Āśvāsaṁ

ആശ്വാസം

from sanskrit āśvāsa meaning 'relief, escape, comfort, rest'

Palliative & Dialysis Community Clinic

Author Kevin Kuriakose
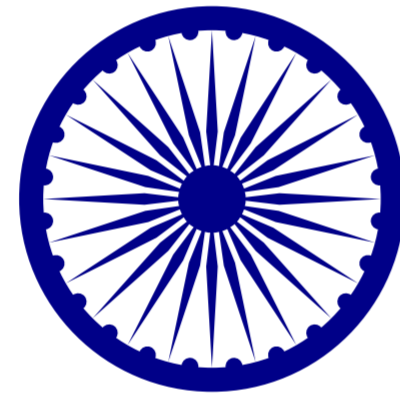
DIPLOMA IN ARCHITECTURE

December 13th 2019

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O S L O
Arkitektur- og designhøgskolen i Oslo
Anno MMXIX

Health and healthcare India have come a long way since independence in 1947. The average life expectancy of an individual has risen from 32 years under the British to 68 in 2019. Despite these improvements the country lags in access to palliative care services. Palliative care encompasses the care for the terminally and chronically ill. According to the WHO globally, it is estimated that palliative care is needed in 40-60% of all deaths. In India less than 1% of India's population have any access to palliative care.

An exception to this rule is the state of Kerala, which harbours almost two-thirds of the country's palliative care services. Despite this over half the population of Kerala struggle to find adequate access to palliative care especially in rural areas. The purpose of this project, a palliative and dialysis community clinic, is to expand and create an institute that improves access to palliative care services. The project has been researched and developed with help from a small group of doctors primarily Dr. Anil Kumar Paleri from the Indian Association of Palliative Care and Dr. Milly Mathew, Nephrologist.

Hindustan is a wonderful country. Compared with our countries it is a different world; its mountains, rivers, jungles and deserts, its towns, its cultivated lands, its animals and plants, its peoples and their tongues, its rains, and its winds, are all different. Once the water of Sind is crossed, everything is in the Hindustan way, land, water, tree, rock, people and horde, opinion and custom.

-Babur, Founder of the Mughal Empire

The varying geography of India, from the snowy Himalayas to the hot humid coasts of Southern India has given rise to a megadiverse country in a long and diverse history. India has often been generalised and stereotyped but more often than not, it defies them. It is a country that has the diversity of a continent. This South Asian country is the seventh-largest country by area, the second-most populous country, and the most populous democracy in the world. It is a secular federal republic made of many different states, each with its own government and varying cultures, languages, ethnicities and religions.

The location of the project is in the south-western state of Kerala almost 2000 km from New Delhi, the capital of India.

Map of the Physical Geography of India
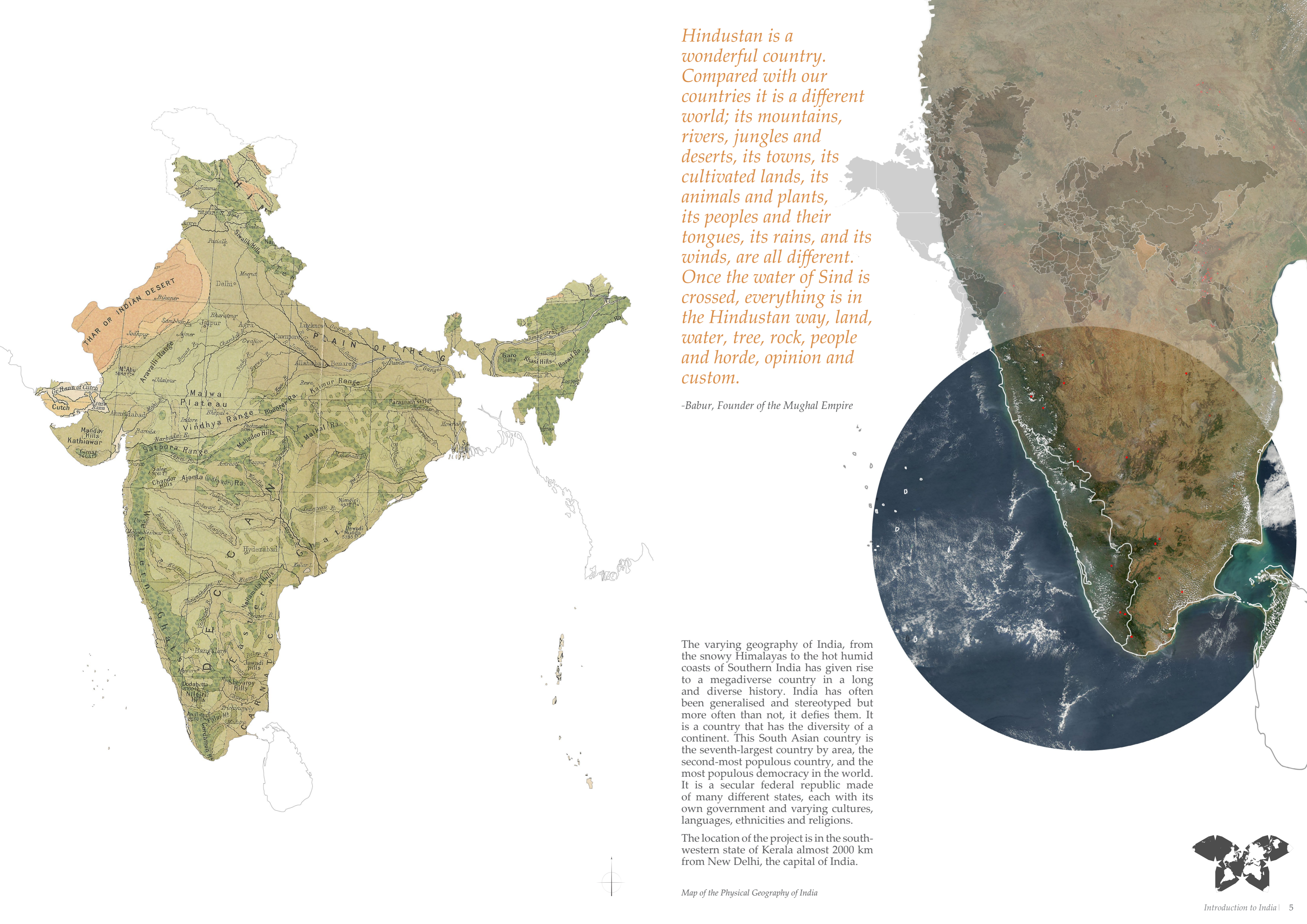
Weary from killing the all kshatriyas, the warrior caste, and filling five lakes with their blood, the warrior sage, Parashurama seeks penance. To save his soul from damnation he castes his mighty axe across the ocean. Blessed by Varuna, the God of the Oceans and Bhumidevi, Goddess of the Earth, a land of 160 katam rose from the tumultuous sea. Thus the warrior sage, an avatar of Vishnu retrieved the land from the oceans. He handed the land over to the Brahmins, the priestly caste, to live without fear and populate.

Kerala

 കേരളം

Official language: Malayalam

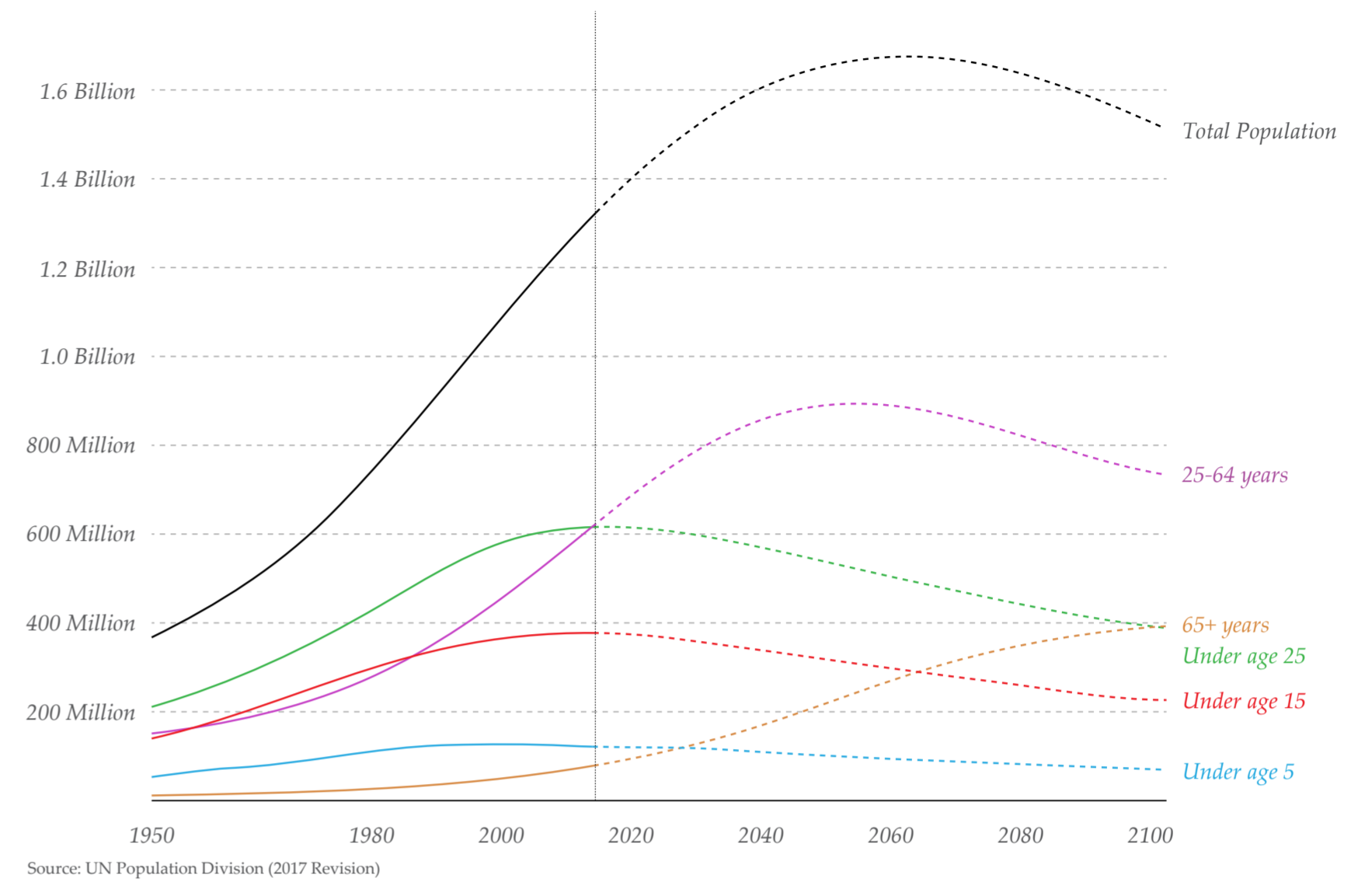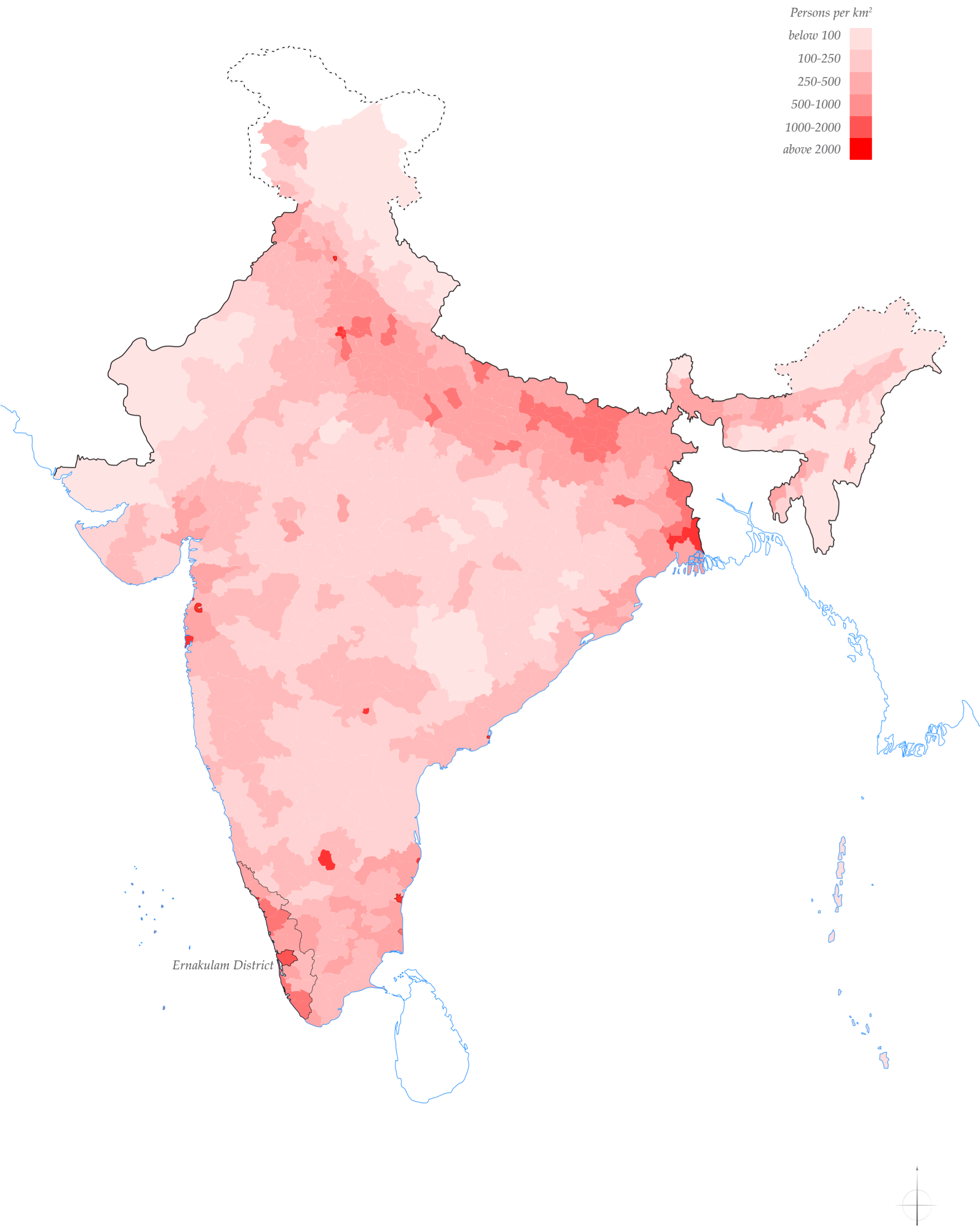Capital: Thiruvananthapuram

