Reinforcing Infrastructures:

Capital, Nature, and the Translocal Relationalities of Urbanizing India

By

Siddharth Menon

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The dissertation is approved by the following members of the Final Oral Committee:

Stephen Young, Professor, Geography and International Studies

Kris Olds, Professor, Geography

Matt Turner, Professor, Geography

Mou Banerjee, Assistant Professor, History

Claire Wendland, Professor, Anthropology

DEDICATION

To Kiyan. May you one day drag Indian football (soccer) from the abyss into the light.

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ABSTRACT

This dissertation project draws on two years of multi-sited ethnographic fieldwork in India and the UAE to critically examine how the changing built environment of city-regions in India intersects with wider circuits of transnational migration, capital investment, and resource extraction in the climate change era. The starting point for my research is Kochi, the largest city in the south Indian State of Kerala, and one that has been experiencing an acceleration in the construction of "world-class" infrastructures over the last two decades. Beginning from a single infrastructure construction site, I deployed a "follow the thing" methodology to trace the translocal networks of money, materials, and labor that are producing new roads, flyovers, malls, and condominiums in Kochi. This methodological approach took me to real estate expos in Dubai, UAE, sand extraction sites in the ecologically sensitive Western Ghat mountains of south India, and migrant worker camps in Kochi's peripheries. There is rich literature examining the circuits of finance and expertise that connect aspiring "world cities" of the Global South through the concept of "worlding", showing how they inter-reference and compete with one another to attract transnational capital for infrastructure projects. In contrast, my work starts from the mundane built environment of one such infrastructure project to develop a more complex set of social and environmental relationalities that link Kochi's rapid transformation to wider geographies and longer histories in uneven and contradictory ways. My work draws attention to emerging remittance investment patterns and discreet plantation logics in Kochi's urban landscape that have long connected Indian cities to other parts of the Indian Ocean rim much before the advent of neoliberal globalization. My dissertation offers a postcolonial decentering of economic geography and global urban studies by situating uneven urban development and environmental injustice in India within the diverse cultures of the Indian Ocean world.

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INTRODUCTION: REINFORCING INFRASTRUCTURES

In the first twenty days of August 2018, the coastal south Indian State of Kerala received record rains, triggering a "100-year flood" and accompanying landslides. As the waters slowly receded, official figures indicated that 483 people had died, one million were rendered homeless, and 57,000 hectares of agricultural land were destroyed, causing damages of US$2.7 billion. In addition to an upsurge in extreme weather events induced by global climate change (UNDRR, 2020), experts identified several local political economic factors that had intensified the impacts of floods and landslides, including widespread infrastructure construction especially in Kochi: Kerala's largest city (population: 3.5 million) and economic capital. Rising demand for construction materials, like sand, had accelerated unchecked sand dredging from riverbeds and riverbanks, altering the flow of raging flood waters. It had also accelerated stone quarrying and sand extraction from the nearby Western Ghat mountains that had transformed alpine ecologies, precipitating deadly landslides which accompanied heavy rainfall (Warrier, 2020). These calamitous events had increased people's awareness in Kochi and Kerala about infrastructure construction's complicity in exacerbating the effects of extreme weather events in the age of global climate change. Environmental activists, NGOs, and mainstream political parties had mobilized these public sentiments to advocate for a transition to "green" infrastructures (Guha, 2018). In light of these contestations, my dissertation project asked two interrelated questions: *How does infrastructure construction reinforce uneven development and environmental injustice in Global South cities? What kinds of translocal socio-ecological vulnerabilities does infrastructure construction engender in the climate change era?*

These extraordinary events, however, were not the starting point of my engagement with infrastructures. In fact, my fascination with infrastructures began almost 20 years ago at a Mumbai-based architecture college in June 2006. I discuss this journey in the next section.

