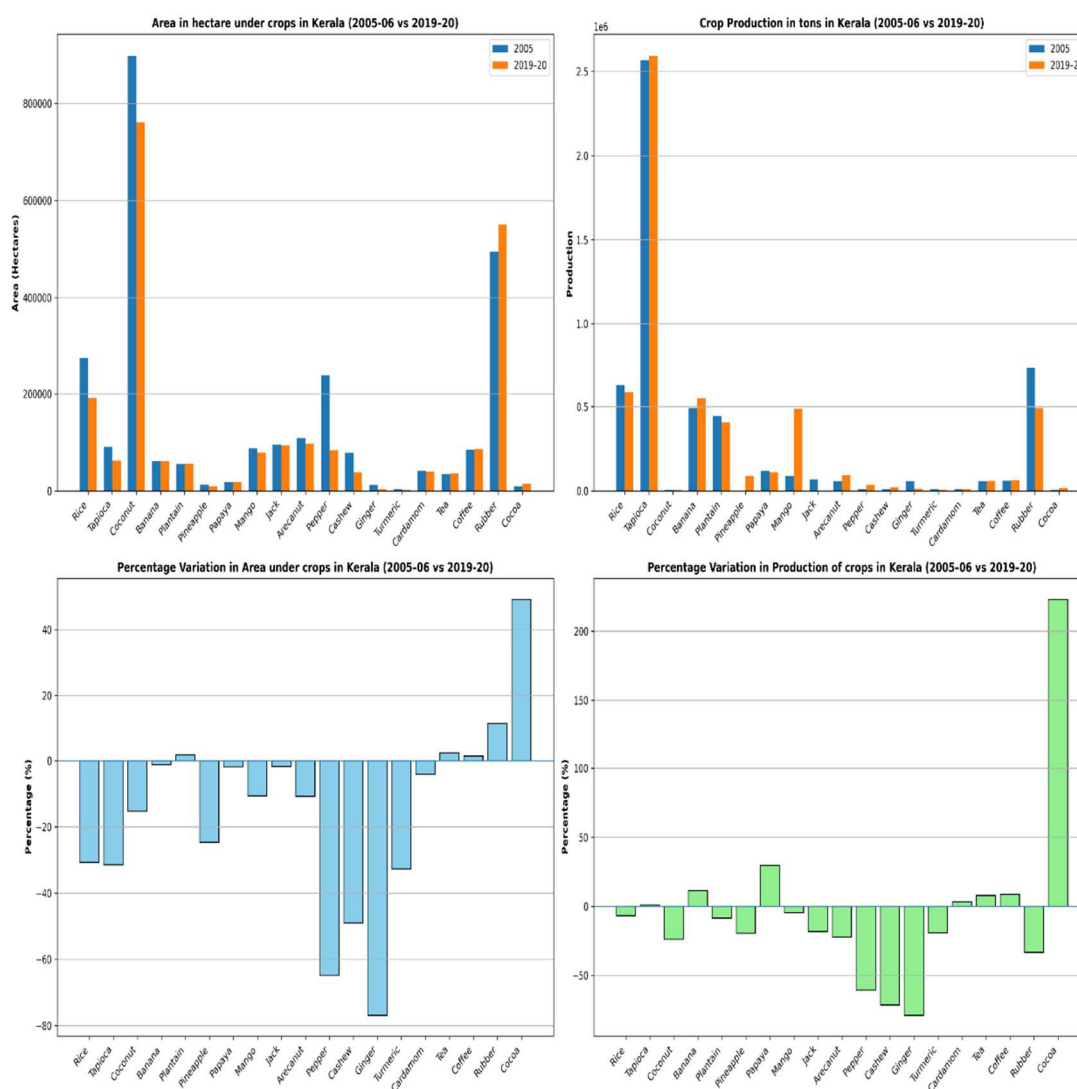
Sl.No	Crop	Area under cultivation (In Ha)
1	Coconut	95278
2	Paddy	9461
3	Rubber	34581
4	Cashew	27817
5	Areca nut	13489
6	Pepper	22089
7	Banana	2310

It is evident from the table that rubber is cultivated in the largest area after coconut. But coconut being a garden crop is cultivated in almost all parts of the district irrespective of the nature of the land.

⁹¹ Directorate of Economics and Statistics, Thiruvananthapuram, Kerala, 2005

Table 5.7: Percentge variation in area and production in Kerala 2005-2020

Sl.No	Crop	Area in 2005-06	Production In 2005-06	Area in 2019-20	Production in 2019-20	Percentage of variation in area	Percentage of variation in production
1	Rice	275742	629987	191051	587078	-30.71	-6.81
2	Tapioc a	90539	2568284	62070	2592633	-31.44	o.95
3	Coconut	897833	6236	760766	4814	-15.27	-23.9
4	Banana	61400	491823	60678	548425	-1.18	11.51
5	Plantain	55222	445333	56199	406902	1.77	-8.63
6	Pineapple	12775	350	9625	88033	-24.66	--19.48
7	Papaya	18895	119309	18550	110823	-1.83	29.65
8	Mango	87965	87605	78554	488067	-10.7	-4.51
9	Jack	94902	68262	93209	286	-1.78.8	-18.29
10	Arecanut	108590	56288	96921	92755	-10.75	-22.26
11	Pepper	237998	8237	83765	34545	-64.8	-60.57
12	Cashew	78285	9765	38898	19444	-49.03	-71.52
13	Ginger	12226	56288	2819	11917	-76.91	-78.83
14	Turmeric	3384	8237	2277	6653	-32.71	-19.23
15	Cardamom	41367	9765	39697	10076	-4.04	3.18
16	Tea	35043	56384	35871	59260	2.36	7.76
17	Coffee	84644	60175	85880	65459	1.46	8.78
18	Rubber	494400	739225	551200	492500	11.49	-33.38
19	Coca	9570	5362	14276	17325	49.17	223.11



The above table shows the variations in area as well as production of various crops cultivated and produced in Kerala during 2005- 2020. It is evident from the table that except the cash crops almost all crops which are mostly garden crops register a decrease in the area and production over the period. Whereas pepper and cashew make a decline in the area cultivated and production during the period because of a set of reasons such as sharp decline in price level of both the crops and cost of production. In case of rubber and cocoa there was a steady increase in the area of their cultivation during the period, even though, the production of rubber decreases. Increase in the area of cultivation of rubber was mainly because of the particular feature of rubber that it can give regular income throughout the year. In times of rainy season by providing particular shade to the tree, yield may be taken. As it ensured in

this way a regular income more people came forward to cultivate rubber by cutting down cashew and quite often in Waynad and Kannur during the beginning of 21st century a number of pepper vines were cut down due to heavy fall in the price of pepper in the early years of 21st century.

The following table will give the agricultural productivity of Kannur district in 2015.

Table 5.8: Agricultural productivity of various crops in Kannur during 2015⁹²

	Crops	Type	Area(in Ha)	Productivity (in Kg/Ha)
1	Staple Crops	Paddy	5255	3625
2	Vegetables	Vegetables	2314	12000
3	Plantation Crops	Cashew	22780	1044
		Cocoa	510	830
		Rubber	46250	1450
4	Oil seeds	Coconut	78747	7139
5	Spices	Pepper	7410	392
		Ginger	92	5050
		Turmeric	140	4850

From the above table it is evident that cash crops have become the largest crops cultivated in the high range of Kannur by 2015 in which rubber occupies the first place. It also shows that the area of traditional crops like pepper, ginger and turmeric cultivated in the district is getting decreased by the period.

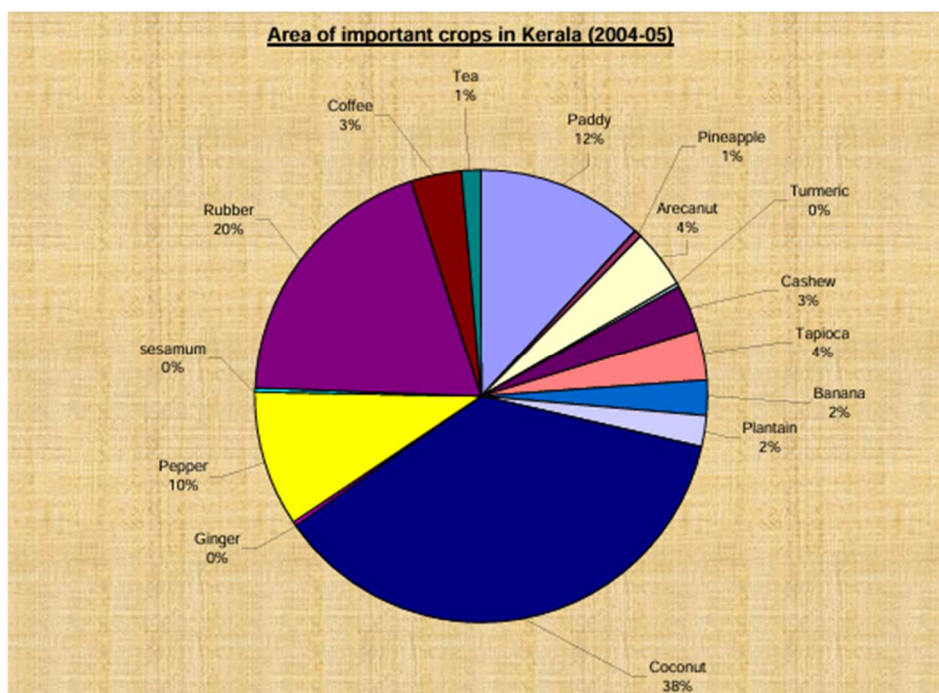
By the end of 20th century rubber has become the most prominent crop among the high range people in the state. 'In 1984-85 the area under rubber cultivation was 3.3 lakh ha. In 2004-05 the cultivated area of rubber is 4.8 lakhs ha'⁹³. Following diagram will clearly show the area of important crops in the state during 2004-05 in which rubber occupies the largest share of area after coconut. It is a fact that coconut

⁹² District Disaster Management Plan, Kannur, 2015, p.11

⁹³ Kerala Agriculture Statistics 2005, p3.

is commonly cultivated across the state irrespective of the division of the land. Rubber is purely an upland crop and hence the area covered by rubber is very important.

Figure 5.1: Area of Important crops in Kerala(2004-05)Source: Kerala Agricultural Statistics 2005.



Even though there are several other cash crops like pepper, cashew, etc. the area under their cultivation was decreasing by this time. Several factors are responsible for the decline of other cash crops and the increase in the production of rubber in the high range. Unlike other cash crops rubber ensures regular income through out the year to the cultivators and there by help in attaining financial stability. Crops like cashew, pepper, areca nut etc are seasonal and hence any fall in the price of those commodities adversely affect the life of the peasantry. Even though there fluctuations in the price level of rubber in recent years, that does not adversely affect the life of an ordinary peasant as he himself involves in the entire production processes. Among the main crops cultivated in the high range, rubber and tapioca occupy an important position in the economic life of the people of high range. With the spread of new crops in the region the land use pattern largely changed. Introduction of new crops in place of traditional crops the socio economic life of the

people got transformed. Even though there are several crops tapioca and rubber are taken as the chief crops that are introduced in the high range because extensive cultivation of both the crops since the time of migration resulted in the large scale extinction of many traditional crops and techniques of cultivation from the high range. Age old knowledge systems in the agrarian sector of the high range have become mere memories with the spread of new crops and the subsequent transformation in the topography and landscape. More over both the crops in the following decades of migration played a crucial role in the economic and social life of the people of the region.

Chapter 6

Changing Life and Withering Landscape: Causes And Impacts

Earlier human beings inhabited in relatively smaller groups in closeted centres bound by forests. Their migration processes took place on account of increase in population and multi faceted needs such as employment, safety, better living conditions etc. They cut down trees for fuel and wood and cleared forests for agricultural purposes and habitation. At the same time they introduced exotic¹ plants as a result of which the indigenous² vegetation decreased. There is a close relation between nature and man which is on a mutual sustainability between the two. Any adverse action on one may have its repercussion on the other which may be in the form of natural calamities. Any action on nature will have its effect on humanity for which we have sufficient instances in history.

Unwise interventions of humans on nature have shown always nature's retaliation, which some times has proved to be so severe. History in recent time has recorded un parallel experiments in the form of calamities. Kerala being a small state in the political map of India is perhaps one of the several states in India where natural calamities are quite common. Frequency of calamities indicates the depletion of nature. During the past century Kerala has gone through several natural calamities. At the dawn of 20th century a massive flood swept the land of Kerala which is generally known in the history of Kerala as the flood of '99. It was in Kollam Era 1099 and 1924 in the Christian Era. The July flood of 1924 occurred when Periyar, Meenachil, Pampa, Muvattupuzha and other rivers originating from the Sahyadri

¹ Here it is used to indicate the introduction of new plants from outside. In Malabar Tapioca and other plants were introduced by the migrant people In the early years of 20th century.

² Indigenous vegetation is local vegetation which existed here before the large scale migration started in the highland of Kannur

Mountains flooded in Kerala³. It effected large scale loss of property and life. It had left Periyar river in a state of despair for three weeks⁴. It was on account of heavy downpour that continued for days in July 1924⁵. Munnar, perched 1500 meters above sea level recorded an unprecedented 487.5 cm of rain fall during this period⁶. Even though it was largely due to the wrath of nature rather than human intervention, it sufficiently changed the landscape and agricultural pattern. At one time the land of Kerala might have been covered with dense forest of large trees which remained intact till the 19th century⁷. The number of trees cut down must have been small till the end of 19th century. With the increase in population the volume of trees felled began to increase which by the mid of 20th century increased by many times mainly on account of increase in population. The uplands of the state of Kerala are severely affected by human intervention leading to large scale depletion of natural resources in recent years.

The clearing of forests for cultivation played vital role in the reshaping of the ecology and land scape of the highland of Kannur. The demand on reserved forest peaked between 1950 and 1980 with the explosion of forest based industries like plywood, matchwood, paper etc⁸. At the same time unauthorised entry into the reserve forest continued. “By 1968 nearly 11000 Ha of land occupied without cultivation were there⁹. It was in this context the Government of Kerala ordered for a joint verification of both revenue and forest Departments which identified the

³ KB Binila and G Maheswari, 'Kerala Flood the Disaster of the Century', in *Indian Journal of Applied and Pure Biology*, Vol2(1), 2021, pp.382-391.

⁴ The New Indian Express, Aug.18, 2018, p.1.

⁵ <https://english.mathrubhumi.com>, accessed on 27-06-2025.

⁶ *Ibid.*

⁷ British colonial accounts give ample reference about the richness of the natural resources like forest wealth of Malabr. For more details see, William Logan, *Malabar Manual*, Kerala State Gazetteers Department, Trivandrum, and CA Innes, *Madras Gazetteers*, Kerala State Gazetteers Department, Trivandrum.

⁸ *Report of Western Ghat Ecology Expert Panel*, 2011, p.31.

⁹ C K Karunakaran, 'Geodegradation of Kerala Forests :Historical Facts' in K SS Nair, (ed), *Eco -development of Western Ghats*, KFRI, Peechi, 1986, p.108.

encroachments after 1 January 1977¹⁰. Depletion of forest resources in the 20th century was quite faster. In 1905 44% the area of the state was under natural vegetation and this was reduced to 27% in 1967 and 17% in 1973¹¹.

The greater demand for firewood and increased demand of forest resources for forest based factories intensified the reforestation. More and more areas began to be brought under plantations. Forest areas extensively began to be brought under many project. For instance the Pazhassi irrigation project and the Barapol electric project near Iritty have largely reshaped the terrain of the region. At the same time strong opposition from the masses and NGOs made the Government retreat from their attempt to build a dam at Kunthipuzha in Palakkad district in the 1970s. The much debated Silent Valley Hydro -Electric Project was thus abandoned by the Government in 1983, acknowledging the importance of maintaining the ever green forest in the environmental history of Kerala.

From the third decade of 20th century onwards the agrarian pattern in Kerala began to undergo changes. Introduction of cash crops by the colonial people got wider attention from this period onwards. Even though several cash crops were introduced by Europeans from the time of their advent, only rubber got a wider popularity and acceptance among the people of Kerala. In Malabar Rubber was first introduced in Nilambur in the fag end of 19th century. To be precise, it was in 1878, rubber was introduced in the teak plantations of Nilambur¹². But the native people were not aware of the way of cultivation and its processing. As a result, 'the trees were cut down in the same year'¹³. This may be because the native Malabar people might have used traditional method of cultivation, Innes mentions that the 'Malabar ryot is a practical agriculturist whose methods are traditional and are not progressive'¹⁴. Until about the

¹⁰ V Ramachandran, 'Approach to Development in Western Ghat', in KSS Nair, (ed), op.cit. pp.7-9.

¹¹ *Ibid.*

¹² C A Innes, *Madras District Gazetteer: Malabar and Anjengo*, Govt. Press, Madras, 1908, p.231.

¹³ *Ibid* p.231

¹⁴ *Ibid*, p.217.

third decade of 20th century, rubber did not emerge as a hopeful crop as far as the Malabar peasants were concerned. Situation began to change only from the late 1920s. This period began to witness large scale migration of peasant population from the erstwhile Travancore to Malabar. First of all they migrated in the hinterlands of Calicut. However, during the same period their presence may be noticed in the highlands of Kannur. Highland region of Kannur in the early years of 20th century was not that much populated.

Unprecedented changes in landscape and ecological imbalances may be noticed from the second half of 20th century in the eastern side of Kerala. Official records show that there were tracts of wet land areas in the eastern part of Kannur in the early years of 20th century¹⁵. Change in the area of this wet land may be seen from the later records available. Early revenue records pertaining to the high land *amsams* of Kannur categorically point out the greater presence of wet land in the region. In the early years of 20th century there were wet land regions in the villages like Manathana, Alakode, Thimiri¹⁶ etc, crops like paddy, plantain, coconut etc were cultivated here¹⁷. Even the wetland regions were not fully cultivated for want of sufficient labour supply. From the 1920s when there was influx of migrant population and the introduction of new agricultural knowledge in the region the native people were easily attracted towards them. The result was that they abandoned traditional methods of cultivation and gradually kept away from the wet land cultivation. Instead they transformed the wet land to dry land and introduced new imported crops like rubber and tapioca. Food culture of the highland people also began to undergo changes. But at the same time an alternative to meet poverty could be identified. Tapioca played the role of an antidote to poverty and famine that gripped the rural lives of the high range until the mid of 20th century. Very soon huge areas of land in

¹⁵ See Descriptive memoirs of various *amsams* on the high range of Kannur infasli1313.

¹⁶ All theses are high land villages situated in the Eastern part of the district of Kannur.

¹⁷ Details of crops cultivated in the highrange areas during the 1930s are available from the re settlement registers pertaining to the villages, in the high range of Kannur.

the highland were cleared and brought under tapioca cultivation. Census report of 1931 makes mention about the production of tapioca in Malabar during the period.

Any ecological intervention in the highland of Western Ghat is likely to affect the midland and low land. The recent Kerala flood that engulfed the midland and low land was the outcome of the human intervention in the high land of the Western Ghat including the high land of Kannur. In this context it is high time that we consider the Western Ghat as a closely linked eco system. Early Tamil literature speaks about the peculiar physiographic divisions of *Tamilakam* in which the present day Kerala constituted what is called as *Kurinci*.

It is quite evident that till the early decades of 20th century the environment and ecology of Kannur were less affected by human intervention. Forests of Malabar underwent changes from the time of the advent of the peasants from the plains of Southern Kerala. Transformation of Forests was mainly due to some factors that were unavoidable in the period. Development in the transport and communication, trade and commerce and control of malaria and political changes that took place in the early years of 20th century facilitated large scale migration of peasants from the plains to the high land. Poverty and famine during and after the war made the people intrude into the forest and occupy the land for cultivation of crops like tapioca and other edible crops. At the same time traditional forest dwellers who engaged food gathering and indigenous agrarian practices started engaging in the newly introduced crops as an impact of the proximity of local population with the newly migrated communities¹⁸. Ever since migration of peasant population from Travancore to this region started from the 1920s the ecological scenario of the region began to change largely due to the increased intervention of humans in nature for subsistence. Natural vegetation faced fast depletion and in its place new vegetation comprising rubber¹⁹, coffee, etc were introduced. As population density increased intervention in nature also began to increase. Even though the settlement registers give accounts of occupied

¹⁸ Interview with Kelan aged 100 years on 22-04-2022.

