



CLIMATE CHANGE
LOCAL ADAPTATION
PATHWAYS

Living with Climate Risk:

A Profile of Vulnerable Migrant Settlements in Ernakulam



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November 2025

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Abstract: Ernakulam has emerged as a major destination for internal migrants in India in the past decades. This profile has mapped five key migrant settlements to generate evidence on the living conditions, vulnerabilities, and adaptive capacities of migrant communities in the district, in the context of increasing climate risk. The insights can provide actionable knowledge for decision-makers seeking to strengthen social protection, enhance resilience, and integrate migrant settlements into development planning.

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Introduction: Mapping Migrant Settlements

The southern Indian state of Kerala has one of the largest streams of internal migrant workers in the country. Driven by steady work opportunities and the highest wage rate in the unorganised sector in the entire subcontinent, migration to the state has been growing over the past few decades. Kerala now receives over three million migrant workers from states such as West Bengal, Assam, Tamil Nadu, Odisha, Jharkhand, Bihar, and Uttar Pradesh (Parida & Raman, 2021). The number of such workers in Kerala from other states is estimated to touch five million by 2030 (Parida & Raman, 2021).

Ernakulam district, the commercial capital of Kerala, is estimated to have the largest migrant population among the 14 districts in Kerala with over 600,000 migrant workers during 2017–18 (Peter & Narendran, 2017a). One in every two workers in the district is an interstate migrant. Such migration has been a win-win for the state as well as migrants by plugging critical human resource gaps in Kerala and improving incomes of migrant households in home states (Peter & Narendran, 2017b). In the context of climate change, such internal migration is a key strategy to diversify livelihoods, earn higher wages, and manage risk. Despite the scale of this migration to Kerala, granular insights into migrant identities, demographics, precarities and vulnerabilities are unavailable. This gap reinforces their invisibility in the policy discourse and hinders evidence-informed policy measures.

Developing profiles of migrant settlements bridges critical knowledge gaps by generating demographic and socio-economic insights, identifying the infrastructure and service requirements and highlighting the needs of the most vulnerable such as women, children, disabled people and those belonging to ethnic minorities. Such exercises support the development of evidence-based designing and targeting of migrant-sensitive interventions. This work draws on earlier profiles of migrant settlements in Kerala (Peter & Narendran, 2017b), which proved influential during the COVID-19 response and expands such efforts to encompass climate-related precarity, given the increasing recognition of migrants' heightened vulnerability in India (Kuruvilla et al., 2015; Mathur et al., 2019; Rahman et al., 2024) and globally (Almulhim et al., 2024; Satterthwaite et al., 2020; Williams et al., 2019).

A review of interventions for migrant workers in Kerala noted that social protection interventions are often climate-blind, and climate interventions are migrant-blind (Apparaju et al., 2025), pointing to another critical gap—how climate hazards intersect with livelihood precarity and access to welfare, compounding vulnerabilities. Migrant settlement profiles help address this by offering an understanding of where and how migrants live, enabling more responsive, inclusive, and climate-informed planning and social protection measures.

Overview of the Settlements

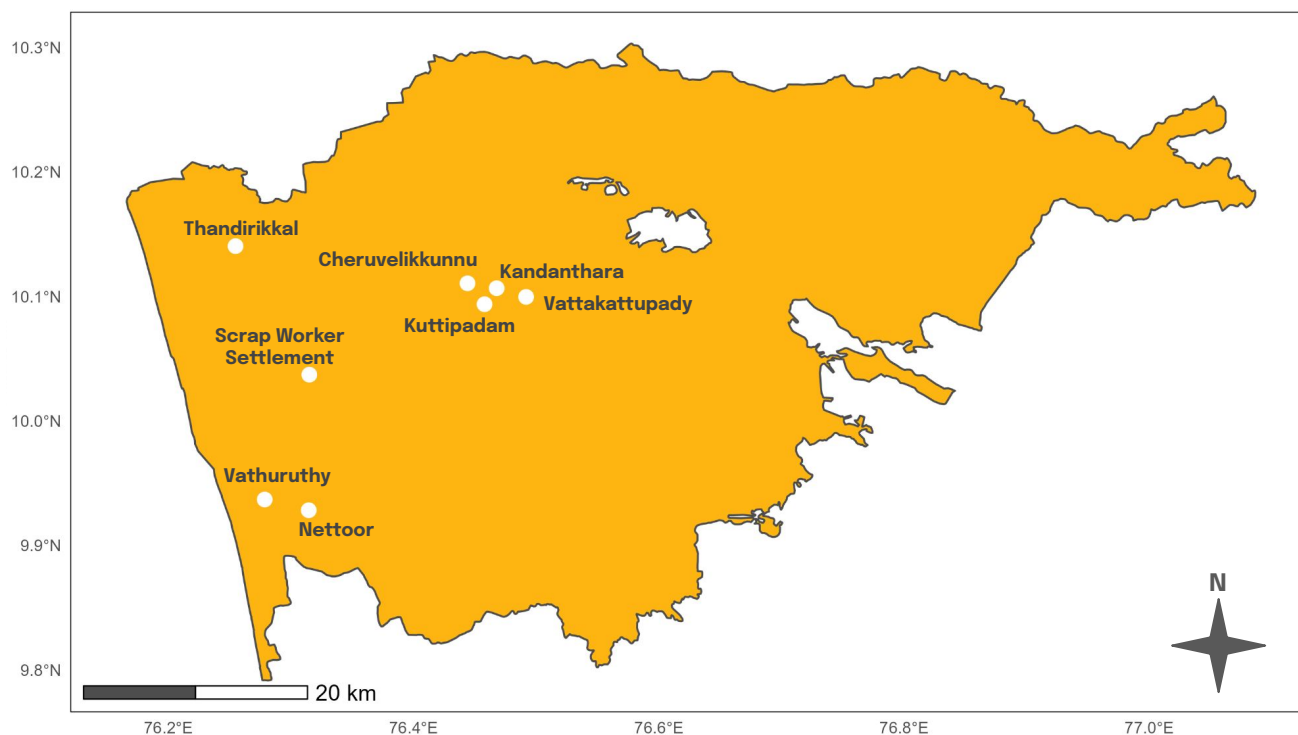


Figure 1: Location of the migrant settlements included in this profile

Table 1: Migrant Settlements included in this profile and their details

Settlement	Details	Migrant Profile
Vathuruthy	One of the oldest and largest residential migrant worker settlements in Kochi. Located in Willingdon Island and governed by Kochi Municipal Corporation.	Predominantly long-term migrants from Tamil Nadu; includes couples with children at source and single elderly women. Most are employed in the construction sector, many as footloose labourers.
Perumbavoor	Plywood manufacturing hub of the district. The profile covers four pockets - Kuttipadam and Kandanthara (Vengola GP), Vattakattupady (Rayamangalam GP), and Cheruvelikkunnu (Vazhakulam GP)	Migrants are primarily employed in construction and plywood manufacturing. Most do not reside within the municipality but gather at labour nakas daily for work. Settlements in nearby areas such as Okkal, Kanjoor, Asamannoor, and Mudakuzha share similar characteristics.
Thandirikkal	Located close to the Eloor-Edayar industrial belt, a hub for manufacturing and processing industries.	Migrants largely from Bihar and Uttar Pradesh. Includes a mix of single workers and long-term migrant families with children. Employment primarily in nearby industries.
Nettoor	Located in Maradu Municipality, an emerging Odia residential pocket in Kochi's periphery.	Predominantly single-male migrants from Ganjam district (Surada block). Most are footloose workers employed in the construction sector
Scrap Worker Settlement	Small, scattered settlements of migrant waste collectors located near major markets, commercial hubs, or large residential areas across the district.	Migrants primarily from West Bengal, often accompanied by families with young children. Highly transient population with short-term stays (around a year).

Key Insights

Climate risks, adaptation and coping

There is clear evidence of climate precarity along both ends of several major migration corridors leading to Ernakulam. Erratic rainfall, recurrent localised flooding, and riverbank erosion significantly affect migrants in their places of origin. In parts of West Bengal, such as Murshidabad and the Sundarbans, riverbank erosion and the resulting loss of farmland and property are key triggers for declining farm-based incomes and migration. Migrants from Assam and Bihar identified floods as both a direct and indirect driver of migration. Some households chose to relocate permanently to Ernakulam to escape the recurring damage caused by floods. These are mostly migrant families, who have higher financial and social capital in source and destination, and are facing recurrent hazards such as floods. However, most migrate seasonally to cope with climate risk in the source regions.

Migrants continue to face significant climate-related challenges at their destinations. In major migrant settlements in Ernakulam, heat exposure is widespread in both living and working environments. Poor-quality housing, often built with heat-trapping materials and lacking proper ventilation, intensifies heat vulnerability among migrants compared to other populations. Many work in highly heat-exposed sectors such as construction, where rest periods are inadequate and guidelines restricting outdoor work during peak hours are rarely followed. In occupations such as plywood manufacturing, indoor work spaces are similarly poorly designed, offering little protection from heat stress.

settlements. In Vathuruthy, migrants were asked to return home even though the settlement itself was unaffected, putting them at greater risk during travel. While most migrants reported being called to relief camps, some noted experiences of exclusion, and others avoided camps due to fears of discrimination. In heavily affected areas such as Thandirikkal, many migrants stayed in relief camps and received financial aid as compensation for their losses, despite not being permanent residents, demonstrating how receiving state governments can play a powerful role in disaster relief and recovery. Migrant link workers played a crucial role in affected areas by relaying warnings and facilitating the delivery of relief supplies. Water scarcity poses another challenge, particularly in Perumbavoor, where restrictions on water use are often imposed on migrants during summer seasons.

Migrants are coping with current impacts but this does not necessarily mean they are adapting to future risk. Migrants often downplay the hazards they face at their destinations. Households cope with heat in multiple ways, investing in cooling devices or moving to slightly better housing over time. However, there is a general reluctance to invest in long-term risk reduction at the destination amongst migrants because the long-term aspirations tend to be towards source and that is where adaptation investments are often made. Remittances are used to rebuild homes, climate-proof rural livelihoods, and recover from economic losses. Some migrants reported constructing pucca houses with stilts to increase flood resilience. Remittances are

The 2018 floods affected many migrant

Key Insights

not always invested towards adaptation, sometimes it is towards just coping. There are cases where rebuilding occurs without incorporating risk-reducing measures, resulting in repeated repairs and significant investment of remittances after each flood. A key emerging insight is that the repetitive and continuous impact of climate hazards is driving cyclical migration without substantial upward mobility or asset accumulation. For many migrants, stable, long-term adaptation remains out of reach.

Push and Pull Factors for Migration

Migration to Ernakulam is driven by a mix of economic pressures and personal aspirations, as youth seek better opportunities, households struggle with limited employment opportunities and climate-affected livelihoods, and families try to manage rising expenses or debts while saving for major goals such as marriage, land purchase, or starting a business. In addition to these, environmental policy triggers such as the ban on forest-based plywood manufacturing, establishment of Protected Areas and social forestry and agroforestry interventions that impacted nature-based livelihoods have also contributed to migration to the district. Social triggers such as political instability, caste- and religion-based discrimination are also referred as push factors, predominantly by workers from eastern and north-eastern states. In northern West Bengal, especially Cooch Behar, increasing human-wildlife conflict has made farming untenable, driving migration from the region.

Ernakulam has emerged as a preferred destination for migrant workers with its

high wage rates and steady job opportunities. Demographic changes in the age structure of the population in Kerala have created a shortage of young workers for labour-intensive jobs, which migrants increasingly fill. The state's peaceful social environment and relatively less discriminatory treatment has attracted workers towards Kerala over the years. Strong migrant networks ease the transition for newcomers, while improved travel infrastructure, including direct trains and buses from home states, facilitates long-distance movement. Presence of industries and other service sectors with high labour demand are pull factors. For those migrating with families, availability of better public educational and health facilities offers additional incentives to stay or settle down.

Livelihood precarity

Informal and unpredictable work arrangements, which is particularly common amongst the footloose workers, lead to high livelihood precarity. In such cases income remains uncertain and the employer, worksite, and nature of tasks often vary. Such conditions with limited accountability, significantly increase the risk of exploitation like wage theft, harassment, unsafe work environments, and denial of basic entitlements.

This vulnerability is also highly gendered. Women, those who do not speak the native language, those with limited or no education, those from socially marginalised communities have more constraints in navigating the city. They often are forced to take their children to the workplace due to lack of childcare,

Key Insights

where the children are highly vulnerable to accidents and exploitations.

Across sectors such as plywood in Perumbavoor and manufacturing in Thandirikkal, migrant workers are assigned the hazardous jobs that are not easily accepted by the natives, forced to do it without adequate safety provisions and are paid lower wages compared to natives. Migrant workers reported harsh working conditions without adequate safety gear, extreme outdoor/indoor temperatures at worksites and prolonged exposure to toxic materials and emissions due to inadequate ventilation and safety protocols. Both male and female workers commonly face long working hours, ranging from 10 to 12 hours per day. While some report receiving overtime pay, the compensation is not proportional to the labour. Wage theft is common, with workers often paid less than promised or sometimes not paid at all. Delayed wages and confiscation of identity documents are sometimes used to discourage them from leaving.

Migrants staying in employer provided accommodations often have poor bargaining power are forced to agree to unfair labour practices such as forced labour and long hours. Workplace accidents and death are comparatively frequent, and are, in many cases, not adequately compensated. Due to the largely informal nature of employment, there is little to no access to social security or protective entitlements and limited scope of judicial interventions. Trade union membership remains rare, further weakening their bargaining power.

Housing

In migrant settlements surveyed in Ernakulam, approximately 70% of housing stock was classified as pucca; 30% are semi-pucca to kutcha structures. Scrap worker settlements exhibited exclusively kutcha housing, while certain clusters in Vathuruthy and smaller pockets in Nettoor also contained kutcha dwellings. Despite the predominance of pucca construction, much of this stock consists of ageing or dilapidated structures. A recurring practice across settlements was the rental of older, original dwellings by local residents to migrants, following the construction of newer residences for owner occupation. Some rental accommodations were built specifically to meet migrant housing demand, typically comprising small, densely packed rooms with minimal specifications such as unplastered concrete walls, improvised doors, and tin or cement sheet roofing, often with poor ventilation and little natural light. Overcrowding was widespread, in part reflecting deliberate cost-sharing arrangements among migrant tenants to reduce rental expenses, but also because units were constructed with minimal floor space to maximise rental yield within a limited plot area. While rental values were generally uniform across the district, settlements in the Perumbavoor region, despite its rural setting, recorded higher rates. Many settlements lacked designated open spaces for recreation or community interaction, resulting in migrants congregating in streets or along roadsides, behaviours that were sometimes perceived negatively by local residents.

Key Insights

Infrastructure

Most settlements have reliable and affordable access to water, with exception of the few kutchha clusters. Sanitation was often a problem, with most settlements having shared outdoor toilets, often insufficient in number relative to the population. Maintenance was generally poor, despite many landlords levying additional charges for upkeep.

Management of solid waste is also a critical issue for the migrants in the settlements. In rural areas of the district, the absence of an organic waste collection system compels migrants to dispose of waste within their own compounds, creating unhygienic conditions and potential health risks. In some cases, house owners, particularly those residing on the same premises, insist that waste not be managed within the compound, which in turn forces migrants to discard it in public spaces.

Energy was accessible to all the settlements. While all settlements had electricity connections, older and dilapidated housing often lacked basic provisions such as functioning ceiling fans, sufficient electrical sockets, or safe wiring. In such situations, households were compelled to prioritise between cooling needs (fans or coolers) and other essential electrical uses. Cooking fuel use patterns reflected adaptation to limited resources, with chullahs being fuelled by plywood or wood waste being quite common. These chullahs were frequently installed without proper smoke ventilation, leaving walls and ceilings coated with black soot, possibly with long-term health implications of such exposure.

Healthcare and Education

Access to healthcare and education is significantly constrained by language barriers, timing mismatch, and limited service availability. Language barriers impede both outreach by frontline workers such as ASHAs and migrants' ability to seek care in government facilities. Migrants frequently reported being denied adequate treatment in public hospitals unless accompanied by someone fluent in Malayalam. In many cases, PHCs serving migrant-dense areas are located far from settlements and are poorly connected by public transport. Combined with the long and inflexible working hours of migrant labourers, these factors limit access to public healthcare, often pushing migrants toward private providers or reliance on over-the-counter medicines. NGOs, such as CMID's Bandhu mobile clinic, fill this gap to an extent.

Admission to schools is often hindered by a lack of awareness of documentation requirements, compounded by language barriers. Public school teachers and NGOs have attempted to address this through targeted outreach, including house visits. Younger children of long-term migrants tend to achieve better educational outcomes, older children and those from seasonal migrant families face higher dropout rates, driven by linguistic challenges and frequent relocations. Work and school and anganwadi timings are often mismatched. Some migrant children are kept at home and, in certain cases, withdrawn from school to care for younger siblings. Although some schools have introduced adaptive measures such as opening earlier, these are inconsistent across the district and not formalised into policy.

Key Insights

Social integration

Social integration of migrants varied considerably across settlements in the district. Both Vathuruthy and Perumbavoor have long been associated with migrant populations but are frequently portrayed as unsafe or problematic areas, with homeowners imposing restrictive social rules, frequent rent increases, shopkeepers charging migrants higher prices for goods and routine threats of eviction if these practices are resisted.

Overall, migrant families tended to integrate into local society more easily than single migrant men, who were often kept at a social distance. Migrant families were observed to establish bridging ties with local homeowners, especially amongst women. Women employed as domestic workers generally reported cordial relationships with their employers. Children often serve as a key bridge for migrant integration. Those enrolled in Kerala's schools typically acquire the local language quickly, and, if their families remain in the state for extended periods, may progress to higher education and more formal employment. There were also instances of first and second generation migrants marrying local residents and fully integrating. However, in certain areas, the growing presence of migrant students in government schools has also generated negative reactions from locals, who expressed disinterest in their children mingling with migrant kids, a setback for integration. Tamil migrants in Vathuruthy, during the early phases of migration, were less integrated into the local schooling system and, over time, increasingly preferred to educate their children in Tamil Nadu, attracted by the benefits offered by the state government.

Consequently, despite multiple generations being born or employed in Ernakulam and sharing linguistic similarities, integration through schooling remained limited.

For men living alone, the contractor typically served as their primary lifeline in the city. Where relationships with contractors were strong, migrants were able to secure better living conditions and receive support during crises such as the 2018 floods and the COVID-19 pandemic. For migrants, both men and women, who reside within company premises, opportunities for social interaction with the broader community were limited and, in some cases, explicitly restricted, preventing social integration.

Language plays a major role in helping the migrants navigate the intricacies of the job market and life in Ernakulam. Linguistic adaptation is visible in the region with public goods and services, including religious activities, bus route announcements, water points, and public notices, being made increasingly available in Bengali, Odia, and Hindi, languages not native to the region. Likewise, many shopkeepers, employers, and transport operators have learned basic Hindi to facilitate communication, showing some signals of accommodation of migrants. Despite these accommodations, migrants, who over their long period of residence or seasonal migration in Ernakulam have managed to acquire conversational or fluent Malayalam, still have an advantage and tend to achieve better outcomes. They often improve their job prospects and advance to supervisory or contractor roles. Some long-term migrant residents have purchased property in the region and married local residents, fully integrating into the region.