I. Infrastructure as an Object of Inquiry

My dissertation builds on ten years (2006-2016) of architectural training and professional practice in India's construction industry where I used green building technologies, like earth and bamboo, to champion the cause of sustainable and just urban transformations in India. After receiving my undergraduate degree in Architecture from the University of Mumbai (2006-2011), I began my "activist-architectural" practice where my backpack served as my travelling studio. I moved across different parts of rural and peri-urban India, through the States of Himachal Pradesh, Uttar Pradesh, Telangana, Karnataka, West Bengal, Odisha, and Maharashtra, to mobilize my architectural skills and address the building requirements of non-governmental organizations (NGOs), sustainable tourism companies, and development institutions. However, after a decade of work in this sector, I realized the limitations of my narrow technical expertise that did not allow me to address the root causes of uneven development and environmental injustice in India. For example, while my urban elite clients, who constitute less than 10 percent of India's 1.6 billion population (Chandramouli, 2011), appreciated the value of sustainable urbanism and vernacular architecture, rural and peri-urban communities, whose "traditional" knowledge I was appropriating to push my activist agenda, were not interested in continuing their building practices. Instead, they wanted to live in "modern" concrete houses that mimicked the aspirations and lifestyles of their urban elite counterparts. This contradiction forced a reckoning with the impact and implications of my activist-architectural practice. It also induced my search for broader theoretical frameworks that

could help me better contextualize my learnings from critical practice. It is through these circuitous paths that I stumbled into the interdisciplinary discipline of Geography at the University of Colorado at Boulder in 2016 from where I received a Master's degree.

In 2018, I began my PhD dissertation project in Geography at the University of Wisconsin-Madison. The project's aim from the start was to take a step back from India's construction industry and critically examine it using a Marxist, feminist, postcolonial, and Science and Technology Studies (STS) perspective to understand how infrastructure construction was implicated in furthering uneven development and environmental injustice in Global South cities. This is important because the UN (2018) predicts that by 2050 more than 2/3rds of the world's population will live in cities and urban settlements thus adding another 2.5 billion new urban residents to the earth. Furthermore, more than 90% of this urbanization is set to occur in rapidly urbanizing regions of the Global South, especially in Asia and Africa. India alone is slated to add around 416 million new urban residents, many of whom will join the much-hyped demographic of the "new middle classes" (Fernandes, 2006) who are expected to use their growing disposable incomes, conspicuous consumption practices, and gung-ho entrepreneurial chutzpah to steer the country into the upper echelons of the global economic order. Buoyed by these projections, over the last two decades cities across India have witnessed an "infrastructure boom". Public and private sector actors – the latter have become more active players in the production of urban Indian space since the 1991 liberalization of India's economy – have begun heavily investing in new speculative infrastructure projects, which include airports, metro rails, highways, stadiums, IT parks, shopping malls, hotels, and apartment buildings, so much so that the country is expected to build 9000 million square feet of new infrastructures over the next three decades (MGI, 2010).

Decades of scholarship in economic and urban geography has told us that infrastructure booms are part of a process called the "urbanization of capital", where capital "switches" from its primary circuit of industrial production to its secondary circuit of infrastructure construction as a stopgap measure to fix a crisis wrought by capital's overaccumulation in the former (Harvey, 1978). In fact, critical urban scholars have argued that the construction of urban infrastructures acts as a "spatial fix", a strategy that allows for the absorption of capital and labor surpluses in infrastructure construction projects that temporarily stall an economic crisis (Harvey, 2017; Lefebvre, 2003). The investment of surplus capital and labor into the construction of "demand-side" consumption-oriented infrastructures (Christophers, 2011) also create new speculative avenues for the accumulation of more capital that some scholars have called "speculative urbanism" (Goldman, 2011). These scholars have also highlighted that since the 2008 global financial crisis, Global North originating surplus capital has been on the lookout for new avenues of infrastructure investments in the Global South with the aim of making higher, but riskier, returns for their international shareholders and creditors (Furlong, 2020; Aalbers, 2019). The recent infrastructure boom in Indian, and Global South, cities must be seen from this perspective. The increased integration of global financial markets, wrought by more than three decades of neoliberal economic policies, has enabled the construction of new debt- and equity-financed infrastructures that have dramatically transformed the skylines of Southern cities, a process that some scholars have called the "financialization of urban production" (Halbert and Attuyer, 2016). This process has created new rounds of uneven development, socio-spatial marginalization, and environmental injustice in cities like New Delhi (Ghertner, 2015), Mumbai (Rananathan et al., 2023), Bangalore (Gidwani et al., 2024), Jakarta (Leitner and Sheppard, 2023), Phnom Penh (Nam, 2017), and Dubai (Buckley, 2014), among others.