¹⁹ Eventhough rubber was introduced in south Malabar as early as 19th century it was introduced in North Malabar only by the dawn of 20th century.

houses in the high range villages of Kannur none of them remain till today nor any debris of the old buildings may be seen as we can see in the low land of the district where buildings of centuries old can be seen. For instance the municipal town buildings of Tellicherry²⁰ which were built in the 19th century are still remaining and are used as public offices. Hence it is to be assumed that the practice of house building in the high ranges of Kannur in the beginning of 20th century was quite traditional and that was why no material evidence of the buildings is available in the region. Later, with the increase in the population in the high range in place of the traditional form of house making new methods of using stones especially laterite and natural granite began to be followed. People in the region started constructing stable houses using stone and strong wood like teak rosewood, etc. Naturally forest was largely depended by people for this purpose. In the early years of 20th century the number of houses in the high land of Kannur was relatively very low as per the settlement registers pertaining to various *amsams*²¹ of the region.

From the 1920s onwards, human intervention in nature began to increase on an alarming rate. Demand for resources increased many times. Food grains were in great demand as population by the end of 1920s started increasing on account of migration into the region. Just as had happened in the Gangetic valley during the age of NBPW culture when there was expansion of the Aryan population to the eastern part of North India and expansion of iron the increasing demand for food and fodder necessitated the large scale felling of trees. Huge tracts of forest areas were cleared and brought under cultivation. "Those are from the South in the beginning prepared the land by clearing forest and growths and then started their agriculture here".²² "We the native people were not that much aware of the need of clearing of forest areas and bringing the region under cultivation"²³. In a short span of time the area became

²⁰ The Tellicherry Municipal Office building was constructed in 1889 and even after a century the building survives.

²¹ *Amsams* of Manatahana and Kooveri, for instance, give accounts of houses in the high range during 1905.

²² Interview with Kunnumpurath Narayanan, aged 82 years on 14-12-2022.

²³ *Ibid.*

thickly populated and as a result of human intervention natural depletion rose up in higher rate which has no equals in Indian history.

The same kind of impact may be noticed in the environment and ecology of North Kerala especially in the highland region of Kannur. From the 1920s onwards there was an incessant flow of peasant migrants to Kannur which continued till the late years of 1970s. Even though there was extensive land available in the high range area, the original inhabitants of the region namely the tribal people were not practising agriculture as a regular means of subsistence. They were still living lives of food gatherers. They relied more on forest resources rather than the agrarian products²⁴. Naturally, the migrants were running from pillar to post. It was acute poverty that prompted them to leave their birth place. Coming over here they had to face shortage or non availability of food grains on account of less usage of land for agriculture. The environmental circumstances and adversities caused by poverty persuaded the migrant people to find an alternative by reclaiming the forest land and unoccupied²⁵ land for cultivation. The only positive thing that they could witness here was the extensive tracts of both forest and unoccupied land. As they were very much aware of modern way of agriculture by using latest knowledge systems available during the time, they could easily reclaim forest and other unoccupied land for cultivation.

In the beginning of their intervention in nature they introduced a new variety of food item which was hitherto not much known to the local people. The new crops like rubber, lemongrass, pepper²⁶, tapioca etc were introduced by the migrant people. Tapioca was the new item introduced by them in Malabar. Highland of Kannur was an important region where tapioca was largely grown by the people. This item was an alternative found by them to fight poverty. When there was no rice, tapioca

²⁴ Interview with Parameswaran PV, aged 87 on 27 August, 2021 at Cherupuzha. His family migrated to this region from Vaikom around the middle of 1940s.

²⁵ In Malabar there was lot of land which was neither occupied nor cultivated by the native people during the time of peasant migration in the early 20th century.

²⁶ Some varieties of pepper like *Chettan* were introduced in the high range by the migrant people.

served as the staple food of the migrant people. Since the terrain of the highland of Kannur was rather slopy wet land was relatively very small in area. However, there were wet land areas in the highland villages of Kannur which is authenticated by the settlement registers prepared in the beginning of 20th century by the colonial government. In the early years of the 20th century paddy cultivation was there in existence in the highland. However, the rice produced was not sufficient enough to meet the requirements of the entire population at that time. In the sloppy areas there was *punam* cultivation. People cultivated other crops like black gram, sesame, ginger, turmeric along with rice. Hence production of rice was comparatively very low. Native people engaged in such agrarian practices such as *punam* type of cultivation. This cultivation was done in an area which was considerably away from the forest. This land was still not under the ownership of the cultivators. Rather the cultivated areas were mostly owned by *Janmis* of various taluks. The sense of systematic agrarian practices in the highland was not there among the native population. Hitherto unknown practices were introduced by the migrant people in the high range. Landscape of the highland of Kannur till the end of 19th century was not in a dilapidated condition as there was little plantation and other new crops. Nature was not much explored by local population. Ever since the newly migrated peasantry started new agricultural practices change in the landscape took place. Moreover, accelerated pace of development in the region including activities like forest extraction, road construction unscientific land use and uncontrolled land mining increased the damage to the eco system²⁷. Extensive areas of forest surrounding the slopy areas of the region guarded the natural vegetations and had little ecological impact. Change in the demographic structure of North Malabar especially in the highland of Kannur by the early decades of 20th century had heavier impact upon the nature. Various factors play vital role in the reshaping of the ecology of the highland region in Kannur.

²⁷ R. N. Loganey, Ecodevelopment of Western Ghat :An overview, in KSS Nair ed, Ecodevelopment of Western ghat, KFRI, Peechi, 1986, p.29.

Introduction of New Agricultural pattern.

There was a shift in traditional agricultural practices in recent years in the high land of Kannur. Introduction of modern farming with the application of machinery and changes in crop pattern all brought about changes in the land scape of the region since the beginning of 20th century. Ever since the peasant migration started from the early decades of 20th century agricultural pattern and culture underwent unpredictable changes. New agricultural tracts were reclaimed for cultivating both tapioca and rubber. Even though tapioca is an annual crop due to acute poverty and famine this crop was regularly cultivated. Even though tapioca is generally cultivated in the month of April or May when the summer rain first begins, it is further cultivated in the month of October-November. From small areas it spread to a wide area for which large forest areas were cleared and brought under cultivation. The very geography and nature of the highland of Kannur began to change drastically. By around 1950, production of tapioca multiplied many times. Rice was not sufficiently available during the period. North Malabar was not self supporting and had to import large quantities of rice from South Malabar or from south Canara or Rangoon²⁸. It was necessity that made the local people cultivate tapioca. AR Mac Evans states that 'I have been greatly struck by the increase in tapioca cultivation. It is poor man's crop and a very useful one and during the months when paddy price is very high it is the staple food of many agricultural labourers²⁹. Economic condition and famine largely played vital role in the expansion of tapioca in the high range. Deviation from the traditional pattern of agriculture largely affected the land scape. In place of the garden trees new kinds of crops were introduced. The recognised garden trees of Malabar are coconut areca nut and jack³⁰. New areas were cleared in the jungle hillocks of Chirakkal and Kottayam

²⁸ Thomas Warden, *Report on the Land Assessment in Malabar*, Govt Press, Calicut 1916, p.27.

²⁹ AR Mac Evans, *Report on the Re Settlement in the Malabar District-Eight Plain Taluks*, Govt Press, Madras, 1930, p.26

³⁰ *Ibid*, p.12.

taluks can be seen in every *amsam*³¹. In Malabar more than 62% of population engaged in agriculture or pastoral activities³².

The high range regions of Kerala are now the abode of cash crops which are largely started in the 20th century. Even though cash crops like rubber and tea may be seen in the High ranges of Southern Kerala it took several decades to reach the high ranges of North Malabar. High range of Malabar being relatively less populated till the beginning of 20th century. Till the beginning of 20th century there was no rubber cultivation in the upland regions of Kannur. Revenue settlement registers available for the *fasli* year 1313 indicate the presence of almost all traditional crops in the area, where as no reference about any rubber plantation is found. Important crops of the *desam* No.232 Thalavil are coconut, jack tree, plantain, paddy, arecanut, turmeric, pulses, pepper, etc³³.

In the early years of the introduction of plantation crops in south India, no much knowledge was there about the quality. First trees in South India planted were Ceara plants in Nilambur teak plantations in 1878³⁴. Rubber was introduced on an experimental basis. In Waynad in the beginning rubber plantation was experimented in coffee plantations. But these attempts were about to kill coffee. Interestingly, rubber was not much liked by people in the early years of its introduction. It was mostly due to the ignorance of tapping which made the people abandon rubber plantations³⁵. In Malabar rubber was first introduced in the beginning of 20th century. In the early period of its introduction in Malabar, it was grown as an annual plant grown at a height of 1metre³⁶. It was first in South Malabar that rubber was first introduced in Malabar. By 1903-04 some planters of Malabar started planting rubber

³¹ *Ibid* 26.

³² *Ibid*.

³³ Descriptive memoir of Thalavil *Desam* 232 of Thadikkadavu, Chirakkal Taluk of Malabar District, .p.3.

³⁴ C A Innes, Madras District Gazetteers ;Malabar and Anjengo, Govt Press, Madras, 1908, p.231

³⁵ *Ibid*.

³⁶ *Ibid*, p.218.

in the slopes of hill in Nilambur. Eventhough, quite a traditional method was used by the peasantry in the beginning with the increase in population by the dawn of 20th century more attempts were made by the migrant as well as native people to expand plantation crops. This expansion was done with the help of a wooden plough, two hoes, a rake and a levelling instrument³⁷. Forests of North Malabar during the period were impenetrable and inhospitable³⁸. Even though rubber plantations on a large scale had been started in South Malabar in the beginning of 20th century, its cultivation was not initiated in North Malabar, especially Kannur and Kasargod. Revenue Resettlement registers of *fasli*1343(1933) do not carry any reference to its presence. Hence it is beyond doubt, that rubber in the high range of Kannur was introduced only after 1933. It is evident from this that the transformation of landscape and ecology in the high range of Kannur takes place with the introduction of this crop by the migrants from the South.

Ever since the introduction of rubber in the highland of North Malabar, the land scape began to change largely. Till then agricultural activities were undertaken without changing the landscape and environment. The western part of the Western Ghat is relatively slopy and hence modern agricultural practices were normally done after making the terrain fit for cultivation. Rubber as a crop is generally cultivated in the high rise areas by converting the land into terraces. By doing so the natural form of the land is lost and artificial scape is created. Rubber was started as a cash crop that could yield income more than any other crop can give in an year. As the newly introduced crop could ensure financial security to families which were reeling under acute poverty and economic crisis, more people began to be attracted towards the cultivation of the new crop. Till the advent of rubber the region was practicing cultivation of garden crops like coconut and jack fruits. Descriptive memoir of Arangam *desam* of Chirakkal Taluk recalls that crops like pulses, oil seeds, spices like ginger, pepper, turmeric and lemongrass were the important crops cultivated in the

³⁷ Ibid, p.217.

³⁸ Administrative report of the Forest Department of Madras Presidency, Govt.Press, Madras, 1926, p.16

region³⁹. One important aspect of these crops is that they do not provide more income like rubber in a year. Average income received from a particular plot of coconut crops is very low when compared to that of rubber. Native people could not find an alternative to this crop till rubber was introduced. Hence garden crops were continued to be cultivated for a long time. Revenue settlement registers of several *amsams* on the eastern part of Kannur which lie on the slopes of the Western Ghat give clear cut evidences of the crops cultivated in the region in the early years of 20th century. For instance the revenue settlement register pertaining to the Pulingom *amsam* of Chirakkal Taluk describes about the various crops cultivated in the fasli era 1313⁴⁰. Important types of crops cultivated in the area are *ponam*, gingelly, jack, pepper, paddy, pulses, coconut and areca nut⁴¹. No much change can be seen in the time of resettlements⁴² in the types of crops cultivated in the high ranges of Kannur. One positive thing that is quite explicit here is that the landscape and environment remained quite intact in times of garden cultivation

Since the beginning of 1920s the ecology and landscape of the high range of Kannur underwent far reaching transition. This was mainly due to human intervention. How human intervention effected ecological change in the high range is quite formidable when the human practised quite a traditional way of life by imbibing traditional mode of cultivation and that continued for over a millennium the environment faced little threat . But the dawn of 20th century witnessed unprecedented intervention in the high range areas on account of human migration from the South of Kerala.

³⁹ The descriptive memoir was prepared in fasli1343 (1933CE) by the British Government.

⁴⁰ Descriptive Memoir of Pulingome *Desam No.36* of Chirakkal Taluk introduced in 1313.

⁴¹ *Ibid* p.7

⁴² Resettlements were made by the British in fasli1343 in Malabar.

Causes of change of Landscape.

1. Introduction of New Crops.

“Launching of plantations as early as 19th century by the British in Malabar systematically transformed the existing culture and forest heritage that existed here. Introduction of teak plantations largely affected the normal plant life. It was in 18th century the British Government started plantation crops comprising cinnamon, nutmeg, etc at Anjarakandy situated some 9 miles North east of Tellicherry. Besides natural forest the Department has also new artificial plantations under its charge’’⁴³.

Large scale felling of natural vegetation for industrial plantations jeopardised the ecology and environment of the region. In the early 1960s the Central Govt. started extending financial aids to state governments to take up industrial plantations. It meant the clear felling of existing forest and replacement fast growing industrial species⁴⁴. As the forest yield was insufficient to meet industrial needs, fast growing plants were planted’’⁴⁵. The pattern of cultivation is different from the existing system in the high range the landscape of the region underwent changes which have far reaching repercussions on the life and ecology of the region in the later years. Conversion of the region into monocrop pattern largely led to the extinction of several indigenous crops from the region and transformation of the high range economy to a semi capitalist one with rubber being the single most important crop yielding a regular income. Before 1950 the area under cultivation of rubber in Kannur was relatively very poor. After coping with the situations settlers turned their attention towards cultivation of crops which would earn them income perpetually. Rubber and coconut starts yielding after 7 or 8 years. Till then, they practised cultivation of lemon grass. This earned them an income with which they could subsist to an extent. Those living in the high range were concerned marketing of these commodities was a problem.

⁴³ Records of the Govt. and the Yearly Administrative Report, Vol. I Govt Press, Madras, 1885, p.318.

⁴⁴ *Ibid.*

⁴⁵ Madhav Gadgil, Ramachandra Guha, *Use and Abuse of History*, OUP, New Delhi, 2009, p.187

They had to travel miles to find a market. Normally those settled in the remote regions like Kottiyoor, Peravoor, Chemperi, Alakode, or Cherupuzha had to reach either Tellicherry, Taliparamba or Payyanur for selling the commodities they produce. Emergence of new towns in the high range was to be looked into in this context.

Introduction of new agricultural pattern since the third decade of 20th century in the high land of Kannur led to unlimited exploitation of every bit of natural resources in the region⁴⁶. Such an extreme activity from the part of human beings has created adverse effects on the ecology and environment of the area. The shift in the mode of agriculture naturally effected upon the nature of landscape of the high land of Kannur⁴⁷. It is a fact that more than half of the population still make their livelihood from farming. The mode of agricultural practice followed now a days is entirely different from the traditional modes and their yields in terms of crop productivity are also different. The impact of agriculture on the ecology of the highland of Kannur has different dimensions. Ecological impact happens on account of soil erosion, deforestation, grazing, pollution and change in the fertility of soil over a large area of land. This is mainly caused due to the shifting of cultivation from the traditional mode to extensive cultivation of rubber and other cash crops for over a period of time. Till the middle of 1930s there were only indigenous crops as per the Re- settlement registers of fasli1343⁴⁸.

Change in the pattern of agriculture brought about drastic change in the diversity of plant species in the region. Decrease in the natural vegetation is the effect of change in agricultural pattern introduced in the region since the beginning of 20th century. A survey through the plantations on the highland of Kannur would make things clear that how the growth of vegetation in the region is getting decreased since the 1970s. 'During my childhood the region was covered with dense forests and

⁴⁶ New agrarian crops were introduced in the region after the peasant migration into Malabar from the late 1920s.

⁴⁷ From the traditional mode of cultivation the region witnessed shift in practice from the third decade of 20th century towards cash crops which ensured regular income to the farmers.

⁴⁸ For more details see Re settlement Registers of the highland villages on the East of Kannur.

were impenetrable, says Kelan a native of the high land of Kannur’’⁴⁹. There are so many tracts of land where rubber is largely cultivated allowing the growth of no utility plants. The only plant that such rubber plantations encourage is the growth of typical plant belonging to the family of pulses. It is encouraged mainly to retain the nitrogen content of the soil. It is not sure whether the cultivators were aware of the fact of this scientific knowledge. Some say that the plant was grown to avoid the cattle from entering the plantations. To an extent this may be true as the cattle will destroy all the saplings if they are permitted to enter the area. More over the plant species found in the plantations could not be used as fodder. When rubber and other cash crops like cashew were extensively cultivated many indigenous plant species became extinct from the region. ‘Before 1970s there were many indigenous plants like *koova*⁵⁰, and *kurumthotti*⁵¹ in the high range which were either cultivated or grown by naturally on the slopes of the hills’⁵², says PC Chacko, a native of Peringome Vayakkara Panchayat. Like wise several traditional plants have gone extinct on account of the advent of new crops into the high range region.

Introduction of modern agricultural practices and new crops have resulted in the amplification of negative impacts upon nature. Even though the new methods have some positive which are short term effects, their negative impacts are heavier upon nature effecting the depletion of ecology and environment. For instance the use of chemical fertilizers have helped in increasing agricultural output in short term. But in the long term the impact these chemical have created upon humanity and nature are quite undesirable. The repercussions of the unwise use of chemical over an extensive region for a pretty long time is felt in Kasaragod District. In Kasaragod, there are so many cashew plantations many of which, are under management of Plantation Corporation Kerala Limited, on the eastern side of the district. In the 1980s and 1990s

⁴⁹ Interview with Kelan aged 100, living in Alakode Panchayat on 16-8-2022.

⁵⁰ *Koova* or Arrow root as it is generally known is a herbal plant and is grown in the garden and slopes of the hill along with *punam*. Now the plant is almost extinct in the high range.

⁵¹ *Kurumthotti* is a medicinal plant widely used in Ayurveda and traditional healing practices. In times of monsoon this plant starts growing naturally.

⁵² Interview with P C Chacko aged 79, a migrant peasant on 27-11-2023.

a highly dangerous pesticide called Endosulfan⁵³ was sprayed upon the cashew plants from air. In the initial years there was no symptom of any danger or health issues. But after some years the worst thing began to happen. Many people lost their lives as an implication of the chemical for a long time. Even though such a catastrophe did not happen in terms of human life in Kannur, the prolonged use of fertilizers in rubber plantations has decreased the growth of natural vegetation and at the same time growth of unwanted and undesirable plants has occurred.

2. Housing

The early inhabitants of the high land of Kannur before 20th century were native⁵⁴ people. They were mostly either agricultural labourers or mere food gatherers from the forests living in areas very much close to the forests. As far the highland of Kannur was concerned, forests were rather dense and uninhabitable in the years prior to the beginning of 20th century. Colonial accounts and records give a vivid picture of the status of population and the dwellings. Survey of the area was undertaken by the British colonial administrators like William Logan in the second half of 19th century. Until about the beginning of 20th century there were little dwellings in the highland region of Kannur. In the last decade of 19th century, the British Government started their administrative process of preparing settlement registers in Malabar. As a part of this attempt Settlement registers pertaining to each and every *amsam* in Kannur were prepared by them. A survey through the settlement registers pertaining to the various *amsams* of the high land of Kannur make us conclude that the population in the high land of Kannur was relatively very low. More over, from the 1920s Population of North Malabar increases in many thousands

⁵³ Endosulfan is a chemical pesticide that was used in the cashew plantations in Kasargod district in the 1990s. Its continuous use for a long time caused many health issues. As an effect of this pesticide many babies were born with many deformities. Many of the children born lost their lives and still many live with all the disabilities caused by the pesticide. This issue which affected a large number of families living beside the plantations became major environmental problem, attracting national attention.