Key Insights

Interventions for Migrants

There are several interventions for migrant workers both by state and non-state actors but their efficacy is mixed. The Tables 2 and 3 below shows the prominent interventions.

Table 2: Details of the State-led Interventions for migrants that are present in the settlements

Scheme	State Department	Details
Jyothy Programme	Department of Education	Focuses on enrolment of children of migrant workers in schools.
Roshni Project		Supplementary teaching beyond class hours; engages additional teachers who speak Hindi or the native languages of migrant students.
Centres for Out-of-School Migrant Children		Establishes special learning centres to promote enrolment and retention among migrant children.
Changathi Programme	State Literacy Mission	Teaches migrant workers the local language to improve communication and integration.
Day Care Centres for Children of Migrant Workers	Department of Women and Child Development	Pilot initiative setting up childcare centres to support working migrant parents.
Migrant Resource Centre (Perumbavoor)	Department of Labour and Skills	Provides information, guidance, and welfare support for migrant workers.
Interstate Migrant Workers Welfare Scheme		Offers welfare benefits and protection measures for interstate migrant workers.
National Health Mission (Migrant Link Workers)	Department of Health and Family Welfare	Trains and recruits migrant workers to connect the community with public health services.
One Nation One Ration Card Scheme	Department of Food and Civil Supplies	Enables migrant workers to access ration benefits in any state, improving food security.

Table 3: Details of the non-state-led Interventions for migrants that are present in the settlements

Organisation	Focus Area / Activities
Centre for Heritage, Environment and Development	Focuses on improving local mobility and access to urban services for migrants.
SEWA, Kerala	Works for the welfare and rights of women workers, including migrant women.
Atithi Welfare Forum	Assists in the repatriation of deceased migrant workers' bodies to their villages
Rajagiri Outreach	Targeted AIDS prevention interventions among migrants
Progressive Workers Organisation	Advocates for migrant workers' rights and promotes collectivisation
Centre for Migration and Inclusive Development	Operates mobile clinics and resource centres for migrants; mediates in wage theft cases; provides multilingual disaster alerts
Manav Migrant Welfare Foundation	Engaged in welfare and support activities for migrant workers in the district.
Amar Saath Foundation	

Precarity, Adaptive Capacity & Well-being Assessment

Settlements are placed along a continuum of precarity, adaptive capacity, and well-being to capture the varied risks and response capacities across migrant communities. This framework helps identify where vulnerabilities are most acute, where adaptive strengths can be built upon and what outcomes emerge for migrant households.

Overall, all five settlements demonstrate systemic vulnerability because of the living and work conditions of migrants in them (Table 4). Settlements like Thandirikkal and Nettoor were doing comparatively better, at least in two of the three dimensions of Precarity, Well-being and Adaptive Capacity, followed by Vathuruthy doing better in one dimension. These variations highlight how settlement age, population composition, and local interventions, shape differentiated outcomes even within the same urban system. The following sections look at each of the thematic dimension in detail.

Precarity: Across settlements, precarity emerged from the intersection of hazard exposure, insecure tenure, inadequate housing, and limited access to essential services. Overall, levels of precarity were high across most sites, though the

underlying drivers varied. In Perumbavoor and Scrap worker settlements, housing-related precarity was particularly acute, compounded by rising heat stress that worsens already poor living conditions. In contrast, in Vathuruthy and Thandirikkal, precarity stemmed primarily from exposure to and impact from multiple, overlapping climate and environmental hazards, including flooding and heat stress. Additionally, in Perumbavoor and the Scrap worker settlements, work-related precarity was a major contributor to overall precarity, due to the highly informal nature of employment, lack of worker protection, and low agency. Although Nettoor had relatively low precarity, certain pockets like the Nettoor wholesale market and the smaller kutcha settlements form clusters of high precarity. Migrant precarity is deeply gendered. In urban destinations such as Ernakulam, more women reported heat-related symptoms than men.

Migrant women often experience higher outdoor and indoor heat stress due to the dual burden of wage labour and domestic care work, coupled with limited opportunities for rest and recovery. Some examples include differential access to space of recreation, leisure and recovery.

Table 4: Precarity, adaptive capacity and well-being assessment of the settlements

Settlement	Precarity	Adaptive Capacity	Well-being
Vathuruthy	High	Medium	Low
Nettoor	Medium	Low	Medium
Scrap Worker Settlement	High	Low	Low
Thandirikkal	High	Medium	Medium
Perumbavoor	High	Low	Low

Precarity, Adaptive Capacity & Well-being Assessment

Adaptive Capacity: Adaptive capacity varies markedly within and across settlements, strongly influenced by socioeconomic status, asset ownership at the source, duration of residence in Ernakulam, and aspirations. Aspirations, in particular, play a defining role. Households intending to return to their places of origin often rely on short-term, coping-oriented strategies, while those planning to settle in Ernakulam tend to adopt longer-term adaptive measures such as securing documentation and building local entitlements which, in turn, enhance their negotiating power and access to services. Gaps within local service delivery systems, due to bias amongst frontline workers, linguistic barriers, and seclusion forced by some employers, limit migrant workers' ability to reduce their vulnerability. Migrant link workers appear to increase the adaptive capacity within settlements, emerging as connecting points to local government for those with linguistic and other social barriers for accessing these services.

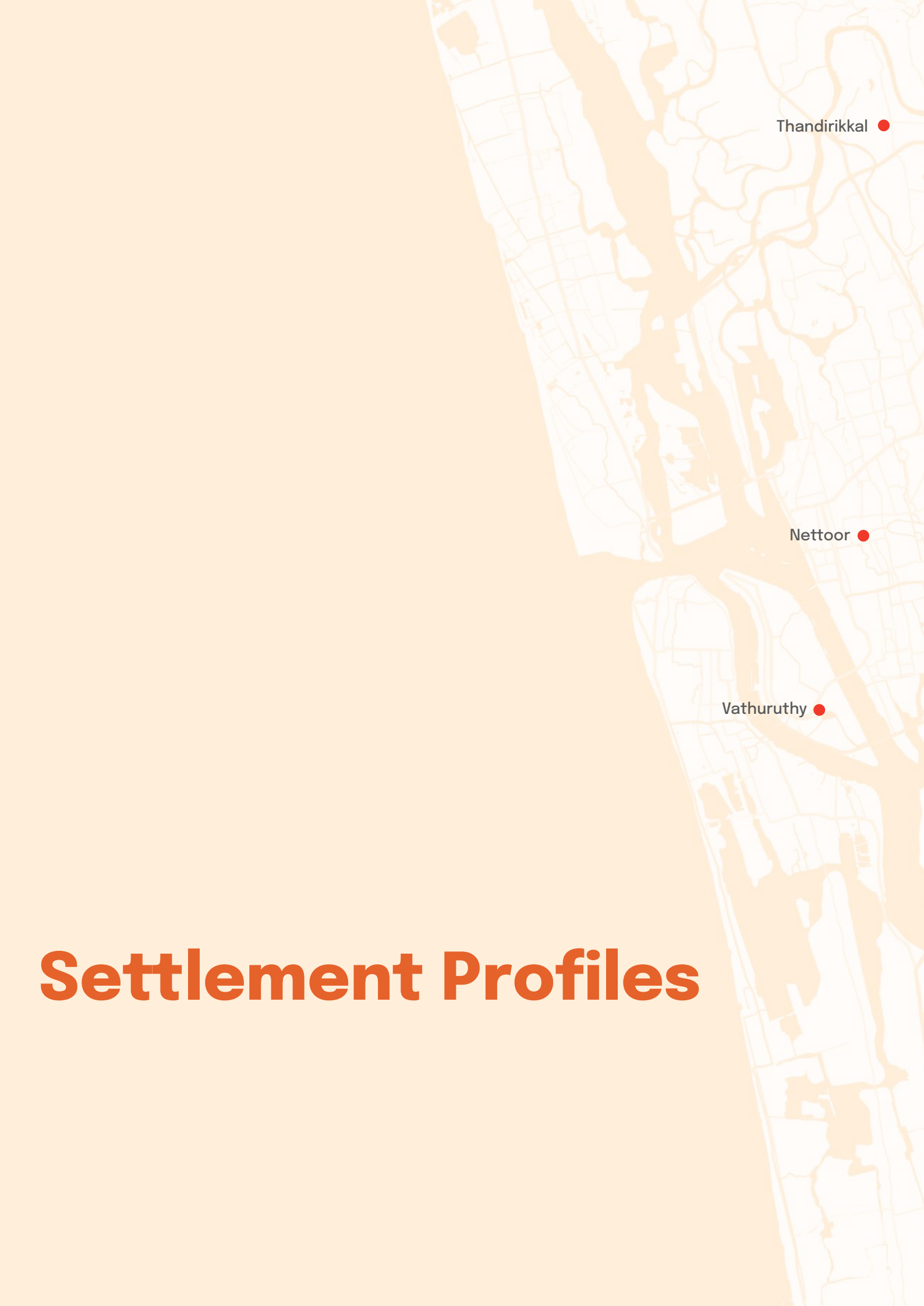
Wellbeing: Wellbeing outcomes show similarity within settlements, based on age and demography of the settlements. Older and more migrant-dense settlements tend to fare worse, often experiencing discrimination and social exclusion. Compared to more homogenous settlements and pockets such as Vathuruthy and Nettoor, in mixed-population settlements like Perumbavoor and Thandirikkal, intra-migrant discrimination was also reported, sometimes emerging due to broader tensions with local communities. Cultural wellbeing is stronger among Tamil migrants, who maintain close ties with their source regions and can return home more easily. Across most settlements, investments in material wellbeing such as

housing improvements or asset purchases tend to be directed towards home villages rather than the destination city. Psychological and relational well-being was found to be particularly poor among elderly migrants living alone and men migrating without families. The outcomes were also gendered, with women in migrant families experiencing lower well-being than male members, due to combined burdens of reproductive and productive work, especially in settlements with poor access to childcare and healthcare support systems.

Way Forward

Migrant workers are emerging as a critical demographic group in Ernakulam, playing a significant role in shaping the region's social and economic trajectory. The migrant settlement profiles reveal existing gaps and key intervention points for improvement for migrant workers in the district. Policy responses must evolve to reflect the complexity of migrant lives and vulnerabilities. Key focus areas could be regulations on migrant rental housing, enforcing worker protection measures such as heat safety protocols and multilingual early warning systems, and improving link worker and social integration schemes. Addressing barriers related to childcare and healthcare access, including the timing and availability of services, is also critical.

The findings underline that a uniform approach is insufficient to address the diversity of migrant experiences and vulnerabilities. Policymakers must adopt differentiated, settlement-specific strategies. Building climate resilience requires parallel efforts, addressing climate precarity at both homes and workplaces.

A stylized map of a coastal region, likely in Kerala, India. The map shows a network of roads and a prominent waterway (river or canal) running diagonally from the top right towards the bottom. Three settlements are marked with red dots and labeled: Thandirikkal at the top right, Nettoor in the middle right, and Vathuruthy at the bottom right. The background is a solid light orange color.

Thandirikkal ●

Nettoor ●

Vathuruthy ●

Settlement Profiles

Vathuruthy



Spatial Context

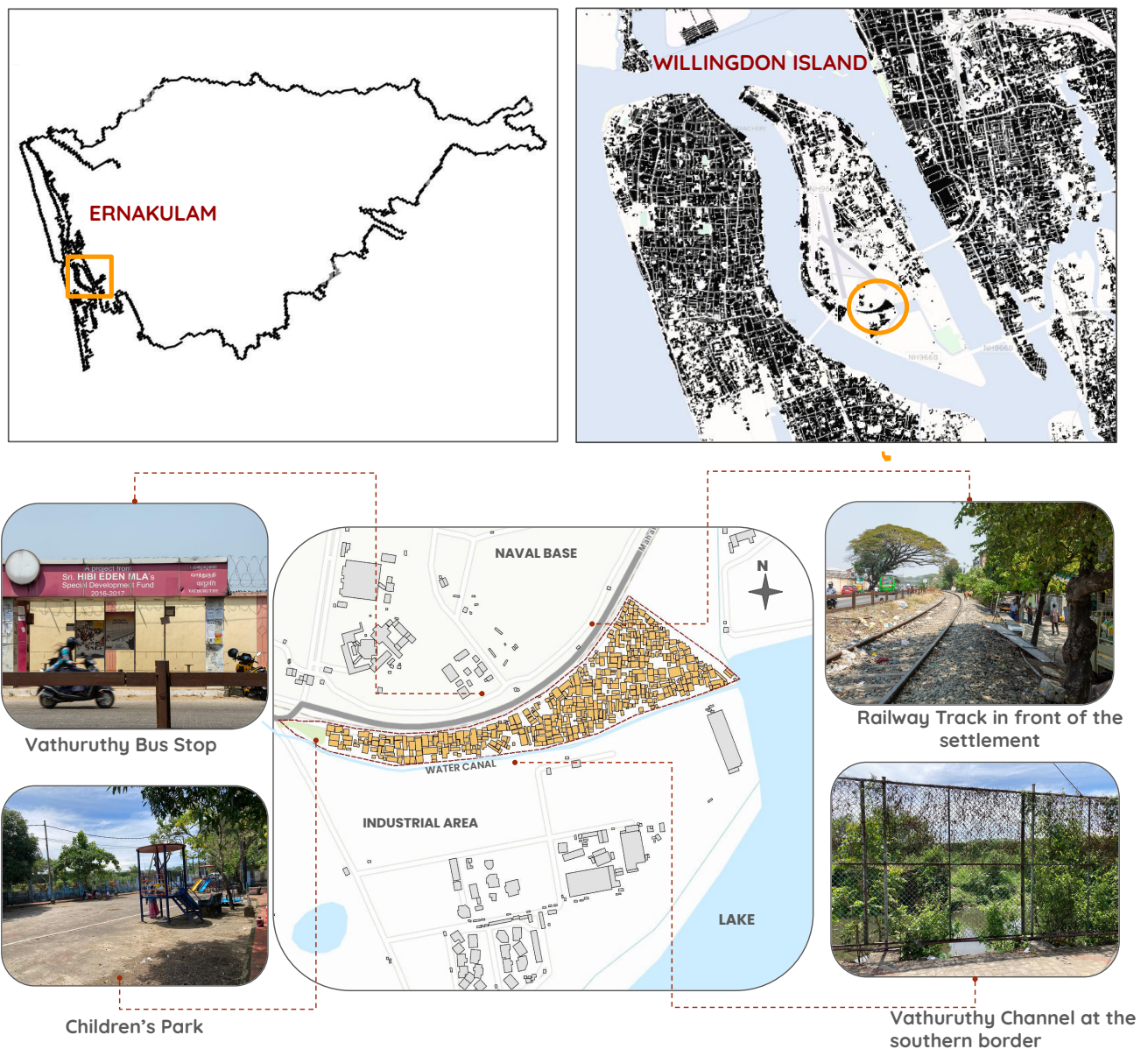


Figure P1: Location of the settlement in Ernakulam, Kochi Municipal Corporation and surrounding areas (above) and map of the settlement. Source: Developed using Google Building Footprint.

Location: Vathuruthy

Ward: 30

ULB: Kochi Municipal Corporation

Area (sq. km): 0.048

Age of the settlement: 74 years

Land ownership: Private

Vathuruthy is one of the oldest migrant settlement in Kochi city. It is in a low-lying area, located just off the Willingdon Island-Thevara main road. Positioned

near key landmarks like the Indian Naval Base and Southern Naval Command, it lies between elevated railway tracks to the north and the neglected Venduruthy Channel to the south. The channel, once a vital waterway, is connected to a larger waterbody linked to the Vembanad Lake system. The settlement features dense housing and a few shops along the railway road, contrasting with the planned development in the rest of the Willingdon Island.

Evolution of the Settlement

2011



Several patches of green or unbuilt land are visible within and around the settlement boundary. The buildings appear more spaced out, with narrow lanes and small gaps between many structures. Most structures have Mangalore clay tile roofs, characterised by their reddish-brown colour and uniform appearance.

2025



These open patches have been significantly reduced or fully built over. The structures are packed closer together, and internal circulation spaces (lanes, courtyards) are less visible. A significant shift in roofing material is evident—Mangalore clay tiles have largely been replaced by corrugated tin sheets and metal roofing.

Vathuruthy gets its name from its tail-like shape and proximity to a water channel once called “Vaalthuruth.” Located in Willingdon Island, a reclaimed island, the settlement began with about 12 tenant families in the 1940s. The marshy land, then owned by Canara Bank, Kanjoor Church, and some businessmen, was primarily used for cultivation. After the 1957 Kerala Land Reforms Act, tenants gained ownership. Early homes were simple, one-room brick structures with tiled roofs, built without formal regulations. Vathuruthy was part of Palluruthy Panchayat until it became part of the Kochi Municipal Corporation in

1967. The construction of the naval base in the 1960s–70s displaced the community there, many of whom were resettled in Vathuruthy, increasing its population. The demand for labour drew Tamil workers, leading locals to build makeshift sheds, a single one housing 20–30 workers. Overtime, the thatched houses, which were vulnerable to fire due to rail-transported coal embers in the olden days, were gradually replaced by safer pucca structures. Despite major surrounding infrastructure like the Naval Base, Gammon Bridge, NH47A, and Venduruthy Bridge, the settlement largely grew in a congested, unplanned way.

Hazards

“This heat here is just too much. Back home in the village, a good rain would cool everything down. But here, when the current goes, it becomes unbearable. I have to go outside just to catch a bit of breeze.”

“Sometimes we even throw water on the floor to cool the place.”



Tamil migrants in
Vathuruthy

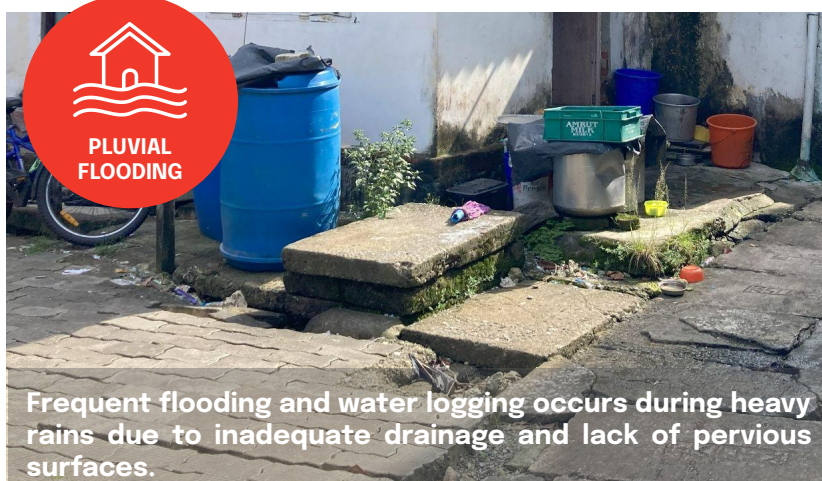


Sparse green cover and closely-built houses limit natural ventilation, while heat-retaining materials like tin, asbestos, and concrete trap heat indoors. The lack of shaded spaces during the day and high night-time temperatures make it difficult for daily-wage workers to rest and recover. In summer, the tarmac at the nearby naval airport gets extremely hot, radiating heat toward Vathuruthy, making the area even hotter.

Although heat exposure is high at worksites, many workers reported that they tend to ignore the heat and continue working, citing they are accustomed to such conditions. At homes, residents cope by using multiple cooling devices leading to higher energy bills or by delaying sleep till it is cooler. Some residents moved to other houses within the settlement, only to find that the conditions are similar throughout the area.