This infrastructure boom has also created countless new jobs for young lower- and lower-middle class citizens of Global South countries. Faced with the double whammy of the neoliberal policy-induced "roll-back" of public sector companies from the economic sphere as well as sluggish private sector job creation (Kannan and Raveendran, 2019) – popularly dubbed the era of "jobless growth" – rapidly developing Global South countries have struggled to provide stable jobs for their burgeoning youthful populations. The latter are looking to move away from rural traditional primary sector economic activities, like agriculture, fisheries, and forestry, to urban, better paid, and more prestigious secondary and tertiary sector economic activities, like manufacturing, sales, marketing, and other service industries (Simone and Pieterse, 2017). In this context, the booming construction sector has emerged as a lifeline for millions of young jobless people from the Global South thus providing them with an opportunity to climb the shaky ladder of socioeconomic mobility. For example, today India's construction sector employs more than 50 million people, making it the country's largest employment generator after agriculture (Srivastava and Sutradhar, 2016). However, more than 90 percent of jobs in this economy are precarious jobs with casual and informal work arrangements that further the exploitation of already marginalized sections of India's population (Soundarajan, 2013).

This infrastructure boom has also created new environmental vulnerabilities in the Global South in the age of climate change (Rehman et al., 2023). This is because the construction industry is the world's largest emitter of greenhouse gases, contributing around 40 percent of global carbon emissions (UNEP, 2023). Most of these emissions are produced by the "embodied energy" of construction materials, i.e. the energy used to extract, manufacture, transport, and deploy building materials, like cement/concrete, steel, aluminum, and glass, on infrastructure construction sites. For example, due to the scale and volume of infrastructure construction today, concrete has become

the most widely used material on earth after water, so much so, that we are pouring around three tons of concrete per person every year (Forty, 2012). It's centrality to construction processes have prompted scholars to call it "infrastructure's infrastructure" (Elinoff, 2019), the "materiality of urbanization" (Abourahme, 2014: 213), the materiality of capitalism (Harvey, 2017), and the materiality of upward mobility for the world's new middle classes (Menon, 2023). Recent calls have been made to decarbonize building materials and shift the construction sector towards "greener", more sustainable materials as part of the global "green transitions" policy discourse that aims to address the uncertainties of climate change. Furthermore, the extraction of building materials is also routinely implicated in exacerbating the effects of more frequently occurring extreme weather events as was as witnessed in my field site in Kerala, south India during the deadly "100-year flood" and landslides in 2018. These issues created by India's infrastructure construction industry triggered my professional tilt from the world of activist-architectural practice to that of critical social science.