⁵⁴ The term 'Native' is used to indicate those who were born and brought up in the high range of the district before 20th century. From the third decade of 20th century several battalions of migrant peasants from the south reached here and their presence was not recorded in the sources available till 1905.

and by 1951 it reached to lakhs. When early census reports reveal no substantial change in population, they register a sharp increase in population from 1920 onwards. This was due to the advent of migrant population from erstwhile Travancore. Census report of 1931 shows an increase in the number of population of Malabar from mere thousands to lakhs. This large scale increase in population was due to the increase in migration. This naturally had its impact on nature. The following figure associated with the Kuttiyeri *amsam* which is a high land region in the Kannur district of North Malabar would make things more clear with regards the population of the region.

As per the census report of 1891 the total population was 1030 only in the Kuttiyeri *amsam*. Of the total area of 16551 acres of land in Arangam *desam* in 1891, only 30.26 acres of land was occupied⁵⁵. Going through the revenue records, it is evident that most of the land in the high land villages of Kannur was unoccupied and uninhabited. Nearby villages also show the same tendency of less occupation of dry land by people. Naduvil *desam* in Chuzhali *Amsam* in 1891 had 2481 people and 2605 in 1901⁵⁶. The *desam* was rather larger in size with a total area of 30800.94 acres⁵⁷. But human habitat was rather delicate and limited only in the mainland. Western Ghat regions in the district of Kannur that extent from Kottiyoor in the South East to Pulingome in the North East had in general a low population density in the early decades of 20th century. The high land regions between these two place in the early years were not much occupied by human beings.

Settlement registers pertaining to the highland villages of the Western Ghat regions in Kannur indicate that there were only very few human presence in the highland areas of Kannur. In most of the highrange *amsams* of the Kannur area of Western Ghat nearly 80% of the total area of each *amsam* was left unoccupied and uninhabited. For instance in the Kannavam *amsam* of erstwhile Kottayam Taluk had only 44 inhabited houses in 1891 while it was 52 in 1901⁵⁸. Population during the

⁵⁵ *Descriptive memoir of Arangam desam of Chirakkal Taluk of fasli 1313*

⁵⁶ *Descriptive Memoir of Naduvil desam of Chirakkal Taluk of fasli 1313*, p.1

⁵⁷ *Ibid.*

⁵⁸ *Descriptive Memoir of Kannavam amsam of Kottayam Taluk* introduced in fasli 1313.

period was 284 and 270 respectively⁵⁹. Total population during the period under discussion was 284 and 270 respectively⁶⁰. The only human habitat that was made by those sons of the jungle otherwise called as tribal people. Still they were not conscious about the practice of conquering the forest and its resources for selfish interests. They depended on nature for their subsistence only. They were mostly food gatherers just as the ancient *kurinci* people had done as per the references seen in the early Tamil literature. ‘The tribal people were not prone to agricultural activities. Hence agrarian practices were not much known to them as a result of which they were transformed into mere agricultural labourers. Just as land grants effected the forced labour in the early medieval North India, the tribal people of Kerala were attached to land for a long time. ‘Normally the hill tribes consisting of *Kurichya*, *Vettuva*, *Mavila* and *Paniya* were not familiar with agricultural practices as they were traditionally food gatherers and hunters in the early years of 20th century’⁶¹, says Kelan a tribesman. As per the early Tamil Classical literature, they were food gatherers, they were converted to the level of bonded labourers with the passage of time. Advent of the European into the Kerala coast changed the existing scenario in this land. Ever since Malabar came into the direct control of the English East India Company by 1792 the socio political and environmental condition of North Malabar began to change. Their life was in a state of servitude, working for hours without much pay. Even in the 1970s in the Waynad and Eastern part of Kannur the tribal people were facing abject poverty and slavery’. Until recently it was a reality in the social fabric of Kerala society. Even now the tribes are living a life of social and economic deprivation. From the 20th century onwards, the situation was further worsened by the influx of large scale population from the South. The population statistics would reveal that there were only a few land holdings and houses in the high range region of the district. The settlement register explicitly inform that the people belonged to either Hinduism or Islam. It is evident from the statement that the settlers were native people and had not made much intrusion into nature in the early years of the last century. The same pattern of occupation of land

⁵⁹ *Ibid.*

⁶⁰ *Ibid.*

⁶¹ Interview with Kelan on 27-12-2023

and households may be seen along the line from Kottiyoore in the south east to Pulingome in the north east. House holds in the villages in the highland remained to be very low in terms of their number. Normally one pertinent question that may arise here at this juncture is whether all the people had dwellings in the remote areas of the highland. Normally all people would have dwelt in some sort of 'houses' most of which might not have been *pucca*. 'Most people in the high range lived in small hutments which were generally thatched with either dried coconut leaves or grass'⁶². They usually get damaged at the end of the year. There was a chance for the exclusion of such hutments by the British during the time of census. There might be more than what has been estimated by them in the settlement registers. Still the total number of house holds in the highland areas in the beginning of 20th century might not be much larger than what has been stated in the records. Native people had their settlements near the farm land of the janmi⁶³. At the same time there were *kutis* in remote areas mostly close to the forest. Such land was taken on lease by cultivators from janmis. Most often, *thiyyas* people were peasants who cultivated the land for the janmis. As there was no working time they were forced to work on the land for many hours a day. Naturally they were compelled to make their hutments in the farm land. Such hutments were known as '*kutis*'⁶⁴. There were other group of people who were not agriculturists. Rather they were food gatherers who better depended on forest resources. They neither occupied any land nor made any settlements. In this context it is presumed that most of the land was unoccupied and uninhabited in the early years of 20th century. It is into this land large scale migration takes place which totally reshaped the ecology and landscape of the highland region of Kannur. Census reports from 1891 to 1931 and 1941 to 1981 really show the large scale coming of migrants into the high range of Kannur. The impact of housing upon the ecology and land scape is to be perceived from this context.

⁶² Interview with Kelan on 27-12-2023

⁶³ Interview with Vazhappalli Bhaskaran, living in Alakode, aged 87 on 12-6-2020.

⁶⁴ *Kuti* was known as the dwelling place of tenants. It was often the customary right of the tenants to settle down in the farmland of the *janmis*.

One of the most dehumanising aspects of Kerala urbanisation is the state of housing. The high lands experienced increased urban development leading to changes in the population density and land use pattern from the second half of 20th century. One key factor in reshaping the ecology and environment of the state of Kerala is the fast growing character of the housing system. Changes in the life style, housing pattern and also in the socio cultural aspects of the people the high land life has changed a lot in the 20th century. Compared to the rest of Indian states the number of houses in Kerala is much more larger in terms of size and quality⁶⁵. Till the beginning of the last quarter of 20th century the number of houses in the high range seemed to be relatively small in number for which we have records related to Local Bodies to substantiate. For instance, in the *Building Assessment Register* of Peringome-Vayakkara Panchayat in 1972 there were only 1217⁶⁶ buildings in all the 10 wards of the Panchayat. The number seems to be small as there is a possibility of *kucca* houses to have been omitted from being assessed. Even though the number seems to be small it shows that even in the third quarter of 20th century construction of buildings was relatively very low. On the contrary, in 1983-84 to 1987-88 the number of buildings in ward II of the panchayat alone, increases to 684⁶⁷. That is, in next 15 or 16 years there was a sharp increase in the number of buildings in the panchayat. This is common to all panchayats during the period. It is a clear indication of the fact that the number of population in the high range by the period, increases in large number. The following table shows the increase in population from 1901 to 2001⁶⁸ in Malabar.

⁶⁵ In Kerala almost all houses are pucca houses made of stone and concrete. Thatched houses are relatively very less in Kerala at present.

⁶⁶ Building Assessment register of Peringome Vayakkara for the period 1972-76.

⁶⁷ Building Assessment Register of Peringome Vayakkara Panchayat for 1983-84 to 1987-88.

⁶⁸ Census of India 2001, District census Handbook, Kannur 2001, p.xvii.

Table 6.1: Increase in population from 1901 to 2001

Sl.No	Census Decade	Rural population	Total population	Decadal variation in population (in percentage)
1	1901	473929	529623	---
2	1911	507046	565261	6.99
3	1921	523399	578680	3.23
4	1931	598130	662715	14.28
5	1941	672353	743322	12.41
6	1951	821999	904470	22.26
7	1961	966755	1177948	17.61
8	1971	1341834	1552809	38.80
9	1981	1318067	1930726	-1.77
10	1991	1106251	2251727	-16.07
11	2001	1196058	2408956	8.12

It is evident from the table given above that the population in the rural areas makes a steady increase in every decade since 1901. Naturally density and number of households in the rural areas also increased. Hence the requirements of housing and other amenities increased which obviously exerted pressure upon nature.

By 1990, the nature of buildings also marks a transformation. It is clear from the assessment register pertaining to Eramam Kuttoor and Peringome Vayakkara Panchayats that a good number of buildings were concrete(*pucca*)⁶⁹by 1990. Demographic transition from the third decade of 20th century in the highland region of Kannur unpredictably affected the geographical and ecological characteristics of the area. The development of road into the highland areas and enormous amount of timber extraction from the forests largely brought about depletion of forest resources in the Western Ghat region. Prior to migration, the investment of the state in the housing sector of Malabar was almost negligible. Wider

⁶⁹ *Ibid.*

range of poverty, low income and poor affordability resulted in the poor housing in the pre-migration period in Malabar. This reality reflects in the facts as revealed by the census as well as settlement registers pertaining to the various taluks of Malabar District. When a new peasant community came into the readily available fertile soil of the highland agriculture flourished many fold. In the beginning of their settlement they engaged in the cultivation of food crops like tapioca, pulses etc. Gradually they turned their attention towards cultivation of crops that earned them perpetual income. Introduction of rubber, cocoa, tea, and pepper on a wider area is to be looked into in this context. When they began to earn more income their perspective on housing and the existing pattern of agriculture took new dimensions.

In the 1970s and 1980s the number of houses and other buildings in the highland of Kannur increased largely⁷⁰. The way of building construction in the high range changed according to the change in time. From the thatched houses by this time people began to switch to tiled houses. In the high range there was no tile factory. Actually tiles were brought to the high land from Feroke, Valapattanam, and Mangalore. In Kannur *The Baliapattam*⁷¹ Tiles is the one and only factory where roofing tiles are largely manufactured. In the second half of 20th century, when there was a transition in the construction of residential building in the high range region tiles from these far off places were brought and houses were tiled. How migration influenced the land scape and ecology of the highland of Kannur is a matter of many disputes among the people of later generations as well. However, a more serious analysis of the causes would reveal the fact that it was mostly due to human intervention of many dimensions. Pressure on nature increased by mining and quarrying which was necessitated by the growing demand for *pucca* buildings of various occupancy. Even though there were quarrying in the Tellicherry region as early as 1930 there is little evidence to prove that those quarries effected any impact upon nature at that time. Where as with the increase in population human intervention

⁷⁰ Building assessment registers of many panchayats show the change in the style of construction of buildings in the rural areas since 1970 Onwards.

⁷¹ The Baliapattam Tiles Company is located at Pappinissery, near Valapattanam river in Kannur District. Till recently it was the leading manufacturer of roofing tiles in North Malabar.

upon nature began to increase. The increasing demand for housing and agriculture resulted in the increase of human intervention. Naturally this human pressure caused a great deal in reshaping the ecology and environment

It was under the Syrian Christian community the 'Malabar exploration' was undertaken. Peasant migrants were accompanied by many priests and missionaries. So, their main attempt was to chalk out locations for constructing churches and schools. In most of the early settlements the migrants established churches and schools. Schools offered primary education to both the native and migrant children. There were several primary and high schools in the high land of the district which are as old as the age of migration. For instance the schools at Chungakkunnu in Kelakam Panchayat, and Iritty are some of the oldest schools in the high range of Kannur. Immediately after the migration reached its zenith, the Thalassery Arch Diocese began to function as a Corporate Agency of educational institutions in 1967⁷². From the 1940s onwards as many as 23 Lower Primary schools, 30 Upper Primary Schools and 24 High schools are functioning in the high range of the district. Many such buildings apart from the houses also could be seen in the highland regions of Kannur. In early settlements like Chemperi, Payyavoor, Peravoor, Kottiyoor, Kolayad, Alakode, etc there are schools and churches. Most of those early school have developed into bigger school where higher secondary education is now provided. Early parishes have developed into bigger churches around which hundreds of houses are built up and they all go to these churches for their holy mass. Construction of different types of buildings like houses, schools churches and commercial buildings, will improve the amenities of the people, they reduce the natural wealth. At one point such constructions led to deforestation and change of landscape. As structures are made even and terraces are made for making many stories of building. Topographical changes occur due to exploitation of natural resources. When the *kacha* houses transformed into *pucca* houses the requirements for stone instead of mud, increased. Numerous buildings on hill tops like Palakkayam, Vaithalmala, Kottathalachimala and many other high rise areas of the district are under threat of

⁷² Abraham Ponattu, (ed) *Kudiyettathinte Ithihasam*, Thalassery Athirupatha, Thalassery, 2005, p.554.

natural calamities at any time. The change in the pattern of construction of buildings occurred largely due to the inflow of foreign exchange into the region.

3. Urbanisation

While writing about urbanisation process we can see that Kerala is getting more rapidly urbanised than any other state in India⁷³. Within every 10 or 15 Kilometres there is a town in Kerala irrespective of the character of the geographical feature of the land. As early as 19th century itself there were many towns and cities on the coastal region in North Kerala such as Valapattanam, Kannur, Tellicherry, where as there was no such towns in the east of the district during the period. In the early years of 20th century, there were only a very few people in the high land of Kannur⁷⁴. Evidences for which are available in the census reports since 1901 onwards⁷⁵. Modern towns that we now see in the upland regions are of later origin⁷⁶. One important aspect of the rise and growth of villages into towns indicate rapid urbanisation that took place in the later years of 20th century. On the West the region embracing the Arabian sea we can see many towns in Kannur district alone. Towns like Payyanur, Pazhayangadi, Cherukunnu, Valapattanam, Thalassery etc are situated on the coastal line. Thalassery and Kannur were Municipalities even in the 19th century itself⁷⁷. Where as on the east of Kannur there were no town or a place with the feature of a town in the early years. Hence it is quite explicit from the post 1950 census reports that all towns that are seen now emerged only a few decades ago. As per the District Census Handbook of 1961 there were 17 towns which are situated in

⁷³ Census of India 2001, district Handbook of Kannur, Part III, p11.

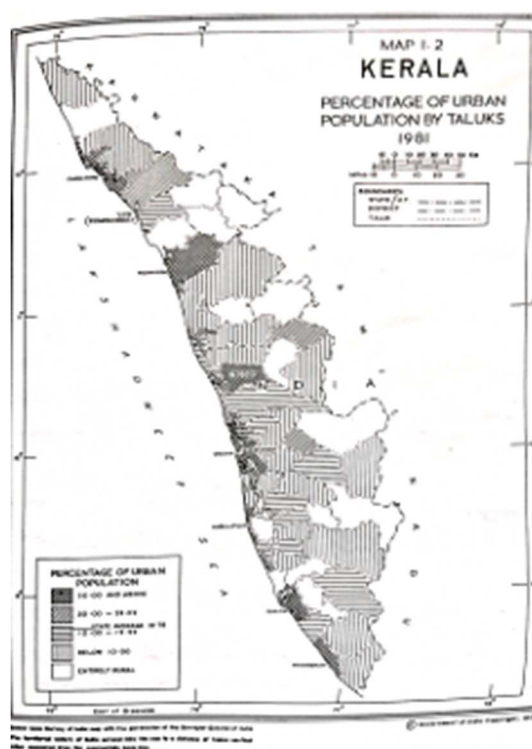
⁷⁴ Settlement Registers of fasli 1313 pertaining to various high land *Amsams* of Kannur give exact picture of the demography in the high range.

⁷⁵ Census reports from 1901 onwards indicate that almost all *amsams* of both Kottayam and Chirackal Taluks of erstwhile Malabar District had only a small number of people and settlements.

⁷⁶ Many towns on the foothills of the Western Ghat may be seen in the eastern side of Kannur. Iritty, Sreekantapuram Peravoor Kelakam, Alakode, Cherupuzha are the prominent towns of the region.

⁷⁷ *District Census Handbook of Kannur*, 1961, p.12. Thalassery Municipality was formed in 1863 and Kannur Municipality was formed in 1867.

the low and midland areas of the district⁷⁸. From the last quarter of 20th century new towns began to flourish in the high range of Kannur along the Western Ghats line. From the North East to South East we can see numerous small and big towns with thousands of population. With the growth of smaller towns into larger ones, the density of population in the towns also began to increase largely. Along the eastern line, there are several medium and major towns some of which have developed into municipal towns like Sreekantapuram and Irity. Apart from these Kelakam, Peravoor, Payyavur, Chemperi, Alakode and Cherupuzha are the mother major towns on the eastern line of Kannur district. Population data of these towns indicate a high density in 2-3 kilometre radius of the main town. As per the census report of 1991 Kannur has the largest number of towns in the state⁷⁹. In 1991, of the 197 towns in Kerala, 45 are in Kannur⁸⁰. Following figure shows the pace of urbanisation in Kerala in 1981. From the figure it is evident that the district of Kannur has quite a larger urbanised area.



Source: District Census Handbook of Kannur 1981

⁷⁸ *District census Handbook*, 1961, p.192

⁷⁹ *Census Hand book of Kannur*, 1991, p.28.

⁸⁰ *Ibid*, p.14.

As a result of the rapid growth of towns there is a huge demand for housing, road, drinking water, irrigation and so on. To meet all these requirements people solely depend upon nature. Natural resources are quite unwisely utilised and the very land scape is turned upside down by restructuring the land for cultivation of new crops introduced in the high range region during the course of migration and subsequent growth of towns. There are many towns some of which now have grown to become Municipalities. Cherupuzha, Alakode, Sreekantapuram, Iritty, Peravoor, and Kelakam are some major urban centres. Sreekantapuram and Iritty are now municipal towns. Major chunks of hill produce are being transported to other major centres like Cochin and Kozhikkode and some other states are from these town centres⁸¹. One interesting fact is that after 1970s population of the newly emerged towns began to show a steady increase. In the beginning of 20th century there were only Irikkur and Sreekantapuram as important centres of trade in the east of Kannur⁸². Even though, new trade centres began to emerge along with Sreekantapuram and Irikkur they did not develop to the level of towns until 1961⁸³. The high range till 1950 was in its transition stage only. Actual change in the nature of the villages into urban centres may be seen from the second half of 20th century. Census statistics since 1971 show the change in the population in the towns and the growth in population determined the nature of urbanism.

By 1991, the urbanisation process in the district reached next stage. Kannur became the most urbanised district in the state as per the census data of 1991. Eventhough Ernakulam district has the highest number of urban population, the district that was mostly urbanised was Kannur during the period. Of the total 197 towns in the state in 1991, Kannur had 45 urban or town centres⁸⁴. The following figure clearly shows the area of each district with urban nature. It is evident from the

⁸¹ Interview with M V Narayanan, aged 79 years on 27-12-2024. He is a big merchant dealing in the trade of hill produce in the town of Kanichar close to Iritty.