PLUVIAL
FLOODING



Frequent flooding and water logging occurs during heavy rains due to inadequate drainage and lack of pervious surfaces.

“When it rains heavily, the water enters our home. We clean it up once the floodwaters recede and then move back in, that's it. What else can we do?”



A migrant resident
living closer to the
canal

During the 2018 floods, although Vathuruthy was not affected, many Tamil migrants were asked to go back to their villages by the local authorities. Since the routes to villages were affected by the floods, the travel was dangerous for many migrants, although some were given free train tickets.



TIDAL
FLOODING



At high tide, water from the canal behind the settlement often overflows and enters nearby homes, especially during the monsoon. Poor drainage and the accumulation of solid waste in the canal exacerbate the risk of tidal flooding.

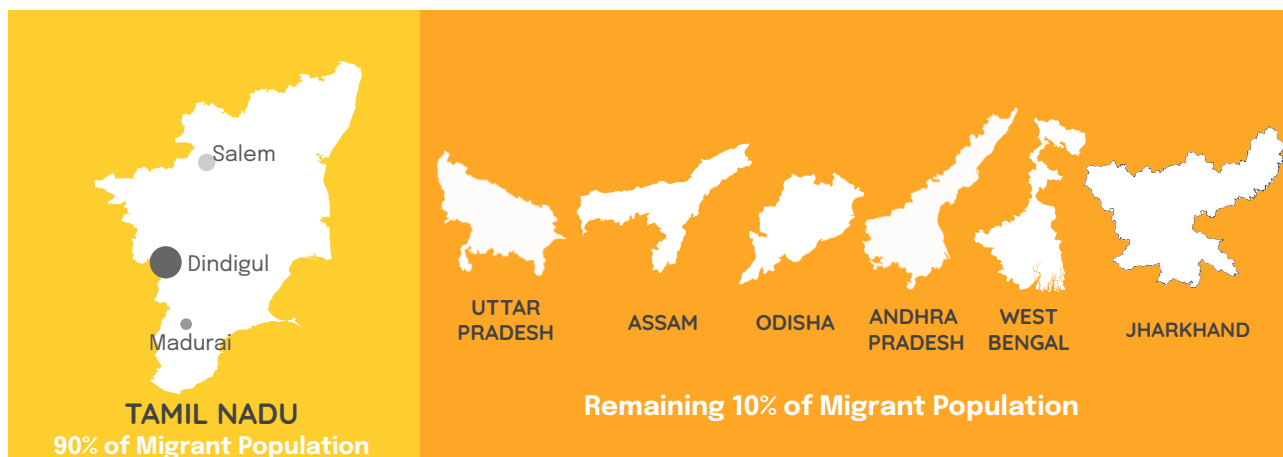
Demography

Total households: 4000

Migrant percentage: 50%

Migrant population: ~2000

Source areas:



Type of migrants:

Seasonal	Long-term	Permanent
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Religion of migrants:

Hindu	Christian	Muslim
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Family typology:

Couples	Families	Single-men	Single-Elderly Women
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The settlement includes regional migrants, inter-state migrants from neighbouring states, and migrants from distant states. Among the Tamil migrants, there is significant religious and caste diversity, including reports of both historically privileged and historically marginalised caste groups.

Educational levels among Tamil migrants vary by generation. Older migrants, aged 50 and above, are largely illiterate, while those aged between 35-50 have completed basic schooling. Some in the youngest generation (~20-25 years) are pursuing higher education. Many young migrants often engage in informal work during breaks to support their education. Higher education is more common among Tamil migrants compared to migrants from eastern

India, who were more likely to have primary or secondary level schooling.

Most Tamil migrants in Vathuruthy live with their spouses, though there are also single male migrants and older Tamil women living alone. Older women were often widowed or separated, with their adult children working in Tamil Nadu. Few families with young children reside in the settlement, mainly from North and East India.

Tamil children usually stay with parents until school age, after which they are sent to Tamil Nadu to live with relatives or in hostels. Similarly, children of migrants from other states often remain in their source areas, while infants and toddlers stay with parents in Vathuruthy.

Livelihoods

Range of household income: INR 15,000 to 50,000 per month

Livelihood profile of male migrants:

CONSTRUCTION	OTHERS
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Livelihood profile of female migrants:

CONSTRUCTION	DOMESTIC WORK	UNPAID CARE WORK
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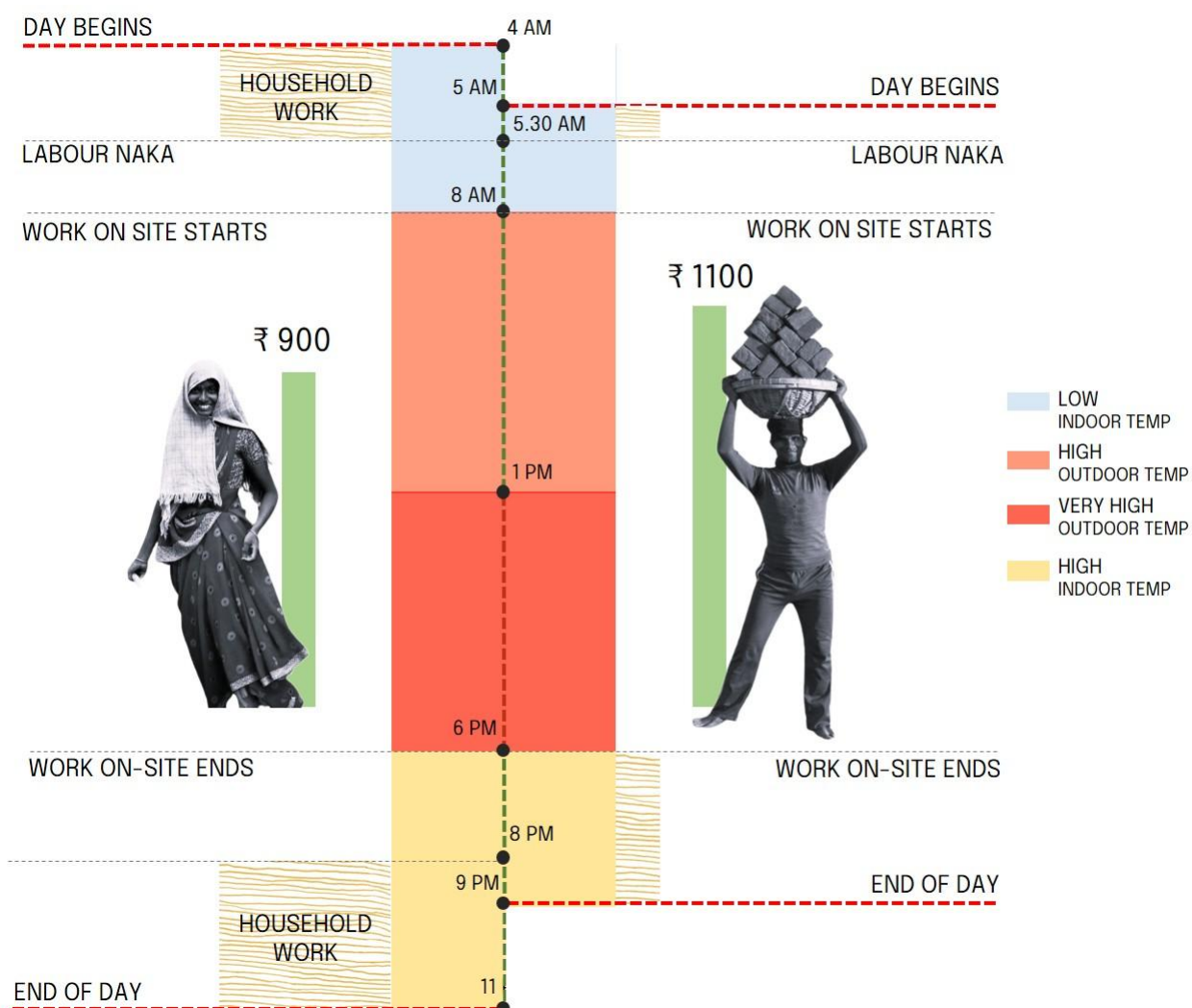


Figure P2: Daily routine of migrant construction workers, showing the gendered division of labour and exposure to heat during household and site work.

95% of migrants in the settlement work in the construction sector and remaining work in plumbing, domestic work, or run small shops. In construction, women, typically working as helpers, tend to take up jobs at nearby sites within the district, while men—often *maestris*—travel to nearby districts like Kottayam, Alappuzha, and Thrissur. A large proportion of the workers, including women, are engaged in concreting work, under primarily Tamil contractors. This work, compared to *maestiri* work, typically does not last the whole day and is better paid, with women workers getting INR 1000 per day.

Housing

Vathuruthy has a dense spatial layout, with homes built in close proximity and minimal open space. Common building materials include concrete, cement blocks, asbestos, and tin sheets—choices largely driven by cost, availability, and ease of construction. However, these materials offer poor thermal performance: tin sheets absorb and radiate heat, while cement blocks and concrete retain heat during the day and release it slowly, leading to consistently high indoor temperatures and reduced thermal comfort. The entire residential pocket is informally segmented into multiple compounds based on ownership. Despite its unofficial nature, this arrangement enjoys widespread acceptance among workers and community service providers, including ASHA workers.

PUCCA HOUSING



Single-room units constructed specifically for renting to migrants

KUTCHA HOUSING



Cluster of kutchha houses in a compound



Older homes with cement sheet roofs covered with plastic sheets



Newly constructed houses made of concrete blocks with cement sheet roofs.

Housing typologies and rent:

Unit Size	Type	Tenants	Rent (₹)
2.5x2.5m Room Shared toilets and bathrooms	Kutchha	Families/ Couples	2500
Large halls + Terraces Shared toilets and bathrooms	Pucca	Single men	2000- 2500 per head
1 Room	Pucca & Semi- Pucca	Families/ Couples	3000-4000

The area is characterised by congested living conditions for migrant workers. Predominant housing typologies include single-unit dwellings, family accommodations and low-rise group housing shared by multiple families. Common toilets are prevalent and kitchen and utility spaces are typically extensions of existing buildings, covered by temporary sheets, semi-permanent or permanent spaces. Individual open spaces exist only in the gaps between houses. Connecting pathways are narrow and poor-lit, with widths generally ranging from 0.8 to 1 metre.

Physical Infrastructure

Water



Municipal water being stored in containers



A closed well in the settlement

The settlement has a few open and closed wells. Until private connections were introduced, residents used now-removed public taps. In mid-2024, Kochi Municipal Corporation installed one shared tap per compound under the AMRUT scheme. Water, initially free, now costs households ₹70-120 per month. All households rely on corporation-supplied water for drinking and domestic use, usually consumed without boiling or filtering, and stored in large plastic barrels or repurposed paint buckets.

During the 2018 floods, although the settlement was not severely affected, the disruption of water supply due to the Aluva pumping station being impacted prompted many residents to return to their villages.

Drainage



Concrete slabs over drainage channels

Stormwater drainage is effective with capped drains and is now preventing flooding that was earlier caused by open channels across the settlement.

Greywater drainage is inadequate; many kutchra house compounds discharge waste into open drains, with migrants using shared areas for washing. Blackwater drainage is managed via septic tanks for both household and public toilets, which are cleaned twice a year.

Sanitation



Public toilets by Kochi Municipal Corporation

Sanitation remains a significant challenge in the settlement, with over 100 people sometimes sharing a single toilet. Due to limited space in Vathuruthy, rooms rented to migrants often lack individual attached toilets, relying instead on shared facilities used by five or six households. These shared toilets and washrooms are insufficient especially during the morning rush, prompting residents to use public toilets.

Solid Waste



Littering in front of the settlement

The settlement is served by the Corporation's solid waste collection system, with households paying 100 INR per month. Residents are responsible for segregating their own waste. To track waste collection, KMC has placed QR codes on each door.

Social Infrastructure

Childcare & schooling:

There are three Anganwadis within the settlement, but only Tamil children from migrant families are enrolled, even though migrants from northern states also reside in the area. Tamilians often leave their school-age children in their home districts, largely due to the extensive educational benefits offered by the Tamil Nadu government. Schemes like free meals, the Girl Child Protection Scheme, and laptop distribution have encouraged families to keep children, especially girls, in Tamil Nadu's schools.

"We send our children back home to Tamil Nadu for school so they don't forget our language and culture."

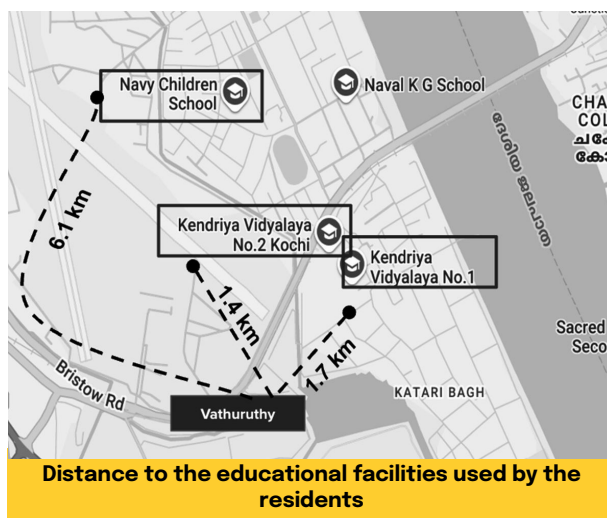


A 36 year old male migrant

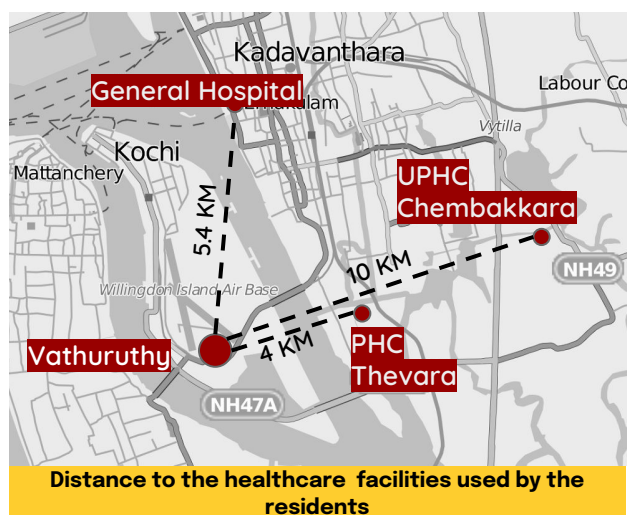
Health & healthcare:

The nearest Public Health Centres to Vathuruthy are Thevara and Chambakara UPHCs, both off the island. Within the settlement, the Centre for Migration and Inclusive Development (CMID) offers free health check-ups every Friday at the Community Hall with medical staff supported by Kochi Refinery.

For serious occupational accidents, workers go to the General Hospital in Ernakulam for medical care. For long-term illnesses, residents typically return to their home regions for treatment. Tamil workers, due to their source areas being closer, are more likely, than migrants from states like Assam or Odisha to travel back for even minor illnesses. Construction workers, often exposed to cement, dust, and asbestos without protection, commonly suffer from burns, blisters, skin allergies, and are at risk of pulmonary diseases.



Some long-settled families, who migrated over three or four decades ago, have educated their children in Kerala, with a few now pursuing higher studies. More recently, government schools in Willingdon Island and Panangad offered free books and uniforms to attract students, but reducing number of children in Vathuruthy hindered enrollment.



Emergency care and ambulance services in Vathuruthy are poor. Nearby hospitals do not provide ambulances, so ASHA and NHM workers, with the help of local NGOs, organise ambulance or repatriation services costing around ₹20,000–₹30,000 after accidents, serious injuries, or death.

Interventions

Government Interventions:

Public Distribution Services: Migrants below the poverty line have access to this system many migrants access ration from Vathuruthy instead of source areas.

Pradhan Mantri Matru Vandana Yojana: Pregnant and lactating mothers also benefit from supplementary nutrition programmes coordinated by ASHA workers.

NHM Link Workers facilitate access to healthcare, disseminate important public health information, and provide culturally sensitive support, ensuring that migrants can navigate urban systems and receive timely assistance

NGO & Private sector Interventions:

Centre for Migration and Inclusive Development: Organises medical camps with the support of BPCL Kochi Refinery and National Health Mission regularly providing free primary healthcare services. CMID also helps with enrollment in government schemes, social security benefits and assists with digital documentation.

Magic Bus Conducts youth-focused educational programmes in Vathuruthy.

Social Organisations: Local units of labour unions such as **INTUC** and **CITU** as well as Kudumbasree have Tamil migrant members. Some are also in office-bearers. Union-active construction sites strictly enforce the heat circular on outdoor work during peak heat. However, there is still bias, with Tamil workers sometimes not receiving the same benefits as Malayali members.

Settlement Assessment

As one of the oldest interstate migrant settlements in the region, Vathuruthy has seen some improvements over the course of its existence, in terms of housing, infrastructure access, and social organisation. Despite this, critical gaps remain in healthcare access and social integration, as well as challenges in housing and basic services for pockets within the settlement. The 2018 floods also exposed gaps in disaster preparedness and response specifically for migrants.

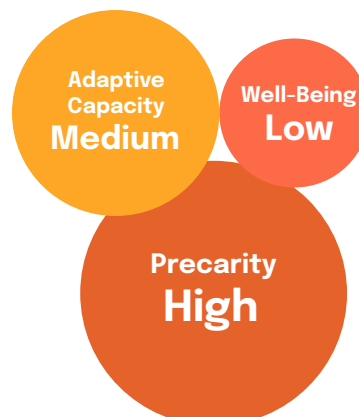
There is also a lack of social organisation, as long work hours and limited time to socialise hinder community-building. with few Tamil workers-led initiatives and fragmented support networks. They are still marginalised by the locals, although the intensity has reportedly sobered over the years as per the migrant residents. For Tamil families, migration has in some cases translated into upward social and economic mobility, marked by milestones

such as home ownership, better educational outcomes for children, and improved social standing.

“20 years ago, locals were not very good to us but now they have realized that their survival and welfare also depends on the Tamil migrants. Now, even if there is a bias, they don't show it.