II. Infrastructure as an Analytical Framework

In my dissertation, I deploy "infrastructure" as an analytical framework to situate my overarching research questions. Over the last two decades, scholarship in the social sciences and the humanities has witnessed an "infrastructure turn" (Amin, 2014: 138). Scholars have highlighted how infrastructures, like roads (Harvey and Knox, 2015), railways (Brady, 2023), water pipes (Gandy, 2014), electric lines (Gupta, 2015), sanitation networks (Doshi, 2017), sewage lines (Arefin, 2019), garbage systems (Fredericks, 2018), and houses (Menon, 2025), structure the rhythms of everyday social life and create experiences of social differentiation in cities and regions across the world. For these scholars, the current social scientific focus on infrastructures is not new but has

originated from three distinct but interrelated theoretical influences: development studies; STS; and urban geography (Anand et al., 2018; Menon, 2019). Since WWII, development scholars have revealed how large infrastructural interventions, like dams, canals, roads, railways, and energy plants, have been seen as key markers of cultural and technological progress in the Global South (Sneddon, 2012; Gupta, 1998). While they were built to stimulate economic growth, they were routinely implicated in conjuring dreams, hopes, and aspirations of modernity for post-colonial publics (Larkin, 2008; Khan, 2006). Within STS, scholars have long foregrounded the social relations, expertise cultures, and knowledge politics that are mediated by and embedded in the design, development, and functioning of large technological systems, like information and communication technology (ICT), media, knowledge, and data infrastructures (Bowker, 1994; Star, 1999). Lastly, three decades of scholarship in urban geography has highlighted the highly networked, unevenly distributed, and social differentiated impacts of urban infrastructure projects that connected people and places within cities and across cities in a rapidly globalizing world (Graham and Marvin, 2001; Olds, 2002).

Infrastructures have been used by colonial authorities to induce wonder and awe for imperial power among colonized subjects in the developing world (Larkin, 2008; Kooy and Bakker, 2008). They are also used by post-colonial states and municipal governments to expand their biopolitical authority and control the daily lives of already marginalized and oppressed communities (Anand, 2017; Collier, 2011). They are used by private sector actors as asset classes to extract as much profit as possible from everyday users in the context of neoliberal economic restructuring and the roll-back of public funding for infrastructural provisions (Anguelov, 2023; Bakker, 2010). They are also appropriated by marginalized urban communities who mobilize their materiality to challenge their socioeconomic oppression, sometimes creating contradictory

outcomes (McFarlane, 2011; Meehan, 2014). They are composed of different materialities from "sack cloth and corrugated iron to brick, breezeblock and hydroform" (McFarlane, 2011: 216) as well as "concrete, steel and stone, pipes, cables, boreholes" (Amin and Thrift, 2017: 37) that have social and political effects that often exceeds human intention and design (Amin, 2014; Bennett, 2010). They are also composed of diverse social networks, kinship relations, intimate bonds, and familial ties that enable marginalized urban actors to socially reproduce themselves in the unjust city (Simone, 2004; Elyachar, 2010). In other words, infrastructures are everywhere. It is no wonder that scholars have argued that the world is currently inhabiting an all-encompassing "infrastructure space" (Easterling, 2014), where infrastructures don't stand in isolation but are connected to other infrastructures across space, thus altering the way people relate to and interact with the social and material world around them.

Because of the all-encompassing nature of "infrastructure space", some scholars have argued that the "infrastructural turn" has reached an impasse at this point in time. The fecundity and plasticity of "infrastructure" as an analytical concept has ensured that it has proliferated across the social sciences and the humanities, so much so that "infrastructure" has become a buzzword that "has begun to creep into meaning everything (and thus nothing)" (Calkins, 2019: 821; quoted in Abel and Coleman, 2020) and was thus "losing its conceptual rigor" (Batt, 1984: 3; quoted in Carse, 2016). But much like Abel and Coleman (2020), I argue that the concept, however overused, still has some analytical juice left in it.