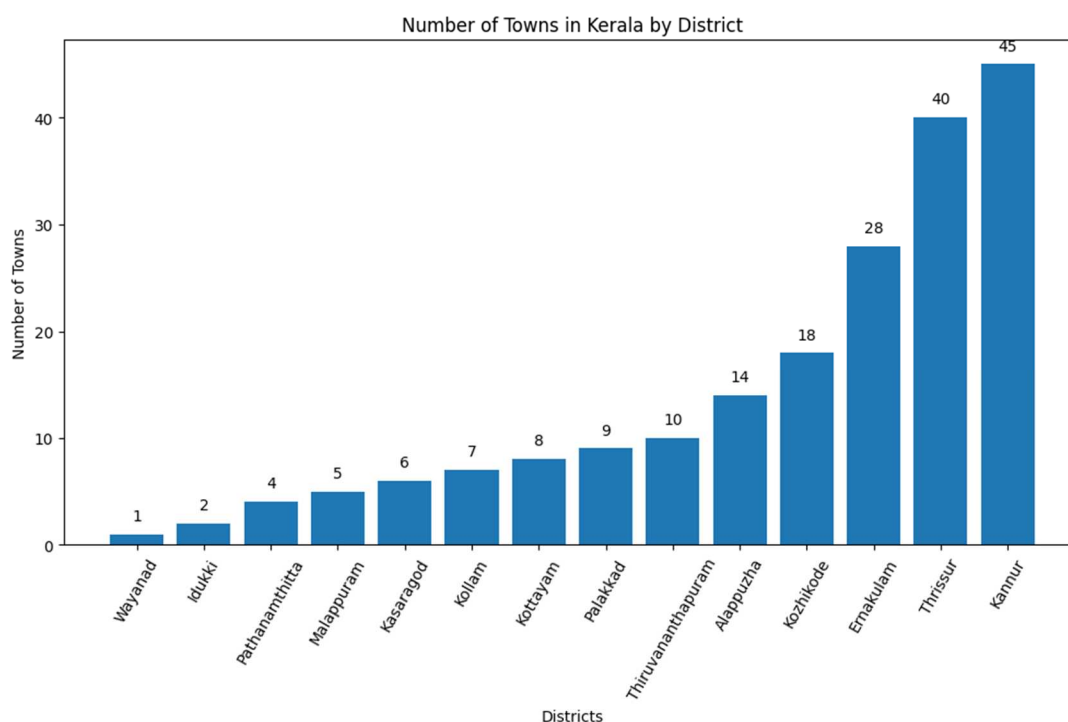
⁸² Descriptive memoirs of Irikkur and Sreekantapuram of fasli 1313, in Chirakkal Taluk of Malabar District.

⁸³ District Census Handbook 1961 contains no reference about towns on the east of the district.

⁸⁴ District Census Hand book of Kannur, 1991, p.12.

figure that Kannur has the largest urbanised area comprising 50% of the total urbanised area in the state in 1991.

Figure 6.1: Total Number of Towns in Kerala in 1991 -197



In the 1980s there were weekly markets in some places in the highrange regions. Weekly markets functioned on Sundays. “We used to visit weekly markets functioned in Cherupuzha on all Sundays”⁸⁵, says Narayanan a native of Cherupuzha Panchayat. This market functioned till mid 1990s. There were markets on Tuesdays and Saturdays also⁸⁶.

Such markets offered almost all commodities required by the ordinary people at cheaper rates. One important reason why such markets functioned in the highland towns was that the transport facility to the other major towns like Payyanur and Taliparamba was not quite frequent. More over these towns are some 30-35 kilometres away from the high land town centres like Cherupuzha, Alakode and

⁸⁵ Interview with K Narayanan, aged 83, living in Cherupuzha Panchayat, on 19-03-2023

⁸⁶ *District census Handbook, Kannur* 1981, p.34. Economics and Statistics Department, Kannur

Sreekantapuram. With the passage of time, when there was a better price for commodities like rubber, pepper and garden crops like areca nut, along with the inflow of foreign money into the high range, the towns began to flourish.

Urbanisation process in the highland regions of Kannur is closely associated with the surplus production of agricultural produce enhanced by modern industrial and agricultural innovations, development of trade, and better transport facilities. Chirakkal and Kottayam Taluks did not have any road to the upland areas until about the end of 19th century. In the course of migration, large areas of forest were cleared and brought under cultivation. Until the beginning of 1970s there were not many town in the high range of the district. This is evident from the Pancahayat accounts and the writings on migration to Malabar⁸⁷. Now we can see many towns in the high range with a larger of population. Most villages, even though they have urban nature, in the high range as per the census of 2001, had a population of over 5000⁸⁸. There were 41 such villages in the rural areas in the census period⁸⁹. Towns like Kottiyoor, Kelakam, Kanichar, Peravoor, Iritty, Ulikkal, Payyavur, Chemperi Cherupuzha, Pulingome, Padiyottuchal, and Matahmangalam are the major towns in the high range of Kannur which are now the commercial centres and the hub of the day to day economic and commercial activities of the high range people. These towns are self sufficient in every aspect of development. Infrastructural development of these towns largely depended upon the raw materials extracted from the high range itself. It shows that the high range in the beginning of 21st century had a greater density of population.

4. Quarrying

Quarrying of both laterite and granite in the highland of Kannur have increased enormously in the past 50 years or so. After 1950 there was a steady increase in population in the upland of Kannur. Census reports from 1951 onwards indicate a

⁸⁷ Thomas Pazheparambil wrote a book titled *Swapanabhumiyil* which is purely based on migration to Malabar and the work was published in 1978.

⁸⁸ *District Census Hand book of Kannur*, 2001, p.xxii. Economics and Statistics Department, Kannur

⁸⁹ *Ibid.*

steady increase in the number of people in the various *amsams* of the highland region in Kannur. Naturally settlements in the region increased. With the increase in population the increase in the demand for housing intensified the intervention in nature. Improvement in transportation quickened the process of house construction. With the opening of Iritty Bridge by the end of 19th century Coorg and Tellicherry got connected by road which intensified the movement of vehicles with goods. With the Increase in the housing, the demand for raw materials could easily be met by setting up quarries and transporting the raw materials from the quarry through the newly constructed roads. Raw materials like soil granite and wood were in great demand for building works. Before concrete buildings largely introduced in the highland of Kannur people depended on such materials for which nature began to be explored. “Sun burnt bricks and granite stones blasted with the help of hammers and later gunpowder, were used for construction of buildings”⁹⁰, says Kunnumpurath Krishnan. After 1960, people of the high range began to rely largely upon granite and laterite stones with the help of huge human power. ‘Many houses around the two villages of peringome and Vayakkara were constructed with such man cut stones in the 1960s and 1970s’⁹¹. However most houses were roofed with tiles made of clay⁹². But by the end of 1970 concrete constructions began to be started in the villages. In the beginning these constructions were mostly made by either the business or large planters or by those who left for the Gulf countries in the 1970s in search of employments. Number of house holds in each panchayat along the Western Ghat in Kannur has increased marginally since the 1970s. Census reports from 1991 onwards show unprecedented increase in the number of *pucca* houses in the high land villages of Kannur. For instance, in Peringome Vayakkara Panchayat, most of the residential buildings were *pucca*⁹³. In Ward 13 alone, of Eramam Kuttur Grama Panchayat, the

⁹⁰ Interview with Kunnumpurath Krishnan aged 82 on 21-11-2023.

⁹¹ Interview with CP Moideen Hajee aged 89 living in Peringome Peringome Panchayat. On 23-10-2022

⁹² *Building Assessment registers of Peringome Vayakkara, Eramam Kuttoor, and Alakode Panchayats.*

⁹³ As per *Building Assessment Register of Peringome Vayakkara Panchayat* for the period between 1972-78.

number of *pucca* buildings in 1991 was 413⁹⁴ and every year it register an increase of 10 to 12 buildings in the area. In the town areas it is some times double the actual number of any village. This was mainly due to change in the economic condition of the high land people in the district. By 1970 people of the region had turned their attention towards cultivation of rubber in the extensive waste land available during the period. 'In the decade that followed more people began to be attracted to the field of rubber cultivation'⁹⁵.

In the 1990s more land was cleared and many crops were replaced by rubber. A sharp fall in the price of commodities like cocoa, cashew, pepper made the cultivators turn to new experiments in rubber cultivation that would earn them steady and increased income. 'By the end of 20th century almost every family in the highland of Kannur had at least an acre of rubber plantation'⁹⁶. Though this statement may seem queer, it was a fact that people in the region was more keen in rubber cultivation and the income that was received a year from the crop than they had earned from traditional crops. Almost all the families in the highland that engaged in rubber cultivation, were economically sound. It was out of the income they received from rubber cultivation. Standard of living of the people increased surprisingly. Educational status of the new generation also underwent changes. Youth and students started moving to foreign countries especially western countries in search of better employment and education and thereby they could earn more income than they could have earned in the gulf countries. Its impact may be seen in the housing and other building construction sectors. New houses and commercial buildings began to spring up like any thing in the upland villages of Kannur. Parallel to this the new housing schemes followed by the local governing institutions as a part of the people's planning⁹⁷ introduced by the Govt. of Kerala increased average annual number of

⁹⁴ Assesment register of Ward 13 of Eramam Kuttur Gramapanchayat for the year 1991-92

⁹⁵ Interview with Kunhiraman aged 82 living in Cherupuzha panchayat on 21-12-2022.

⁹⁶ Interview with Joseph Manaliparambil, aged 87 living in Kelakam Panchayat on 14-09-2022.

⁹⁷ People's planning was the new decentralised planning introduced in the State of Kerala in 1995 after the introduction of Panchayat Raj Act in 1994.

houses in a panchayat every year. As a result too many number of houses were constructed in each panchayat in the upland region in Kannur. There was a huge demand for raw materials like stone either granite, or laterite, red soil and timber which are purely procured by the needy from the nearby villages which are close to the highland. Naturally the intervention of humans in the nature increased at an alarming rate. The increased demand for raw materials like laterite stone, granite stone, soil, wood etc adversely affected the very balance of the highland. More and more quarries for both laterite and granite stones and use of heavy machinery in the regions altogether transformed the ecology and landscape of the region.

From the 1990s onwards the number of granite quarries in the upland villages of Kannur increased many times. While most of the granite quarries functioned with permission from the departments concerned, rest of them were un authorised⁹⁸. Starting from Peringome Vayakkara Panchayat in the North East to Kottiyoor in the South east of the Kannur District all panchayats are the abode of granite quarries. In Peringome Vayakkara alone there are half a dozen live quarries, causing greater danger to the environment and dilapidating the ecology of the region. The Best example for the ecological destruction is the new granite quarry that started functioning at Koovakkara⁹⁹, recently. The geography and environment of the area around the high rise mount in the Panchayat has totally changed after the quarry started its function. More over in many of the wells located in the valleys of the hill, the water level has drastically fallen. More over, the ground water level in the areas have gone down. ‘When I dug a bore well in my house plot, that went down up to 250 feet, but water was not sufficient. Hence I dug a second one with a diameter of 6 inches. But this time depth went upto 400ft. Still the water level is not satisfactory’¹⁰⁰, Says Vinod a native of Cherupuzha Panchayat. Similar experiences can be seen in the lives of many families living around the quarry. ‘In my house I have dug a bore well

⁹⁸ Field studies show that most of the laterite and granite quarries functioning in the district are extracting more stones than the actual quantity permitted to be extracted.

⁹⁹ Koovakkara Kunnu(hill) is about 2000 feet above sea level situated in Peringome Panchayat. That hill is the abode of many species of birds and reptiles and the richest source of water to those live down the hill.

¹⁰⁰ Interview with Vinod U, living in Thattummal near the quarry on 12-08-2023.

with a depth of 420 feet with a diameter of 6 inches. But the availability of water is not upto the mark'¹⁰¹. This is not the case of one or two persons. Rather, almost all people living around the quarry have similar experiences. 'During the last three years my well got dried up by February-March which I think may be the impact of the functioning of the quarry over the years'¹⁰². Interesting thing is that the Local Bodies have now started supplying drinking water in the area.

Recently, so many campaigns against the starting of new quarries and crushers in the area have been launched by the people who are supposed to be the victims of any severe calamity that may arise in near future. The field study could reveal one thing that a small pond which is situated several metres down the hill carried water through out the year till a few years ago and that had been the source of drinking water for several families staying in the upland areas of ward XVII and XVIII of Cherupuzha Panchayat since 1990s. Earlier, before the pond was expanded it was a small well of a few metres' depth. When there was acute water shortage, the well was developed into a pond with the assistance of Local Body at a cost of rupees 25000¹⁰³. At that time there was no quarry on top of the Kuvakkara hill. Rather, the hill area was dense and infested with wild animals like monkey, boar often deer also. Birds like peacocks are largely found in the hilltops. 'Recently peacocks and boars have started to come to the settlement areas down the hill and destroying the crops of peasants'¹⁰⁴. It is evident from this that human intervention in the area have largely affected the eco system and wild animals turn out to the farm land in search of food.

Similar instances of human intervention in nature may be seen again Choorappadavu in Cherupuzha Panchayat. Choorappadavu is a highland area situated

¹⁰¹ Interview with Thambayi pp aged 84 living in the area of the quarry on 17-09-2023.

¹⁰² Interview with Muhammad Kunhi aged 63 living in the area very close to the quarry.

¹⁰³ Padhati Rekha of Cherupuzha Grama Panchayat for the Year 2000. The project was implemented through People's Planning which was started in Kerala in 1995-96.

¹⁰⁴ Interview with PP Kunhikkannan, aged 70 living at the foot of the Kuvakkara hill in Peringome Panchayat on 17-03-2024

at the foot of Kottathalachimala¹⁰⁵. Even though there are hardly little human settlements in Kottathalachi mala Choorappadavu is one of the major settlement area of migrant people in Cherupuzha Panchayat¹⁰⁶. In the early years of the 20th century people first made their settlements and after a few decades there came many people and they made their settlements here. About a decade ago, a small quarry was started here. Even at that time there were people's protest, but their cries fell in deaf ear. Very soon, the quarry was expanded and now what we can see in the area is that it got expanded over several hectares of land. And the people were forced to move from their dwelling place leaving behind all their properties. Interesting thing here one can see is that they were offered huge amount of money for giving their land to the quarry operators. 'I was offered a huge amount of money for my one acre of land which was two times bigger than the market value'¹⁰⁷, says V Kannan a native of Peringome Vayakkara Panchayat. Actually the quarry owners were buying the properties of the people by offering them a good amount which was actually a higher rate than the market value. Thus the probability of a mass protest could be nipped in the bud by the quarry operators. Interestingly those who sold or left their acres of land moved further down the hill and settled near the small towns like Prapoyil and Thirumeni where they could purchase small house plots of 10 or 15 cents of land for the money they got from the sale of their property to the quarry owners.

Several instances of the terrific exploitation of nature may be witnessed in the district. In the Payyavur panchayat there is a quarry and crusher unit started in the beginning of 21st century that has so far exploited millions of metric tons of granite leaving the area into a waste land¹⁰⁸. Field investigations corroborate this with the expressions of local residents. Taking a survey in the eastern part of the district about the opening up of new crushers and quarry units we can see that so many new quarries and crushers have been started in the area. Before the beginning of 21st century there

¹⁰⁵ *Kottathalachimala* is situated about 4000 feet above sea level and is the highest point in the district of Kannur bordering Karnataka forest.

¹⁰⁶ *Vikasana Rekha of Peringome Vayakkara Panchayat*, 1996, P.5.

¹⁰⁷ Interview with V V Kannan, aged 59 on 17-03-2024.

¹⁰⁸ Interview with Purushothaman K, aged 59 years, living in Malappattam, on 30-05-2024.

were only a limited number of quarries in the high land regions of Kannur. But after the beginning of 21st century the number has increased by many times. Now almost all villages along the Western Ghats in Kannur district have both authorised¹⁰⁹ and unauthorised quarries. While the quarry operators have amassed as much wealth as they could, there is a large group of residents who are forced to leave their dwelling place for ever. The impact of mining in the socio economic life of the people living in the proximity of quarries is immense. On one hand they are forced to sell off their landed property and on the other hand the implication of the pressure the quarries exert upon nature is beyond words could explain. The land abandoned by the people become unsuitable for cultivation and the air and water sources around the area become polluted. Landscape totally changes and is prone to ecologically sensitivities. Land slides have become common now a days in the upland regions of Kannur, even though they are officially not recorded¹¹⁰. The number of landslides and flood has increased many times after 1990. 'Our lives are at stake during monsoon as there is possibility of the *Bavali* over flowing at any time due to land slides in the forest and surrounding areas'¹¹¹.

This has now become the order of the day in every village along the Ghats. 'Our wells and ponds have started drying up in summer over the past few years'¹¹², says a local resident who lives at the foot hill of the Choorappadavu quarry. Again, moving further east to the foot hills of the western ghat we can see vast granite quarries and crushers from where tons of granite crushed into jelly of various sizes are taken to the work site in heavy duty trucks. Kurumathur, Payyavoor, Iritty, Kelakam, Cherupuzha, Peringome, Alakode Naduvil and Sreekandapuram are some important highland Panchayats where we can see many granite and laterite quarries.

¹⁰⁹ Department of Geology is the authorised agency to issue licence to run quarries in the state..

¹¹⁰ Interview with A Koran aged 71 living in Cherupuzha Panchayat on 18-05-2024

¹¹¹ Interview with Biju Munjanattu aged 50 years living at Palchuram in Kottiyoor Panchayat on 23-4-2022.

¹¹² Interview with Alayil Balakrishnan aged 55 living at Prapoyil in Cherupuzha Panchayat on 12-9-22

Unfortunately most of them are functioning illegally¹¹³. But a thorough analysis of the use of laterite stones for construction of buildings and structures would make things more clear that with one single quarry the huge demand for materials cannot be met. In North Malabar, almost all buildings and structures are built of laterite stones. When rules and regulations become so stringent to obtain license for running a quarry, people tend to run them illegally. In both cases of legal and illegal running of quarries the nature is worst hit. On account of the greater demand for the materials the mining process is fast and sophisticated. Exploitation of resources with most sophisticated equipment and modes of operation has become faster and deeper. Thus, with the help of modern technology man is creating irreparable loss to nature and humanity in the wake of development.

Impact of Change in Landscape

A study, conducted by the Centre for Earth Sciences Trivandrum has found that in Kerala the natural vegetation cover which was 44.1% of the geographical area in the beginning of 20th century has been reduced to 17.1% by 1973¹¹⁴. If the rate of depletion is going, it will not take too long for the total disappearance of the natural vegetation¹¹⁵. Eventually, this may lead to adverse effect on nature. The nature in turn takes the furious step by resorting to the many forms of calamities like land slide, flood, draught, and the changes in the climatic conditions. Recent natural calamities are the out come of the unwise human intervention in the region through decades.

While coming to North Malabar region of Western Ghats especially the Kannur region, it is quite evident from contemporary experiences that the depletion of the natural resources and landscape adversely affect the life and culture of the people of the region. Aralam Farm and Wild life Sanctuary situated near Iritty is

¹¹³ In the official website of the Dept.of Geology only one laterite quarry is functioning with license. For more details visit www.KOMPAS. Accessed on 12- 11-2024 at 3.45pm.

¹¹⁴ Chattopadhyaya, S;Deforestation in parts of Western Ghats Region(Kerala), , Centre for Earth Science Studies, 1985, p.21.

¹¹⁵ *Ibid.*

facing the adversities of human intervention. The Farm, set up in 1970¹¹⁶ sanctuary in 1984¹¹⁷ had a diverse eco system with evergreen deciduous forests and is one of the important spots that maintains the ecological balance of the Western Ghat region of Kerala. The farm was set up by clearing large tracts of forest. Set up in 1500 ha, 50% of the land is used for rehabilitation. As a part of the Government's policy of distributing land to the landless *adivasis* large tracts of land have been assigned to them. Still many assignees so far have not occupied the land. 'Threat of wild animals like elephant to the life is a major concern in the area'¹¹⁸, says Sukumaran who was one of the many assignees in the Aralam Farm, One tragic development is that for farming the rich natural vegetation was cleared and transformed into agricultural field. 'A decision taken at the official level has a two pronged impact upon nature', says Narayanan MV¹¹⁹, a native of Kanichar situated near to the Sanctuary and Farm. Formation of the farm and introduction of new crops altogether destroyed natural forest, traditional farming and destroyed the eco system of the region.