A Tamil migrant living in Vathuruthy for the past 23 years



Perumbavoor



Spatial Context

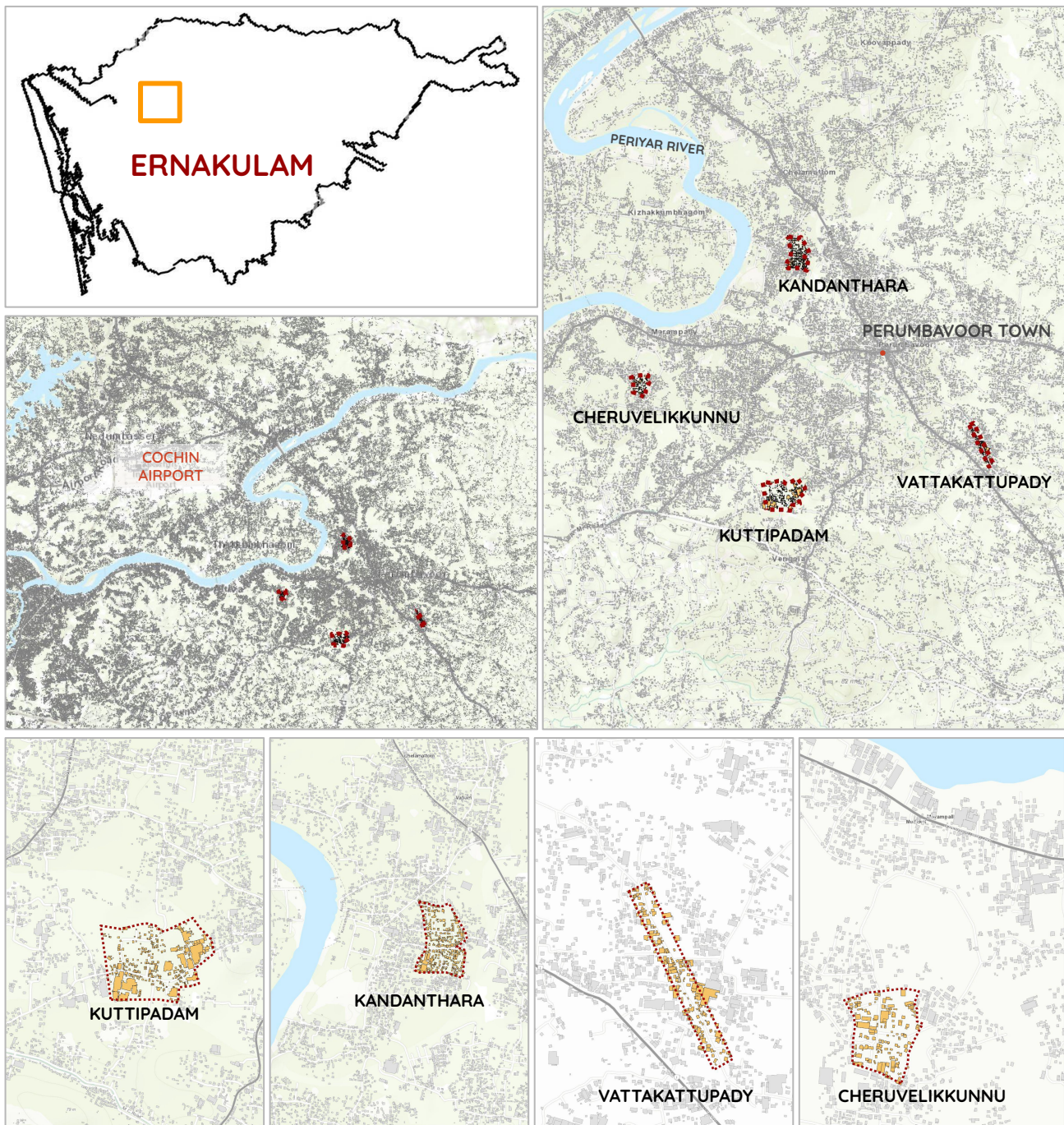


Figure P3: Location of the settlements in Ernakulam District (above). Map of profile clusters within Perumbavoor. Source: Developed using Google Building Footprint.

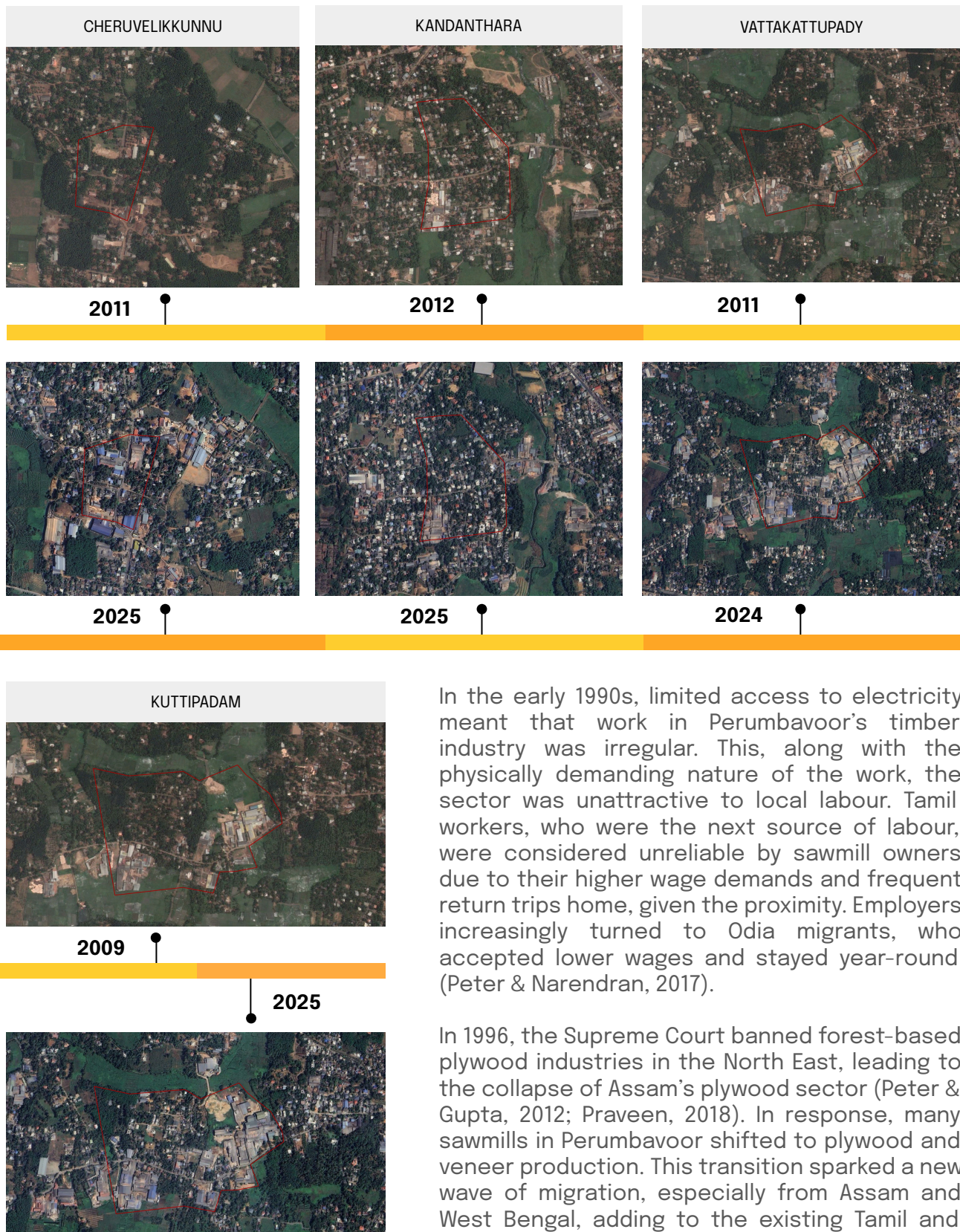
This profile covers five settlements—Kuttipadam, Vattakattupady, Cheruvelikkunnu and Kandanthara, in the Perumbavoor region. Migrants residing here work in and around Perumbavoor town. These settlements have shared characteristics on demography, livelihood, housing, and working conditions. Other residential pockets in the region are Okkal, Kanjoor, Asamannoor, and Mudakuzha but these are not covered in the profile.

Location and LSG:

1. Cheruvelikkunnu (Vazhakulam Panchayat)
2. Kandanthara (Vengola Panchayat)
3. Vattakattupady (Rayamangalam Panchayat)
4. Kuttipadam (Vengola Panchayat)

Age of the settlement: ~30–35 years

Evolution of the Settlement

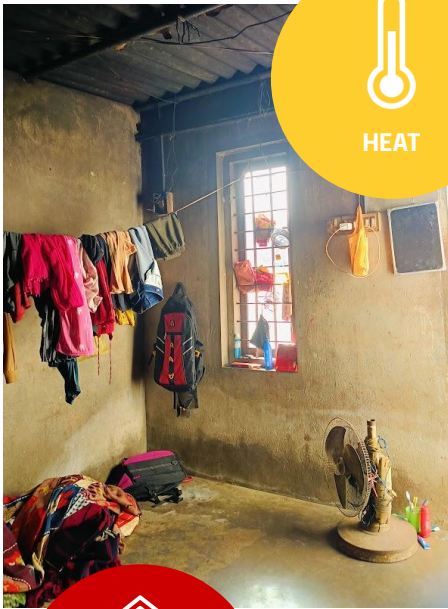


In the early 1990s, limited access to electricity meant that work in Perumbavoor's timber industry was irregular. This, along with the physically demanding nature of the work, the sector was unattractive to local labour. Tamil workers, who were the next source of labour, were considered unreliable by sawmill owners due to their higher wage demands and frequent return trips home, given the proximity. Employers increasingly turned to Odia migrants, who accepted lower wages and stayed year-round (Peter & Narendran, 2017).

In 1996, the Supreme Court banned forest-based plywood industries in the North East, leading to the collapse of Assam's plywood sector (Peter & Gupta, 2012; Praveen, 2018). In response, many sawmills in Perumbavoor shifted to plywood and veneer production. This transition sparked a new wave of migration, especially from Assam and West Bengal, adding to the existing Tamil and Odia workforce and meeting the region's growing demand for labour.

Figure P4: Evolution of clusters in the settlement and the surrounding areas. Source: Authors, based on Google Earth Pro.

Hazards



HEAT

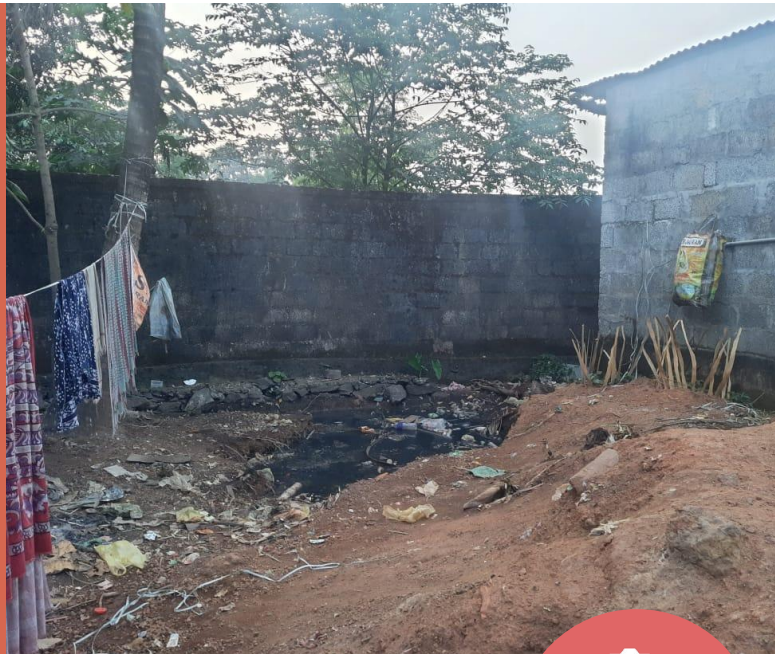
Heat-retaining materials, poor ventilation and indoor cooking is leading to acute heat in houses. Migrant residents often sit outside the rooms and delay sleep to escape the heat. In many houses, there are no ceiling fans, and a single power socket, forcing residents to take turns using this socket, while using no cooling.

Migrants are also at high risk for heat strokes at worksites. They are unable to drink adequate water due to strictly monitored breaks, leading to dehydration and kidney stones. Although there are circulars against outdoor work during peak heat, it is not enforced in most sites. Many women reported feeling dizzy and having fluctuating blood pressure while working in summers.



PLUVIAL
FLOODING

The 2018 floods severely impacted migrants, causing significant livelihood and economic losses. While many went home, those who stayed had limited access to important information due to language barriers. Many sought refuge in camps, mosques, or churches. Presently, some settlements experience waterlogging during heavy rains.



WATER
SHORTAGE



The region also experiences water shortage during summer. In these cases, many owners curtail water usage, often reducing the number of tank refills.

Demography

Migrant population: ~ 1 lakh

Migrant share in population: ~12-15%

Source areas:



Type of migrants:



Religion of migrants:



Family typology:



Perumbavoor has long-term, short-term and seasonal migrants from West Bengal, Assam and Odisha, with marginal presence from other states such as Bihar, Uttar Pradesh, Chhattisgarh, Jharkhand and Andhra Pradesh. Most migrants are literate, and many read and write in their native language. Many dropped out of school at around high school, which a few have completed.

While a significant proportion of the migrants are single male migrants, a quarter of the migrants in Perumbavoor are families with children. The decision to bring family is influenced by the age of children, availability of housing and job opportunities for the women. Older children are often left at the source while younger children are brought here. However, most migrant men prefer not to bring families here, due to higher expenditure relative to earnings and negative perceptions around women

migrating.

While the major push factor appears to be livelihood based, there were many who cited climate stressors, including floods and riverine erosion. Some Assamese migrants from Nagaon, cited recurrent floods and the resultant losses as their reason to come to Perumbavoor, so that they can earn enough to recover. For women, limited occupational opportunities in their source areas and freedom were additional motivations.

Majority prefer to go back home after accumulating savings, but a minority have become permanent residents, buying land and rarely also marrying locals. Migrants who have lived long term report returning once or twice in a year, owing to the long distances. There are those who return to source seasonally to carry out agricultural activities.

Livelihoods

Average household income: INR 15,000 per month

Livelihood profile of male migrants:

PLYWOOD SECTOR	CONSTRUCTION	OTHERS
----------------	--------------	--------

Livelihood profile of female migrants:

PLYWOOD SECTOR	DOMESTIC WORK	UNPAID CARE WORK
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Livelihood matrix:

Livelihood	Gender	Wage
Plywood: Loading & Unloading	Men	₹ 600/day
Plywood: Peeling	Women	₹ 300-400/day
Plywood: Polishing	Men & Women	₹ 500/day
Plywood: Machine Operators	Men	₹ 1,000/day
Tree-cutter	Men	₹ 2,000-2,300/day
Business	Men & Women	Varies
Construction	Men	₹ 1,000/day

The nature of work in plywood industries is informal, regardless of whether it is skilled or unskilled. Skilled workers who set and press veneer layers or do finishing work, are generally from Assam, and predominantly men. Women are employed mostly in unskilled work such as clipping veneer, and folding the sheets. Companies also hire migrant men for loading/unloading at all stages of plywood manufacture, and transportation.

The migrants work in these and other factories for six days a week, from Monday to Saturday, and the timings are generally from 8 am till 5 pm. They have the option of doing overtime, although the pay for overtime is much less than the normal wage rate. Workers reported that they will only get an extra INR 100 for the day for working till 8 pm. Both men and women reported that they work overtime when the work piles up. They are usually paid on a weekly basis, usually end of the week.

In terms of hierarchy within the plywood factories, the workers, who do peeling, cutting etc., are at the lowest level, above them contractors, then supervisors, and

at the very, top the company owner. The workers and contractors are mostly migrants, while supervisors are mostly locals. Companies are owned by Malayalis. Contractors and supervisors, are the ones who ensure the workers work at maximum capacity and take less breaks. They get paid by owners by the quantum of work done. Owners do not deal with the workers directly.

Tree-cutting is another livelihood. However, the work is not regular-typically two to three days a week. Even when migrant workers are skilled, such as carpenters, they are often unable to practise their trade, as this is not a sector that typically demands migrant labour in Perumbavoor. Instead, most opportunities available to them are in the informal sector. A few women also work as domestic workers.

Many migrants in Perumbavoor have established businesses in local markets—most notably in the Bengali Market. These businesses include grocery stores selling items from their home states, eateries, barbershops, money transfer services, and more.

Housing

Average Rent: INR 3,000 ~ 4000 per month

Housing in this settlement is primarily pucca. While single migrants mostly stay inside the plywood companies, families or couples stay in rentals outside. The rental housing are mainly of two types:



Repurposed Older Housing

These are mostly older, dilapidated houses that were once residences for local families but are now rented out room by room. Typically meant for a single family, these spaces now accommodate multiple migrant families, leading to severe overcrowding, low security and poor privacy.



A key advantage is their vernacular architectural style, which offers better cooling compared to newer constructions. To maximise rental income, annexes are often added—vertically or horizontally—many of which are poorly constructed. These extensions, especially those with metal sheet roofing, worsen heat conditions for upper-floor tenants.



Migrant Targeted New Housing

These structures are built as rental accommodations for migrants, of both single-storey and multi-storied typologies. They are often located within the same compound as the house owner's residence. Constructed with minimal investment, typically featuring unplastered walls, weak doors, metal sheet roofing, and densely-packed, doubly-loaded corridors with inadequate ventilation.



In many cases, even marginal spaces such as staircase landings and terraces are repurposed for rent. Basic amenities, including shared toilets and a common cooking area, are usually provided. However, most households, are confined to a single room.

Housing

In most cases, property owners deal directly with the tenants. However, in instances where house owners demand high deposits, housing contractors—often migrants themselves—step in. These contractors pay the deposit upfront and then subdivide the rental units to maximise profit, resulting in increased overcrowding.

“If our wages are stagnant for over two years, why is the house owner increasing the rent twice every year? The wage for 8 hours of work was ₹650 two years ago and remains ₹650 even today. Meanwhile the cost of everything has increased, and the rent has increased almost twofold. How will we pay all this extra money?”

”

A young male migrant

The relationship between house owners and tenants is often tenuous. Rent is frequently and steeply increased, making it difficult for many migrant households to send remittances home. House owners commonly impose strict rules on who can rent, who is allowed to visit tenants, and may even fine them for not maintaining cleanliness in the surrounding area. In some cases, owners compel tenants to purchase groceries from their own shops, where prices are often higher than market rates.

Housing of Single Men

Single men are given accommodation inside the company and there could be up to 100-200 migrant workers in one company. Accommodation is free but food is not provided. The men cook inside their rooms. Both workers and contractors stay inside the company. These workers also have to work longer shifts. The access to these spaces are highly restricted. Other single men who work as drivers and other footloose workers do not get such accommodation. They struggle to find accommodation outside as locals are reluctant to rent to single males.



Single men accommodation in a plywood company

“We don't give houses to people who don't work and sit at home. They will use the fan all day and increase the bill...”

”

A local houseowner



The terrace space is also divided into rooms for rent



A room that has no ventilation, built on a staircase landing space



Room rented to single men, covered in soot; and a ceiling fan supported by a rope.

Physical Infrastructure and Services

Water



Woman washing utensils using a shared tap.

Potable and non-potable water were generally from the same source. In some settlements, water was supplied through the panchayat taps—either as individual connections in each room or as shared taps used by the entire building. In most of the housing clusters, water was sourced from the owner's private connection. Many also relied on a common borewell, accessed either manually or through shared taps.

During summers, when water is in short supply, landowners become very strict with water supply and prescribe limits and sometimes turns the water off if the usage goes beyond these limits.

Sanitation



Shared toilets constructed outside houses

In most settlements, toilets are shared and located outside the rooms. Typically, five to ten households share two to three toilets. However, this ratio varies; in some clusters, up to 50 households may share just three to four toilets. Some landowners reportedly lock some toilets to reduce cleaning expenses, despite migrants often being responsible for these costs. The toilets are generally poorly constructed and maintained. While many landowners attribute this to the users, migrants report that they are not satisfied with the substandard facilities, but continue to rely on them out of necessity. Within the factories, toilets are similarly insufficient, typically having 8–13 bathrooms for 80–100 workers.

Energy



Shared chullas provided outside the rooms for cooking.

All the settlements had electricity connections.