Largest city: Kochi

Area: 38,863 km^2

Population: 34,545,868

Highest elevation: 2,695 m

Lowest elevation: -2.2 m

HDI: 0.784

Life expectancy: 77 years

Persons per km²
below 100
100-250
250-500
500-1000
1000-2000
above 2000

1.6 Billion

1.4 Billion

1.2 Billion

1.0 Billion

800 Million

600 Million

400 Million

200 Million

Total Population

25-64 years

65+ years
Under age 25

Under age 15

Under age 5

1950   1980   2000   2020   2040   2060   2080   2100

Source: UN Population Division (2017 Revision)

India is home to nearly a fifth of the world's population, at around 1.3 billion people. During 1975–2010, the population doubled to 1.2 billion. The Indian population reached the billion mark in 1998. India is projected to be the world's most populous country by 2024, surpassing China. It is expected to become the first political entity in history to be home to more than 1.5 billion people by 2030, and its population is set to reach 1.7 billion by 2050.

Kerala is home to 2.76% of India's people, and — at 859 persons per km²; its land is three times as densely settled as the rest of India. In terms of area, though Kerala forms only 1.2% of the total area of India. It can roughly be compared to the size of Denmark except with roughly 6 times the population.

India has a remarkably young population as it is estimated that by 2020 the average age of Indians will be 29 years compared to 39 for Norwegians. Kerala has the highest median age in India of 31 years that can be compared to the median age of Turkey. The population growth is lower than the national average and it has the highest proportion of elderly people in its population (12.6%).

The project site is located in the district of Ernakulam in Kerala, one of the most densely populated regions.
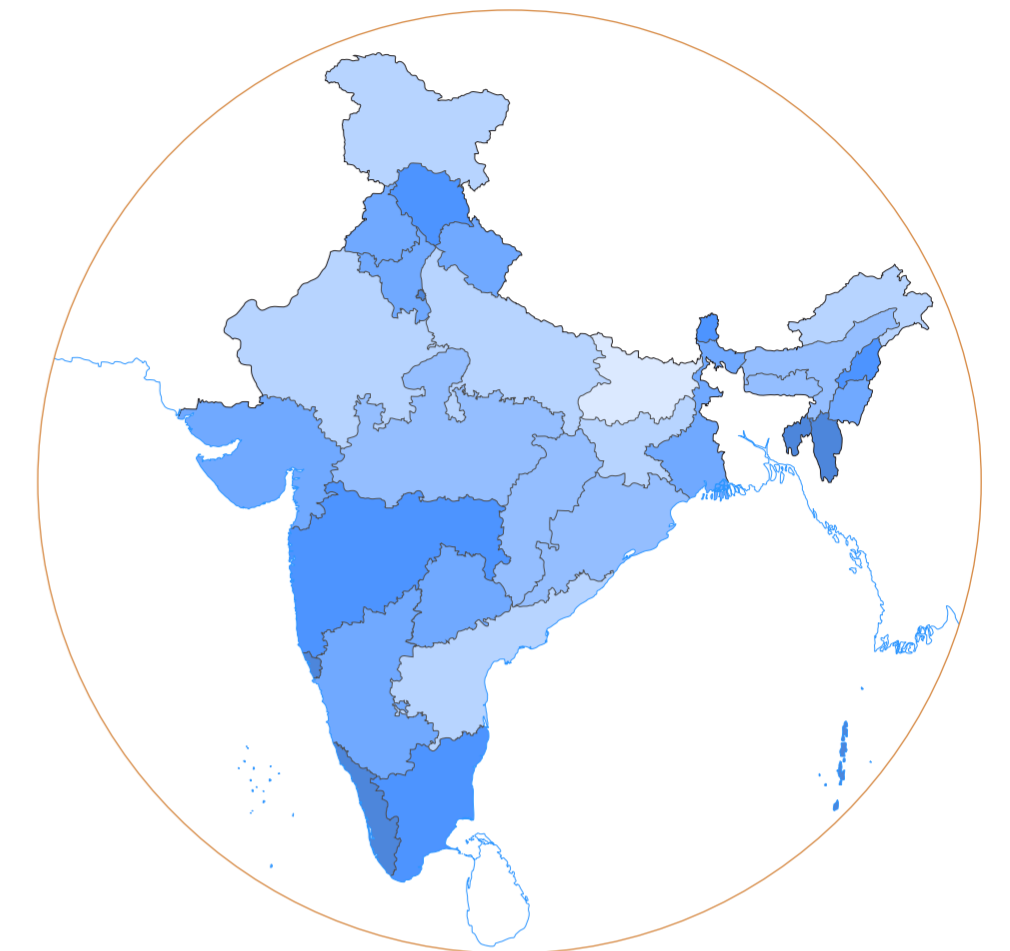
Ernakulam District

Map of Population Density India

Indian States by HDI

> 0.750
0.700 - 0.749
0.650 - 0.699
0.600 - 0.649
< 0.599
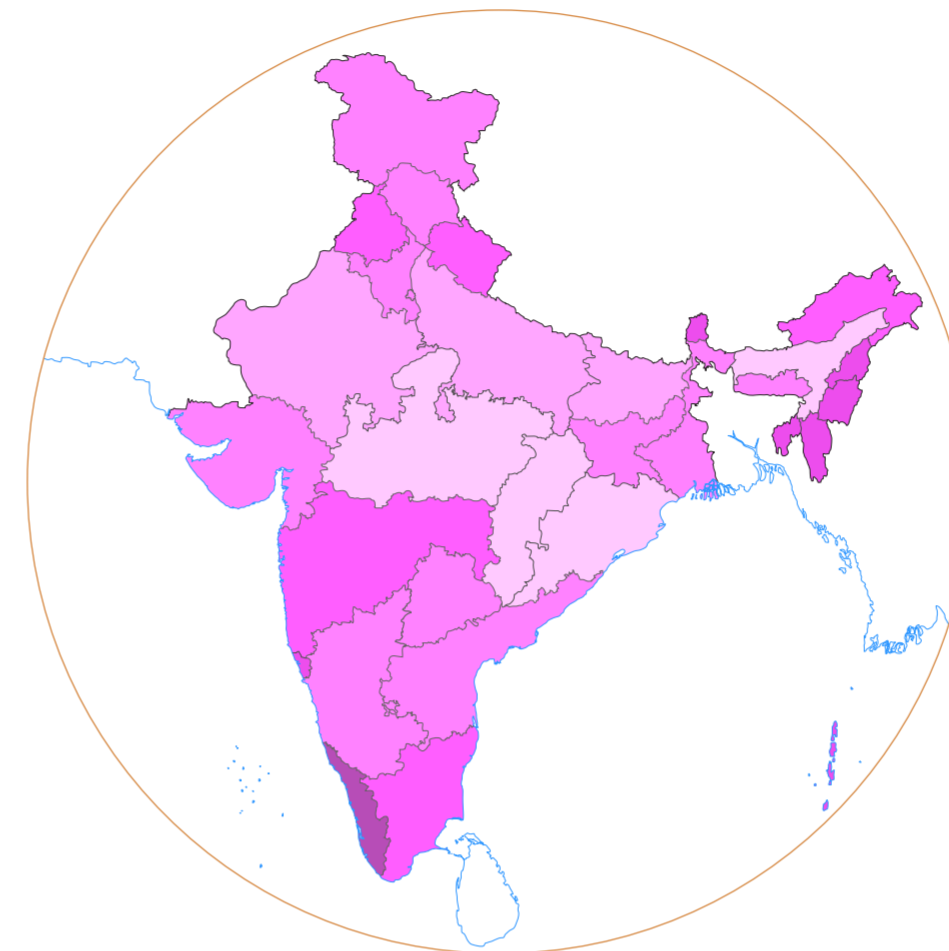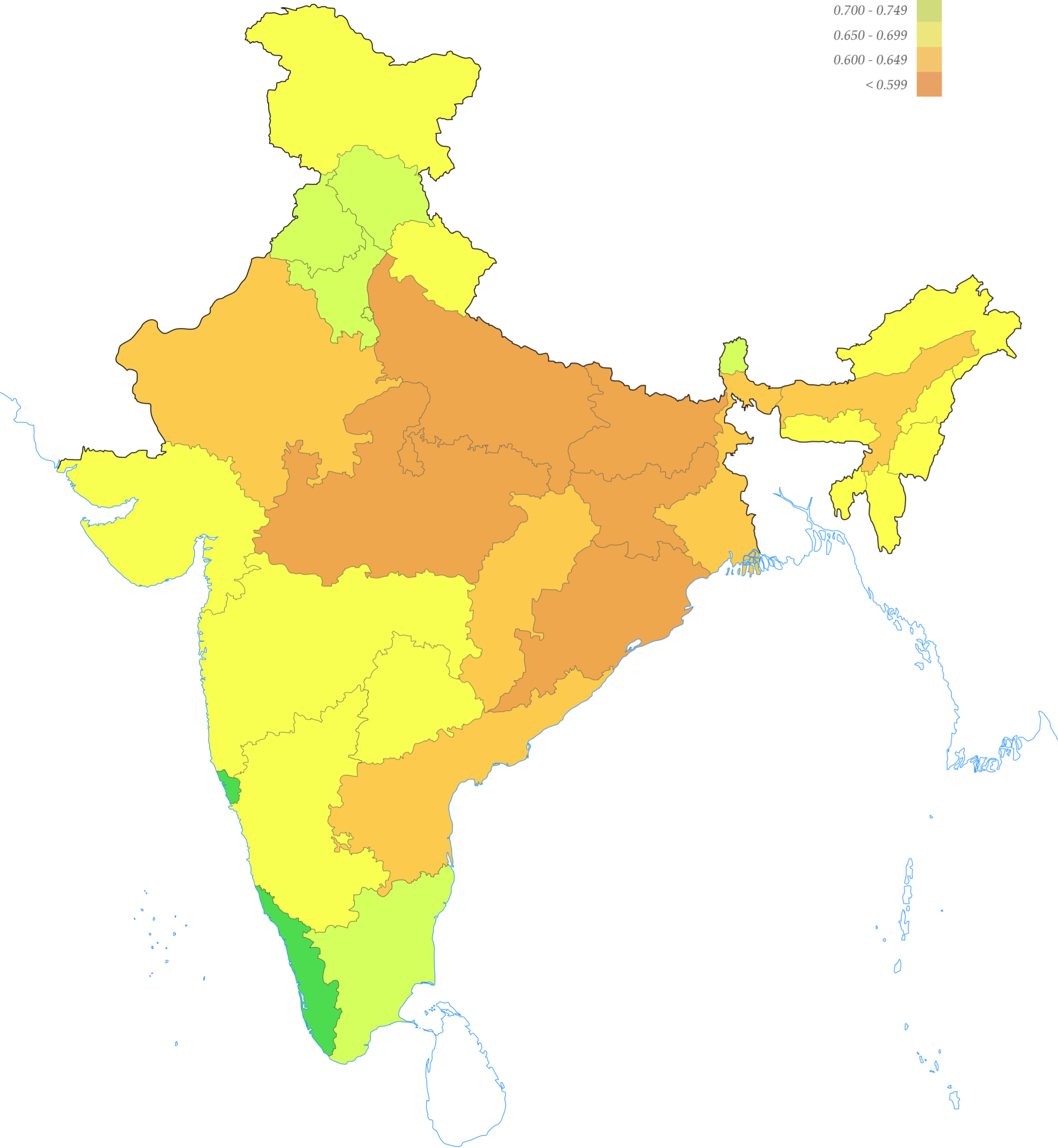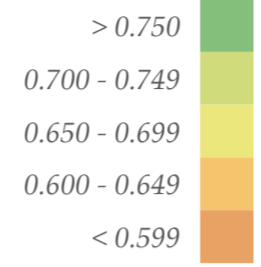
Map of Life Expectancy

Map of Literacy

Kerala in many ways is a unique state and constantly ranks high in measurements of human development. This is known as the Kerala model of development. It is characterized by achievements in social indicators such as education, healthcare, high life expectancy, low infant mortality and low birth rate, by the creation of productive social infrastructure rather than materialistic infrastructure. Kerala has achieved these high indicators of social development that can be even be compared to some developed countries, even though the state's per capita income is moderate.