5. Construction of Roads

Even though development of roads and greater network of roads indicate the development of a region, it leaves wider implication upon nature. As far the infrastructural development of Kerala is concerned, it stands first among Indian states in terms of road density¹²⁰. Kerala has approximately a road density of 517.77 km per 100sq.km of area¹²¹. Over the years, there was a large scale increase in the road net work in Kerala. Interestingly, the increase in the road connectivity in the high ranges of the state is rather high. A look into the statistics of the high range panchayats of the district of Kannur would definitely give answers to the question of

¹¹⁶ Aralam Farm was set up by Union Government with the assistance of Soviet Union. It spans over 1500 hectares of land and is the largest tribal rehabilitation centre in the country.

¹¹⁷ Aralam Wild Life Sanctuary is the abode of rare species of flora and fauna. It was set up in 1984.

¹¹⁸ Interview with Sukumaran aged 46 on 13—05-2023

¹¹⁹ Interview with Narayanan MV, aged 79, on 27-12-2024.

¹²⁰ Census of India 2011,

¹²¹ *Ibid.*

environmental degradation. Before 1980 in most of the high range panchayat there were only a very few number of village roads. But, after 1980 the number of village roads in the high range increased largely due to an increase in the population and house holds in the region. The following table will give the tendency of the growth and expansion of road connectivity in some high range panchayats of Kannur in the 20th century¹²².

Table 6.2: Road Connectivity in Some Highrange Panchayaths

Sl. No	Name of Panchayat	No. of roads before 1980	No. of roads after 1980	Total length of roads	Total area of each panchayat
1	Peringome- Vayakkara	97	210	205.112km	78.93Sq.km
2	Cherupuzha	86	215	237.58km	75.64sq.km
3	Udayagiri	74	212	216.62km	51.64sq.km
4	Eramam Kuttur	102	226	231.23km	75.14sq.km
5	Naduvil	89	198	202.00km	84.57sq.km

It is evident from the table that until 1980 there were only a few number of village roads in the high range panchayats of the district. After 1980 the number and length of roads in the region increase to a greater extent and this was largely due to the increase in population. More over most of the roads were constructed after 1990¹²³. Even in small panchayats the total length of roads is more than 100 kms. Apart from the village roads there are roads under the Public Works Department in the district. Under the department there are various types of roads such as State Highways, Major District roads and Other district roads. All these taken together in the district as on 31/03/2001 will amount to 1755.550km¹²⁴. In 2003 a new highway known as Hill Highway was constructed and that had a total length of 106.2 km in the

¹²² Asset Register Report –Form No3 of Digital registers of Various Panchayats.

¹²³ For more details see the *Asset Register Report in Form 3* of Local Bodies of Kerala.

¹²⁴ Road Register of Kerala Public Works Department, Office of the Asst.Exe.Engineer, Kannur 2001, p.81.

district¹²⁵. This new road is exclusively passing through the high range of the district and for the construction of the road large areas of land had been transformed and high mounts were destroyed in the region. Last decade of the 20th century is a land mark period in the history of Kerala as the period witnessed the launching of *people's planning* in the local bodies. Even though large scale infrastructural development could be achieved in the local bodies through decentralised planning, it is a reality that those developments have brought about unprecedented environmental damage. The primary case is the change in landscape, which unfortunately is not properly addressed by any agency. Anyway, road construction on a large scale has played a vital role in changing the landscape in the high range.

Landscape change in the highland of Kannur since the beginning of 20th century was on account of various reasons mentioned above. Because of these factors what impact they have brought about in the ecology of the region is alarming and quite embarrassing. Area of forest in the Ghats region in Kannur has diminished considerably.

It is evident from this data that reduction in the forest area was on account of human intervention. As there was change in the population, change in the ecology was imminent in the high land. Encroachments into the forest was yet another reason why the ecology and landscape of the uplands changed drastically. Over three millennia of forest utilization and management by traditional societies and the practice of state forestry since last 200 years have moulded the forest eco systems of the Western Ghats¹²⁶. The Western Ghats is one of the 18 bio-diversity hot spots in the world. It plays a vital role in regulating the climate of the Indian peninsula. This region is the abode of more than three hundreds of globally endangered species of flora and fauna. Of the total 39 properties comprising sanctuaries, reserve forests, national parks are designated as world heritage centres and out of these 20 are in Kerala alone.

¹²⁵ *Ibid* p.83.

¹²⁶ MD Subhash Chandran, *On the Ecological History of the Western Ghats*, in Current Science, Vol.73, No.225 Current Science Association, Bangalore, July 1997, pp146-155.

Human Intervention and Socio Economic Changes

One interesting thing that happened in the highland areas of the district is that the economy got transformed into a capitalist oriented from a purely agrarian economic structure. Until the introduction of the new cash crops the highrange people were following traditional agrarian practices with traditional crops and way of life. With the expansion of rubber the native economy began to transform widely. As the rubber plantations could ensure a regular income more and more cultivator got attracted towards rubber cultivation. Even those who had possessed less than an acre of land attempted to plant rubber trees because these plants would at least guarantee their daily bread in times of economic crisis.

Changes in the socio economic life of the people highland of Kannur may be seen by 1970. There was a steady increase in the quality of economic life of the people. Their purchasing capacity increased many times. Even though the outward migration to the Gulf countries takes place in the state during the same time and the economic impact visible from the 1980s, that was not visible in the high range. Rather the life of the people was largely changed by the shift in agricultural practices initiated in the early decades of 20th century. 'Development in the areas like road transport, schools, rise of urban centres in the upland regions were all the out comes that could be on account of the introduction of new cash crops and increase of population. Accumulation of wealth on account of rapid increase in the price level of cash crops like rubber, pepper, brought colours to the life of the people of the high range in Kannur. Rapid urbanisation in the highland areas in Kannur takes place after 1970. When there was a regular flow of income from rubber cultivation the standard of living of the people changed a lot. Educational institutions and new trading centres fast emerged. Though processing of latex into rubber sheets takes place at home their marketing was a problem as far as the highland population was concerned. It is in this context new marketing centres emerge at the foot hills of the western Ghats.

Growth of population in the high range of Kannur after 1970 has a serious impact upon the nature and ecology of the region. One notable change that can be noticed in the demography of the region is that those who migrated on the hill tops in

the early years of migration began to have a retreat in the later decades of the 20th century.

“In the beginning of our migration we did not find it as problem. Our main aim was to find a piece of land settle down. Transport and means of communication was not a problem to us. As years went by and our off springs attained better education we are forced to make a re- thinking. We began to move down the hill”, says Mathew Munjanattu, native of Kelakam”¹²⁷.

This was not the case of one single family. Hundreds of such migrant families and their successors in the later years of 20th century followed suit. If land was the primary concern of the migrant families in the beginning, it was modern facilities in the later years. The high range was wanting all the modern facilities till recently. When the newly emerged towns became the hub of commercial activities and centre of almost all modern facilities like hospitals, English medium schools, markets, theatres, and almost all governmental departments like village offices, panchayat office, registration office, people relocated in the new towns. More over, buses mostly did not ply up to the hill. Even if there was some buses they were run by KSRTC. As the roads were un even and full of pot holes most of them curtailed their trips. Naturally as far as highrange people were concerned it took for them a day to reach the near by town and get their needs satisfied. In this context, they had no other option but to shift their settlements to the towns down the hills.

The reverse migration has its own impact. When large scale population came down and settled in towns density of the town centre increased largely. Population in certain towns increased immensely and some of which grew into municipal towns like Iritty and Sreekantapuram. Increase in population created pressure upon nature. Encroachments on river sides led to the reduction in the width of rivers and other water resources. Small water sources like brooks and creeks began either to be filled or blocked and new huge buildings are constructed there. New urban centres like

¹²⁷ Interview with Mathew Munjanattu aged 77 living in Palchuram on 27-12-2023

Iritty and Sreekantapuram¹²⁸ on the banks of rivers largely caused depletion of natural resources and reduction in the river wealth and the natural boundaries are fast disappearing. Sand mining in both the rivers has been responsible for collapse of river sides during rainy season. Mining of river sand is done either through Local Bodies or through Revenue Department¹²⁹. The width of the river flowing along the town centres has got reduced owing to the encroachment of humans on them. The Flood of 2018 was largely on account of such unwise human interventions.

Rise of new tourist destinations in the high range is another major aspect that has a far reaching impact upon the nature. Palakkayam, Vaithalmala, Ezharakundu, Kanjirakkolli, Josegiri, Thabore, Udayagiri etc are some important newly emerged tourist destinations in the high range. Economic fulfilment at the cost of nature, has become the motto of the day. When these destinations were first identified by local or native tourists there were hardly any infrastructural developments. But as there was a frequent inflow of tourist from across the various districts of Malabar, District Tourism Department took the control of the points and started ensuring the infrastructural developments in the areas to attract more tourists to these destinations. Now, tens of thousands of tourists mostly domestic, come to these destinations. The developmental activities taking place in the highland tourist destinations of the district have far reaching consequences on the ecological imbalances of the region. Over the years there were several land slides and other natural calamities in and around the highland tourist destinations. During the past decade there were several landslides and other calamities and there by totally changing the land scape of the region.

ECOLOGICAL CHANGES

Human intervention in the high range of the district and the and the subsequent impact upon nature have left behind severe indelible imprint up on the environment and ecology of the region. Over the years the Western Ghat region has experience

¹²⁸ Iritty and Sreekantapuram are municipal towns formed after 2010

¹²⁹ In Kerala river sand mining is under the control of the Government.

irreparable loss to nature. Following are certain crucial impacts of human intervention in the region.

1. Depletion of Wetland

An adverse effect of change in land scape is change in the wet land area over the years. When the Migration from central Travancore to Malabar including Kannur started there took place sharp decline in the area of wet land in the high land of Kannur. In the settlement and resettlement registers of 1903 and 1933 respectively in each *amsam* of the high range of Kannur there was relatively larger areas of wet land. As per the *Kerala Conservation of Paddy and Wetland Act 2008*, the area of wet land is found to have decreased in all Grama Panchayats. In the beginning of the past century the area of wet land in each *amsam* of the upland village was found to be a higher figure. After the resettlement was made by the colonial Government in the year 1933 there was hardly any attempt from the part of authorities in the post independent period to assess the area of wet land in the high land areas till 2008¹³⁰. The data bank prepared in tune with the act after 2008 shows a sharp decline in the area of wet land in the high range villages of Kannur when compared to the data of wet land in the resettlement Register of 1933. For instance, in 1933¹³¹ the data as found in the descriptive memoirs of Vayakkara and Pulingome¹³² villages were much higher and in 2008 they show a decrease in the availability of wet land in the regions during the period of the preparation of the data bank. It is quite evident from the databank, the conversion of cultivable land into non cultivable land. The total area of wet land in both the villages were 92.53¹³³ ha and 7.84¹³⁴ ha respectively. In the data bank of the Panchayat after 2008 the figure shows a marginal decline. As per the data bank the

¹³⁰ It was in 2008 the *Kerala conservation of Paddy and Wetland Act* was passed aiming at the conservation of wet land and restriction of conversion of paddy land for house hold and commercial purposes.

¹³¹ Resettlement register in Malabar prepared by the colonial Government in 1935 or fasli 1343.

¹³² Vayakkara and Pulingome villages are situated in the Cherupuzha Grama Panchayat, North East side of Kannur.

¹³³ Descriptive Memoir of Vayakkara *Desam* of Chirakkal Taluk of Fasli 1343, p.1.

¹³⁴ Descriptive Memoir of Pulingome *Desam* of Chirakkal Taluk of fasli 1343, p.1.

available area of wet land in Cherupuzha Panchayat where both the villages are situated is 79 ha in 2008¹³⁵. Again the Kerala paddy and Wetland Conservation Act 2008 shows an increase in the conversion of paddy land into other lands. Through out the villages situated along the eastern part of the district we can see similar transition in the wet land area. Even before the resettlement was carried out settlement registers had been prepared in Malabar. That also would give a clear picture of the wet land area in the high land villages. In the settlement register of Malappattam *desam* prepared in fasli 1313 the total area of wet land was 118. 67 ha¹³⁶. At the same time the area of wet land got reduced in the village to 72.47ha¹³⁷. It is evident from the data found in the revenue settlement registers and the Data Bank of 2008 that there was a sharp decline the availability of wet land in the high land areas of Kannur in recent years. Similar cases may be seen in several highland panchayats like Ulikkal, Kelakam, Naduvil, Kottiyoor, Payyavur, etc. This was mostly due to expansion of population in the region after 1950s. Naturally, the change in the demographic pattern resulted in larger human intervention in the region.

2. Depletion of Natural Resources

Ecology and landscape in the high range of Kannur have undergone drastic changes during the past few decades. There was a total deviation from the traditional mode of farming to monocrop cultivation on one hand and there is absolute exploitation of natural resources by legally and illegally running mines of both granite and laterite on the other. Over the years there was excessive exploitation of natural resources in the high range of Kannur. Granite quarries are largely found in almost all the highland villages. Earlier the availability of obtaining license for running quarries in the high ranges was quite easy. Until 2000 CE there were many licensed granite and laterite quarries in Kannur. Ever since mass agitations began in the high ranges, the procedures for getting the license became difficult. In the form of fees and penalties

¹³⁵ Data Bank of Cherupuzha Panchayat, 2008.

¹³⁶ Descriptive Memoir of Malappattam *Desam* of the Chirakkal Taluk in fasli 1313, p.1.

¹³⁷ Data Bank of Paddy and Wetland in Malappattam Grama Panchayat prepared in accordance with the *Kerala Conservation of Paddy and Wetland Act 2008*.

the aspirants of quarries have to pay a heavy amount to the exchequer every time. Hence people tend to run run quarries without licenses. On the official website of the Kerala Geological Department, pertaining to each District, there are only two licensed laterite quarries and two licensed granite quarries in Kannur¹³⁸.

Interesting thing is that there are 93 dealers with license with metal crusher in the district as on the date¹³⁹. It is evident that these quarries are not of course sufficient enough to meet the growing demand for granite and laterite stones for constructions activities. In this context un authorised mining and quarrying take place in the high range.

Following table will give a detailed description of the status of mining of various mineral in the state as provided in the KOMPAS¹⁴⁰ as on 22/12/2024.

Table 6.3 : Status of Mining of Minerals in Kerala

SL.No	District	Quarrying Permit	CRPS Permit	Quarrying Lease	Lease converted to CRPS	RMCU	Dealers Llicense without crusher	Dealers license with crusher	Reg.of depot value / value addition unit	Reconn aissance permit	Prospective License	Mining Lease	Special Concession
1	Trivandrum	7	0	34	0	0	127	25	0	0	0	0	1
2	Kollam	17	0	16	0	0	111	70	0	0	0	0	0
3	Pathanamthitta	10	0	24	0	0	36	26	0	0	0	0	0
4	Alappuzha	3	0	4	0	0	142	6	0	0	0	0	0
5	Kottayam	8	0	18	0	0	43	57	0	0	0	0	2
6	Idukki	1	0	13	0	0	23	28	0	0	0	0	1
7	Ernakulam	27	0	32	0	0	11	83	0	0	0	0	0
8	Thrissur	18	0	21	0	0	45	32	0	0	0	0	0
9	Palakkad	61	0	46	0	0	46	87	0	0	0	0	0

¹³⁸ <https://www.portal.dmg.kerala.gov.in> visited on 22/12/2024 12.15pm

¹³⁹ *Ibid.*

¹⁴⁰ Kerala online mining permit Awarding System, an initiative of the Kerala Mining and Geology Department

SL.No	District	Quarrying Permit	CRPS Permit	Quarrying Lease	Lease converted to CRPS	RMCU	Dealers License without crusher	Dealers license with crusher	Reg of depot value / value addition unit	Reconn aissance permit	Prospective License	Mining Lease	Special Concession
10	Malappuram	41	0	93	0	0	23	96	0	0	0	0	1
11	Kozhikode	17	0	54	0	0	28	62	0	0	0	0	0
12	Wayanad	1	0	10	0	0	68	19	0	0	0	0	0
13	Kannur	8	0	50	0	0	42	93	0	0	0	0	2
14	Kasragod	2	0	14	0	0	18	26	0	0	0	0	0
	Total	221	0	429	0	0	763	710	0	0	0	0	7

Type of Minor Mineral Concessions for which e-Pass is issued.

Quarrying permit –Short term permit (upto 1ha area and 1 year duration) issued for quarrying of minor minerals

Quarrying Lease-Long term permit upto12 years duration issued for quarrying of minor minerals¹⁴¹.

Dealers license without crusher-1 year dealer license issued to sales depot not associated with a value addition unit(crusher)¹⁴²

RMCU_Registered Metal Crusher Unit which pays consolidated royalty for the associated quarrying lease based on the specification of crusher ¹⁴³

Dealer license with crusher -1 year license is issued to sales depot associated with value addition unit (crusher)¹⁴⁴

¹⁴¹ <https://www.portal.dmg.kerala.gov.in> accessed on22-12-2024 at12:15PM

¹⁴² *Ibid.*

¹⁴³ *Ibid.*

¹⁴⁴ *Ibid,*

CRPS Permit-Short term permit upto 0.5 ha area and 1 year duration issued for quarrying of minor mineral. Royalty payment is based on area of mining ¹⁴⁵

Special Concessions- This is issued for excavation activities not related to winning of minerals',¹⁴⁶

It is evident from the table that mining of various kinds of minor mineral quite very less in the state as per the official statistics .But the real statistics may be higher than what is available. It is a ground reality that daily requirement for various kinds of constructions cannot be met by the given number of licensed quarries. So many unauthorised laterite and granite quarries are functioning in the mid and high land regions across the state. In Kannur alone there are vast areas of laterite available in the mid land areas and granite quarries functioning in the high land villages. A survey through the mid land regions of the district would reveal the nature of the restructured terrain of the district during the past several decades. Most of the large pits which are locally called as *kappana*¹⁴⁷ in rainy season becomes large pools causing threat to human lives. When the water gets dried up in summer the actual depth of the pits will really frighten the common man. Stone mining exerts a two fold impact upon nature. First of all it causes pollution and reshapes the terrain and there by adversely affect the environment. Secondly, after the stone excavation is over it remains a source of threat to human life and become the dumping yard of wastes by individuals and institutions there by causing threat to health, by polluting water and environment. In the high range extensive areas of granite quarries also cause the same kind of threat to environment and humans. It is in this context that the Western Ghats Ecology Expert Panel(WGEEP) in report insisted for putting the entire upland area under ESA I, where all kinds of developmental and destructive works are prohibited. But due to

¹⁴⁵ *Ibid.*

¹⁴⁶ <https://www.portal.dmg.kerala.gov.in> Visited on 22-12-2024 at 12.15pm

¹⁴⁷ *Kappana* in Kannur Kasargod regions is generally called to the vast and deep pits that are formed after the laterite stones are cut out. Such vast pits often extend in large areas of 1or 2 hectares of land.

the mounting pressure from the people and political parties across the nation, a committee was constituted to study and submit report on the Gadgil Report.

Apart from these, authorised and unauthorised sand mining from the rivers largely resulted in the depletion of natural wealth since the 1990s. According to the latest studies carried out by CSIR-NIIST and considering the data generated by the Tropical Institute of Ecological Sciences (TIES), it was observed that sand suitable for sustainable mining was available in Valapattanam, Sreekantapuram, and Perumba rivers¹⁴⁸. The total number of sand mining sites observed in the Sreekantapuram river are 16, Perumba river are 3 and Valapattanam river are 6¹⁴⁹. All the sand mining sites in these rivers are in the high range of the district except a few in Valapattanam River. Extraction of sand on a large scale leads to adverse impacts upon the river beds and alteration of the river's physical characteristics. It may also cause to environmental and ecological damages.