Most migrants used plywood wood waste as cooking fuel. The large rental properties had shared *chullas* built outside the rooms for cooking, which sometimes had chimneys to let the smoke out. However, in smaller properties migrants cooked inside the room. This often led to many rooms being covered in black soot, intensifying the heat in the rooms and causing possible respiratory issues.

Solid Waste Management



A rental property where migrants have dug a pit for waste which flooded during rain, creating unhygienic conditions.

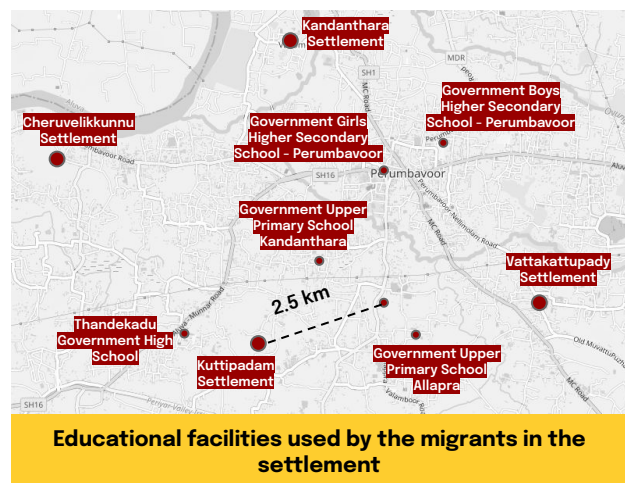
Solid waste management emerged as a significant challenge across the settlements. While the Haritha Karma Sena workers under the panchayat do collect inorganic waste, systematic mechanisms for managing organic waste are lacking, particularly in rural areas. House owners generally do not take responsibility for managing the waste generated by the large number of tenants on their premises. As a result, many migrants have to dispose waste in public areas during their commute to work—sometimes at the insistence of house owners, who discourage storing waste on the property and may even impose fines for doing so. In the case of inorganic waste, a collection fee is charged by the panchayat, which is often passed on to the tenants if the house owner has subscribed to the service.

Social Infrastructure

Childcare & schooling:

Most migrant children in Perumbavoor who attend school are enrolled in government institutions. Some families prioritised their children's education highly, investing in supplementary support such as private tuition. Teaching staff have reported that the number of migrant children enrolled in the local schools have increased over the years. However, a significant number remain out of school due to various challenges. Those who join schools as older students, struggle to integrate into the school environment due to language barriers. Even though tuition is free in government schools, associated costs such as transportation as well as uniforms and school supplies for classes above 8th grade, can be burdensome, particularly for single-income households. Additionally, since access to childcare is limited, due to mismatch between

anganwadi timings and work schedules of migrant parents, older siblings are sometimes withdrawn from school to care for younger ones. In such cases, either the children are locked at home or taken to the companies while the parents go for work. There have been reports of children facing dangerous situations, even death, due to both these actions.

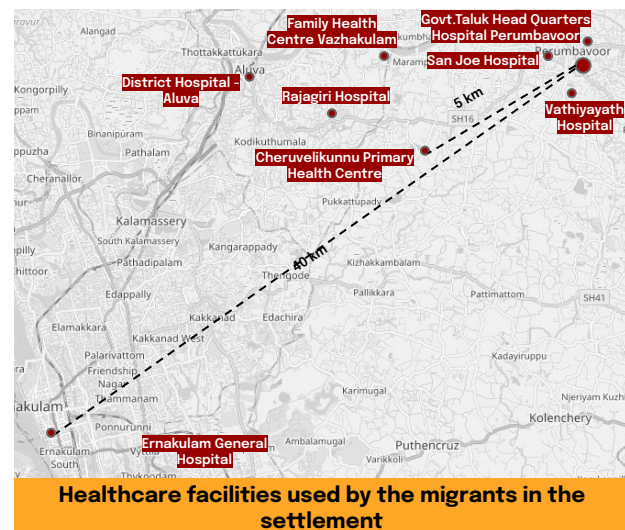


Educational facilities used by the migrants in the settlement

Health & healthcare:

Exposure to wood dust, chemicals, and the physically demanding nature of factory work contribute to common health issues among migrants, including body aches, respiratory problems, and fatigue. Health officers noted that some migrants arrive with diseases such as Malaria, but no significant outbreaks have occurred in the settlements due to precautions taken by the department. Food-borne illnesses linked to migrant-run eateries were flagged as another concern. However, the officials reported insufficient resources to regularly inspect these establishments. Most migrants accessed healthcare through government hospitals, although some expressed dissatisfaction with the care. Those who can afford to, go to private clinics and hospitals. While clusters in certain areas such as Kandanthara and Cheruvelikkunnu reported visits from ASHA workers and ICDS benefits, other clusters reported the opposite. Health Department cautions ASHA workers against visiting migrant settlements alone due to safety

concerns, which could lead to many settlements being underserved.



Healthcare facilities used by the migrants in the settlement

“Doctors in government hospitals here do not even touch patients. They diagnose from a distance and ask us to leave.”



A migrant from Assam

Interventions

Government Interventions:

- **Adithi Devo Bhava**, by the Ernakulam unit of National Health Mission (NHM), identifies resourceful persons within migrant groups in Perumbavoor and trains them as “link workers” to bridge gaps between health systems and migrant populations.
- **Aawaaz Insurance** scheme proved crucial in covering medical costs of serious emergencies, but the coverage was observed to be generally poor. Enrolment in the scheme has been discontinued.
- Migrants have become eligible for social welfare schemes such as Life Mission for housing once they shifted their identify documents to Kerala.

NGO/private sector interventions:

- **The Centre for Migration and Inclusive Development (CMID)** operates the Bandhu Shramik Seva Kendra, which supports access to employment, government welfare schemes, wages, repatriation of deceased workers and school enrollment. CMID’s Bandhu Mobile Clinic provides primary health care at work and residential areas, at migrant-friendly timings.
- **The Progressive Workers Organisation**, a union founded by a local, supports migrant and local labourers by raising awareness about wage rights, exploitation, and facilitating access to health workers through language support. They also work with migrant transgender community.
- **Rajagiri Outreach**, the implementation arm of Rajagiri College of Social Sciences implements Project Suraksha, conducting targeted intervention among migrants for AIDS prevention under the Kerala State AIDS Control Society.
- **Manav Migrant Welfare Foundation** supports in accessing social security schemes, education, improving financial literacy and primary healthcare to migrants.
- **Athithi Welfare Forum** is involved in transportation of bodies of migrant workers to native places.

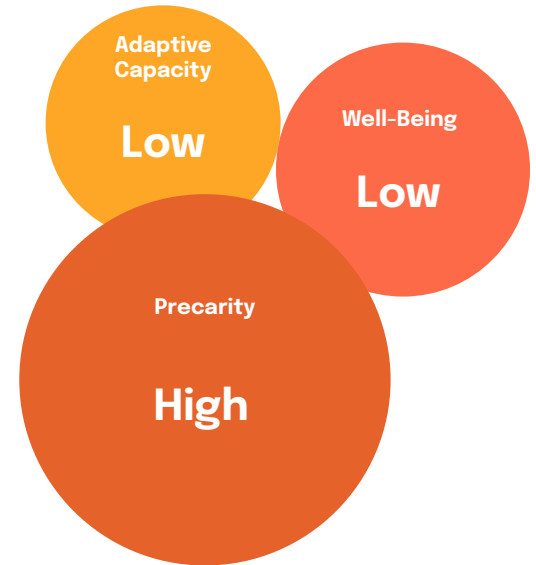
Government & private collaborative interventions:

- **Mobile Creche** for migrant children was started in Vengola by the Women and Child Development Department. The creche operates from 7 am to 7 pm, and has a vehicle to pick up the children from their homes. Around 15 children are currently using the creche.
- The Health Department is collaborating with plywood companies to improve migrant housing conditions. However, in the absence of a legal framework, these efforts remain advisory rather than enforceable.
- **Informal Arrangements:** During crises like the 2018 Kerala floods and the COVID-19 lockdown, other institutions also played a major role. Migrants relied on rations and return tickets provided by employers or contractors, and on religious and social institutions for shelter. However, this sort of arrangement is very individual-driven, the majority of migrants have no such social support system amongst the locals.

Settlement Assessment

The scale and dynamism of migration into Perumbavoor defy easy generalisation, yet across the diverse settlements studied, migrants share definitive forms of precarity. These include unsafe working conditions, insecure housing, and financial vulnerability driven by rising expenses and exploitative practices by house owners, shopkeepers, and employers. While many migrants cite lack of employment opportunities and climate-related hardships as reasons for migrating, their overall financial and climate precarity often remains unchanged after migration.

Despite the region's deep reliance on migrant labour, meaningful social integration is limited. Discrimination is common, and tenant-house owner relationships are often marked by surveillance, arbitrary penalties, and the constant threat of eviction. Trust between migrants and healthcare workers is tenuous, shaped by language and cultural barriers as well as mutual biases. Though migrant families frequently express strong aspirations for their children's education, migrant children also face social stigma and exclusion. Significant gaps between migrants and service providers—including health workers and educators—further constrain the effectiveness of welfare interventions.



“...a student learns as much from their peer groups as they do from their parents, teachers and books, and thus the concerns of the parents regarding their children fraternising with the migrant students is legitimate.”

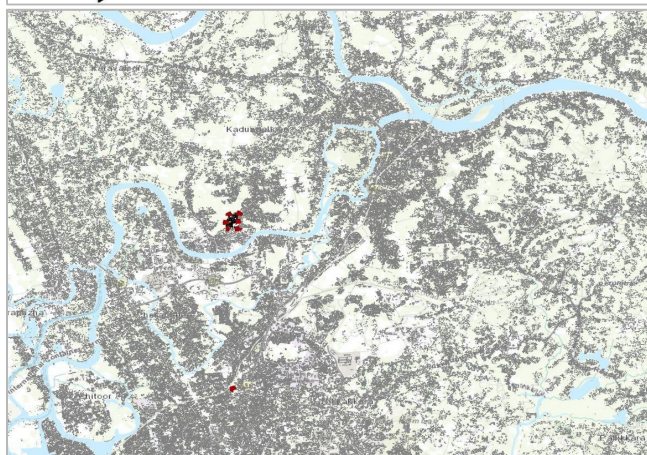
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A government school teacher

Thandirikkal



Spatial Context



Location: Thandirikkal

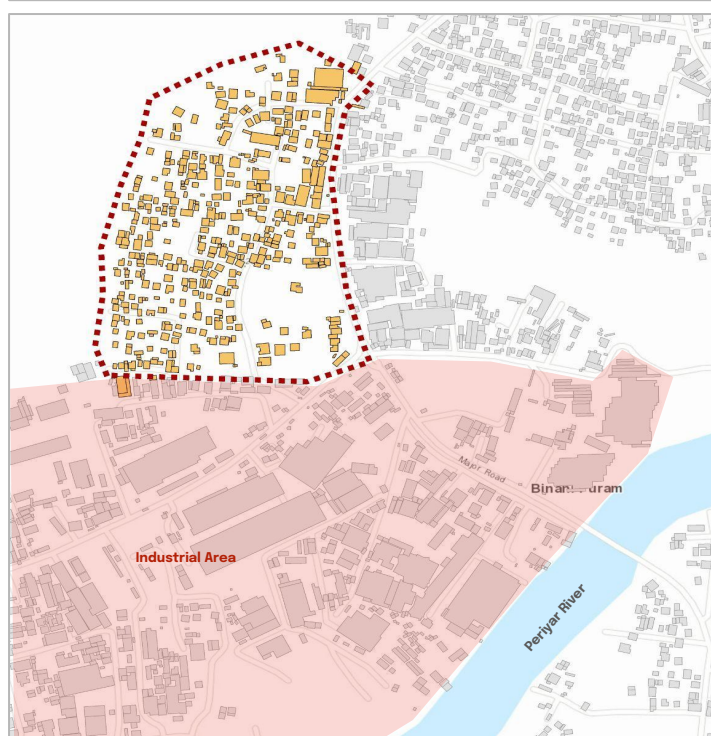
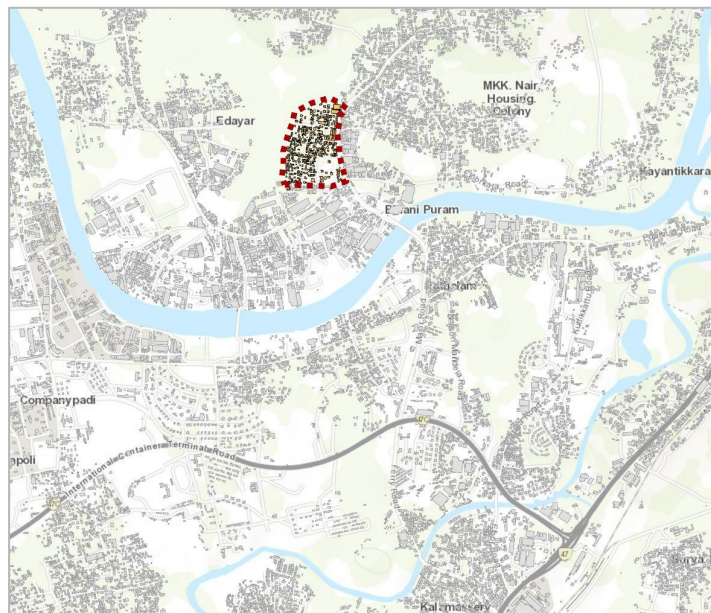
ULB: Kadungalloor Gram Panchayat

Area: 0.109 sq.km

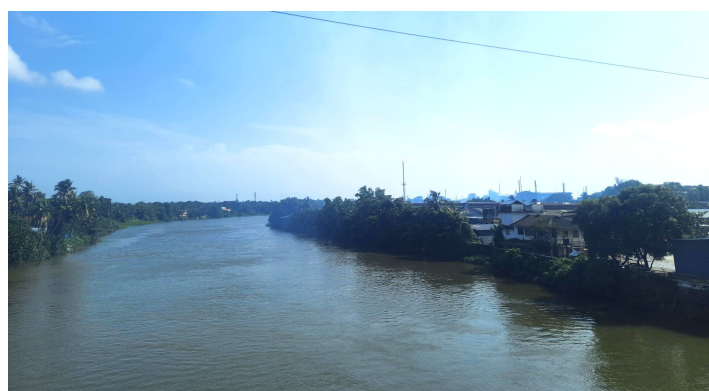
Age of settlement: 50 years

Land ownership: Private

Thandirikkal settlement is near Idukki Junction, which links Binanipuram and Muppathadam Roads. The area lies close to the Eloor-Edayar Industrial Zone, considered as the industrial capital of Kerala, is a major hub for manufacturing and processing industries, including rubber, meat processing, bone meal, food packaging, welding, painting, and glass manufacturing. Beyond this, the Pathalam Kadavu Bridge connects the Muppathadam-Binanipuram industrial belt to Udyogamandal in Eloor, where numerous small- and medium-sized industries thrive, alongside large-scale petrochemical plants, chemical companies, and oil refineries. The industrial belt has had big impact on environmental degradation in the region.



Source: Developed using Google Building Footprint.



The industrial areas located around the Edayar River

Evolution of the Settlement

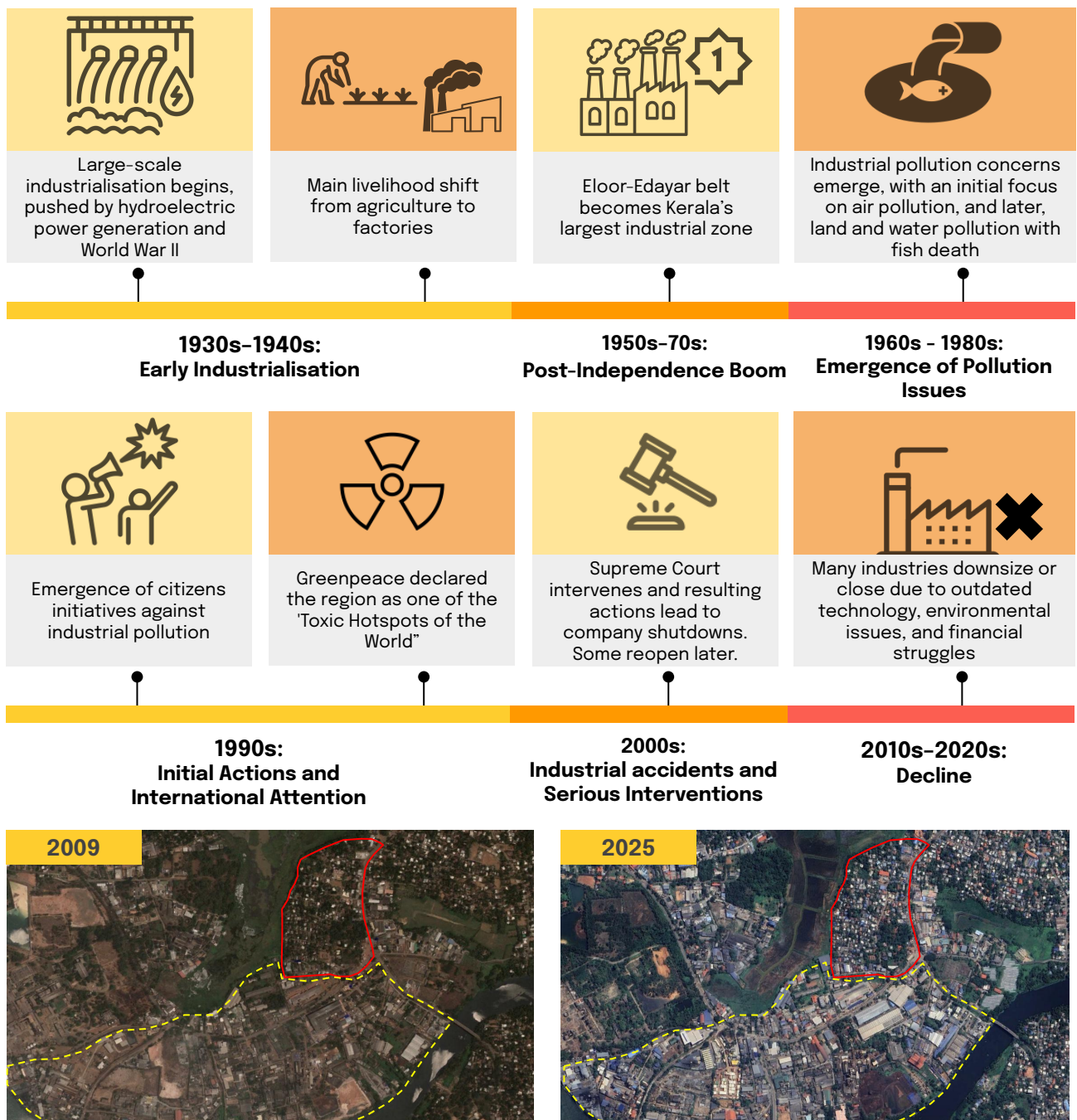


Figure P5: Increasing built density in both the residential and industrial areas. Source: Authors, based on Google Earth Pro

The industrialisation of Eloor-Edayar belt began in earnest by mid 19th century, intensifying in the 1940s. The area subsequently saw migration from other parts of Kerala. It saw significant expansion from 1950-1970, with the establishment of many public sector chemical industries. Although locals hoped for work, actual wages were often low. Extreme pollution of air, land and water became evident after 1960s, marked by the first major mass fish kill in Periyar in 1971 and a stream catching fire in 1990 due to chemical discharge. Interstate in-migration start around early 2000s, possibly due to lower labour force participation from locals. Presently, due to financial struggles, many industries are downsizing, turning the region into a "graveyard of industries". There is also significant scientific evidence of severe pollution and radiation, and impacts such as high rates of cancer and birth defects.