As Carse (2017) notes, the word "infrastructure" first appeared in the English language in 1927 following its long use by French civil engineers. From its first use, "infrastructure" denoted a heterogenous collection of different parts that came together to form one whole network or system. In terms of its relational properties, "infrastructure" meant the same thing as "network" or

"system". All three words denoted networked relationships between different sets of things. However, there was one key difference. The prefix "infra-" in "infrastructure" indicated a vertical hierarchical relationship between its composite parts. "Infra" means beneath or below and "infrastructure" came to signify the material substrate that worked discreetly behind the scenes in pursuit of a larger goal, be they geopolitical military interventions, third world industrial development, or racialized urban planning. Due to its discreetness, infrastructures are usually hidden in the background. They are invisible. They involve ordinary, mundane, and boring things that don't attract the same attention as the larger superstructure they are undergirding. No one really cares about how they operate. And yet they continue to function in support of a larger system. They only become conspicuous during spectacular moments of breakdown and disrepair (Schwenkel, 2015; Chu, 2014), something that is an everyday occurrence in most cities of the Global South (Kooy and Bakker, 2008; McFarlane and Rutherford, 2008).

The infrastructure turn in the social sciences helps us open the "black box" of infrastructures by performing what Bowker (1994) calls an "infrastructural inversion", i.e. it reorients our analytical attention to the boring and mundane details hidden in the background that are central to the workings of the modern world. As Abel and Coleman (2020: 7) note, such an inversion is a "figure–ground reversal, bringing into view the buried or hidden material relations and expert negotiations" that structure the functioning of quotidian social life. An infrastructural inversion brings attention to the "powerful interests, relations, and forms of practice that are backgrounded, elided, or taken for granted" (*ibid*). In other words, "thinking from and with infrastructures" (Anand et al., 2018: 14) allows one to practice "infrastructuralism" (Peters, 2015: 33; quoted in Abel and Coleman, 2020), characterized by the "fascination for the basic, the boring, the mundane, and all the mischievous work done behind the scenes" (*ibid*).

Inspired by these conceptual developments and drawing on my architectural background, in my dissertation I use an infrastructural approach to examine the hidden and unseen infrastructures that sustain and enable the construction of my chosen infrastructure of analysis: apartment buildings. As Furlong (2020) argues, infrastructures are themselves undergirded by complex underlying infrastructures that support and structure the development of the former. Thus, infrastructure is both an object of inquiry and a set of ways in which that object is organized, sustained, and developed. To answer my overarching research questions, I study the hidden infrastructures that enable the mobilization of three "things" that are essential for constructing apartment buildings: *money, materials,* and *labor*. An analysis of how these three things are mobilized and the translocal relationalities produced during their mobilization form the core content of the three substantive chapters – which are intended to become stand-alone peer reviewed journal articles – of my dissertation. These three chapters ask three distinct, but interrelated, sub-questions that draw from, engage, and extend intersecting literatures in urban and economic geography, urban political ecology, development studies, STS, South Asian studies, and Indian Ocean Studies. Below, I situate each of my three sub-questions within these intersecting literatures.

Sub-Question 1: How and where is money mobilized from for constructing apartment buildings and what kinds of translocal social inequalities are created during its mobilization?

Since the 1970s, economic and urban geographers have been at the forefront in analyzing the "switching" of capital from its primary circuit of production to its secondary circuit of urban infrastructure construction, which some scholars have called the "urbanization of capital" (Harvey, 1978). The construction of infrastructures acts as a "spatial fix" that temporarily stalls the crisis of overaccumulation within capitalism by enabling the deployment of capital and labor surpluses in

the construction process (Harvey, 2017). In doing so, it also creates speculative opportunities for accumulating more capital. Since the 2008 financial crisis, finance capital originating from the Global North has been increasingly seeking investment opportunities in infrastructure projects in the Global South. This finance capital is shepherded into Southern infrastructure projects by an array of financial instruments or "infrastructures of finance", which are "sociotechnical systems that channel investments in the forms of equity and debt into urban production" (Halbert and Attuyer, 2016: 1347). These infrastructures of finance, which include pension funds, insurance bonds, real estate investment funds, infrastructure investment funds, private equity funds, and sovereign wealth funds, have devised new mechanisms and technologies to invest finance capital in Southern infrastructure projects with the aim of generating higher, but riskier, returns for their international shareholders (Furlong, 2020; Rouanet and Halbert, 2016). For example, private equity investments into Indian infrastructure and real-estate projects in 2019 increased by 225 percent and 33 percent, respectively, thereby dwarfing foreign direct investments of the previous seven years combined (E&Y, 2019).