Natural Calamities

It is evident from historical records that Kerala is prone to several natural calamities. In the first quarter of 20th century there was a severe natural calamity in the form of a flood. The flood of 1924 was the one that happened in the entire Kerala. It occurred in July 1924 on account of incessant rain that continued for 10 days. In Kannur all the regions faced the severity of the flood. But during the time it was more out of the wrath of nature that came out in the form of the flood, than that of human intervention. After that, even though there were several major and minor calamities in the form of flood, land slide, draught, etc that did not cause that much loss to both lives and properties of the people as it happened in 2018. The flood of 2018 is perhaps the gravest natural calamity in the history of Kerala. No part of Kerala was free from the clutches of the heavy flood that took place in 2018, except the two northern districts. In Kannur also there was severe casualty to property due to heavy down pour that continued for a few days in August, 2018. One common aspect of the state

¹⁴⁸ District Survey Report for Sand Mining or Riverbed Mining Kannur District, Prepared by CSIR –NIIST, 2023, P.iii.

¹⁴⁹ *Ibid.*

of Kerala is that Kerala has been prone to all kinds of calamities like tsunami, flood, drought, Landslides, cyclone and so on, in recent times. No part of the state is free from any kind of calamity that may occur at any time. In the high ranges the most common natural calamities are as follows.

1. Landslide and mudflow

Landslides are common ecological hazards in hilly areas due to geological and anthropogenic causes¹⁵⁰. Landslide and mudflow are common phenomena in the uplands of Kannur during the monsoon season¹⁵¹. Hence, climatic changes and anthropogenic reasons along with varied physiographic features. The vulnerability of the inhabitants and households is more significant in the Western Ghats due to the very high population density, especially in Kerala¹⁵². In recent years there have been several landslides in the district in which heavy casualty to human lives and damage to property buildings, farm land and crops were reported¹⁵³. Apart from some major calamities that have caused heavy damage to human life and property there are several minor calamities like land slides and mud flow in the high range areas of the district that have not been recorded anywhere officially. Field surveys clearly indicate that every year there take place several minor as well as major land slides in the high range. In 1997 there was a severe landslide in Josegiri which washed away several acres of land¹⁵⁴. At Ealappedika in Kanichar, there was a heavy land slide in 2006 which caused severe loss to property and agriculture¹⁵⁵. As per the '*Brief Report on the Site Inspection at Taliparamba Taluk*'¹⁵⁶ 10 high land villages of Taliparamba taluk are in Red Zone high range which are the most vulnerable regions prone to landslides. As per the *Kannur District Disaster Management Plan 2015* between

¹⁵⁰ Landslide Atlas of India, NRSC, Hyderabad, 2023, P.8.

¹⁵¹ District Disaster Management Plan, 2015, p21.

¹⁵² Landslide Atlas of India, p.9.

¹⁵³ *Ibid.*

¹⁵⁴ Interview with Sebastian Joseph, living in Cherupuzha Panchayat, on 19-05-2023

¹⁵⁵ Interview with Tomy Joseph on 25-05-2024.

¹⁵⁶ Report was prepared in 2018 after field inspection in Taliparamba Taluk by members of KSDMA.

2002 and 2013 there were several landslides in the high range of the district every year barring one or two years¹⁵⁷. It is evident from the Landslide Atlas of India, 2023 that the district of Kannur is ranked 26 among the Indian districts that are exposed to landslides¹⁵⁸. It indicates the vulnerability of the district to natural disasters. The following table gives the details of landslides disaster history of Kannur from 2003 to 2013.

Table 6.4: Details of Landslide Disasters in Kannur District (2003-2014)

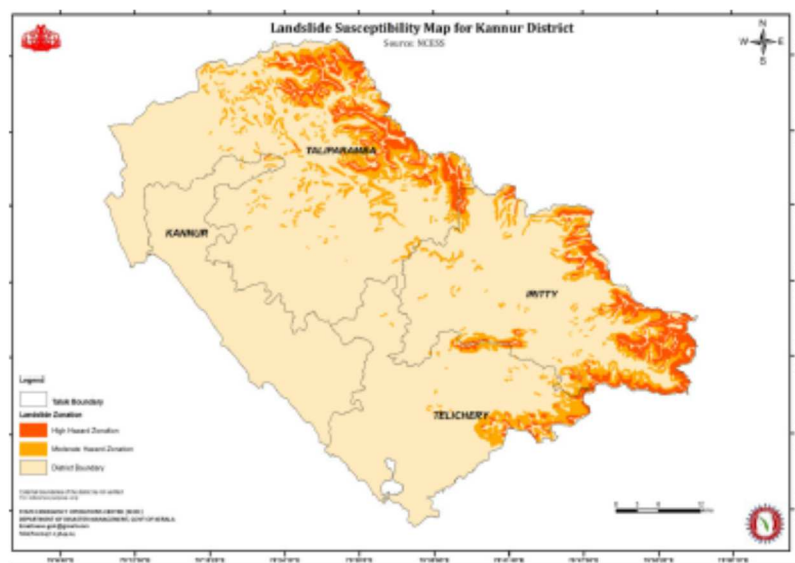
Sl.No	Year	Type of Calamity
1	2003	Landslide
2	2004	Landslide
3	2005	Landslide
4	2006	Landslide
5	2007	Landslide
6	2008	-----
7	2009	Landslide
8	2010	Landslide
9	2011	-----
10	2012	Landslide
11	2013	Landslide
12	2014	Landslide

The following figure shows the landslide susceptibility map of Kannur district. It is evident from the map that the high range of Kannur comprising the eastern parts of the taluks of Thalassery, Iritty and Taliparamba are prone to landslides.

¹⁵⁷ District Disaster Management Plan 2015, p.23.

¹⁵⁸ Landslides Atlas of India, p.60.

Figure 6.2: Landslide Susceptibility Map of Kannur District



Source: District Disaster Management Report, Kannur 2015.

2. Drought

In recent years drought has become a common phenomenon in the high range. Often drought effects in the drying up of crops and water sources and high land people are forced to travel long distance for fetching water. Many high land villages are prone to drought. For instance, villages like Kottiyur, Aralam, Ulikkal, Ayyankunnu, Sreekantapuram, etc are highly prone to drought even though these villages are rather rich in forest and vegetation. During the past decade there were several droughts in many high land villages. In 2016 and 2018 eastern parts of Kannur were affected by drought.

The following table will give the list of vulnerable areas in the district to various disasters.

Table 6.5: Villages vulnerable to various disasters in Kannur District in 2015¹⁵⁹

Sl. No.	Taluks	Landslide	Earthquake
1	Thalassery	Trippangottur, Cheruvanchery, Bekkalam, Velamana	The whole taluk comes under earthquake Zone IV where an earthquake of magnitude 6 may occur
3	Iritty	Vellarvelli, Manathana, Kelakam, Kottiyur, Muzhakkunnu, Ayyankunnu, Kalliyadu, Padiyur, Nuchiyadu, Vayathur	The whole taluk comes under earthquake zone IV where an earthquake of magnitude 6 may occur
4	Taliparamba	Vellora, Pulingome, Peringome, Thirumeni, Thimiri, Kooveri, Panniyoor, Chuzhali, Nuchiyadu, Nidiyenga, Sreekandapuram, Payyavoor, Eruvessi	The whole Taluk comes under earthquake zone IV where an earthquake of magnitude 6 may occur

It is evident from the above table that the entire high range villages of the district are prone to landslides, mudflow, earthquake type IV and drought. According to the report of the KSDMA almost all high range villages are prone to moderate drought¹⁶⁰. The table given above explicitly shows that human induced disasters are high in the highrange regions of the district. Iritty and Taliparamba taluks where most of the villages lying on the east are vulnerable to landslides.

On the basis of careful and extensive compilation of information and wide range of field visits, consultations and analysis, The Western Ghat Ecology Expert Panel(WGEEP)has designated the entire Western Ghats as an Ecologically Sensitive Area (ESA)and assigned three levels of Ecological Sensitivity to different regions of

¹⁵⁹ District Disaster management Plan, 2015, p.25.

¹⁶⁰ *Ibid.*

it’’¹⁶¹. Of the 32 taluks through which the Ghats pass in Kerala, 27 are in ESA as per the report¹⁶². Population transition in the high range of the state increased enormously in the past seven or eight decades which has left unprecedented impact upon the nature and ecology of the region. The WGEEP¹⁶³ has put Paithalmala the highest peak in Kannur under one of the Ecologically Sensitive Localities on the Western Ghats¹⁶⁴. ‘During every monsoon in and around the Paithalmala there occur landslides and mudflow causing heavy damage to property and lives’¹⁶⁵, says M V Raghavan a native of Eruvessi. ‘Our lives are at stake during monsoon as landslides occur at spots that are not known to us earlier’¹⁶⁶, says Bhaskaran another native of the region. This is not surprising or un believable as Eruvessi Panchayath has been put in Red Zone, prone to landslides in 2018 in the report of the Inspection committee of KSDMA¹⁶⁷.

One notable change that has taken place in the land scape of the high range of Kannur is that the land has undergone fragmentations on a large scale in recent years. This was mostly due to the disintegration of the concept of large family and the emergence of nuclear family in its place. ‘I had three acres of land in the up the hill which was partitioned among my children soon after they got married’’, says Thomas, a native of Alakode Panchayat¹⁶⁸. In this way partition of family property takes place in the highrange, which is commonly found among the migrant communities. Partition of family property before the death of family headman or head woman is not

¹⁶¹ *Western Ghat Ecology Expert Panel Report, Part I*, Ministry of Forest and Environment, Govt. Of India, 2011, p.2.

¹⁶² *Ibid.*

¹⁶³ Western Ghat Ecology Expert Panel headed by Famous Environmentalist Madhav Gadgil constituted to study and submit report to the government on the environmental issues related with the Western Ghats and proposals for its conservation.

¹⁶⁴ WGEEP, p.20.

¹⁶⁵ Interview with MR Raghavan aged 77 living in Eruvessi Panchayat, on 30-07-2024.

¹⁶⁶ Interview with Bhaskaran MK, aged 73, living in Eruvessi, on 30-07-2024.

¹⁶⁷ Kerala State Disaster Management Authority is a statutory body set up under the Disaster Management Act 2005, under the Chairmanship of the Chief Minister.

¹⁶⁸ Interview with Thomas Kongola, aged 79 years, on 13-05-2024. He has 5 children and they all live separately after their marriage. They received their share of property from their father.

common among the native Hindus in North Malabar, especially Kannur. More over the ‘golden years’ of migration elapsed by around the beginning of 1990 when the era of globalisation¹⁶⁹ started in the last decade of the past century. It opened up a wave of opportunities not only in the urban areas but in the rural areas also. One remarkable change that can be noticed in the high range was the growth of real estate business by the end of 20th century. Mashrooming of real estate agents with an eye on the landed property of high range settlers intensified the financial transactions and those lands close to towns were sold out many times until huge buildings of many stories are constructed. When large areas of land were sold out it was fragmented into many pieces where houses and shopping complexes were largely built up. By the end of 1990s, land transactions in the high range increased many times¹⁷⁰. Land transactions on a large scale led to drastic change in the landscape. Flow of foreign money from the Middle East and European countries into the high range is enormously deposited in the real estate business on landed property and, buildings.

There was a rapid change in the pattern and style of building constructions in the high range of the district since the 1990s. ‘Till the end of last decade of 20th century, there were several thatched and tiled houses with mud walls and wooden poles in the high range areas’¹⁷¹, says Kunnumpurath Krishnan, a native of Alakode. It is an important thing and feature of high range in the 20th century even when the midland and low land settlements had almost turned into concrete buildings. For instance, in Ward 3 of Peringome Vayakkara Panchayat during 1993-94 almost buildings were roof tiled ones¹⁷². Remarkable change in architecture and type of

¹⁶⁹ It’s an economic phenomenon by which the entire world economy shrank into one global economy without any barriers. Launched in the last decade of 20th century Globalisation brought about far reaching impact upon the economy in India in the past 30 or more years.

¹⁷⁰ Number of land registrations in two sub Registrar Offices of Peringome and Alakode at the end of 20th century and the beginning of 21st century shows the volume of transactions in the high range of the district.

¹⁷¹ Interview with Kunnumpurath Krishnan, aged 82 living in Alakode Panchayat, on 8-9-2023

¹⁷² Building Assessment Register of Ward 3 of Peringome Vayakkara Panchayat, Kannur District. For more details see Appendix.

buildings takes place in the high range by the last decade of 20th century. Now we can see hardly any thatched houses in the high range. With the introduction of decentralisation, local bodies have started on a large scale construction of houses to the houseless in Kerala. The interesting thing is that the pattern and style followed in entire Kerala irrespective of the terrain and the habitat are the same. By destroying the natural habitat of the tribal people they are also being tried to be closeted in concrete houses. In place of the traditional pattern of building construction, when new building culture began to be embraced by the high land people the demand for all kinds of raw materials like laterite and granite stones, and soil multiplied many times which eventually leads to the disappearance of hills and mounts. When more trees are cut off, hills are reduced to ground zero, and more quarries are formed, the genuine landscape and ecology are destroyed. For clearing the land making suitable for either laterite or granite quarries, the genuine ecology and biodiversity are destroyed for ever, the recovery of the lost heritage can't ever be possible.

The average number of buildings in any local body or a village in the high range has multiplied many times since the time of revenue re-settlement in 1933. For instance in 1933 in Eruvessi there were only 195 houses¹⁷³ and the population was 1552¹⁷⁴. In 2011, the population of Eruvessi village is estimated to be at 19276¹⁷⁵. Naturally the pressure that population exerts up on the environment is hence so intense and multifaceted. This is common to all areas across the district. The change in the demographic features over the decades has largely resulted in the shift in the land use pattern which ultimately brought about unprecedented change in the ecology and terrain of the high range region.

A close watch on the recent landscape and ecology in the high range of Kannur would reveal the fact that over the years the region has undergone unprecedented changes in its landscape, ecology, lifestyle and habitat. Till the end of 1970s there

¹⁷³ Descriptive memoir of Eruvessi Desam of Chirakkal Taluk, Malabar District fasli 1343, p.1

¹⁷⁴ *Ibid.*

¹⁷⁵ Census Report of India, 2011.

was heavy inflow of population into the high range and they settled there for and probably from the beginning of the century there began to take place a tendency of reverse migration to down the hill. Even though the situation may sound as unique it gave way to the rise of speculators on the availability of extensive un inhabited land where land mining and quarries could be started. In this way demographic transition and other developments consequent on that change in different ways caused the transformation of landscape, ecology and the real history of an area. Human intervention and its implications upon nature are catalysts in shaping the current life of the people in the high range. The geological and topographical transformations in the upland areas largely affect the subsistence pattern of the living beings. Human animal clash is on the increase in the high range recently.

Chapter 7

Conclusion

Environmental transformation and the subsequent impact upon the life of the people have a prolonged history across the world. Geography and environment play a vital role in shaping the history of a land and the relation of the land with these factors is millennia old. Right from the beginning of the very ancient period itself humans had close acquaintances with nature and environment. However the intervention of early humans in nature did not bring any far reaching consequence in the ecological and social life of the people. In other words human intervention in nature in the early period was for only for the sake of subsistence. Whatever relation the primitive man had with nature was healthy and unsophisticated. This healthy relation between man and nature continued for a long time until it got dilapidated with lust and greed of modern man. Till the beginning of industrial revolution nature and environment had no severe threat from humanity. Colonialism, which was the child of geographical explorations and perpetuated by industrial revolution left an unimaginable impact upon nature. The beginning of industrial revolution in England in the 18th century brought about unprecedented changes in the life of man and nature in Europe and later in other parts of the world.

Ecological transformation and the impact of human intervention have now a days become burning topics among both environmentalists and social activists. The past decade of the present century witnessed many natural calamities in the state. Human intervention and change of landscape in the state of Kerala have recently created concerns among the people. Relevance of the Gadgil Report increases in this context. The report submitted in 2011 to the Government of India stresses the need for initiating steps to safe guard the Western Ghats. The Ghats region of Kerala is perhaps the most dangerous epic centre of natural calamities in South India in recent

years. Most of the natural calamities that happened in recent decades in Kerala are the impacts of unwise human intervention in nature.

From the early decades of the last century there was unprecedented human intervention in the high range of Kannur which is a part of the Western Ghats. This was mostly due to demographic transition that takes place during the period. Till the census of 1921 the population in the high range of the district was nominal, Revenue settlement records at the beginning of 20th century clearly make mention about the demographic statistics. But, from 1931 onwards we can see changes in the number of population in the high range of Kannur which in the following decades increases enormously. The study points out that during this period onwards there was a large scale influx of peasant migrants into the region from Central Travancore. Advent of the migrant peasants from South Kerala to North Malabar has larger implications up on the environmental life of the people of North Malabar especially in the districts of Waynad, Kannur and Kasaragod. Before the migration of peasants in the third decade of 20th century, the high land of Kannur was mostly un occupied or less occupied. As population in the high range was very less there was splendid availability of land which was hither to uncultivated. When large scale migrant population came to the high land of Kannur intervention on nature became so complex and vigorous. At one time the migrants started clearing the vast un occupied land and started occupying this for their settlements. One notable transition that one can notice in the high range of Kannur is that the geography of the region has undergone drastic changes during the past decades. It is a fact that many water resources on the high range have either vanished or dried up due to an unprecedented increase in population in the region since 1920. Reduction of forest areas, shrinking of wet land area, conversion of cultivable land into uncultivable which is largely used for commercial purposes all take place since the period and these changes have effected greater ecological threats and environmental crisis in the region.

In the newly reclaimed land they started introducing new crops. In the beginning it was tapioca that was mainly used for meeting poverty at that time. For tapioca cultivation large tracts of land was made ready with the help of new tools they

brought with them. Tapioca occupies an important place in the life of the people of high range especially of the migrant people

From the 1940s onwards extensive area of land was brought under cultivation of tapioca and other new crops brought by the migrant peasants. Actually transformation of landscape of the high range takes place with the introduction of new crops by the new settlers. Introduction of rubber plays a predominant role in reshaping the terrain and landscape consequently affecting the ecology and life of the people the region. From the 1950s onwards rubber as plantation crop began to be cultivated in the high range of Kannur. During the beginning the area under rubber cultivation was quite less which in the following decades made a giant leap. The interesting thing is that with the spread of rubber into extensive areas of high range there was a sudden decrease and later disappearance of the *punam* cultivation from the area. The impact of the human intervention in the high range may be traced through the disappearance of the traditional mode of cultivation and crops. Before modern types of cultivation and crops the high range people had been following traditional form of cultivation and crops which was generally called as punam. *Punam* as we generally know is as old as early Tamil culture. A tradition that the early humans had developed completely disappeared from human life with the introduction of new cropping pattern. With the extinction of traditional crops and mode of cultivation millennia old culture is lost to humanity. Traditionally the people of high range lived on the indigenous crop items like tubers, pulses and garden crops. With the introduction of 'foreign' crops the native people abandoned the age old crops and cultivation practices. Penetration of the 'unknown' crops into the economic life of the people to a great extent led to the change in the agrarian practices in the high range. Aged people even now cherish the memories of the indigenous systems of knowledge that had been in prevalence in their life before the advent of the modern crops and agrarian practices.

Introduction of rubber and other modern crops played a pivotal role in restructuring the high land economy. One notable transformation in the high range of the district is obviously in the field of the rural economy. Earlier what the native

people experienced was the kind of a subsistence economy¹ based on the traditional agricultural knowledge systems. But with the introduction of modern crops into the area economy changed largely into a capitalist mode. Large scale adoption of cash crops in lieu of food crops and other traditional crops the subsistence economy began to transform into capitalist economy where the role of cash crops is very vital.

Ever since the change in the demography of the region started taking place in the first half of 20th century the impact may be seen in the nature and geography also. When population started increasing the requirements of the people also increased. Intervention on nature was two pronged. On one hand the early settlers changed the agricultural pattern the high range by introducing tapioca on a large scale. On the other introduction of cash crops especially rubber required reclamation and reshaping of the land. When the process of restructuring the land continued for decades the landscape in the high range totally changed by transforming the land from rich fertile to rather a barren and less fertile in a few years. It is in this context the role of *punam* becomes relevant in the rural economy. The introduction of new crops and agricultural practices naturally made the settlers in the high range move to artificial fertilization depending more on fertilizers instead of natural manuring system. Along with this the destruction of natural forest and the introduction of monocrops on a large scale in the high range largely destroyed the land scape and ecology. Even though the British colonial intervention in the forests may be seen as early as 1842 it was mainly in south Malabar. 'The British started artificial teak plantations in Nilambur during the period'². In North Malabar colonial intervention in the forest was not as strong as we see in the South in the first half of 19th century.