Hazards & Coping



Houses rented by migrants leak every monsoon. During the 2018 floods, low-lying regions of Thandirikkal experienced flooding. Residents were evacuated to government schools and mosques and temples for 4-5 days. The Eloor industrial area was heavily flooded, and till date, concerns regarding the extent of the contamination due to flood waters entering chemical factories have not been fully addressed.

We packed and wrapped up all our possessions and moved to the camp. We were provided with everything, toiletries, food, clothes, sanitary napkins, but the toilets were quite dirty, so we didn't stay for too long. Some people even stayed there for 15 days.



A migrant woman from Bihar

Heat and air pollution are persistent problems owing to the scale and intensity of nearby industrial activity. Tin and asbestos roofing, cramped rooms, and poor ventilation in rented housing exacerbate heat during summer. Within factories, men report suffering from fatigue, dizziness, and skin diseases frequently due to exposure to heat. Migrant and non-migrant residents suffer from various respiratory illnesses.

“For those who keep a fast during Ramadan, the heat can be difficult, even dangerous”

“We use two fans to manage the heat, and have a higher electricity bill of INR 800.



A migrant man from UP



HEAT

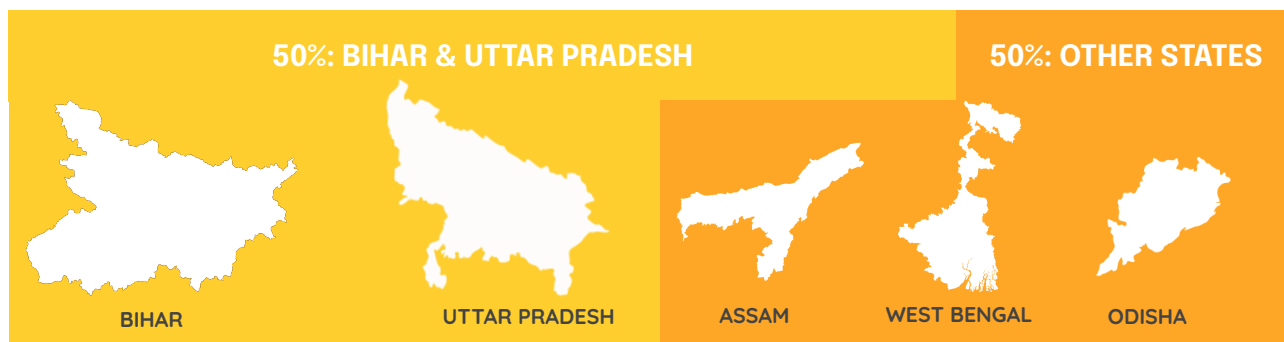
Demography

Total households: 450

Migrant percentage: 80%

Migrant population: Ranges from 2000 – 3000

Source areas:



Type of migrants:

Seasonal

Long-term

Permanent

Religion of migrants:

Muslim

Hindu

Family typology:

Families with children

Single-men

It is estimated that at least 2,000 migrants live in the Thandirikkal area. Single male migrant population is estimated to be approximately 400-600 in the region.

Migrants, both single and with families, from Bihar, West Bengal, and Uttar Pradesh, are more common, while those from Assam, Odisha, Andhra Pradesh, and Tamil Nadu are fewer in number. Earlier, the demographic composition leaned towards single male migrants, mostly from Bihar, while now there is a confluence of many states and most migrants are accompanied by their families. Even male migrants who have been working in the area for many years, have begun bringing their families, possibly because of better wages. Some migrants also bring their children so they can pursue schooling in Kerala.

“It’s quite challenging for most men to bring their wives along, especially for new migrants. One has to first figure out housing, expenses, and other basic necessities before making that decision. Living with family in Kerala can be expensive, *mehngai bahut hai*.



A Bihari migrant living with family



A migrant rental house in Thandirikkal

Livelihoods

Average household income: INR 12,000 – 30,000

Male migrants

70%: CONTRACTUAL FACTORY WORKERS

20%: SERVICE

**10%:
OTHER**

Female migrants

60%: UNPAID CARE WORK

**30%: FACTORY
WORKERS**

**10%:
OTHER**

Livelihood matrix:

Livelihood	Gender	Income
Service sector workers	Male	INR 15,000–22,000 per month
Welder	Male	INR 700 per day
Labourer in Companies	Male and Females	INR 700 per day
Machine operators	Male	INR 20,000–25,000 per month
Security guards	Male	INR 12,000–18,000 per month
Packing (small-scale factories)	Female	INR 10,000–15,000 per month
Driver	Male	INR 20,000–25,000 per month
Housekeeping	Female	INR 8,000–15,000 per month
Mechanic	Male	INR 30,000 per month
Cook in workers' mess	Male/Female	INR 700–900 per day
Electrician	Male	INR 1,200 per day

Migrants are employed by the many factories, warehouses and manufacturing units located within the industrial area, including petrochemical, rubber, plastic, latex, chemical, fibre, and spice companies, as well as welding, glass cutting, painting, and polishing works, fruit and vegetable packaging godowns. Some residents work in the service sector, or as drivers or domestic helpers. Many also travel farther for work to places such as Kalamassery, Ernakulam, Perumbavoor, and Angamaly.

Women, have limited livelihood options. Not all women work, some are

homemakers, while others do home-based work such as tailoring. In 2017-18, the government organised a month-long tailoring course for migrant women which led to two enterprise development under Kudumbashree.

“If someone works in a company for a long time, they end up fighting with the employers. Either because of dissatisfaction with wages or the hours. Many people leave company jobs because of all these. I have left company work and started *labourana kaam* [construction work], which has higher wages.



A long-term migrant from Uttar Pradesh

Housing

Male migrants without families tend to live inside factories in which they work, while families live in rented quarters. Most houses in the settlement are *pucca* houses and interspersed with non-migrant housing. Many tenants have rental agreements that are routinely renewed, allowing them to have a proof of address, and therefore, access to government benefits.



Rental rooms

Most houses are made of concrete, and are single storied, two-storied or multi-storied or buildings where rows of rooms are rented out to migrants. These buildings sometimes have commercial activities in the ground floor and rentals in others. Rooms are built especially for renting to migrants and have bathroom and kitchen inside.

Full rented houses

There are older, traditional style houses that are rented out to migrant families, either room by room or as a whole. Such houses typically have tiled roofs, while a few have asbestos sheet roofs. Those with tiled roofs, despite poor ventilation are relatively cooler, but older houses might leak rainwater. These are poorly maintained by house owners, with roofs covered by plastic tarps instead of repairing broken tiles.



Housing typologies and rent:

Unit size	Type	Tenants	Deposit	Rent/month (INR)
Large halls with shared washroom and toilets	Pucca	Single men shared accomodation	Nil - two month rent	1000 - 1500
One-room (4m x 5m approx.) with toilet	Pucca	Families/couples/ multiple single men	3 months of rent	3000-4500
Two-room outhouse attached to house owner's house with toilet, back yard	Pucca	Couples/2-3 single men	3 months of rent	3500-5000
Two-bedroom house (old, tiled roof) with kitchen, toilet, front yard	Pucca	Families	3 months of rent	5000-7000

Physical Infrastructure and Services

Water

“Recently, all public water taps were removed. Thousands of people were dependent on these taps. Now there is no such respite from the heat and access to water is no longer common to all.

”

A female migrant from Bihar



Until recently, potable water was accessible to the migrant residents through public taps. In 2024, these taps were disconnected. Now the residents have to buy water from house-owners' private connection at around INR 200-300 per month.

Sanitation



Most rooms have private toilets located outside, though some rental accommodations offer shared facilities.

Energy

All houses have electricity connection and electricity bill comes up to INR 500-800 over 2 months.

For cooking, very few places make food with wood, most homes have a gas connection. Those who do not have address proof to get an LPG connection relies on buying it from the local market. The rate is INR 1,850 - 1,900

Solid Waste

Waste disposal is a pervasive problem in the area. While municipality workers collect plastic waste from the settlement once a month (charging INR 50 for each pick up), wet waste is expected to be composted within households. Since most houses are one-room units without any space outside, the waste remains with them for weeks. The situation is exacerbated during rains, when the risk of disease is compounded. Menstrual waste is a particularly big problem and women reported being forced to burn the waste, or to litter.



“Where should we throw our waste? This is our biggest problem. If we put it here (marshland), the police fines us...our houses are small, we cannot keep the waste indoors. In the monsoon especially, wet waste starts rotting and its not good for our health.”

”

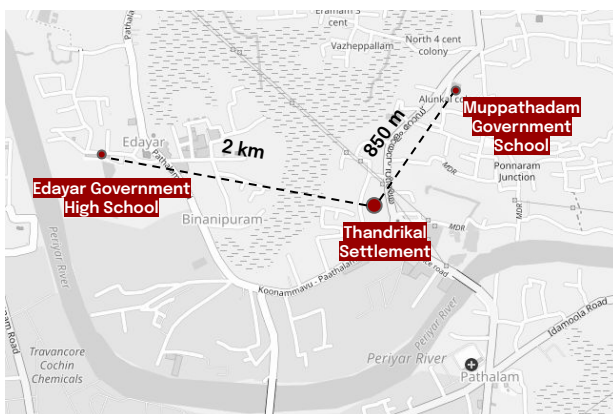
A female migrant from Bihar

Social Infrastructure

Education

Most migrant families send their children to school, mainly to government schools in Binanipuram and Muppathadam. Once migrant children reach high-school age, many migrant parents expect them to join the workforce (for boys) or help in domestic responsibilities (for girls). Children who join when they are older (15-16 years old) have lower retention rates than younger children. The local government schools here are noted for having more migrant students, and also for achieving good results for them.

Very few migrant parents send their children to Anganwadi since the closing time of 3 pm excludes a lot of migrant parents who work in companies from 8 am to 6 pm. The anganwadi are often unable to find properties from which they can function from and run out of temporary, rented buildings which, in turn, receive less funding and lack basic facilities like toilets, relying on common toilets shared with other commercial establishments and homes.



Distance to the educational facilities used by the migrants in the settlement.

“Ensuring migrant students’ retention throughout the academic year is challenging. When the parents migrate seasonally, their children travel back and forth between source and destination multiple times. A student, even if enrolled into the school and regularly attending classes, is likely to miss out significant portions of the academic year due to this.”

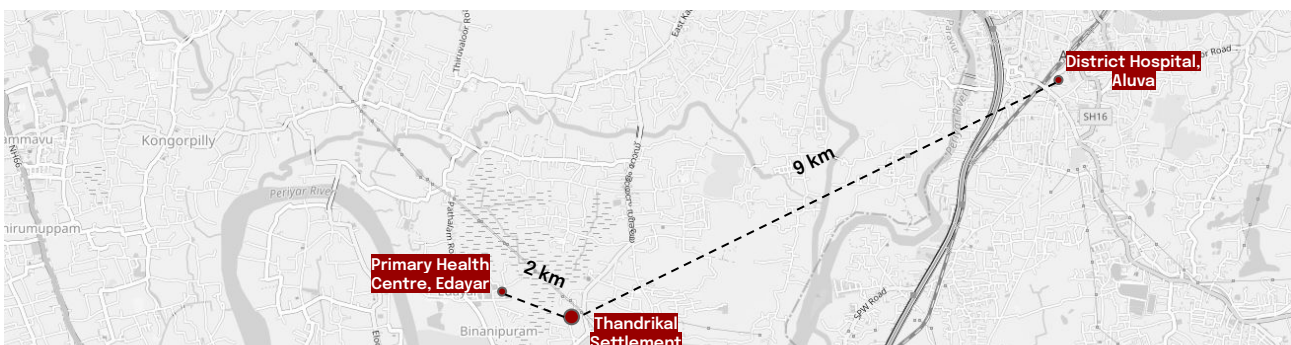
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Headmistress from nearby government school

Health & healthcare

Most factory workers get Employee Service Insurance (ESI) and go to camps conducted within companies by the National Health Mission and through mobile health clinics by NGOs. Commonly, migrants go to the Edayar Hospital or Aluva General Hospital.

Language was mentioned as a barrier in government hospitals. Hospital staff ask the migrants to come accompanied by a Malayali-speaking aide, and treatment has been delayed due to them not being able to find any such person who is willing.



Distance to the healthcare facilities used by the migrants in the settlement.

Interventions

Government Interventions:

- Most families possess identification documents such as ration cards, voter IDs, or Aadhaar cards. ASHA workers help pregnant and lactating mothers get rations and other requisite items. Many have changed their ration card address to Kerala.
- **Roshni:** The Binanipuram school has an active Roshni programme funded by Bharat Petroleum Corporation Limited (BPCL). The Roshni teacher is a former student of the same school, and a child of migrant parents. The programme uses Roshni instructors to teach migrant children in non-Malayalam languages after school.
- **Atithi Devo Bhava** under NHM. Thandirikkal is one of the settlements with a migrant link worker who support the migrant community. The link worker support delivery of government schemes among migrant populations, by overcoming linguistic, cultural and bureaucratic hurdles.
- During COVID19 lockdowns, the Deputy Director of Education and the local MLA provided 80 electronic tablets to the migrant students, and a television in some homes, so that they may access online classes and televised educational content.

NGO/private sector interventions:

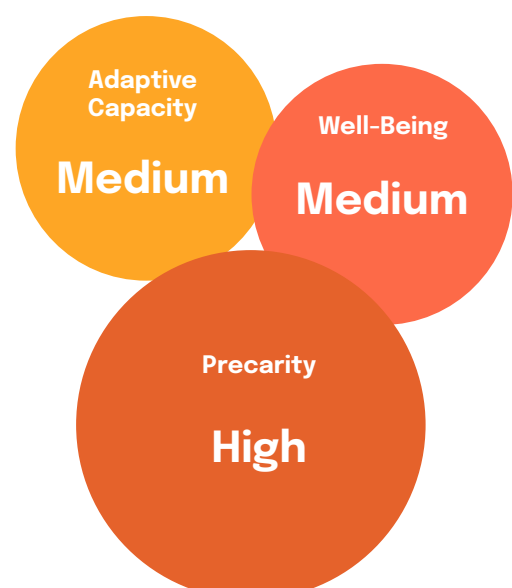
- CMID works closely with NHM link workers to provide free health check-ups, runs a mobile health unit, Bandhu Clinic. They also assist with compensation for accidental death at workplace, workplace accidents, repatriation of the deceased, and redressing non-payment of dues.
- Some companies in the industrial area extend financial aid to schools and childcare centres under Corporate Social Responsibility (CSR). Sud-Chemie sponsors an anganwadi in Binanipuram.



The mobile health unit by CMID

Settlement Assessment

Thandirikkal is characterised by its proximity to polluting industries which affects quality of air and water. This shapes precarity, exposing people to pollution and related illnesses. Housing and related services are strong, with relatively better wages and wage relations, leading to medium well-being. Migrants are able to reduce risk by leveraging social capital (friends and employers) as well as government and non-government support (e.g., in education, healthcare). Overall, most residents reports satisfaction with their life, no discrimination based on their migrant status, and ability to get work and housing as needed.



Nettoor



Spatial Context



Location: Kochi Metropolitan Area

Ward/s: 26, 27, 28 & 29

ULB: Maradu Municipality

Area: 5.30 sq.km

Age of the settlement: 10–15 years

Land ownership: Private

Nettoor is located within Panangad island, south of Kundannoor Junction on the National Highway 66 bypass. The migrant settlements are scattered across the residential areas of Nettoor.

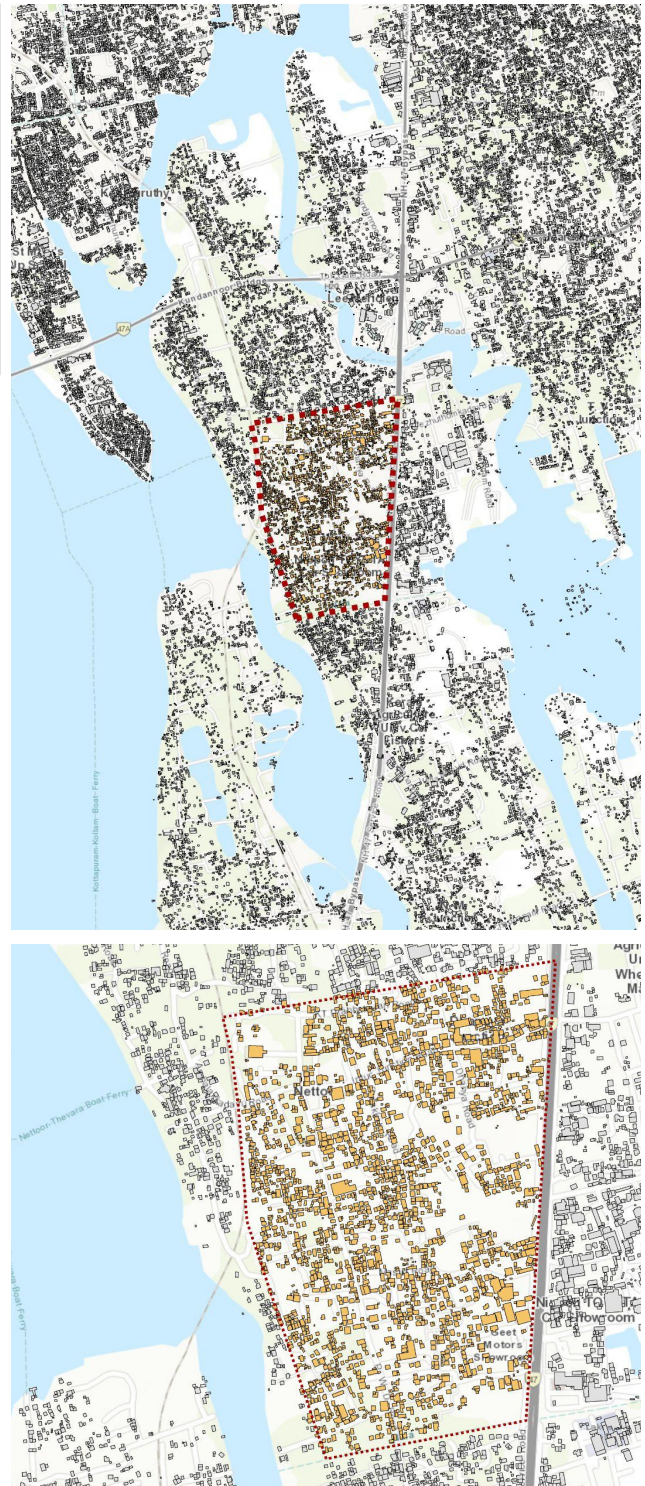
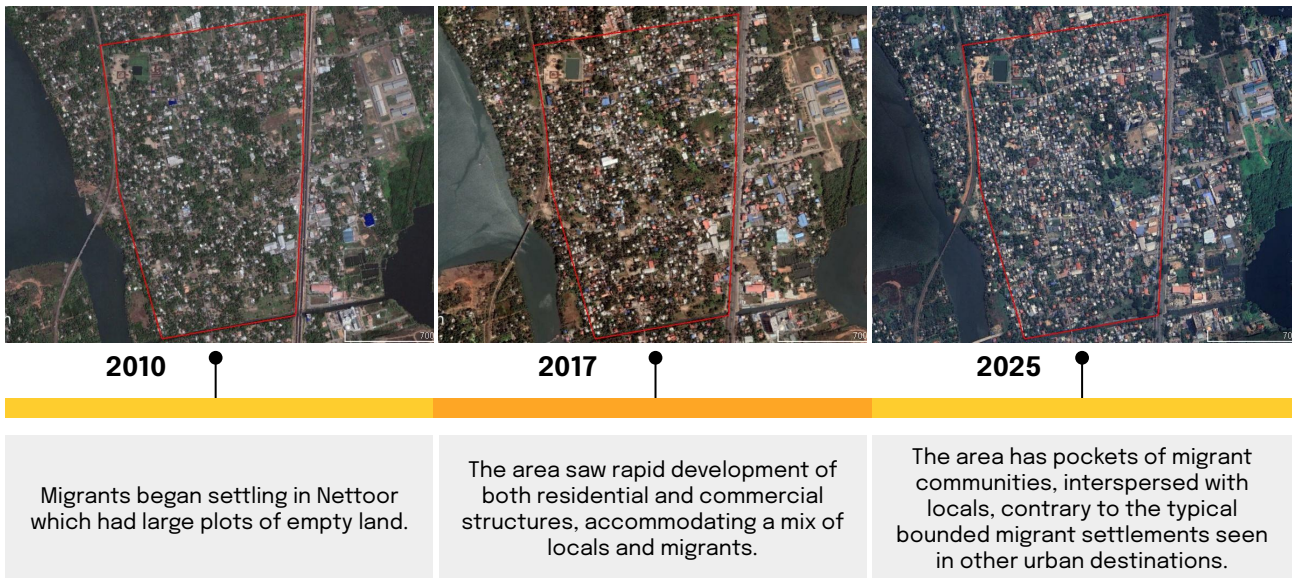


Figure P6: Location of the settlement in Ernakulam District (above). Map of clusters within Nettoor settlement. Source: Developed using Google Building Footprint.