A set of wealth distribution programmes implemented by the state government and high level of political participation and activism among ordinary people have enabled the state to achieve high material quality of life indicators.

Despite this, the state continues to wrestle with the highest rates of cancer and diabetes in India most likely due to an ageing population.

Map of Human Development Index
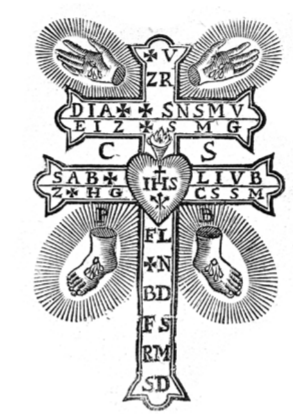
Western Coastal Plains

Central Midlands

Eastern Highlands

The state has three distinct geographical regions. The topography consists of a hot and wet coastal plain gradually rising in elevation to the high hills and mountains of the Western Ghats. The coastal plains along the Arabian sea is where most of the population is concentrated and it hosts most of the major cities of Kerala. The central midlands of Kerala consists of rolling hills and valleys. The highlands to the east are the most sparsely populated and mostly covered by forest.

Lowland Plains
Midlands
Highlands

Geographical regions of Kerala

Muvattupuzha

Site

Muvattupuzha Taluk

Largest City: Muvattupuzha
Population: 336,224

Ernakulam

Site
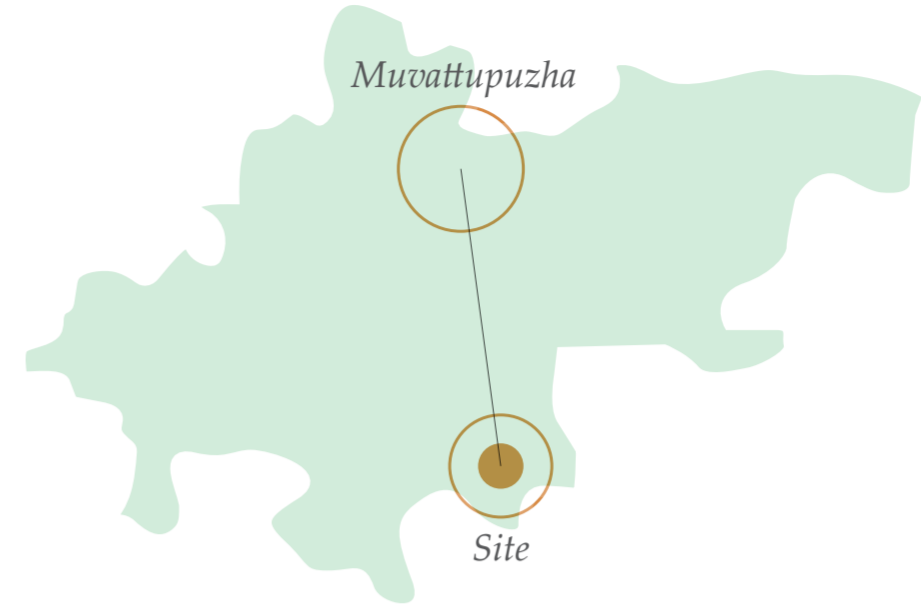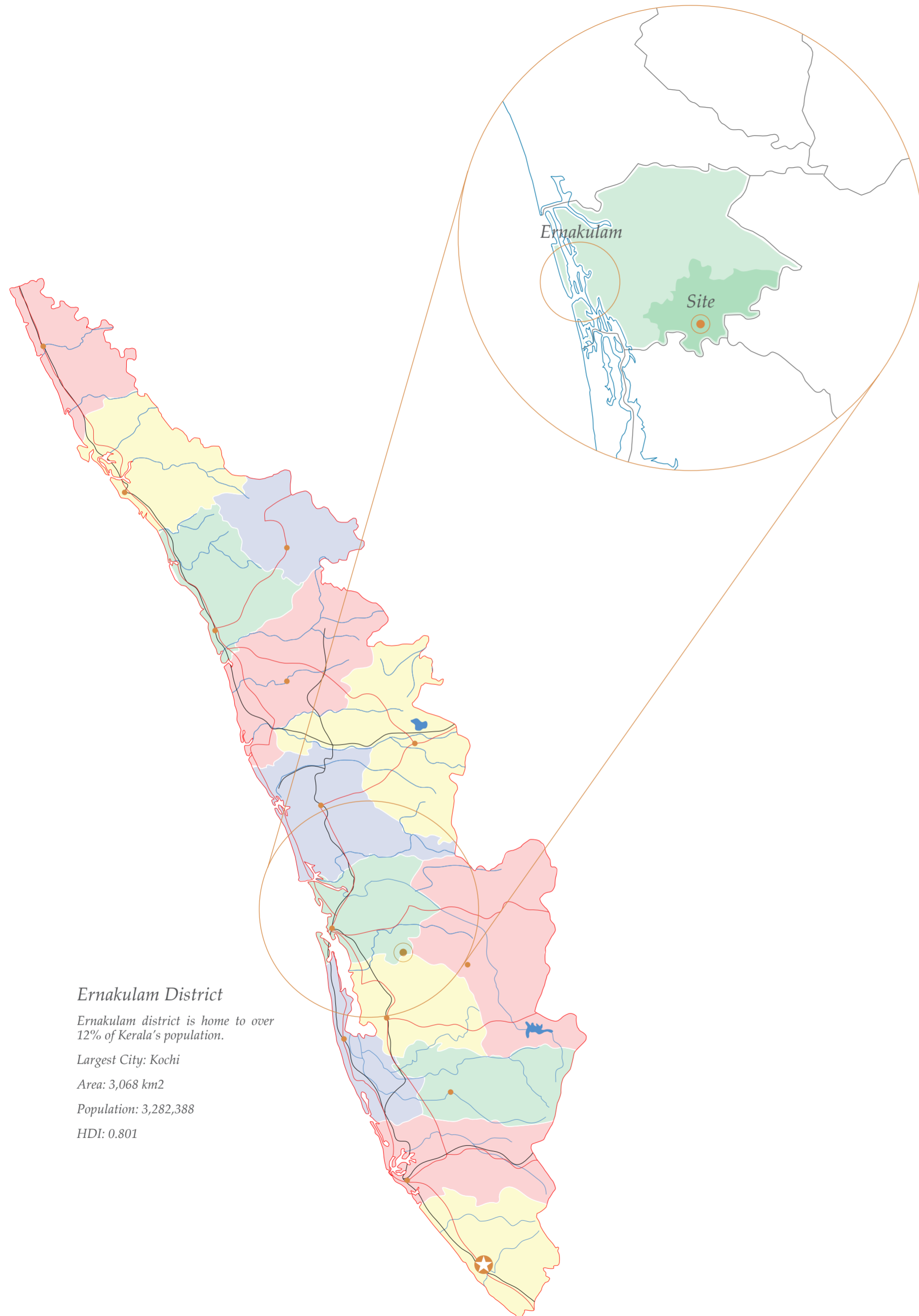
Christians

45.14%

Hindus

40.53%

Muslims

14.12%

Demographics of Muvattupuzha taluk

Ernakulam District

Ernakulam district is home to over 12% of Kerala's population.

Largest City: Kochi

Area: 3,068 km2
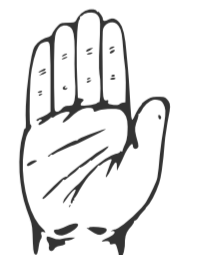
Population: 3,282,388

HDI: 0.801

The most interesting aspect of the demographics of the taluk of Muvattupuzha, is that the dominant religion in the region is Christianity. India is predominantly a Hindu country with only around 2% of the population being Christians. Even looking at the demographics of Kerala as a whole Hindus tend to dominate with around 55% of the state being Hindu, followed by Muslims at 26% and Christians at around 18%.

The site is located in an area that is almost split in half between Hindus and Christians. There are no Muslims living in the surrounding area as they are mostly concentrated around the city of Muvattupuzha.

The politics of Kerala are also interesting with a left-wing coalition, LDF alternating in power with the centrists coalition called UDF. The site itself is located in an area that is dominated by the Communist Party of India (CPI).
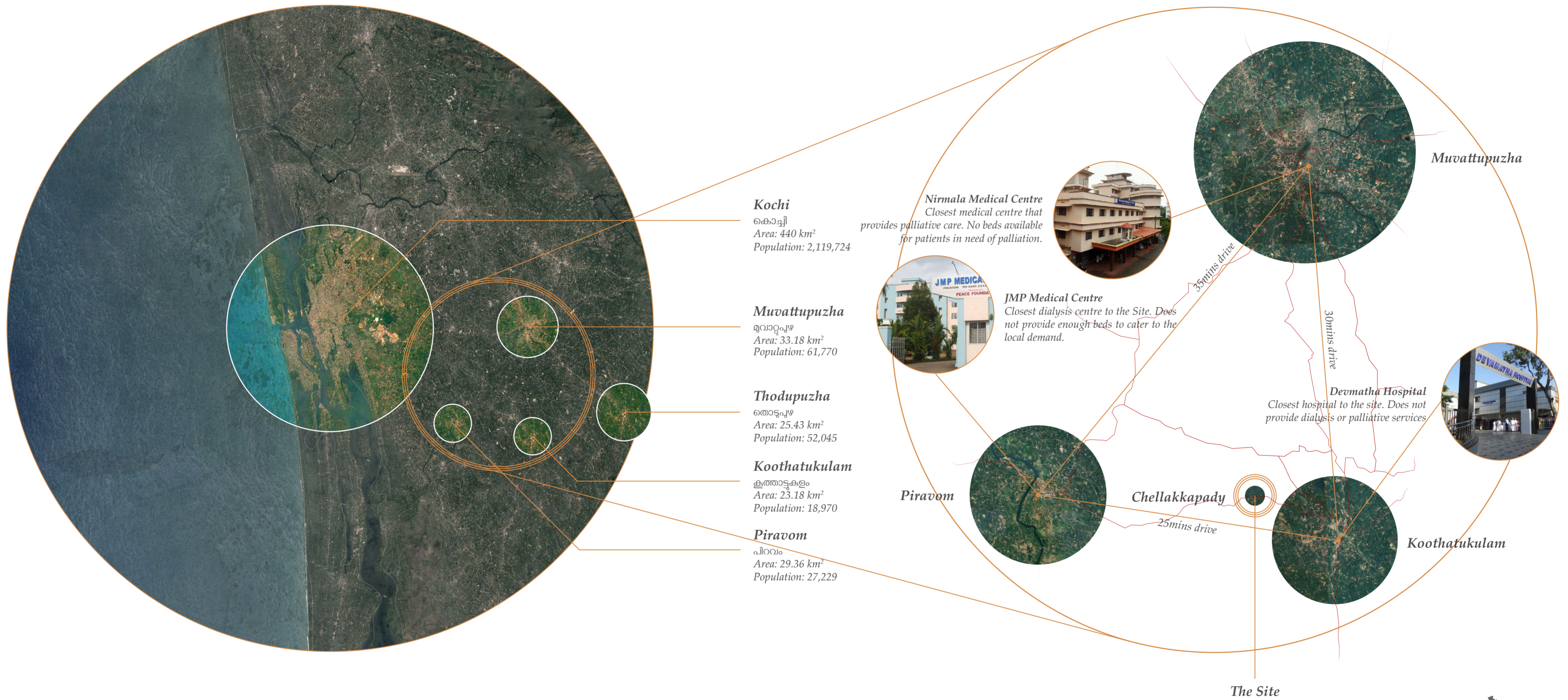

Left Democratic Front (LDF)
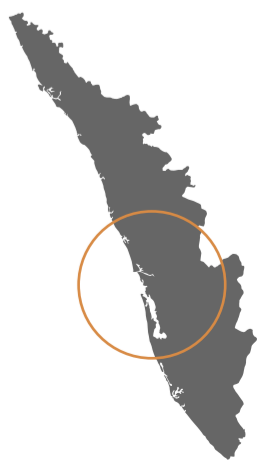

United Democratic Front (UDF)

Districts of Kerala

Kochi
കൊച്ചി
Area: 440 km²
Population: 2,119,724

Muvattupuzha
മുവാറ്റുപുഴ
Area: 33.18 km²
Population: 61,770

Thodupuzha
തൊടുപുഴ
Area: 25.43 km²
Population: 52,045

Koothatukulam
കൂത്താട്ടുകുളം
Area: 23.18 km²
Population: 18,970

Piravom
പിറവം
Area: 29.36 km²
Population: 27,229

Muvattupuzha

Nirmala Medical Centre
Closest medical centre that provides palliative care. No beds available for patients in need of palliation.