At the dawn of 20th century the situation in the high range of North Malabar began to change. The change that we can notice mainly is in human intervention in the region. By this time the population of North Malabar began to increase considerably. From the census reports of 1931 onwards we can see increase in

¹ It means the economy in the high range in the early years of 20th century was depending upon the traditional agriculture for subsistence

² Joshy Mathew, *Ecological Transformation in Western Ghats*, Manohar, New Delhi, 2024, P.234

population in the high range of Kannur. Till 1921 the population in the high range was relatively very less. Since 1931, it began to change. In the census reports after 1931, high range population was increasing at a remarkable rate. The main reason for the increase in the population was the migration of peasant population from South Kerala to North Kerala. As per the census reports, after 1931, there was large scale migration of peasants from Central Travancore into the high ranges of Northern Districts of Kerala. Kannur was an important destination of the peasant migrants. As the availability of cultivable land was very high large areas of land was occupied by them and in the subsequent years they made use of the occupied land for cultivation of various crops which they brought with them. These crops required massive human intervention in land which ultimately led to the change in the landscape and destruction of the bio diversity of the pristine forest land its premises. Statistical evidences show that the density of population is the highest in the Kerala part of the Western Ghats region³. As per the descriptive memoirs of various *amsams* in the high range of Kannur in the beginning of the past century the population of the region was very low. It is evident that the human intervention in the region during the period was not at all sensitive as it is after 1940s. But the pressure on land exerted by population owing to large scale migration from Southern Kerala resulted in the change in its terrain and landscape. Restructuring the land for various kinds of crops and deviation from the traditional mode of cultivation and crops made the ecology rather fragile and sensitive to natural calamities. After the census of 1951 the population of the high range of Kannur increased many times. In almost all high range panchayats there are thousands of the migrant people from central Travancore by 1971. They introduced several new crops which have different yielding period and varying type of farm management.

Human intervention in the high range areas of Kannur significantly transformed the landscape over the past century. Intervention of humans brought about changes in agrarian expansion, urbanisation, deforestation infrastructural development like housing and road making and in due course of time led to profound

³ V Rmachandran, 'Approach to Development in the Western Ghats' inks Nair, etal; (Ed), Ecocodevelopment of Western Ghat, KFRI, Peechi, 1984, pp7-9.

ecological and socio economic impacts. Since the 1920s, the high ranges of Kannur have undergone extensive changes in land use pattern. Introduction of plantation crops especially rubber and other cash crops made the clearing of natural forest at an alarming degree. As a consequence of the process, fragmentation of land and decline of bio- diversity became the basic cause of natural calamities in the upland region in the following decades. Again the situation in the high range was further intensified by the development in the infrastructure and expansion of settlements. These changes take place in the wake of demographic transition in the high ranges of Kannur. From the second half of 20th century. These material developments eventually led to the destruction of the terrain and decline of the biodiversity. Construction of the Tellicherry-Coorg road and the subsequent infrastructural developments in the succeeding decades catapulted the process of ecological degradation in the high range of Kannur. Rise and growth of urban centres and change in the land use largely affected the ecology and land scape of the high range. How human intervention in nature will affect the ecology and geography can best be seen in the high range of Kannur.

Till 1950, in the high ranges of Kannur, there was hardly any town. In other words, the process of urbanisation in the region takes place only after 1950. The quintessence for the impact of human intervention in the region may be seen in the evolution of urban centres on the Western part of the Western Ghats in Kannur. Growth of trade in the upland areas along with demographic transition are important reasons why there was a rapid urbanisation. Before 1950 we can see that the high range people largely depended on the urban centres that were in the midland or low land. Trade centres like Tellicherry, Payyanur and Taliparamba were the important trade centres in the early decades of 20th century in the district. In the beginning of migration people maintained trade contact with these centres. But after some time many urban centres emerged in the high range region. These new town centres became the hub of trading activities where hill produces are abundantly traded. New towns some of which are municipal towns, emerged quite late in the last few decades of 20th century. Growth and expansion of these towns may be traced back to the evolution of modern agrarian practices and education. Development of education and

the resultant out ward migration to the Western countries and the Gulf contributed to the economic advancement of the region.

Unwise human intervention on nature has made the life some times difficult for subsistence because of the change in the terrain and landscape. As per the settlement registers of 1903 and resettlement registers of 1933 the area of wet land measured in the high range villages was very high. Where as as per the data bank prepared in 2008 across the state of Kerala the area of wet land in the high range of Kannur is found reduced. This is mainly due to human intervention in land in the 20th century by which the land use pattern got shifted, and land got fragmented due to the development of micro or nuclear family concept. In the context of Kannur after the early human settlements the Brahmin settlements take place in the 8th and 9th centuries. Payyanur and Perumchellur (present day Taliparamba) were the earliest Brahmin settlements in the district. Even though they brought with them iron implements they settled on river banks and engaged in wetland agriculture. Migration in the medieval and colonial times did not affect the normal life and ecology of the high range areas of the district as in the modern period even though there was colonial intervention in the forest in the British Colonial period. It is to be assumed that the impact of early human settlements in the highrange was not that severe. As mentioned earlier it was with the increase in population in the high range that eventually reshaped the ecology and landscape. Peasants from central Travancore from the third decade of 20th century started moving towards the North in search of new pastures where their subsistence was possible. When the process of migration continued unaltered for decades the population in the high range began to increase enormously. Naturally the intervention of the humans in nature also began to increase.

After the formation of the state of Kerala many infrastructural projects have been undertaken here. For instance many hydro electric and irrigational projects have been undertaken in the state. It is to be noted that in the beginning of 20th century there was only one irrigation project in Kerala that is the Mullaperiyar Dam. What we see in Kerala today is the out come of the development projects undertaken after 1956. From this alone we can just assume the gravity of natural hazards that could have been

effected due to human intervention. For the purpose of the completion of several such schemes in recent past the ecology and biodiversity of Western Ghats are unwisely destroyed and the flood and landslides that are reported on the Ghats are of course the outcome of the development projects. Apart from these there both legal and illegal extraction of resources from the high range for building infrastructures. Land mining, granite quarrying, laterite quarrying etc have increased enormously in recent years and as a consequence of which many public protests have escalated the region. In the wake of growing resistance by the natives of high range the authorities have put stringent measures to curb the exploitation of nature by humanity. But the vicious minded people by way of starting illegal mining and quarrying continue the exploitation unabated. And the net result of this unnatural intervention in nature land slides, flood and drought become order of the day in the high ranges in recent years.

Introduction of new agrarian techniques and crops brought about drastic change in the landscape of the high range. Newly introduced rubber for instance require land restructuring and the extensive use of land for rubber cultivation thus caused heavy damage to the ecology of the region. More over the plant requires huge amount of water for its growth. Naturally the excessive use of land for rubber cultivation causes drought in the high range area. 'Till the introduction of rubber in our areas there was hardly any shortage of water'⁴, says Narayanan a resident of Kanichar. Hence it is evident that a major transformation in the ecology and environment of the high range of the district occurs since 1920s as migration to the high range largely takes place during the period. Following the migration which persists for many decades the demography also shows a transition in the region. The growing demand for food as well as money made the people think of an alternative which eventually led them into the realm of cash crops like rubber and subsistence crops like tapioca.

Humans are overpowering nature to such a level that the life support system in an area gets damaged. What ultimately happens in the upland regions of the state of Kerala in recent years is the 'human versus nature'. Over the years there were many

⁴ Interview with Narayanan aged 83 years living in Kanichar, on 20-04-2024.

natural calamities subsequent losses to humanity and property. This was mostly on account of the change in the pattern of cultivation and intervention in nature. Earlier it was emphasis on conservation of forestry and later by around 1980 it was shifted to cultivation forestry by raising monoculture plantations which are economically vital. In the high range economically important monocrops like rubber, cashew, tea, coffee etc began to be raised that altogether brought about change in the landscape and land use pattern.

As in the case of many other eco systems across the world the Western Ghats eco system has been subject to serious human intervention by way of habitation, agriculture, land restructuring etc. This eventually tends to exert pressure upon the extremely delicate bio diversity of the region.

Development of education and the resultant outward migration to foreign countries play a vital role in the transition of the landscape and ecology of the region. After the 1950s there was an explosion of education in the high range of Kannur with the migration of Syrian Christians. Even though the high range is very much devoid of infrastructural facilities like roads and electricity in the early decades of 20th century, there were educational institutions in the region as early as the first half of the 20th century. These institutions especially primary schools and later high schools played a vital role in imparting education to the high range settlers. Most of the people had schooling in the high range more than that of those who lived in the midland⁵, says Manoharan, a migrant peasant. This statement is quite true when a close watch up on the rate of aged literate persons is assessed. This, in the later years proved to be a boon as far as the high range settlers are concerned. The number of those who migrate to the European Countries and the US from the high range is much bigger when it is compared with those from the midland or low land. In the early years of outward migration the immigrants used to remit foreign exchange which has left an indelible imprint in the ecology and landscape of the region. When there was an incessant flow of foreign exchange the beneficiaries of the remittance naturally began to think of an alternative means for making use of the hard earned income from

⁵ Interview with Manoharan, aged 79 years on 16-04-2023.

abroad. This is largely invested in housing and commercial sector which altogether reshaped the landscape and its ecology. A journey through the villages of the high range of the district with many mansions of multi stories and many high rise buildings would really keep one aghast. Constructions of many types and genre require alterations in the terrain. For under taking constructions and other development activities the mounts and hills are destructed beyond words could explain in the region.

The pressure exerted by buildings upon nature is multi dimensional. It leads to altering the natural form of land and terrain on one hand and on the other large scale exploitation of natural resources for construction in the form of granite and laterite quarrying and land mining. It eventually leads to many natural calamities like landslides and flood and drought in the high range.

To sum up the high range of Kannur has undergone drastic changes in its landscape and topography since the 1920s. Ever since the transition in demography started to take place from the third decade of 20th century the intervention in the region began to be immense. Population flow into the region following the migration of Syrian Christians and other communities from Southern Kerala exerted pressure on nature. Clearing of forests for dwelling and agriculture largely effected on the felling of natural forests and re- structuring of the terrain. Inflow of new genre of people led to the displacement of the aboriginal communities and the introduction of new cropping pattern resulted in the evolution of the high range rural economy into a semi capitalist form. Introduction of Rubber in positive terms could ensure financial stability and growth of the high range people and in negative terms it the landscape and ecology were largely affected on account of the widespread of the rubber cultivation.

Glosary

1. Amsam : Amsam is amalayam word normally used to mention a revenue village
2. Desam : Desam is part of a revenue village. Normally a village consists of one or more desams.
3. Janmi : Landlord
4. Kaikottu : Spade. It is a agricultural implement.
5. Kaippad : Paddy fields of organic rice cultivation with aqua culture, prone to salinity in North Kerala.
6. Kappa : In Norh Malabar especially in Kannur tapioca is known by the name Kappa
7. Kappana : A pit formed out of the cutting of laterite stone in the mid land
8. Kappana : Kappana is the place from where laterite stone is cut for constructions.
9. Koova : Arrow root. It is a tuber which was earlier planted as a garden crop in Kerala used for preparing medicines
10. Kudampuli : Malabar tamarind commonly found in the high range regions
11. Kunnu : A small hill
12. Mala : A high mount
13. Maracheeni : It is another name of Tapioca in Malayalam usually known in Travancore
14. Nendran : Banana is known as Nendra in colloquial Malayalam.
15. Punam : Traditional mode of cultivation followed since early time those living in the high range
16. Sabha : An assembly of people
17. Taravad : A large Hindu family headed by a male member who is known as Karanavar

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APENDICES

Appendix I

Assessment Register of Tondiyil Desam, 1903

Survey Map No. 53.

DESCRIPTIVE MEMOIR OF TONDIYIL DESAM No. 53. OF THE KOTTAYAM TALUK.

1. The Settlement was introduced into this desam in Fasli 1313.

2. **SITUATION.**—This desam is situated about 23 miles North-east of Telli-cherry.

3. **AREA.**—The area of the desam by Settlement is 1234 acres, 8 cents. This desam together with Manathana, Alacheri, Kappat, Kolayad, Kommeri, Kotum-manga, Kunithalu, Maringodi, Peavoor, Peruva, Vayannur, Poyari, Puthalam, Tiruvonapram, Tondiyil, Vellakkam and Vellarali desams formed the old revenue amsam of Manathana.

The areas under each description of land are given below:—

—	Wet.		Garden.		Occupied dry.		Unoccu- pied dry.		Unassess- ed.		Inam.		Peram- boke.		Total.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	ACS.	CTS.	ACS.	CTS.	ACS.	CTS.	ACS.	CTS.	ACS.	CTS.	ACS.	CTS.	ACS.	CTS.	ACS.
Private Jan- mam (Ryot- war).	29	70	7	49	24	56	1172	33	...	...	...	...	...	...	1234 8
Government Janmam (Ryotwar).	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Unregistered lands	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ..	29	70	7	49	24	56	1172	33	...	...	...	...	...	...	1234 8

Nothing in this memoir or the settlement register should be understood as admitting any title to the exclusive use or occupation of any land over which the public has a right of way or which by law or custom vests in Government of the public.

4. **DEMARICATION.**—This desam, as now formed by settlement, contains 28 survey fields.

The demarcation marks erected and standing are noted in the margin. The amsam officials have given receipts for them. The ryots are responsible for the maintenance of the survey marks. It is the duty of the village officers to prevent the destruction injury or alteration of any survey mark and to report any such destruction, injury or alteration to the Revenue Inspector without delay

Appendix II

Population Distribution in Thondiyil Desam, 1903

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5. **POPULATION**—The population of the desam as ascertained by the different censuses was as under:—

5. POPULATION.—The population of the district in the year 1901, as compared with the population in the year 1891, was as under:—												
Year of census.	Number of inhabited houses.	TOTAL POPULATION.			RELIGION.			OCCUPATION.				Population per 100 acres of Occupied land.
		Males.	Females.	Total.	Hindus.	Mohammedans.	Others.	Agriculturists.		Weavers.	Others.	
								Landholders.	Labourers.			
1	2	3	4	5	6	7	8	9	10	11	12	13
1891	12	41	20	61	44	17	...	28	4	...	29	99
1901	23	105	95	200	197	9	...	55	63	...	88	334

6. **HOLDINGS**—The private Jahmam ryotwar holdings during the year of Settlement (Fasli 1313) were classified as follows:—

Pattadars paying.				NUMBER.			Extent.		Assessment.		
				Single.	Joint.	Total.					
							ACRES.	CTS.	Rs.	AS.	
Rs. 1 and less	...	...	...	5	...	5	5	89	4	1	
Rs. 10 and less but over Rs. 1...	...	...	...	3	1	4	17	73	22	2	
" 30 do. Rs. 10...	...	...	...	2	...	2	33	13	43	6	
" 50 do. 30...	...	...	...	...	...	...	...	...	...	...	
" 100 do. 50...	...	...	...	...	...	...	...	...	...	...	
" 250 do. 100...	...	...	...	...	...	...	...	...	...	...	
" 500 do. 250...	...	...	...	...	...	...	...	...	...	...	
" 1,000 do. 500...	...	...	...	...	...	...	...	...	...	...	
Over Rs. 1,000.	...	...	...	...	...	...	...	...	...	...	
Total				10	1	* 11	61	73	69	9	

There were no occupants of Government Janmam Ryotwar land in the same year.
 * Of the 13 Settlement parties 1 was leased for the holdings of occupants jointly registered under Section 14 of Act III of 1890.

Appendix III

Area of Wet Land, Dry Land and Garden Land in Tondiyil Desam, 1903

HOLDINGS AND REVENUE.

OCCUPIED AREA.										DIRECT WASTE LIMITED.										REMAINDER CHARGED.										SECOND CROP.										DIRECT EX- TENDING OTHER THAN WASTE ALREADY ABOVE IN COLUMN 11.										Net demand for the year.										Amount.		Current.		Ascert.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
W.S.		Gravel.		Dry.		Total.		Waste.		Ritual.		Assessment.		Ritual.		Assessment.		Waste charged.		Total extent charged.		Assessment.		Ritual.		Charge.		Miscellaneous revenue.		Total profit or demand exceeding		Occasional permission other than for waste, ditches.		Total.		Net demand for the year.		Amount.		Current.		Ascert.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000

Appendix IV

Area under Private Janmam, Government Janmam, Unregistered Land in Kannavam Desam, 1903

Survey Map No. 76.

DESCRIPTIVE MEMOIR OF KANNAVAM DESAM No. 76 OF THE KOTTAYAM TALUK.

1. The Settlement was introduced into this desam in Fasli 1313.
2. **SITUATION.**—This desam is situated about 12 miles north-east of Tellicherry.
3. **AREA.**—The area of the desam by Settlement is 332 acres, 81 cents. This desam together with Thotikkalam, Etampa, Kunderipoyil, Katavallur, Panampatta, Chittariparamba, Etayar, Mattanur, Malur, Motappallur, Puvattur, Puyiyot and Vattoli desams formed the old revenue amsam of Kannavam.

The areas under each description of land are given below :—

—	Wet.		Garden.		Occupied dry.		Unoccupied dry.		Unassessed.		Inam.		Poramboke.		Total.		
1	2		3		4		5		6		7		8		9		
	ACS.	CTS.	ACS.	CTS.	ACS.	CTS.	ACS.	CTS.	ACS.	CTS.	ACS.	CTS.	ACS.	CTS.	ACS.	CTS.	
Private Janmam (Ryotwar)	24	54	66	95	34	91	10	37	...	...	...	...	...	...	136	77	
Government Janmam (Ryotwar).	...	..	3	65	54	62	...	...	...	...	...	...	137	58	195	85	
Unregistered lands.	...	...	...	...	...	...	...	...	...	19	...	...	...	...	...	19	
Total	...	24	54	70	60	89	53	10	37	...	19	...	...	137	58	332	81

Nothing in this memoir or the settlement register should be understood as admitting any title to the exclusive use or occupation of any land over which the public has a right of way or which by law or custom, vests in Government or the public.

4 **DEMARICATION.**—This desam, as now formed by settlement, contains 90 survey fields.

The demarcation marks erected and standing are noted in the margin. The amsam officials have given receipts for them. The ryots are responsible for the maintenance of the survey marks. It is the duty of the village officers to prevent the destruction or injury to the survey marks and to report any such destruction, injury or alteration to the Revenue Inspector without delay.

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Appendix V

Holdings, Revenue and Chief Crops in Kannavam Desam, 1903

4

HOLDINGS AND REVENUE.

OCCUPIED AREA	Wet.	Garden.	Dry.	Total.	DEDUCT WASTE REMITTED.	REMAINDER CHARGED.	SECOND CROP.	DEDUCT RE-MISSION OTHER THAN WASTE ALREADY SHOWN IN COLUMN II.	Net demand for the year.	AMOUNT COLLECTED WITHIN THE YEAR	
										Arrear.	Current.
										24	25
1813	1	2	3	4	5	6	7	8	9	10	11
24-54	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ES.
60-1-0	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ES.
70-60	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ES.
147-7-0	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ES.
89-53	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ES.
74-13-0	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ES.
184-67	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ES.
238-5-0	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ES.
...	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ES.
184-67	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ES.
...	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ES.
184-67	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ES.
...	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ES.
288-5-0	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ES.
...	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ES.
...	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ES.
82-1-0	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ES.
370-6-0	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ES.
...	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ES.
62-11-0	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ES.
62-11-0	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ES.
62-11-0	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ES.
307-11-0	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ES.
...	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ES.
307-4-0	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ACS.	ES.	ES.

7. **CROPS.**—The chief crops cultivated are :—Cocoanut, Arecanut, Jack, Paddy, Gingelly, Pepper and Plantain.