While these financialization processes can be witnessed in large metropolitan Indian megacities, like New Delhi (Searle, 2016), Mumbai (Ranganathan et al., 2022), and Bangalore (Goldman and Narayan, 2021), which are well integrated with global financial markets and display voluminous consumption cultures, these processes are relatively muted in smaller provincial cities, like Kochi, that don't display the same consumption volumes and are not networked into the global financial system in the same way. Yet, cities like Kochi have also witnessed a recent infrastructure boom as witnessed in the construction of countless "world-class" infrastructure projects, like airports, malls, highways, metro rails, IT parks, luxury hotels, and multistorey apartment buildings.

By examining the modalities through which infrastructure projects in Kochi are financed, in this chapter I engage and extend debates on the financialization of infrastructures in Southern cities.

Sub-Queston 2: How and where are materials mobilized from for constructing apartment buildings and what kinds of translocal environmental vulnerabilities are created during their mobilization?

Widespread construction activities in the Global South have created a global scramble from construction materials like sand: the world's most widely extracted natural resource after water (UNEP, 2014). Across the earth, sand is found in riverbeds, coastlines, deserts, and other wind deposited areas. However, infrastructure construction requires sand particles with jagged edges formed by the incessant weathering of flowing water. The salinity of beach and coastline sand induces cracking in concrete; therefore, construction depends primarily on sand extracted from freshwater riverbeds, riverbanks, and floodplains. In India alone, the amount of sand used for concrete construction has tripled since the turn of the millennium, such that today, sand mining employs nearly 35 million people and generates US$50 billion annually (Arasu, 2017). The construction sector's colossal demand for sand has also fueled the rise of widespread illegal extraction activities by the infamous "sand mafia" across the country. For actors involved in the illicit sand trade, the scale of profits is unimaginable. So is the environmental destruction and the production of environmental vulnerabilities in the climate change era. Nowhere was this connection more evident that in my field site in Kerala where the destruction of riverine beds and mountain slopes due to sand extraction for infrastructure projects were implicated in exacerbating the effects of the 2018 Kerala floods and landslides (Jacob, 2019).

Scholars within the subfield of urban political ecology have drawn from critical Marxist and STS frameworks to analyze how the capitalist production of space in cities creates distinct

"urban natures" that are implicated in furthering uneven development and environmental injustice (Smith, 1984; Swyngedouw, 1996; Heynen et al., 2006). As Smith (2006, xiii-xiv) writes, "The production of urban nature is deeply political but it has received far less scrutiny and seems far less visible, precisely because the arrangement of asphalt and concrete, water mains and garbage dumps, cars and subways seems so inimical to our intuitive sense of (external) nature." Since then, scholarship examining the socially differentiated experiences of city residents as they interact with various urban natures has burgeoned within geography and other allied disciplines. While the politics surrounding water has dominated this scholarship (Kaika and Swyngedouw, 2000; Kooy and Bakker, 2008; Truelove, 2011; Gandy 2014; Meehan, 2014; Ranganathan, 2014), recent work has addressed other urban natures, including urban forests (Heynen et al., 2006), electricity (Silver, 2015), air (Negi, 2020), e-waste (Gidwani and Reddy, 2011), garbage (Moore, 2012), and sewage (Desai et al., 2015). However, the political ecology of sand has only now begun to receive some attention (Lamb et al., 2019; Jamieson, 2021). By attending to the everyday practices through which sand is mobilized for infrastructure projects in Kochi, in this chapter I engage and extend debates on urban natures and the political ecology of urban infrastructures.

Sub-Question 3: How and where is labor mobilized from for constructing apartment buildings and what kinds of labor regimes, work cultures, and subjectivities are created during its mobilization?