JMP Medical Centre
Closest dialysis centre to the Site. Does not provide enough beds to cater to the local demand.

Devmatha Hospital
Closest hospital to the site. Does not provide dialysis or palliative services

35mins drive

30mins drive

Piravom   *Chellakkapady*

25mins drive
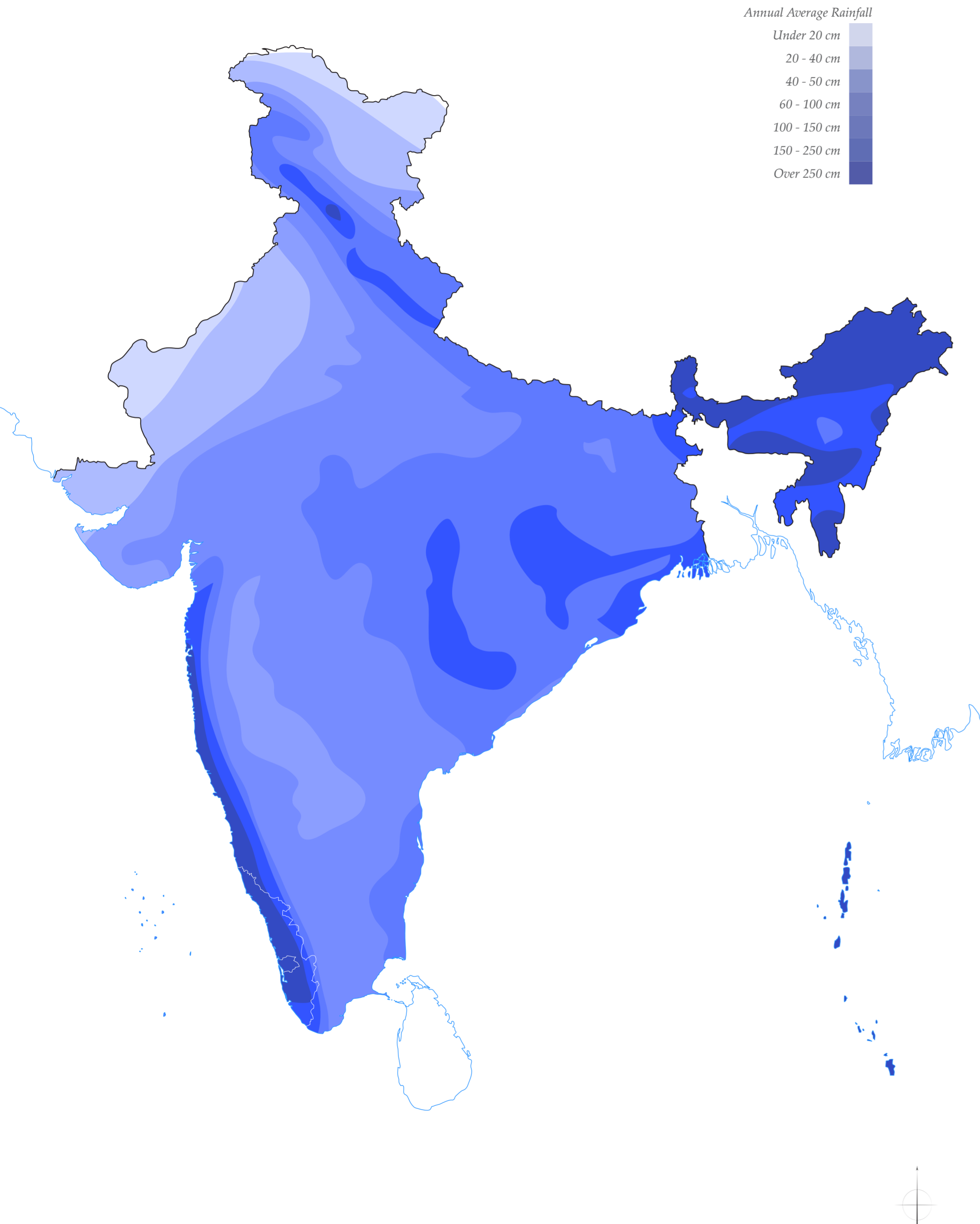
Koothatukulam

The Site

The site is located on the main road that links the towns of Koothatukulam and Piravom. It is well connected by public transport and is easily accessible by car as it is only a 10 minute drive from the centre of Koothatukulam and 15 minutes from Piravom. The aim of the palliative care and dialysis centre is to provide services for these two towns and the surrounding region.

Annual Average Rainfall

Under 20 cm
20 - 40 cm
40 - 50 cm
60 - 100 cm
100 - 150 cm
150 - 250 cm
Over 250 cm

Map of Average Rainfall

One unchanging element of all buildings is the roof - protective, emphatic, and all important - governing the aesthetic whatever the period, wherever the place. Often a building is only a roof, columns and floors - The roof dominant, shielding, giving the contentment of shelter. Ubiquitous, pervasively present, the scale or pattern shaped by the building beneath. The roof, its shape, texture and proportion is the strongest visual factor

-Geoffrey Bawa, Sri Lankan Architect

The climate of Kerala is defined by is wet and maritime tropical climate influenced heavily by the monsoon and it shares environmental characteristics with Sri Lanka and other wet tropical climes. The average temperature is around 25°C to 28°C. During the monsoon the state is prone to gale-force winds, storm surges, cyclone-related torrential downpours, occasional droughts, and rises in sea level. With around 120-140 rainy days per year it is not surprising that the vernacular architecture of Kerala has evolved to be dominated by the roof to protect against the seasonal downpour and the harsh tropical sun.

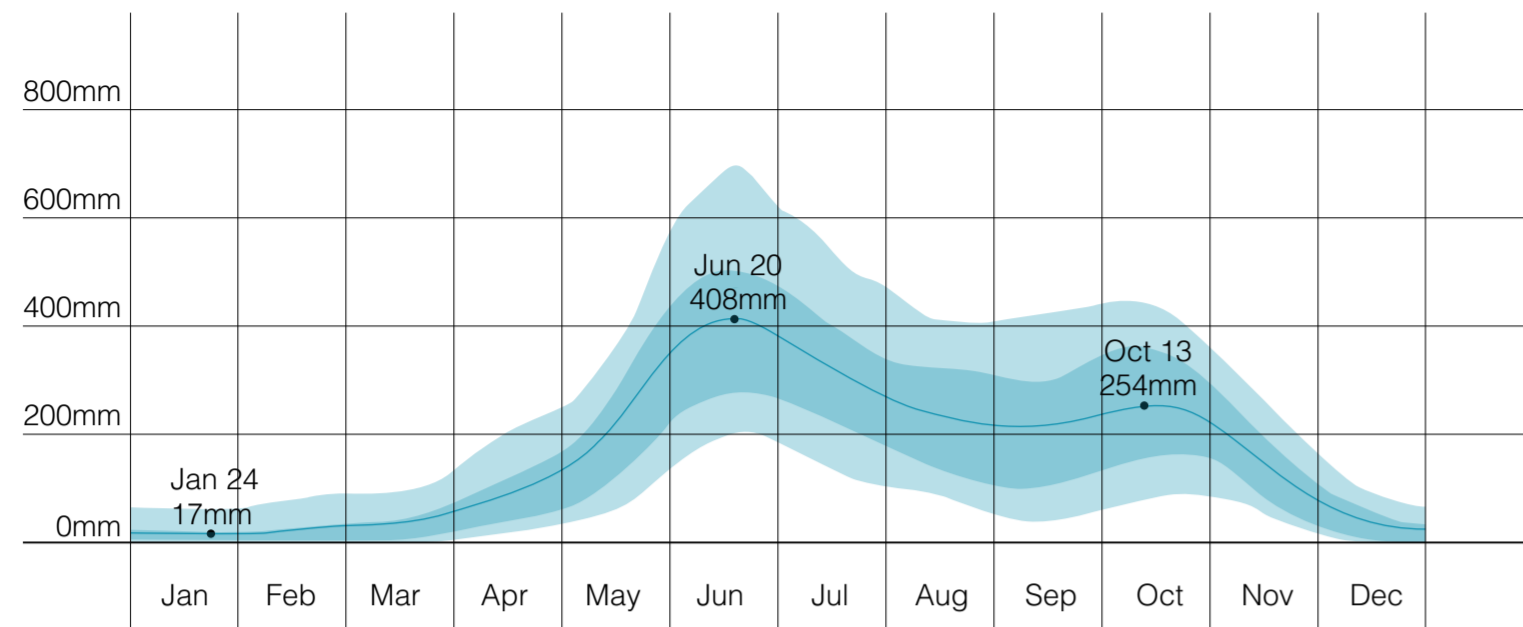*Vadakkunnathan Temple, Thrissur*

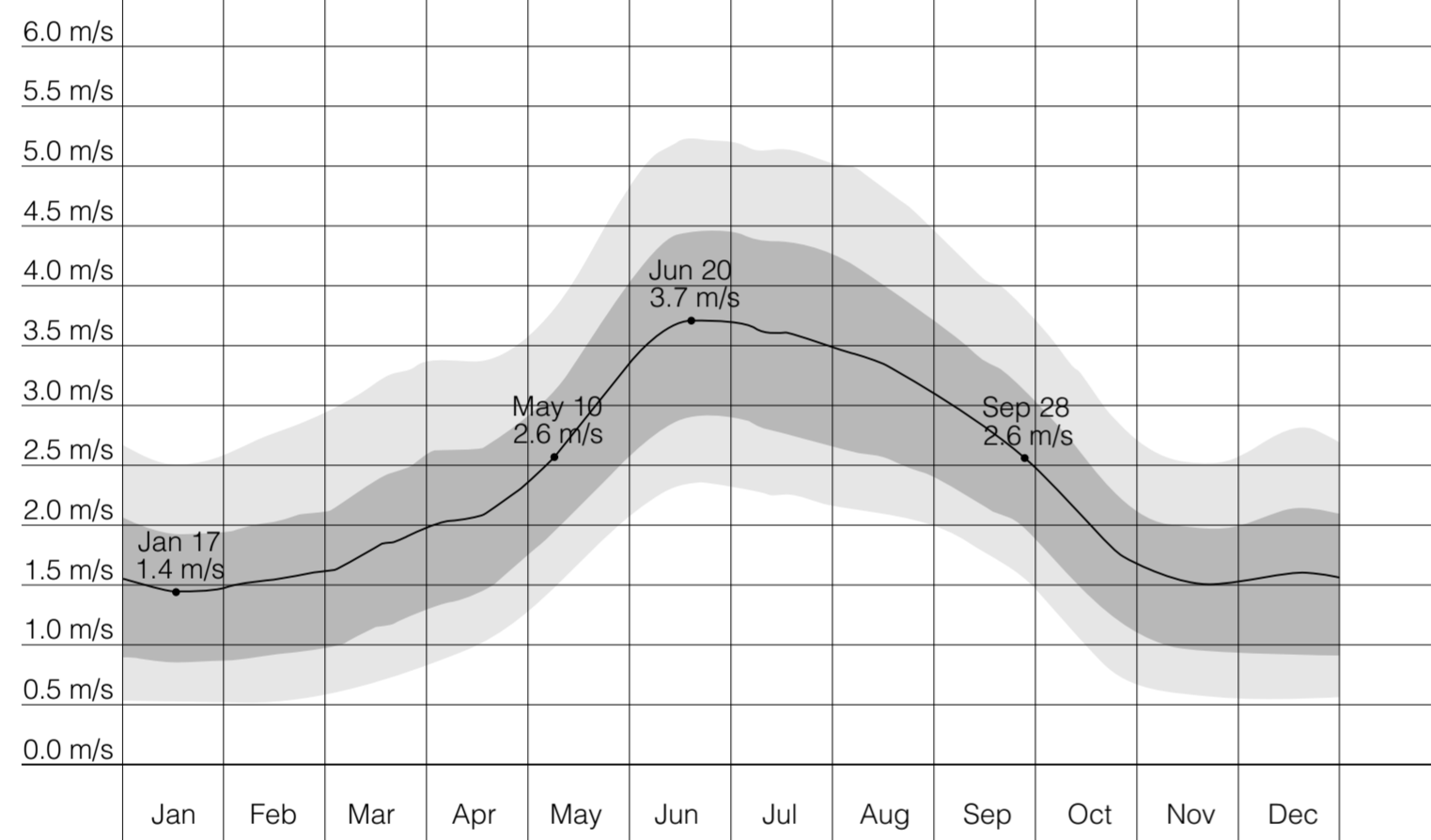*Roof of the Padmanabhapuram Palace, Padmanabhapuram*



Typical Courtyard in traditional houses

Koothambalam at Koodal Manikyam Temple, Thrissur

The average rainfall (solid line)accumulated over the course of a sliding 31-day period centered on the day in question, with 25th to 75th and 10th and 90th percentile bands.