Evolution of the Settlement



Nettoor in Maradu Municipality, is considered part of the Greater Kochi area. Nettoor has experienced significant urban transformation, particularly after Maradu's upgrade from a Panchayat to a municipality in 2010. Additionally, the Vytilla-Kundanoor flyover improved Nettoor's potential as a residential hub leading to rapid expansion of real-estate sector across Nettoor and Maradu.

Following these developments, interstate workers' migration to this region began to rise during 2009-10. According to local accounts, workers from West Bengal, Uttar Pradesh and Assam, arrived along with a relatively small but steady flow of Odia workers. Migrants from Odisha were initially concentrated in the industrial pockets of Ernakulam district. Over time, as urban growth extended to peripheral areas, migrants began moving to places like Nettoor, which offered affordable rental housing and proximity to multiple work sites.

The number of Odia workers increased steadily. In the post-pandemic period, Odisha emerged as the major source state of migrant workers in Nettoor, with a substantial portion hailing from Ganjam district. Peringattu Parambu is one such division in Nettoor where around 1,000

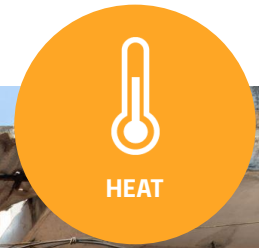
migrant workers from the Surada block of Ganjam district have established a cluster. Informal networks among workers, labour contractors, and employers facilitated this movement.

Nettoor hosts the highest concentration of migrants from Surada. Some are now second-generation migrants. The Ganjam-Kochi migration corridor is slowly competing with the traditional corridor between Ganjam-Surat due to higher income and fair labour practices, better climatic conditions and less caste discrimination compared to other Indian cities.



Migrant housing, Nettoor

Hazards & Coping



Migrants reported increased heat, worsened by asbestos sheet roofing in many first-floor homes. On days off, especially Sundays, indoor heat becomes unbearable, prompting them to seek shade outside or visit cooler spots like Ernakulam town or the beach. Some sleep outdoors to cope.

The migrants who reside in the Nettoor wholesale market, slept in the shop rooms which had poor ventilation. There were reports of multiple migrants staying inside one shop, sometimes with no cooling devices, increasing heat stress during night. They delay sleep until night time temperatures drop.

Migrant construction workers take a summer heat-break from 12–3 pm, extending their workday. They reported fatigue, body pain, and heat exhaustion, along with frequent stomach illnesses associated with heat exposure.

Flooding is not a major issue in the area, but migrant bamboo weavers living near open drains face frequent water stagnation during rains, leading to severe mosquito problems.

"Hamara malik acha hai, usne humko cooler diya, sab malik aise nahi hote, ye sab nahi dete hai" (My owner is good, he gave me a cooler, all owners are not like that, they don't provide all this).

”

A migrant shopkeeper in the wholesale vegetable market



Kutchra houses near open drain

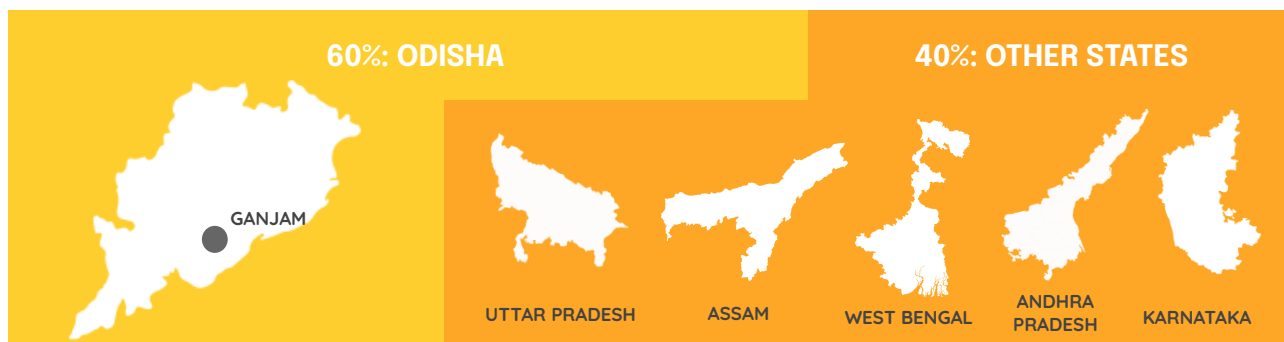
Demography

Total Households: ~10,000

Migrant Percentage: ~40%

Migrant Population: ~4000

Source areas:



Type of migrants:

Long-term

Seasonal

Permanent

Religion of migrants:

Hindu

Muslim

Christian

Family typology:

Families with children

Couples

Single-men

Odia migrants are mostly from Surada block of Ganjam district. One in five people in Surada is a migrant worker (CMID, 2019). A large share of these migrants, especially from Scheduled Caste (SC) and Scheduled Tribe (ST) communities, move to Ernakulam and other parts of Kerala. Many Odia migrants in Nettoor have the last-name 'Naik', which is associated with the Pano community in Ganjam, classified as SC. OBCs such as Khandayats and Goudas also reside in the settlement in smaller numbers.

The majority of Bengali migrants are from Murshidabad district, with others from Malda, Jalpaiguri, Cooch Behar, and Darjeeling. Assamese migrants primarily come from Nalbari, Marigaon, and Bongaigaon districts.

There are also a few migrants from Andhra Pradesh belonging to the Kottanainalu (bamboo weaving) caste, Marathi-speaking fisherfolk from Mysore, and some farmers from Wayanad who are now engaged in fishing in Kochi. However, many from these fishing communities were recently evicted from their temporary homes under a canal bridge.

Most migrants from Odisha and West Bengal are men who migrate alone.. Bamboo-weaving communities from Andhra Pradesh and traditional fisherfolk from Karnataka have migrated with their entire communities.

Majority of migrants are school dropouts, though some have completed upper primary or secondary education.

Livelihoods

Household income range: INR 23,000 – 50,000 per month

Livelihood profile of male migrants:

80%: CONSTRUCTION WORKERS

20%: OTHERS

Livelihood profile of female migrants:

50%: UNPAID CARE WORK

20%: CONSTRUCTION WORKERS

20%: DOMESTIC WORKERS

10%: OTHERS

Livelihood matrix:

Livelihood	Gender/Role	Income
Construction labour	Male – Helper	INR 900– 1000 per day
	Male – Head Mason	INR 1300 per day
	Female – Labourer	INR 600–700 per day
Domestic work	Female	Upto INR 24,000 per month
Fishing	Male and Female	INR 2000 per day

Most migrants in Nettoor work in the construction industry as helpers or masons, involved in tasks such as plastering, shuttering, bar bending, cement mixing, and centering. Progressing from helper to *maestri* can take anywhere from a few months to a couple of years.

Labour contractors are usually Malayalis, though in some cases, contractors from the migrants' native places bring them for work. Some migrants are directly employed by companies, which often house them in rented buildings. Major employers include construction firms like Noel, ABAD Group, to name a few.

A smaller number of migrants work in local hotels and eateries as cooks, servers, cleaners, or errand boys, and within the shops in the wholesale vegetable market. Women form a small portion of the migrant population and mostly live with their families. Some are homemakers or unemployed, while others work as construction helpers, shop assistants, or domestic workers. Migrants from Andhra

Pradesh, belonging to the Kottanainalu community, continue their traditional bamboo-weaving craft, selling baskets and artifacts by the roadside. Similarly, migrants from Karnataka engage in fishing in urban water bodies. Both men and women fish and sell their catch near the roadside or in markets.



Migrant construction worker in Nettoor

“I first came to Kochi in the 1990s. Wages here were INR 40 a day, while in Ganjam, they were just a few paise or simply an offering of food.”



An Odia migrant in Nettoor

Housing

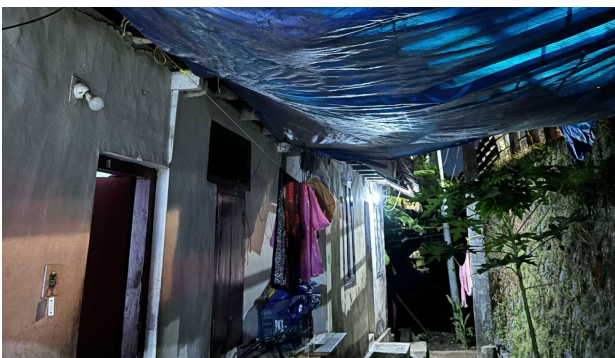
Migrants in Nettoor mostly live in pucca or semi-pucca houses, except those from Andhra Pradesh and Karnataka, who live in kutcha houses. Most rent directly from owners, while a few are housed by contractors, who cover their rent, electricity, and water expenses. The rent for a 1 Room-Kitchen (1RK) or 1 Bedroom-Hall-Kitchen (1BHK) can be INR 3000 - 5500. In shared housing, a 3 BHK occupied by 10 to 15 people typically

costs each person INR 1500, excluding water and electricity bills. The majority of single male migrants working in the vegetable market live inside the shops, to reduce their expenses for rent and food. These spaces are congested, with many migrants inside a single, poorly ventilated shop. Apart from these, migrant construction workers are housed in buildings rented by the construction company with 15 to 20 men sharing a huge hall.



Pucca housing

Independent houses are increasingly being rented to migrants, some in dilapidated condition and offered at lower rents. These houses, depending on their size, are typically shared by six to ten single men. Entire apartment blocks—ranging from 1 RK to 3 BHK units—are also rented out to migrant families or shared among single men. In some cases, commercial spaces have been repurposed and rented out to migrants.



Semi-pucca housing

There are a considerable number of houses where the roofing is asbestos or cement sheets, few homes have retained the traditional clay tiles. Many have extended their houses by adding a floor, with asbestos sheet roofs.



Kutcha housing

There are about 15 families of bamboo-weaving community living in temporary structures constructed with wood/bamboo framework and tarpaulin, tin sheets, cloth, or plastic sheets. They do not pay any rent.

Physical Infrastructure and Services

Water



Broken municipal water pipe

All pucca houses have municipal water connections, and some also have dug or bore wells. Municipal water is supplied twice daily for about two hours each in the morning and evening. Most migrants use this water for drinking without boiling or filtering, as the quality is considered safe by the workers. Water charges are approximately INR 300 per month. Migrants in kutcha houses source water from a broken municipal pipe near their cluster for both drinking and domestic use. Those who stay in the market buy water for potable use.

Sanitation



Makeshift bathroom in the kutcha cluster

Most houses rented by families have attached toilets. Single male migrants mostly share the toilets, which may be located either inside or outside the house. Typically, six people share one unit, which many migrants reported to be difficult. In the vegetable market, about five toilet blocks and three bathrooms are shared by 400 to 500 men. The toilets are built by the government and charge INR 10 per day. The toilets are poorly maintained, not easily accessible and often non-functional that many migrants reported using the open area near the market during the day. The kutcha houses do not have access to toilet facilities, the residents resort to open defecation and built makeshift units for bathing purposes.

Energy



A migrant cluster with well-lit roads

All pucca and semi-pucca houses have formal electricity connections. In contractor-provided accommodations, electricity expenses are usually included. Kutcha houses lack electricity access, and residents use candles at night. Some migrant households in both kutcha and pucca houses use firewood for cooking, otherwise they buy commercial gas cylinders.

Solid waste



Waste segregation practised by a long-term migrant household in Nettoor

Municipal waste collection is available for plastic waste, while the rest is often burned or buried. Littering is widespread, with clogged drains common in many areas. Long-term migrant families are more likely to segregate waste and pay the Haritha Karmasena (municipal waste service) to collect plastic waste monthly.

Social Infrastructure

Childcare & schooling:

Saraswathi Vilasam Upper Primary (SVUP) School conducts special classes for migrant students to address language barriers and learning gaps. However, retention is low, as many children return to their native places for extended periods.

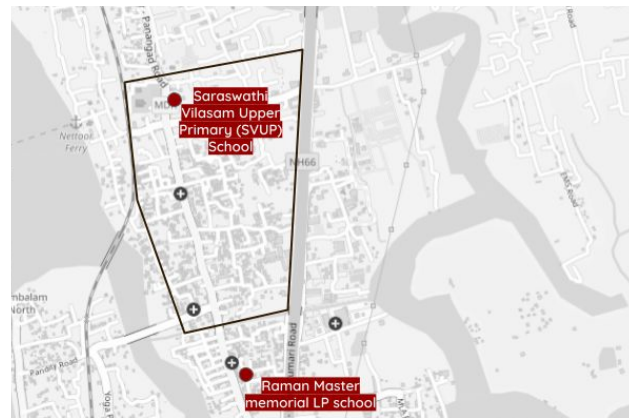
Several Anganwadi Centres in Nettoor also cater to migrant children but timing is a challenge as both parents often at work during these hours.

Health & healthcare:

Common health issues among migrants include large skin blisters in construction workers due to cement exposure. Respiratory problems are prevalent during the monsoon, while heat-related skin rashes occur in summer but persist year-round. Dehydration is also common throughout the year. Body pain is widespread, and malnutrition—especially among women—is a concern, with many experiencing anaemia and fatigue. Men often suffer from muscle pain due to poor nutrition and strenuous physical labor.

Nettoor Primary Health Centre is the local government clinic, but difficult to access, requiring crossing by boat. Due to poor access, limited doctors, restricted hours, and low bed capacity, most migrant workers prefer visiting a private doctor in Edapally who specifically treats migrants. Some also go to the Ernakulam General Hospital which is about 10 kms away. Migrants generally preferred private clinics over government hospitals. Those choosing government facilities cite affordability, while others prefer private clinics for their flexible timings although it significantly increases their expenditure. Some also go to their villages and towns for serious illnesses.

ASHA workers, who visit regularly and provide medicines and rations to pregnant women, infants, and new mothers, are often inaccessible to single male migrants.

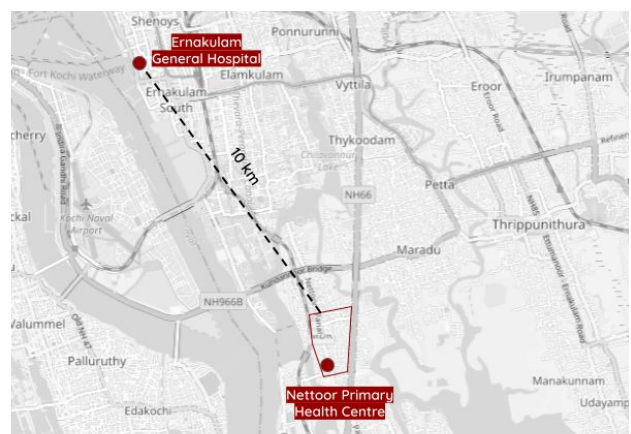


Educational facilities accessed by the migrants.

“I speak Malayalam fluently as it is my second language in school. My teacher helped me by taking after-school classes, teaching me the Malayalam alphabet, and helping me catch up with the others.”

”

A 13-year-old migrant studying in SVUP School.



Healthcare facilities accessed by the migrants.

“There have been cases of typhoid, malaria, and dengue in the market. Most migrants go to government hospitals.”

”

A migrant residing in the vegetable market.

Interventions

Government programs and documentation:

Most migrants in Nettoor are single men and do not access rations locally, as their families use the cards in their home states. Even migrant families rarely use ration services in Kerala due to lack of awareness or reluctance to change addresses on their ration cards.

In Nettoor wholesale market, migrants reported the poor condition of the toilets to different levels of government, however, no interventions made to address this.

Non-Governmental interventions:

The Centre for Migrant Inclusive Development (CMID) operates its migrant resource centre, the Bandhu Shramik Seva Kendra (BSSK), in Nettoor. It offers various services to migrant residents, including issuing Ayushman Bharat Health Account (ABHA) cards, e-Shram cards, and Odisha's Parishram cards for interstate migrant workers. BSSK also assists with opening bank accounts, accessing digital services, school enrollment for children, and provides a space for recreation and rest.

CMID also runs the fortnightly Bandhu mobile clinic in the area on Thursdays, the migrants are provided with free health check-ups and necessary medication free of cost.



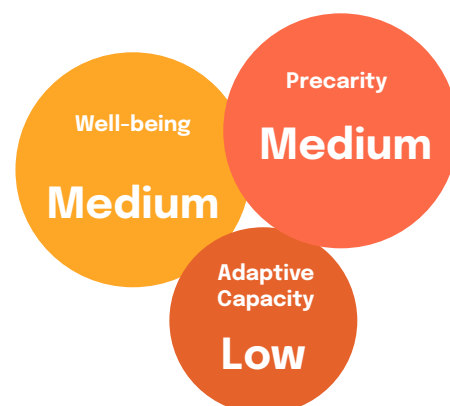
Bandhu Shramik Seva Kendra by CMID

Settlement Assessment

Nettoor shows medium level place-based precarity, with relatively less precarious housing and no major flood risks. Heat stress was noticeably higher, across different housing and livelihood types. Livelihood precarity was higher. Migrants working in construction and in the market are exposed to poor living conditions due to their livelihoods. Adaptive capacity varied, those living in rented pucca houses being better off than those in the kutcha houses and employer provided accommodation, where the agency to ask for better conditions are absent. Well-being is comparatively better due to higher wages, lower prevalence of discrimination, inclusive schools, and support by BSSK.

“The police do not harass us here in Kochi like they do in other cities. If they see us walking or idling, they just let us be—even if it’s very late at night.”