8. **STOCK, PASTURAGE AND FORESTS.**—The total number of agricultural

Ballocks and he-buffaloes	...	No	595
Cows	...	"	589
She buffaloes	...	"	6
Young stock (under four years)	...	"	520
Sheep and goats	...	"	7

stock of the Kannavam *Amam*, according to the Census of the year 1900—1901 was as noted in the margin. Pasturage is obtainable for the cattle on the unoccupied dry lands. Water for the cattle is obtained from private tanks, wells and channels.

There are 9 carts, 280 ploughs and 3 oil mills in the *Amam*.

The area of poramboke (137.58 acres) includes 136.29 acres which have been notified as reserved forest under section 16 of the Forest Act.

Appendix VI

Name of Fields in Kannavam Desam, 1903

Survey Number. സൂചി നമ്പർ		Sub-Division. സബ് ഡിവിഷൻ	Name of field. പ്രദേശത്തിന്റെ പേര്	Government Jannam (G.), Private Jannam (P.J.) or Linnam (L.) ഗവണ്മെന്റ് ജാന്നം (ജി.), പ്രൈവേറ്റ് ജാന്നം (പി.ജി.) അല്ലെങ്കിൽ ലിന്നം (എൽ.)	Wet (W.), Garden (G.), Occupied Dry (O.D.), Uncultivated Dry (U.D.) വെറ്റ് (ഡബ്ല്യു.), ഗേർഡൻ (ജി.), ഓക്യുപൈഡ് ഡ്രൈ (ഒ.ഡി.), അക്യുൽവൈഡ് ഡ്രൈ (യു.ഡി.)	Single crop (1) or Double crop (2) ഒരു വിളവ് (1) അല്ലെങ്കിൽ രണ്ടു വിളവ് (2)	Class and sort of soil. മണ്ണിന്റെ തരം	Rate per acre. ഒരു ഏക്കറിന് വില	Extent. വിസ്തൃതി	Assessment. അവകാശം	No. of patta or pattas പട്ടയങ്ങളുടെ എണ്ണം	Name of patta holder പട്ടാളക്കാരന്റെ പേര്	
1	2	3	4	5	6	7	8	9	10	11	12	13	
1	...	Fulakkovil nilam. പുലക്കുവിലിൽ നിലം.	P J	W	1	7-4	5	2	...	88	1	12	
2	1	Kaniya kunninnu kilakko.....*	P J	O D		7-3	4	...	12	1	16	...	14
	2	Kaniya kunninnu kilakko.....*	P J	G Bad		7-3	6	2	...	67	1	5	
	3	Puttalattu paramba. പുത്തലാട്ട പാറമ്പ.	P J	G Worst		7-2	7	1	...	1	54	1	9
	4	Nirattinnu vatakke paramba. നിരത്തിന്നു വടക്കു പാറമ്പ.	P J	G Worst		7-2	7	1	...	60	...	10	
	5	Patinnare chirikandotta.....*	P J	O D		7-3	4	...	12	...	70	...	8
	6	Komattu paramba &c* കോമട്ട പാറമ്പ &c	P J	G Ordinary		7-2	4	4	...	1	74	6	15
	7	Nirattinnu vatakke.....*	P J	G Worst		7-2	7	1	...	68	...	11	
	8	Kannotta Jamattu palli, കണ്ണോട്ട ജാമട്ട പള്ളി.		U						16	...	...	
	9	Nerattinnu vatakke paramba. നേരത്തിന്നു വടക്കു പാറമ്പ.	P J	U D		7-2	3	1	...	6	...	...	
	10	Kannambattannati.....*	P J	G Worst		7-3	7	1	...	7	...	1	
	11	Kunimuttattil paramba. കുന്നിമ്മട്ടാട്ടിൽ പാറമ്പ.	P J	G Ordinary		7-2	4	4	...	35	1	8	
	12	Nirattinnu vatakke..... *	P J	G Bad		7-2	6	2	...	58	1	3	
		നിരത്തിന്നു വടക്കു പാറമ്പ.		തോ									
3	1	Kannambattannati.....*	P J	O D		7-3	4	...	12	...	2	...	1
	2	Kannambattannati.....*	P J	U D		7-2	3	1	...	2	...	...	
	3	Pelakkovil poyil..... *	P J	G Ordinary		7-2	4	4	...	34	1	6	
	4	Kovil paramba. കുവില പാറമ്പ.	P J	G Inferior		7-2	5	3	...	98	2	13	

*See detailed list.

* See detailed list. വിവരപട്ടികയ്ക്കു നോക്കുക

Appendix VII

Title Deed of Azhuvanchery Manakkal, 1978

IN THE TALUK LAND BOARD, TIRUR.
(Present).

Chairman: Sri. P.V. Raghava Variar,
Dy. Collector (LR) Malappuram.

Members: 1. V.V.C. Menon.
2. E.P. Mohammed Bappu.
3. K. Koyakunhi Maha.
4. N. Mohammed.

Ref: CR. 415/73 (C6) Dated: 25.9.78.

In the matter of determination of the extent and identity of the lands to be surrendered by the family of Sri. Azhuvancherry Manakkal Raman alias Valiya Thamprakkal, Athavanad under section 85(5) (c) of the K.L.R. Act.

ORDER.

Sri. Azhuvancherry Manakkal Raman alias Valiya Thamprakkal, Athavanad has filed the ceiling return under section 85(2) of the K.L.R. Act relating to the lands held by his family consisting of himself his wife and 3 minor children. Preliminary enquiry revealed that the declarant's family held an extent of 160.53 acres equivalent to 87.56 Std. acres. Out of which an extent of 2.12 acres equivalent to 1.22 Std. acres falls within the exempted category. The ceiling area allowable to the family was worked out as 11.99 acres equivalent to 10 std. acres. The extent of land to be surrendered was therefore provisionally assessed as 146.52 acres.

Accordingly a notice in form No.3 under rule 12(1) of K.L.R. Ceiling rules 1970 with a draft statement of land to be surrendered was issued to the assessee and his wife calling upon them to file objections if any against the extent and identity of the lands to be surrendered and to appear for a hearing before the Taluk Land Board. The declarant appeared through his Advocate and filed an objection statement which was got verified through the Authorised Officer. Further verification revealed that some lands held by the family was omitted to be included in the draft statement already issued. The Taluk Land Board therefore issued a revised draft statement on 22.2.77 asking the declarant to surrender an extent of 174.62 acres. The declarant appeared again and filed objection statements. Notices were also issued to all the interested persons in this case. A notice was published in the daily newspaper also to this effect. All the claims petitions filed by the various persons were got verified through the Authorised Officer. The Taluk Land Board on consideration of the objections, verification reports, documents filed and arguments of the Advocate decides as follows:

The assessee filed an objection on 24.3.77. On verification of claims and objections, it was found that the objection in respect of lands in R.S. 97 and 104 were contradictory to the claims of lands in respect of the same lands. The Taluk Land Board therefore decided to obtain a detailed objection in respect of lands in R.S. 97 and 104. An additional objection in respect of lands in R.S. 97 and 104 was filed on 23.12.77. Both the objections were got verified.

(p.r.o.)

NOTARY
VIKRAMAKUMAR. M.
Area: Malappuram District
Korala.
Reg. No: 4833
Expiry Date: 31-10-2022
GOVT. OF INDIA

Appendix VIII

Area of Wet Garden, Dry Occupied and Unoccupied Land in Pulingom Desam, 1933

2

8. *Classification and assessment.*—The wet lands of the desam are placed in III group. The dry lands are placed in III group.

On registered double crop lands the charge for the second crop has been consolidated at one-quarter of the single crop rate. For occasional second crop on land assessed as single crop, the charge will be one-half the single crop rate.

The following table exhibits the areas placed under the several classes and rates of assessment in wet, garden, occupied dry and unoccupied dry :—

Description of soil. (1)	Wet.				
	Taram.	Single or double crop.	Rate of assessment per acre.	Area.	Assessment.
	(2)	(3)	(4)	(5)	(6)
Old holdings—			RS. A.	ACS. C.	RS. A.
Red loam	7-3	5	2	3 0	2 89
	7-4	6	1	1 13	8 11
	7-5	7	1	1 3	2 7
				3 60	4 4
			Total	7 84	15 6

Description of soil. (1)	Taram. (2)	Single or double crop. (3)	Rate per acre. (4)	Wet included in holdings.		Wet not included in holdings.	
				Area.	Assessment.	Area.	Assessment.
				(5)	(6)	(7)	(8)
New holding.—Nil.							

Description of soil. (1)	Taram. (2)	Garden.					
		Old holdings.			New holdings.		
		Rate per acre. (3)	Area. (4)	Assessment. (5)	Rate per acre. (6)	Area. (7)	Assessment. (8)
		RS. A.	ACS. C.	RS. A.	RS. A.	ACS. C.	RS. A.
Red loam .. 7-3	5	3 9	1 35	4 13	..	..	..
	7	1 3	22 12	26 4	..	..	..
	Total ..	23 47	31 1				

Description of soil. (1)	Taram. (2)	Rate per acre. (3)	Dry.			
			Occupied.		Un-occupied.	
			Area. (4)	Assessment. (5)	Area. (6)	Assessment. (7)
Old holdings—		RS. A.	ACS. C.	RS. A.	ACS. C.	
Red loam .. 7-1	3	1 2	5 48	6 3	..	..
	4	0 14	43 67	38 3	5 14	
	5	0 11	854 57	587 11	12,400 43	
		1 2	3 8	3 7	..	..
	Total ..		906 80	635 8	12,405 57	

Description of soil. (1)	Taram. (2)	Rate per acre. (3)	Dry.			
			Occupied.		Un-occupied.	
			Area. (4)	Assessment. (5)	Area. (6)	Assessment. (7)
New holding.—Nil.						

The land assessment for fasli 1342 was Rs. 544-10-0; by resettlement it is Rs. 681-15-0; increase Rs. 137-5-0.

Appendix IX

Area of Land Cultivated with Chief Crops in Pulingom Desam, 1933

3

9. *Crops*.—The areas of lands cultivated with chief crops in the year of resettlement are shown below :—

Name of crop.	Area cultivated in fasli 1943.		Name of crop.	Area cultivated in fasli 1943.	
	First crop.	Subsequent crops.		First crop.	Subsequent crops.
(1)	(2)	(3)	(1)	(2)	(3)
	ACS. C.			ACS. C.	
Cereals—			Sugar—		
Paddy	847	0	Palmyrahs	..	..
Ragi	30	0	Others	..	..
Samai	..	..	Drugs and narcotics—		
Others	..	..	Betel vines	..	..
Pulses—			Arecanuts	4	0
Horsegram	..	..	Coffee	..	..
Red gram or dhol	..	..	Others	..	..
Greengram	..	..	Fruits and vegetables—		
Blackgram	..	..	Vegetables	6	0
Others	1	0	Plantains	..	..
Oil seeds—			Jack	8	0
Gingelly	..	..	Mangoes	7	0
Groundnut	..	..	Tapioca	..	..
Coconut	6	0	Onions	..	..
Others	..	..	Others	..	..
Condiment and spices—			Miscellaneous non-food crops—		
Chillies	..	..	Bamboos and thatching grass	..	..
Turmeric	..	..	Rubber	..	..
Tamarind	..	..	Babul and casuarinas	..	..
Pepper	3,376	0	Others	..	..
Ginger	..	..	All other crops	..	..
Others	..	..			
			Total area ..	4,285	0

10. *Agricultural stock*.—The agricultural stock of the desam according to the census of the year 1929–30 was as noted below :—

Bullocks and he-buffaloes	74	Sheep and goats	..
Cows	118	Carts	..
She-buffaloes	33	Ploughs	10
Young stock	88		

11. *Inams*.—Nil.

REVENUE SETTLEMENT OFFICE,*
PARTY NO. III.
Calicut, dated the 16th May 1936. }

S. BHOOTHALINGAM,
Special Settlement Officer.

Appendix X

Re-survey, Re-settlement Register of Pulingom Desam, 1933

A 163-44 10587-24
4094.88
2326.92 നവം

RESURVEY AND RESETTLEMENT REGISTER
OF
DESAM No. 36, PULINGOM, CHIRAKKAL TALUK,
MALABAR DISTRICT.

മലയാളം ജില്ല, ചിറക്കൽ താലൂക്ക്, 36-ാം നമ്പർ പുളിങ്ങോം മേടത്തിന്റെ റിസെറ്റ്
റിസെറ്റിൽമെന്റ് രജിസ്റ്റർ.

INDEX OF COLUMN NUMBERS. കൊളം നമ്പർ പട്ടിക.

Column number കൊളം നമ്പർ. 1. Resurvey number and subdivision. റിസെറ്റ് നമ്പറും സബ് ഡിവിഷനും. 2. Old survey number and subdivision. പഴയ സെറ്റ് നമ്പറും സബ് ഡിവിഷനും. 3. Name of field. ഭൂമിയുടെ പേര്. 4. Ryotwari (R) or Inam (I). റയറ്റ് വാരിയറോ, ഇനാമോ. 5. Wet (W), Garden (G), Occupied dry (O.D.), Un-occupied dry (U.D.), Unassessed (U), or Poramboke (P). നന്നായോ, തോട്ടമോ, സിരിം പുത്തായോ, അസയിര പുത്തായോ, നികുതിക്കടത്തായോ, പുറമ്പോക്കോ. 6. Single or double crop. ഒരു പുകൾമോ, രണ്ടുപുകൾമോ. 7. Class and sort of soil. മണ്ണിന്റെ ക്ലാസ്സും തരവും. 8. Taram. തരം. 9. Rate per acre. ഏക്കർ ഒന്നിന് വീതം.	Column number. കൊളം നമ്പർ. 10. Extent. വിസ്തൃതി. 11. Assessment. നികുതി. 12. Number of patta or inam title-deed and name of registered holder of the land or inamdar or manager of the institution to which the land belongs. പട്ടയത്തിന്റെയും, ഇനാമ അധികാരിയുടെയും നമ്പറും ഭൂമിയുടെ റജിസ്റ്റർ ചെയ്തുകിട്ടിയ മേടത്തിന്റെയും, ഇനാമക്കാരന്റെയും, ഭൂമി ഏതു സ്ഥാപനം വകയോ ആ സ്ഥാപനത്തിന്റെ ഭാരതലക്കയോ പേരും. 13. Occupant jointly registered under section 14 of Act III of 1896 as amended by Act I of 1920, 1896 ലെ 3-ാം നമ്പർ ആക്ട് 14-ാം വകുപ്പിന് 1920 ലെ 1-ാം ആക്ടുകൾക്ക് കീഴിൽ ചേർത്തവരുടെ പേർ. 14 Remarks. കുറിപ്പ്.
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1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	1, 32	*	R	P				RS. A. 390 0	A. C. 0	RS. 10			പഴ.
2	3-1	*	R	OD	7-3	5	0 11	4 80	9.60	8-5	1 താഴക്കാള മനയിൽ മോ		
	3-1	റിസെറ്റ് 2-1-ാം നമ്പർ മോക്ക.	R	OD	7-3	5	0 11	0 89	1.78	0-10	വിന്ദൻ തിരുമുഖ്യ.		
								5 69	3.15		ടി.		
3	3-1	റിസെറ്റ് 2-1-ാം നമ്പർ മോക്ക.	R	OD	7-3	5	0 11	12 46	44.92	8-9	1 താഴക്കാള മനയിൽ മോ		Page 10 in Appendix
	3-1	ടി.	R	UD	7-3	5	0 11	0 42	0.84		വിന്ദൻ തിരുമുഖ്യ.		Page 14 in Appendix
	2	റിസെറ്റ് കടവ നമ്പ.	R	G	7-3	7	1 3	0 44	0.88		ടി.		
								13 32	26.44				
4	3-1	റിസെറ്റ് 2-1-ാം നമ്പർ മോക്ക.	R	UD	7-3	5	0 11	0 92	1.84		1 താഴക്കാള മനയിൽ മോ		Page 14 in Appendix
	3-1	ടി.	R	OD	7-3	5	0 11	1 17	2.34	0-15	വിന്ദൻ തിരുമുഖ്യ.		Page 14 in Appendix
	3-1	ടി.	R	UD	7-3	5	0 11	1 15	2.30		ടി.		
	3-1	ടി.	R	OD	7-3	5	0 11	1 85	3.70	1-4	ടി.		Page 14 in Appendix
								5 9	10.78				
5	3-1	റിസെറ്റ് 2-1-ാം നമ്പർ മോക്ക.	R	OD	7-3	5	0 11	13 38	26.76		1 താഴക്കാള മനയിൽ മോ		
	3-1	ടി.	R	OD	7-3	5	0 11	2 7	4.14	1-7	വിന്ദൻ തിരുമുഖ്യ.		
								15 45	30.90		ടി.		
6	3-1	റിസെറ്റ് 2-1-ാം നമ്പർ മോക്ക.	R	OD	7-3	5	0 11	12 32	24.64		1 താഴക്കാള മനയിൽ മോ		Page 14 in Appendix
											വിന്ദൻ തിരുമുഖ്യ.		

Chirakkal-36-1 * വിവരപ്പട്ടിക നോക്കുക.

Appendix XI

Building Assessment Register of Peringome Vayakkara Panchayat

പെരിങ്ങമെ വയക്കര പഞ്ചായത്ത്					കെട്ടിനികുതി അസസ്സ്മെന്റ് റെഗിസ്റ്ററർ 1993-94 TO 1995-96									
ക്രമ നമ്പർ	വില	മുഖ്യ ഉടമസ്ഥൻ	പ്രധാന ഉപയോഗം	അനുബന്ധ വിവരങ്ങൾ	അടിസ്ഥാന വില	അളവ്	അളവ്	അളവ്	അളവ്	അളവ്	അളവ്	അളവ്	അളവ്	അളവ്
85	1258	91	മാവേലം	മുഖ്യ ഉടമസ്ഥൻ	180.00	181.00	9.80	180.00	181.00	9.80	180.00	181.00	9.80	180.00
86	1258	92	മാവേലം	"	180.00	181.00	9.80	180.00	181.00	9.80	180.00	181.00	9.80	180.00
87	1258	93	മാവേലം	"	210.00	189.00	11.40	210.00	189.00	11.40	210.00	189.00	11.40	210.00
88	1258	94	മാവേലം	"	180.00	181.00	9.80	180.00	181.00	9.80	180.00	181.00	9.80	180.00
89	1258	95	മാവേലം	"	270.00	243.00	14.60	270.00	243.00	14.60	270.00	243.00	14.60	270.00
90	1258	96	മാവേലം	"	540.00	430.00	29.20	540.00	430.00	29.20	540.00	430.00	29.20	540.00
91	1258	97	മാവേലം	"	270.00	243.00	14.60	270.00	243.00	14.60	270.00	243.00	14.60	270.00
92	1258	98	മാവേലം	"	210.00	243.00	14.60	210.00	243.00	14.60	210.00	243.00	14.60	210.00
93	1258	99	മാവേലം	"	180.00	181.00	9.80	180.00	181.00	9.80	180.00	181.00	9.80	180.00
94	1258	100	മാവേലം	"	240.00	216.00	13.00	240.00	216.00	13.00	240.00	216.00	13.00	240.00
95	1258	101	മാവേലം	"	180.00	181.00	9.80	180.00	181.00	9.80	180.00	181.00	9.80	180.00
96	1258	102	മാവേലം	"	240.00	216.00	13.00	240.00	216.00	13.00	240.00	216.00	13.00	240.00
97	1258	103	മാവേലം	"	180.00	181.00	9.80	180.00	181.00	9.80	180.00	181.00	9.80	180.00
98	1258	104	മാവേലം	"	240.00	216.00	13.00	240.00	216.00	13.00	240.00	216.00	13.00	240.00

Appendix XII

Landslide heppened in Irritty in 2018



Appendix XIII

Landslide heppened in Kottiyur in 2018



Appendix XIV

Abandoned Quarry at Choorappadavu in Cherupuzha Panchayath, Payyannur Taluk



Appendix XV

Iritty Bridge in 1933



Appendix XVI

Iritty Old Busstand in 1990s



Appendix XVII

Aerial View of Irritty