The average of mean hourly wind speeds (black line), with 25th to 75th and 10th to 90th percentile bands.
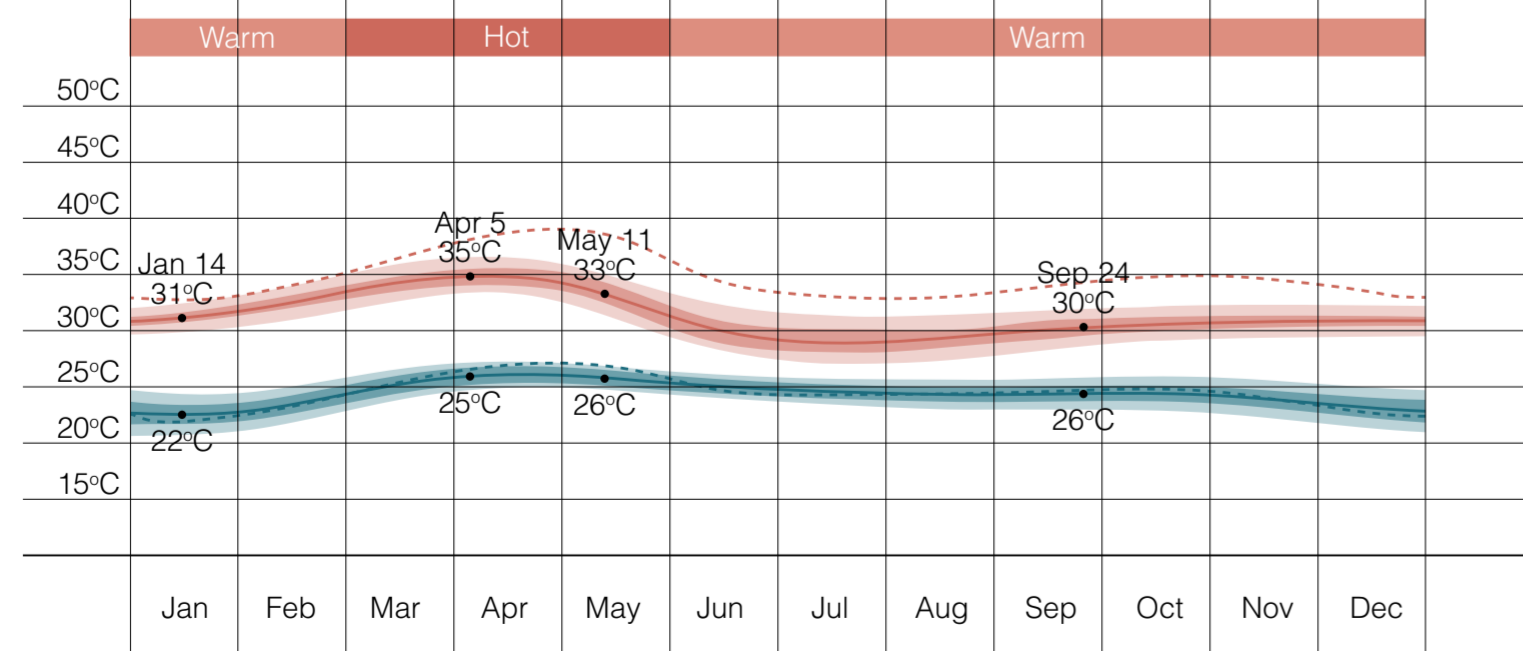
The daily average high (red line) and low (blue line) temperature, with 25th to 75th and 10th to 90th percentile bands. The thin dotted lines are the corresponding average perceived temperatures.
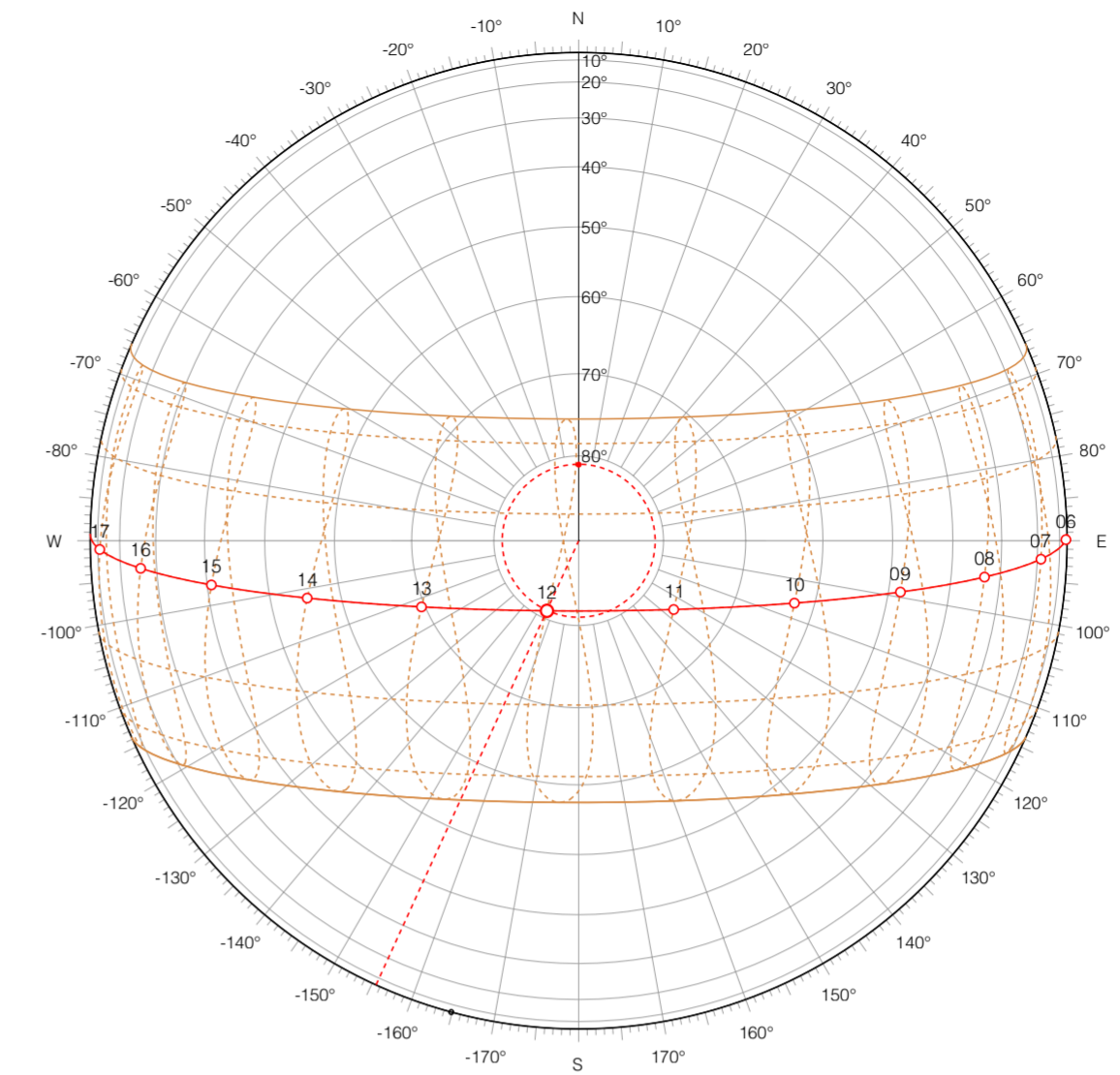
Sun Path Diagram

June

December
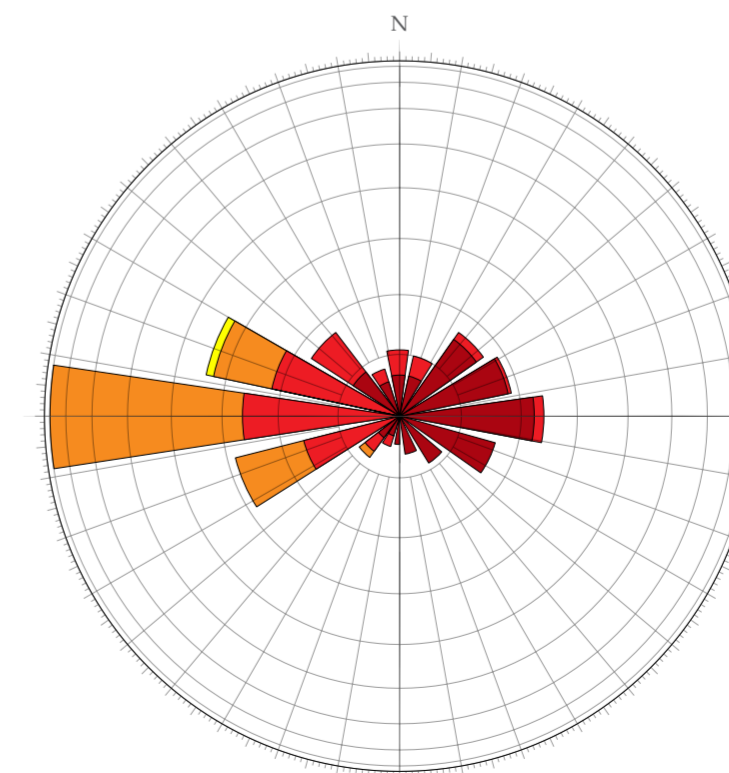
April

Wind Rose Diagram
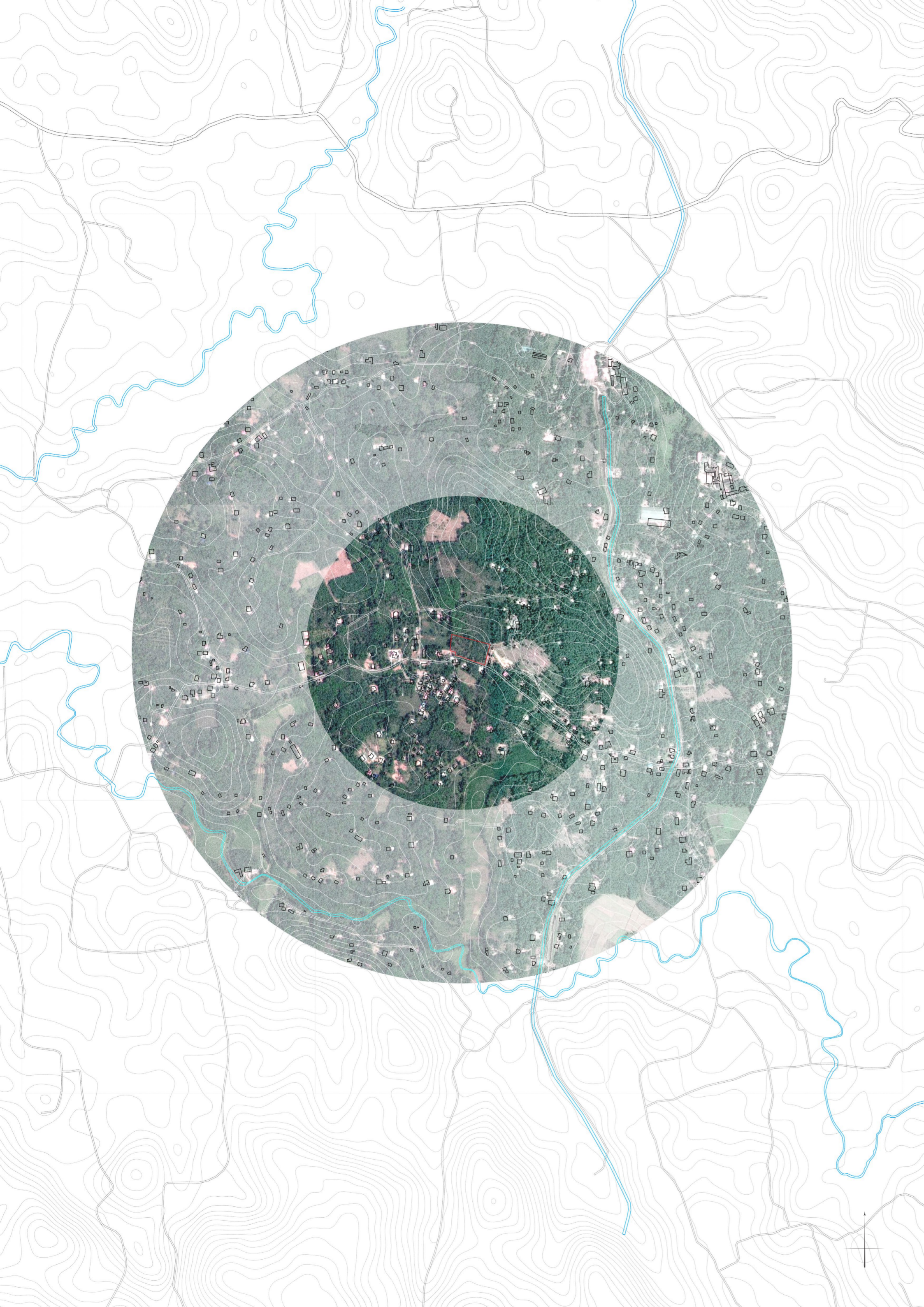
Typical rubber plantation