With the influx of transnational capital into India's construction industry, there has been a dramatic shift in construction labor employment practices. Traditionally, buildings were constructed by a master craftsperson and a team of apprentices who often also belonged to local communities. Today, largescale infrastructure projects are built by professional real estate developers and construction companies who employ an army of daily-wage laborers, many of whom migrate to

urban construction sites in search of better employment options than their lesser developed rural homelands. In fact, India's construction industry engages nearly 50 million such workers, making it the country's largest employment generator after agriculture (Srivastava and Sutradhar, 2016).

STS scholarship has foregrounded the hidden labor relations and everyday cultural practices that are implicated during the making, maintaining, and repairing of different kinds of ICT, knowledge, media, and data infrastructures (Star, 1999; Jackson, 2014). Critical urban scholarship has also examined the quotidian practices of "infra-structural labor" (Gidwani, 2015: 576) that "repairs and renews the city, continuously re-creating the conditions of possibility for urban life and capitalist enterprise" (*ibid*). These subaltern economic and cultural practices not only produce urban space but also allow marginalized urban communities to socially reproduce themselves (Chattopadhyay, 2012; Simone and Pieterse, 2017). Critical development scholars have also highlighted the precarious working conditions experienced by poorly renumerated and exploited migrant laborers on construction sites in Southern cities (Buckley, 2014; Prasad-Aleyamma, 2017). However, not much is known about the everyday practices deployed by "middlemen" and "intermediary" actors (Bjorkman, 2021; Banerji, 2024), like construction contractors, who are responsible for mobilizing and engaging migrant workers on construction projects in Southern cities. By focusing on the practices and enterprise cultures of construction contractors on infrastructure projects in Kochi, in this chapter I engage and extend debates on the social life of infrastructures.

III. Infrastructure as a Mode of Entry into the Field

Kerala's deadly "100-year" flood and landslides in 2018 triggered a moment of "infrastructural inversion" (Bowker, 1994) in the State where something that had previously remained

inconspicuous, hidden, and taken for granted, like construction processes and practices, became foregrounded in the public eye. This widely publicized environmental disaster and the heightened public consciousness about infrastructure's gargantuan ecological footprint provided me with an opportunity to examine how infrastructure construction's dominance as a mode of attaining development in the Global South since the post-WWII years was being challenged or reproduced in Kochi and Kerala today. This is how "infrastructure" became a mode of entry for me into my field site in Kochi city in Kerala, south India (see Figure 1).
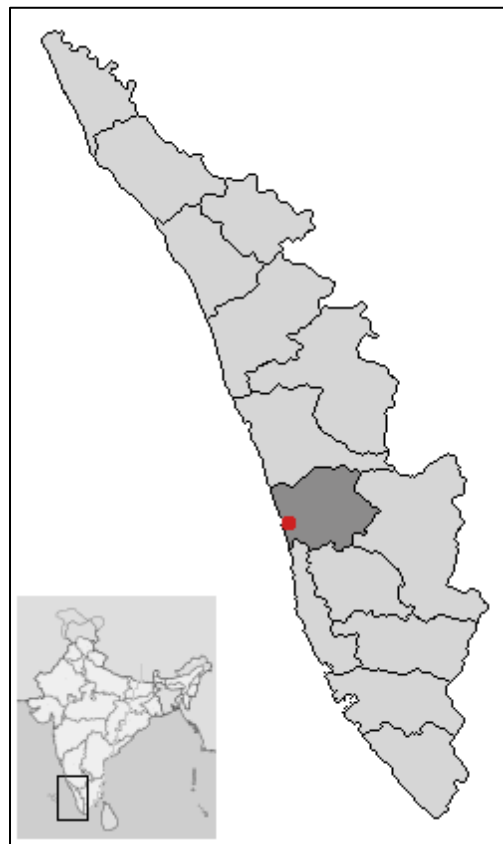
Figure 1: Map showing Kochi location in India (source: Wikimedia Commons)
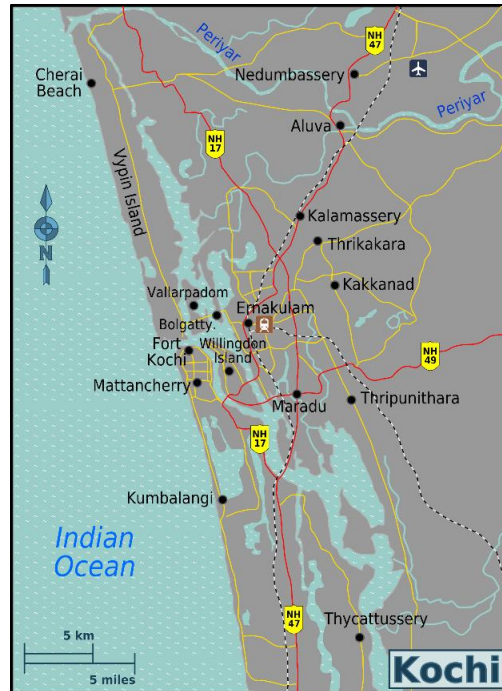
Figure 2: Map showing Kochi's wetland geography (source: Wikimedia Commons)