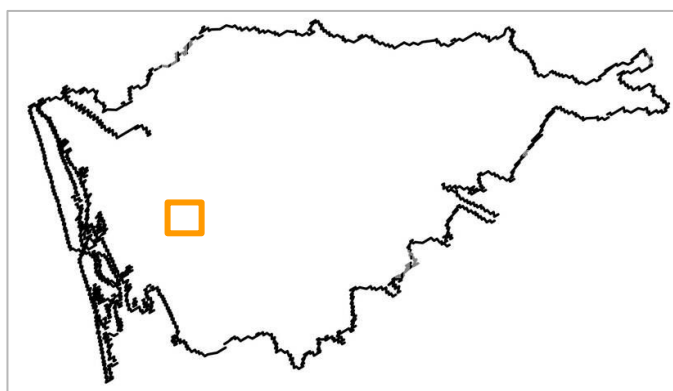
A 20-year old migrant resident in Nettoor



Migrant Scrap Work Settlement



Spatial Context



ULB: Kalamassery Municipality

Area: ~0.05 sq.km

Land ownership: Private

Figure P7: Location of the settlements in Ernakulam District. Source: Authors

This profile represents a typical migrant scrap worker settlement, which are scattered across different parts of Ernakulam region. Since many of them share similar characteristics in terms of demography of the residents, nature of work, and housing typology, a singular profile which captures the nature of life and work in such settlements was developed based on the settlements in Kalamassery region.

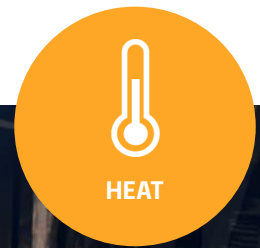
A typical scrap worker settlement would be small and highly in nature. Typically with a godown to sort and store the waste, residence and work would happen in the same plot of land. Many are located within residential neighbourhoods, and accessed through small interior roads. Due to the nature of work in the settlement, a main characteristic is the huge amount of waste at the entrance of these settlements.

Evolution of the Settlement



The above image represents the typical spatial characteristics of a scrap worker settlement and its surroundings.

Hazards



Residents report significant heat stress, worsened by the use of heat-retaining materials in the construction of their homes. In many cases, *chulhas* are located inside the houses, further contributing to indoor heat levels. While residents use fans to cope, they admit that the heat often becomes unbearable during the day, leaving them with little choice but remain outside their homes until bedtime.

During the rainy season, water does not accumulate on the ground, as the settlement sits on slightly elevated terrain. However, rainwater often leaks through the roofs of most houses, leading to damp indoor conditions. During the Kerala floods of 2018, the settlement itself remained free of inundation due to its higher elevation, even as surrounding areas experienced flooding up to knee.

“At least back home there are a few months which are cold. Here there is no winter. It is hot throughout the year.”



A migrant from Murshidabad



Houses have multiple layers over the roof, to protect from heat and water leakage

Demography

Source areas:



Total Households: 20-30

Migrant percentage: 100%

Migrant population: ~80 -120

Type of migrants:

Long-term

Cyclical

Religion of migrants:

Muslims

Hindus

Family typology:

Families with children

Couples

Most migrant scrap worker settlements are home to 20-30 migrant families, typically from West Bengal. These migrants are, primarily from Murshidabad, with a few from Purba Medinipur. Most families live with their spouses and children, although a few households were elderly couples or widowed individuals whose children are working in other states. The residents include both Hindu and Muslim Bengali families. Among the Hindu residents, some identified themselves as belonging to a “civil” caste, referring to Scheduled Castes (SC).

All residents possess voter ID cards linked to their source locations and return to West Bengal to vote when financially feasible. While some manage to travel back home once a year—typically during Durga Puja or in times of emergency—many noted that the journey is long and exhausting, often

taking more than three days by train. As a result, several have not returned home in years, with durations ranging from one to three years.

The lack of livelihood opportunities, social protection, and essential services in their home regions prompted most migrants to move to Kerala, where they find more consistent work and access to better services. Most residents intend to remain in Kerala only as long as they could find work within or near the settlement. If employment becomes unviable, they prefer to return to their native villages. Nearly all expressed aspiration to return home eventually—once they had saved enough to build a house, purchase land, or arrange their children’s marriages. None of the residents indicated a desire to settle permanently in Kerala.

Livelihoods

Average household income: INR 15,000 per month

Livelihood profile of migrants:

	MALE	FEMALE	
WAGE SECTOR	WASTE PICKING AND RECYCLING	DOMESTIC WORK	UNPAID CARE WORK
WAGE	~ ₹ 15,000 - 16,000/month	~ ₹ 5,000 - 13,000/month	

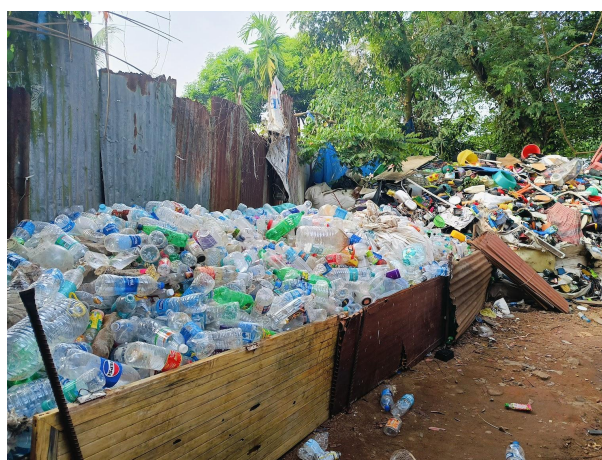
In these settlements, men are primarily engaged in waste picking, while women, when employed—tend to take up domestic work. However, earnings from waste collection are irregular and considerably lower than other forms of daily wage labour. Daily payments are not guaranteed; wages are typically given every two or more days. The *thekedar* (contractor) provides cycle carts to the men for waste collection and is also responsible for selling the collected materials to a truck that arrives every two to three days.

Workdays for the men begin as early as 3–4 AM, as they head out in search of recyclable waste. They usually return by 11 AM and spend the remainder of the day sorting the collected waste. Waste collection remains exclusively a male activity here due to prevailing gendered norms and stigma surrounding women hauling carts and scavenging in public.

Women and children may assist with sorting the materials, but rarely participate in collection.

The prevalent household structure is one of single income. Despite expressing a strong willingness to work, most women struggle to find employment due to limited demand for domestic workers in the vicinity and challenges in communicating with potential employers, especially in Malayalam. This linguistic barrier further restricts their access to job opportunities.

Consequently, many households find their daily expenses outstripping their income. In cases where both spouses are employed, families manage to remit a modest amount—typically between ₹800 and ₹2,000—to elderly parents or children back home. Even then, earnings are just sufficient for subsistence, with little to no room for savings or financial security.



The cycle carts used for collecting waste from the nearby areas (left). Plastic bottles sorted and ready to be sold (right)

Housing

The settlement has mostly kutcha housing, built around a single pucca building in the compound. The *thekedar* lives in the pucca house while workers stay in the kutcha houses. The kutcha houses are built by the *thekedar*, who does not take any rent from the households.



Kutcha housing

The houses in this settlement are, barring one structure, all kutcha, and made with tin sheets, tiles, tarpaulin and plastic. The size of individual houses is very small, with one or two rooms inside, and a veranda in the front. There are no furniture, and people sleep on the floor.

Physical Infrastructure

Water



Water collected and stored in cans

The water from the well in the settlement is not of good quality, so the families depend on a public drinking water tap at a railway line close to the settlement. They carry the filled-up bottles on their waste-collection carts and bring them back to the settlement.

Sanitation



Poorly maintained common toilets

There are only three common toilets and one bathroom for the whole settlement. The residents reported these not being sufficient during the morning rush. The toilets were poorly maintained, some had no lights - with little or no water available, according to the residents.

Energy



Chullahs used by the residents

Most homes do not have a gas connection, and the residents use a mud *chulha* (mud stove) and firewood for cooking. Some houses buy small gas cylinders, from petrol pumps for cooking.

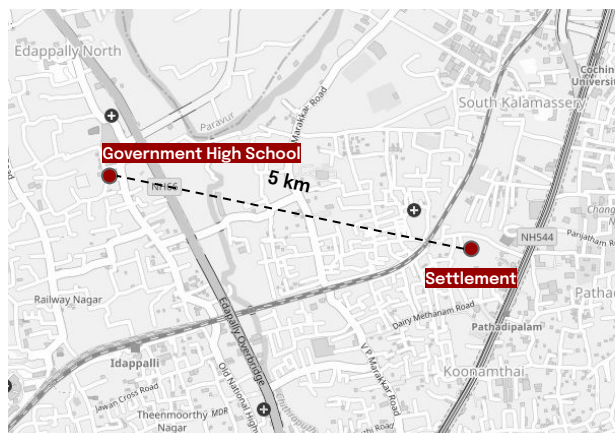
The houses had electricity connection with an average bimonthly bill of INR 400.

Social Infrastructure

Childcare & schooling:

Most of the school-going children within the settlement are enrolled in the government schools nearby that has a considerable presence of migrant students.

Some residents said that including transportation and other related costs, the schooling expenses come upto INR 600 per term, and this is too high for them. They assert that the government should arrange for disadvantaged parents such as them to send their children to school without worrying about their finances.



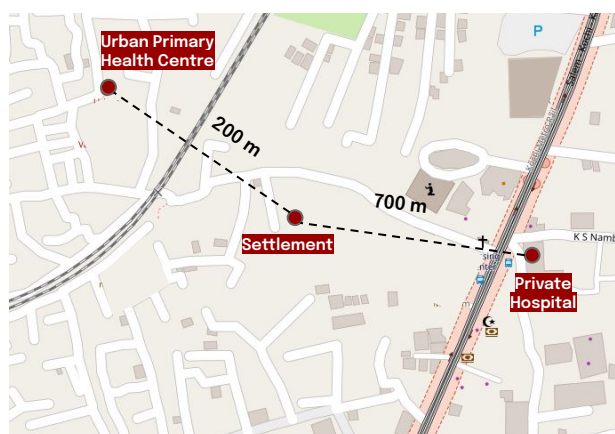
Distance to the educational facilities used by the migrants in one of the settlement

Smaller children within the settlement do not go to Anganwadis, and often stay back when the parents work. Some older children skip school as well. It is difficult for the parents to enforce it since by school time many parents have already left for their jobs. These children skip schools when they find it difficult to integrate, which is mostly the case for those who joined at an older age.

Health & healthcare:

Many residents go to nearby private hospitals in case of emergencies. They also visit the PHC close by for vaccination. The Bandhu Clinic visits the settlement every alternate Thursday, offering free primary healthcare services, including diagnostic tests for dengue, malaria, and leptospirosis, along with prescribed medicines.

ASHA workers come to the settlement, for vaccination of the kids. However, the Integrated Child Development Services (ICDS) services such as nutrition for pregnant and breastfeeding mothers have not been given here, despite the presence of multiple pregnant women..



Distance to the healthcare facilities used by the migrants in one of the settlement

Access to Financial Services:

Many migrants send money to their source using UPI or a transfer agent. Transfer agents take a cut of INR 10 per INR 1000 transferred. The residents reported some difficulty in using agents of late, since strict regulations have been put in place for money transfers, requiring the receiver's Aadhaar card. On an average, migrants send anywhere between INR 800-4000 per month or every two months, strongly dependent on their earnings and expenses. People send money on a weekly as well as monthly basis, sometimes with a gap of a few months.

Interventions

Government Interventions:

The Samagra Shiksha Keralam programme is active in the local government school, offering after-school support for migrant children. These activities help bridge learning gaps by strengthening their proficiency in Malayalam while also supporting teaching in their native languages, thereby promoting both integration and cultural continuity.

Public Distribution System: Most migrants refrain from accessing rations in Kerala out of concern that doing so may jeopardise their families' entitlements back home. Those with limited or no family ties in West Bengal have attempted to access the PDS locally, often without success. While many are open to changing the address on their ration cards to reflect their current residence, procedural hurdles and system-level issues—such as Aadhaar seeding errors—have prevented access despite considerable effort and expense.

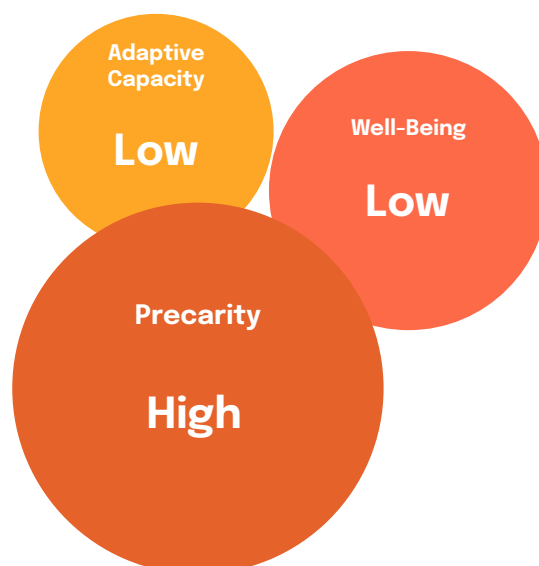
Non-Governmental interventions:

CMID plays a key role in supporting the settlement by facilitating school enrolment for children, assisting with labour and ration card applications, and linking residents to ASHA workers. CMID also provides them Doxycycline as preventive medicine during monsoon as those who collect/segregate scrap are highly vulnerable to Leptospirosis. All families in the settlement regularly access this clinic. CMID also plays a crucial role in enrolment, retention, and classroom participation of migrant children by closely engaging with parents and monitoring school attendance.

Local Political Parties: During the COVID-19 pandemic, migrants in the settlement were rendered jobless and without pay due to mobility restrictions. During this period, the local CPI(M) party office extended support by providing cooked meals—typically one per day—as well as groceries and rations. Once transport services resumed, free train tickets were arranged to help migrants return to their home states.

Settlement Assessment

Scrap worker settlements are home to migrant communities engaged in one of the most critical urban services of inorganic waste management. These migrants earn low incomes and remain excluded from mainstream infrastructure and services, even after being long-term residents. The overlap of living and working spaces expose them to hazardous living conditions and significant health risks. Their housing structures are extremely vulnerable to heat stress and leakage during rains, further compounding their precarity. This layered vulnerability, combined with shrinking livelihood opportunities and limited prospects for upward mobility at both origin and destination, severely impacts their overall well-being and diminishes their capacity to adapt to various risks.



Annexe: Methodology

Approach

The aim of the settlement profiles was to move beyond conventional data collection approaches that either focus narrowly on household-level surveys or broadly on community-level demographic and livelihood statistics. Instead, this methodology sought to strike a balance between these two scales, offering a meso-level perspective, capturing the richness of household experiences while situating them within broader settlement-level dynamics. To do so, a mixed-methods approach was adopted, integrating both quantitative and qualitative techniques.

The analysis was guided by the Precarity, Adaptive Capacity, and Wellbeing framework, which was employed to provide a multidimensional understanding of migrant experiences in informal urban contexts. Precarity was examined to understand the various forms of vulnerability and insecurity experienced in relation to climate hazards, housing, basic services, and livelihoods. Adaptive capacity was analysed in terms of the strategies and resources accessed or mobilised by individuals and communities in response to environmental, social, and economic stressors. Wellbeing including material, cultural and psychological wellbeing, was assessed through subjective and objective indicators reflecting quality of life, including possession of assets in the city, agency to retain cultural identity, social inclusion, and perceived safety and satisfaction with life in the destination.

Site selection and Data Collection

For the developing the profiles, select migrant-dense clusters across the

district were purposively chosen to capture the heterogeneity of the settlements based on the cluster of source regions, household types, livelihood patterns and work arrangements.

Data were collected from October 2024 to December 2024. First, spatial boundaries of each settlement were demarcated, based on official records, local knowledge, and field reconnaissance. Within these broader settlement areas, clusters were identified through preliminary site visits.

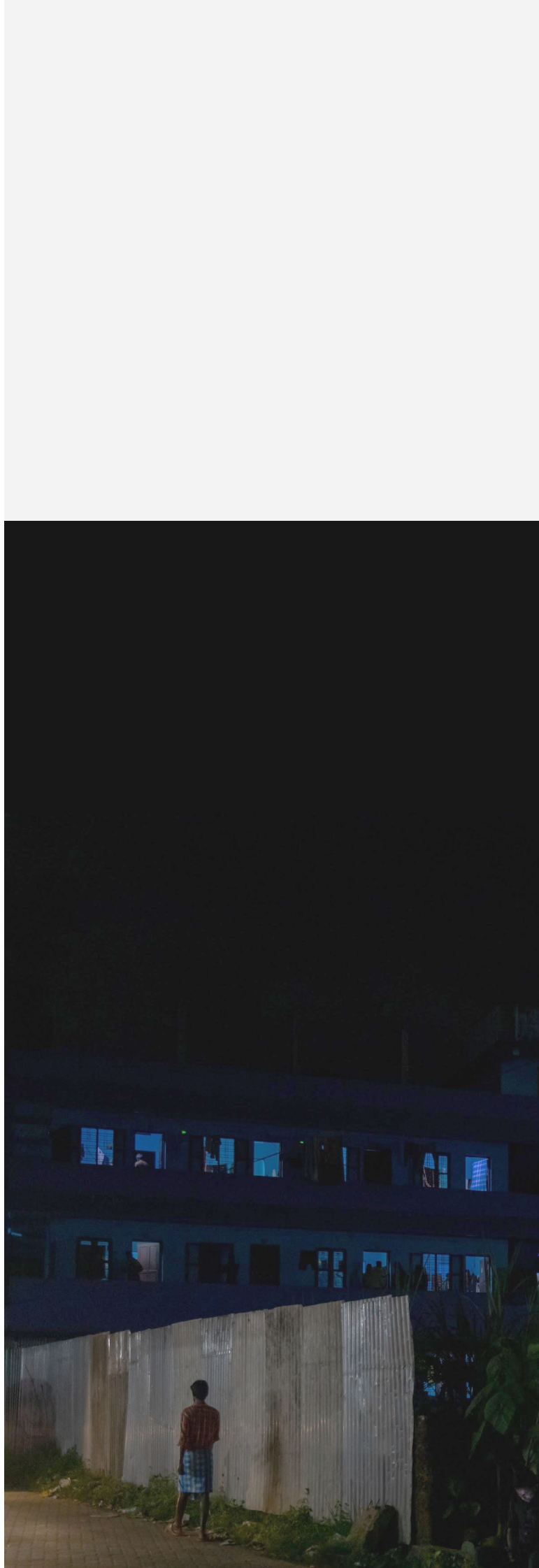
Semi-structured interviews with residents helped understand every day challenges, aspirations, and risk perceptions. These were supplemented with key informant interviews with actors embedded in the settlements including representatives of local NGOs, social activists, government schools, anganwadi teachers, and ASHA workers. Data collection and settlement visits were also done to coincide with critical events in the settlement such as community meetings and climate hazards.

Limitations

The findings are based on a relatively small sample of migrant residents and key informants. Much of the data is perception-based and may be influenced by personal biases or limited recall. Spatial and environmental characteristics were assessed qualitatively. Despite efforts to ensure diverse representation, challenges in accessing certain migrant groups may have resulted in the exclusion of some population. Where possible, findings are triangulated, but given the rapid nature of the assessment, the emphasis is on indicative patterns rather than comprehensive coverage.

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