Middle income household
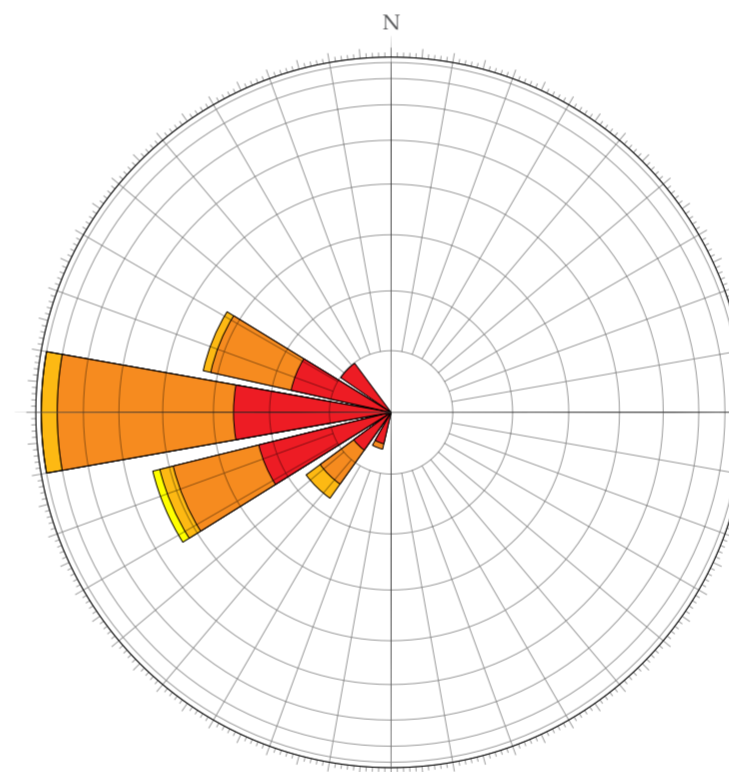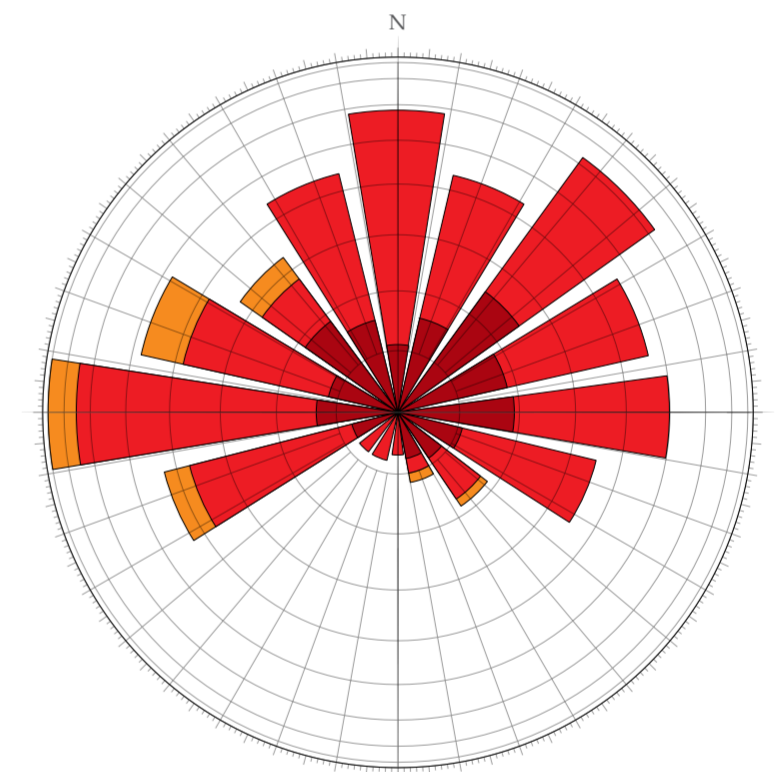
The landscape of the area is typical of the midlands consisting of gently rolling hills and rocky outcrops of granite. This landscape is ideal for small plantations, and since the late 60s has been dominated by rubber plantations interspersed with pineapple plantations. The flatter and more low-lying areas have been utilized for growing rice. The nature of the midland economy has relied on farming and the emergence of isolated communities. There isn't a strong urban culture and the settlements are usually spread out over a large area. Most of the land is used for agriculture as most people still depend on small landholdings as their main source of income. This is further supplemented by animal husbandry and other small businesses.

Site Location Plan 1:10000

Lower income household

Land Use

Rubber Plantation
Quarry
House yard
Paddy Fields
Pineapple

Land Use Plan 1:1000

Building Uses Plan 1:2500

Building Uses
Residential
Commercial
Cultural
Educational
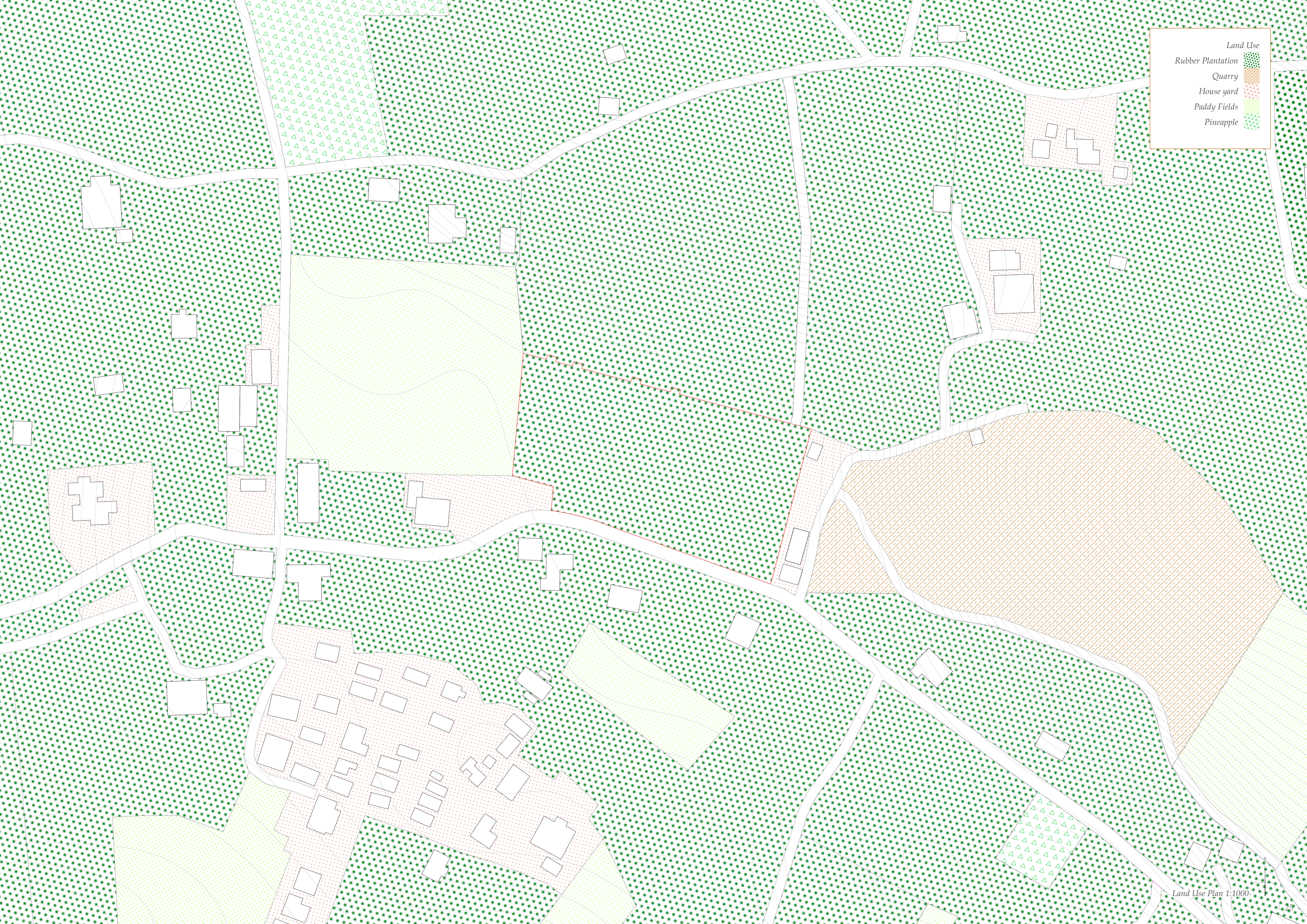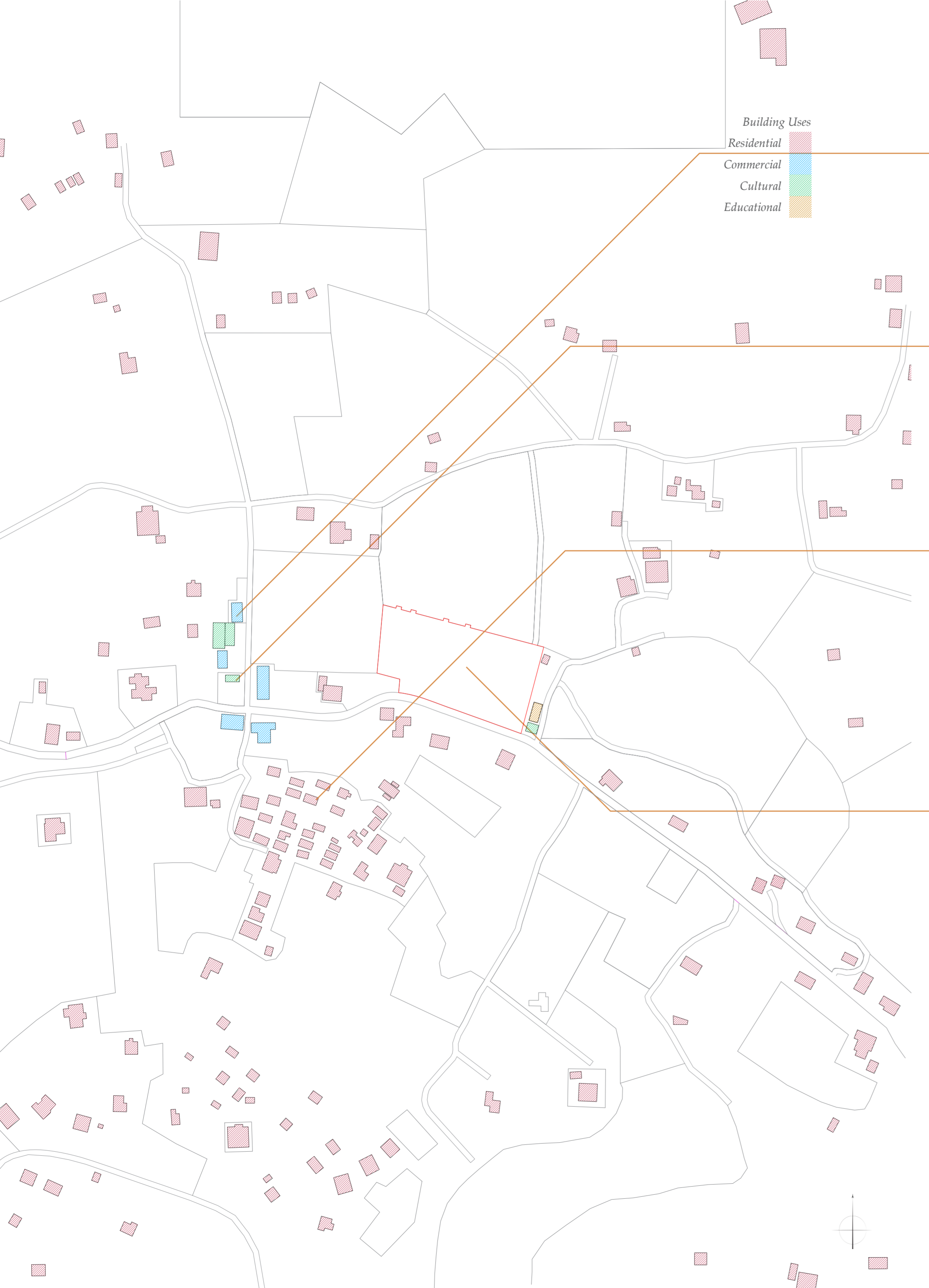
Local CPI headquarters

Mausoleum of Jacob Philip

Main road connecting Piravom and Koothattukulam

Social Housing Colony

Communism has a long and dominant presence in Kerala. It is perhaps more apt to compare it to Nordic-style democratic socialism than Soviet-style socialism. The village of Chellakkappady has strong links to communism as the head of the local chapter of the Communist party of India (CPI) is located here. It is the birthplace of a local communist leader Jacob Philip who was a famous photographer, artist and philosopher. He is interred in a mausoleum in the middle of the village. He gave away land to be used for housing for the poor. In fact, the site which the project is situated on was donated by him to the CPI to be used in the future for any project that would benefit the local populace. As it stands now it is leased out for growing rubber. Before the emergence of the CPI in the late 50s the majority of the land would have been owned by wealthy upper caste families who would had lower-caste tenants toiling on the land. The communists ushered in an era of sweeping agrarian land reforms that benefitted the lower castes and hence they still endure widespread support among the poor in and around the village.

Jacob Philip

A patient meets with a medical service provider to determine the diagnosis of an illness. In Kerala there is a state wide infrastructure of primary healthcare providers where most illnesses are diagnosed.

Diagnosis

A term derived from Latin, palliare, 'to cloak', palliative care is the interdisciplinary approach to improve the quality of life by caring and alleviating symptoms, pain, physical stress, and mental stress at any stage of a chronic or debilitating illness. Kerala is the only state to integrate a palliative care policy into its healthcare system and care is provided by clinics as well as home based palliative care providers.

Palliative Care

• Terminal Illness Diagnosed

Curative care refers to health care practices that treat patients with the intent of curing them, not just reducing their pain or stress. Usually provided at primary health centres or at home.
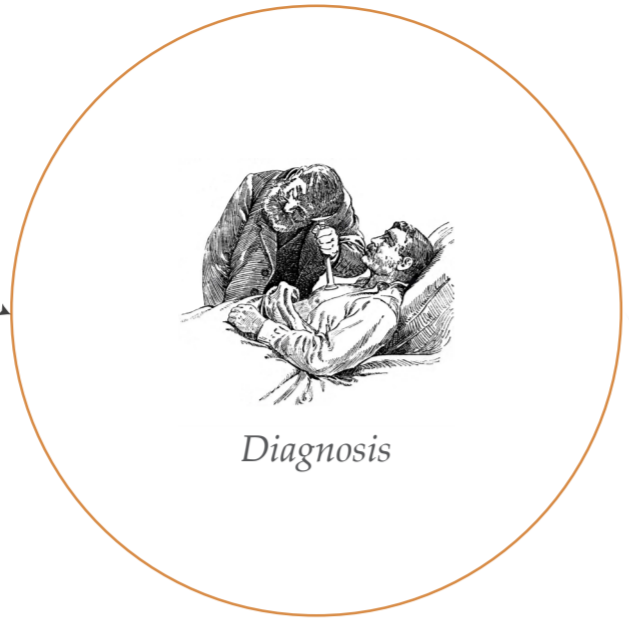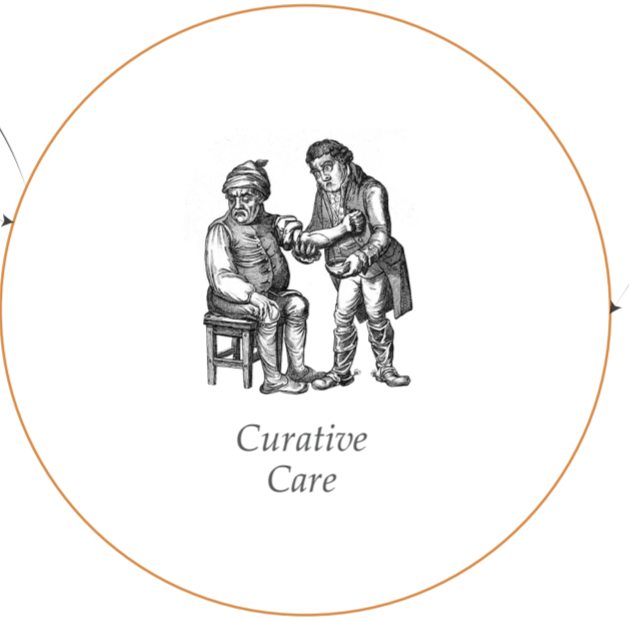
Curative Care

End of life (EOL) care for patients with terminal diagnoses, intended to help patients die with dignity. The aim of EOL care is to provide constant and safe symptomatic treatment that respects your dignity and individuality. It also takes into account patients' loved ones. Terminal care can be provided by home nursing, palliative care centre or hospice.
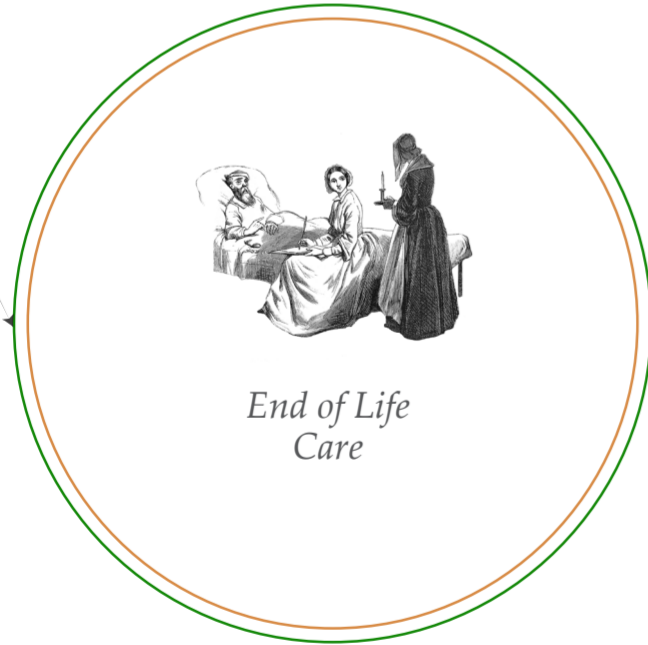
End of Life Care

Hospice care can be requested by terminally ill patients or their relatives to manage difficult symptoms that need constant monitoring to sustain quality of life at the very last stages of life. These usually include symptoms that cannot be managed from home. Usually provided at a hospice.

Hospice Care

Diagnosis · Death · Curative & Life Prolonging Care · Life Closure · EOL · Dying · Bereavement Care · Palliative Care · Prevention · Curative · Hospice

The Scope of Palliative Care
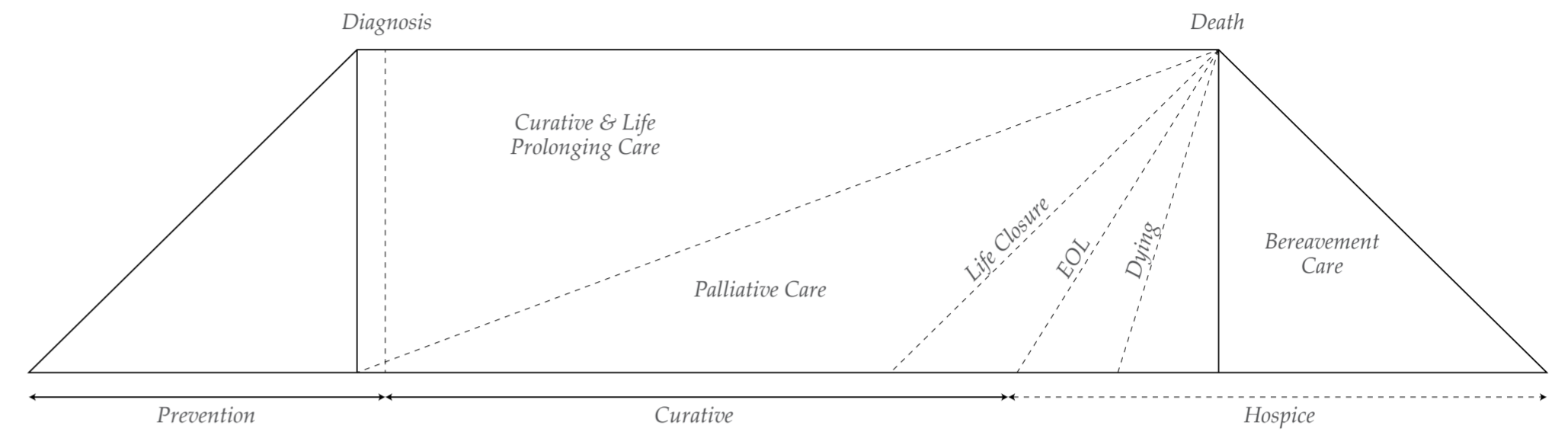
An Introduction to Palliative Care

Palliative care is a multidisciplinary field that aims to improve the quality of life of patients and their families who are facing problems associated with life-threatening illness or chronic illnesses. It seeks to prevent and relieve suffering through the early identification, correct assessment and treatment of pain and other problems. This can be physical, psychological, social, or spiritual in nature. It seeks to promote dignity, quality of life and adjustment to progressive illnesses, using the best available evidence.

Palliative care is required for patients with a wide range of life-limiting health problems. The majority of adults in need of palliative care have chronic diseases such as cardiovascular diseases (38.5%), cancer (34%), chronic respiratory diseases (10.3%), AIDS (5.7%) and diabetes (4.6%). Patients with many other conditions may require palliative care, including kidney failure, chronic liver disease, rheumatoid arthritis, neurological disease, dementia, congenital anomalies and drug-resistant tuberculosis.

WHO Universal Health Coverage
1 (lowest)
2
3
4
5 (highest)

Level of palliative care development (2017)
No known activity
Capacity-building activity
Isolated provision
Generalised provision
Preliminary stage of integration
Advanced stage of integration
Not included

© University of Glasgow | End of Life Studies Group
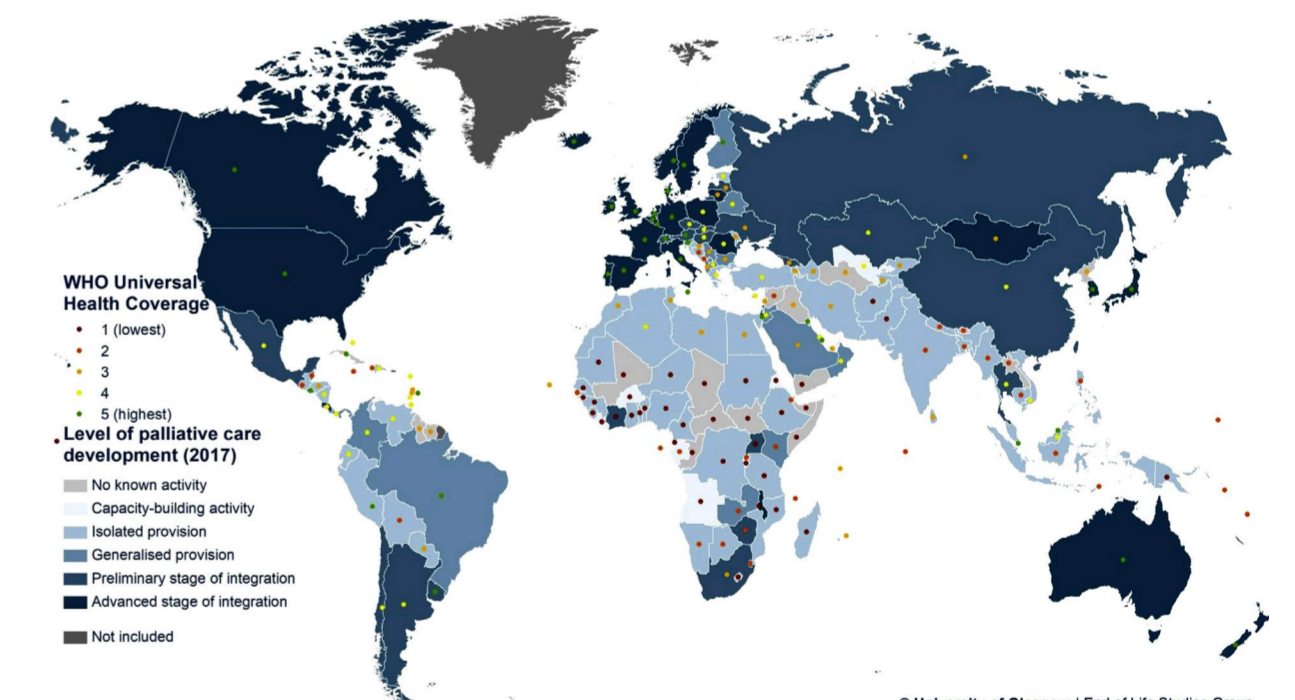
Levels of Palliative Care Development by WHO Universal Health Coverage Index Quintile

Devamaha Private Hospital, Koothatukulam, closest hospital to the site

Typical government community clinic in Kerala

Institute of Palliative Medicine, Calicut, 200km away from the site

Typical ward in government community clinic in Kerala

Typical provision of palliative care in India

Timeline:

12-20th centuries
Hospice is a place for rest for travelers

1967
St. Christophers Hospice (UK)

1974
Connecticut Hospice(US)

1987
Quarterly Hospice Bulletin released

2006
US American Board of Specialties recognized Hospice & PC as a sub specialty

1975
National Cancer Control program

1987
Shanti Avedna Ashram Mumbai

1993
Pain & Palliative Care Society

2001
NNPC

2003
Pallium India

2012
Maharashtra State Policy

2016
Pune Declaration

1984
Modified National Cancer Control Program- Pain relief basic service at PHC level

1990
Cancer Relief India

1994
Indian Association of Palliative Care

2008
Kerala State PC Policy

An Indian Perspective of Palliative Care

Palliative care in India is a relatively new concept. The Government of India initiated a National Cancer Control Programme in 1975, modified in 1984, to make pain relief one of the basic services to be provided at the primary health care level. Unfortunately, this policy has not translated into large-scale service provision and there are several regulatory barriers to providing palliative care in India. The government of Kerala has made it easier to provide opioids but it still has long ways to go. The Pain and Palliative Care Society (PPCS) was formed in 1993 in Calicut, Kerala and functioned purely on the basis of volunteerism. It eventually developed an outpatient service and a home visit programme with the help of the World Health Organisation (WHO). The WHO also helped form the Indian Association of Palliative Care (IAPC) in 1994. This eventually led to the creation of the Institute of Palliative Medicine which is an education, training and research centre for palliative care located in Kozhikode, North Kerala. The project seeks to establish a similar centre to provide palliative care in Central Kerala. The project will seek to provide palliative care that also encompasses end of life care and when possible hospice care. It will also seek to train and promote awareness of palliative medicine across the region. More info can be found on their website:

www.instituteofpalliativemedicine.org

Peripheral

Within the Palliative Centre

Inpatient Rooms 690 m²

Four Bed Room 55 m²

Single Room 325 m²

10 Person Ward 160 m²

Three Bed Room 150 m²

Nurse Station 10 m²

Nurse Area 55 m²

Staff Sleeping 15 m²

Lotus Pond 500 m²

Polishing Pond 80 m²

Imhoff Tank 15 m²

Gravel 80 m²

Laundry 20 m²

Sluice 15 m²

Long term Storage 60 m²

Linen 10 m²

Clean Room 7 m²

Pantry 8 m²

Kitchen 50 m²

Generator 15 m²

Medical Storage 15 m²

Changing Rooms 40 m²

Caretaker 10 m²

Parking Area 365 m²

Day Care Centre

Dining 50 m²

TV Room 30 m²

Rooms 20 m²

Day Centre 65 m²

Physical Therapy 35 m²

Toilets 10 m²

Toilets 20 m²

Dialysis Unit

Toilet 5 m²

RO 5 m²

Main Dialysis Area 75 m²

Hep. Room 20 m²

Sluice 8 m²

Store 8 m²

Bicarb 7 m²

Nurse Station 10 m²

CAPD Room 8 m²

Ambulance 25 m²

Staff & Volunteer Area 90 m²

Record Room 7 m²

Meeting Rooms 20 m²

Administration Office 40 m²

Family Communal Area 50 m²

Family Dining 50 m²

Toilets 5 m²

Storage 10 m²

Bathhouse 10 m²

Toilets 6 m²

Mourning Room 100 m²

Teaching/Training

Toilets 7 m²

Library 35 m²

Lecture Hall 35 m²

Teaching Rooms 30 m²

Outpatient

Toilets 5 m²

Laboratory /Collection 20 m²

Procedure Room 15 m²

Examination Room 12 m²

Examination Room 12 m²

Examination Room 12 m²

Therapy Room 12 m²

Pharmacy 15 m²

Waiting Areas 25 m²

Reception/Waiting Area 100 m²

Toilets 15 m²

Bus Stop

Publicly Accessible Facilities

Outpatient Facilities

Inpatient Facilities

Service

Staff/Volunteer/Admin Facilities

Name of Area	No.	Total Area in m²
Arrival Area		
Reception Room	1	10
Reception Area	1	100
Toilets	4	16
Waiting Areas	2	25
Pharmacy	1	15
Outpatient Facilities		
Lab/Collection	1	20
Procedure Room	1	15
Examination Room	3	12
Therapy Room	1	8
Teaching & Training Area		
Auditorium	1	35
Library	1	35
Teaching Rooms	1	30
Toilets	2	7
Dialysis Unit		
CAPD Procedure Room	1	8
Main Dialysis Area	1	75
Hepatitis Dialysis Area	1	20
RO Water Treatment Room	1	5
Nurse Station	1	10
Bicarbonate Mixing Room	1	7
Storage	1	8
Sluice Room	1	8
Staff Area		
Meeting Room	1	20
Records Room	1	7
Staff/Volunteer Area	3	90
Adminstration Office	1	40
Day Care Area		
Physical Therapy	1	40
Toilets Physiotherapy	1	4
Hydrotherapy Room	1	6
Dining Room	1	50
Daycentre	1	65
Toilets	4	20
Resting Room	1	25
TV Room	1	30
Inpatient Area		
10 Bed Ward	1	160
Single Bed Room	13	325
3 Bed Room	2	150
4 Bed Room	2	55
Nurse Station	1	10
Nurses Area	1	55
Family Lounge	1	50
Family Dining	1	50
Toilets	1	5
Mourning Area		
Mourning Room	1	100
Storage	1	10
Toilet	2	6
Service Area		
Kitchen	1	50
Pantry	1	8
Caretaker Room	1	10
Changing Rooms	1	40
Long Term Storage	1	60
Generator	1	15
Laundry	1	20
Sluice	1	15
Linen Storage	1	10
Medical Storage	1	25
Clean Room	1	7
Outdoor Facilities		
Polishing Pond	1	85
Gravel Pond	1	82
Imhoff Tank	1	15
Parking	1	365
Ambulance	1	25
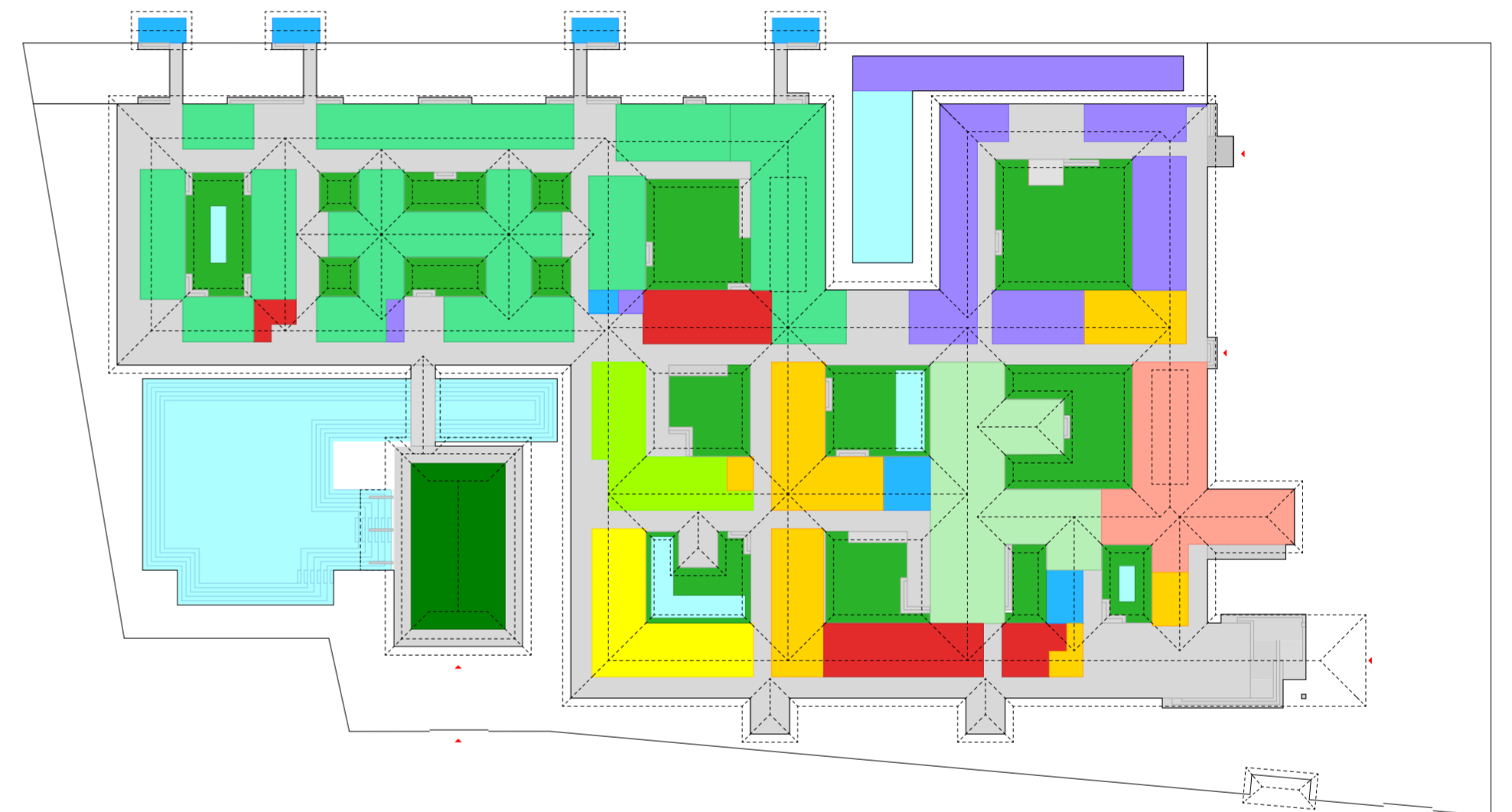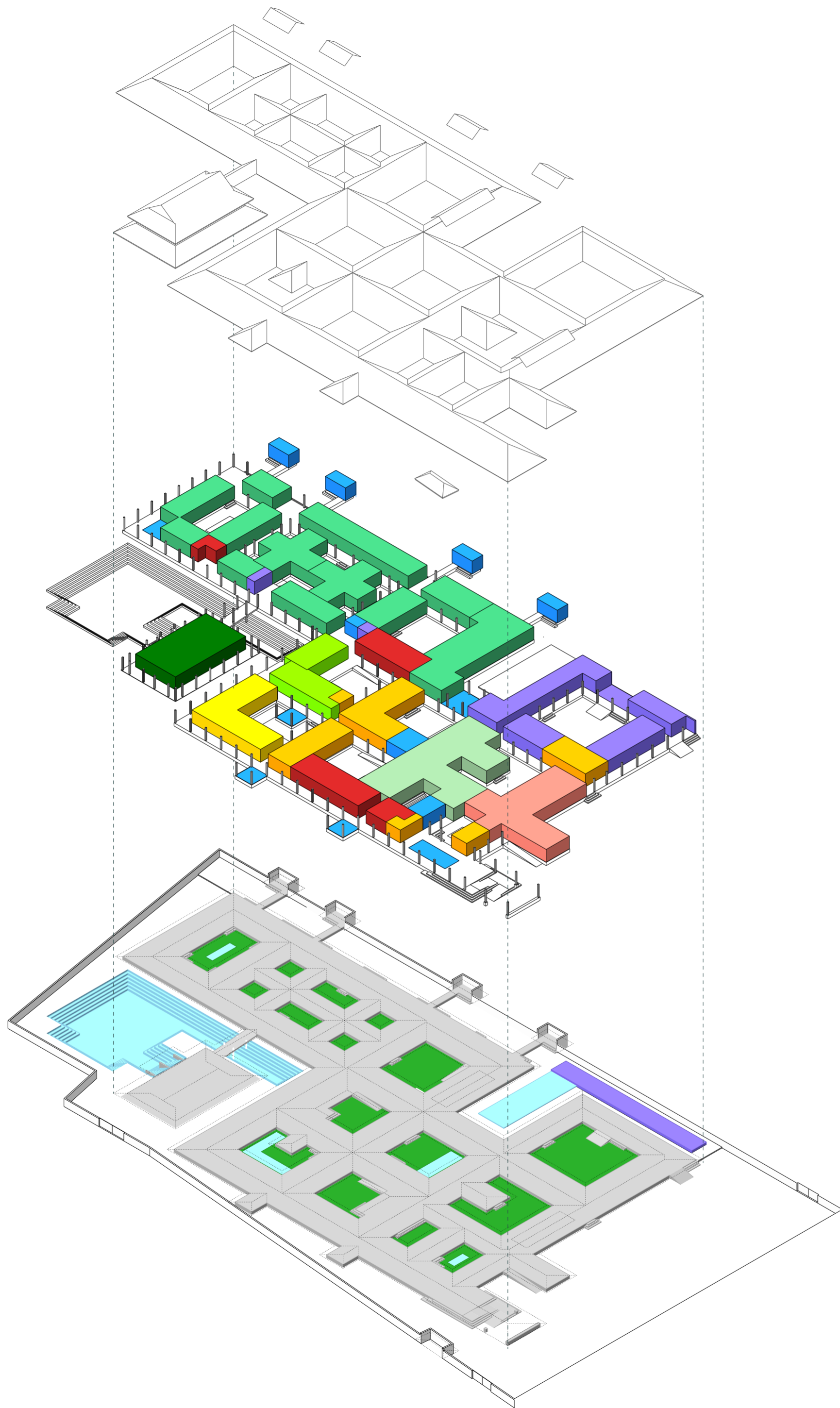
Building Programme

- ███ Courtyard
- ███ Water
- ███ Circulation
- ███ Medical Service Area
- ███ Services
- ███ Daycare Centre
- ███ Common Shared Facilities
- ███ Dialysis Areas
- ███ Staff Areas
- ███ Teaching Areas
- ███ Inpatient Facilities
- ███ Patient Wards
- ███ Mourning Areas