Beyond infrastructure construction's complicity in worsening the effects of the 2018 Kerala floods and landslides, Kochi city in Kerala also made an excellent field site to examine the translocal relationalities mediated by infrastructure construction for several reasons as I outline below. With a population of 3.5 million people, Kochi is not only Kerala's largest city but also its economic capital. Located along the Arabian sea coast, it lies just 20 miles south of the ruins of the fabled port city of Muziris which served as the bedrock of the ancient Indian Ocean spice route from where spices like pepper, cloves, and cardamom were exported across the ancient world system. Interestingly, Muziris' collapse was caused by the "great flood" of 1341, a catastrophic event similar in scale and intensity to the 2018 Kerala floods, prompting commentators to draw prophetic conclusions about Kochi's urban future. Contemporary Kochi was established at its current spot at the mouth of the Vembanad Lake, India's largest lake that is designated as a Ramsar "Wetland of International Importance", whose freshwater flows into saline water of the Arabian

sea. Due to these geographical features (see Figure 2), from the 16th century onwards successive colonial powers, like the Portuguese, the Dutch, and the British, respectively, developed Kochi into a major trading seaport from where colonial plantation products, like pepper, cardamom, cloves, rubber, tea, and coffee, from the nearby Western Ghat mountains were exported to European metropoles. These geohistorical processes made Kochi the economic capital of the newly formed post-colonial State of Kerala in 1956.

Due to its role as Kerala's economic capital, Kochi is also home to the largest number of private real estate developers and construction companies in Kerala. Since India's adoption of neoliberal economic policies in 1991, and the Government of India's enabling of foreign direct investments into Indian real estate and construction in 2005 (Goldman and Narayan, 2021), private real estate developers have become increasingly influential actors in producing urban Indian space (Searle, 2016; Chattopadhyay, 2012). Similar processes were also witnessed in Kochi. The city saw the rise of private real estate developers in the mid-1990s who constructed Kerala's first multistory apartment building in the city. Since then, the number of real estate developers in the city has ballooned to over 70 and the city has the highest density of multistory buildings in the State (CREDAI, n.d.). The city is also home to the headquarters of the Kerala chapter of the Confederation of Real Estate Developers' Associations of India, an advocacy and lobbying group that represents over 20,000 private real estate developers across 21 states and 220 cities in India. Furthermore, over the last two decades Kochi has also witnessed a spate of "world-class" infrastructure projects for elite consumption, including the "world's first fully solar powered airport", India's largest shopping mall, India's largest amusement park, south India's largest soccer stadium, highways, metro rails, IT parks, hotels, and condominiums. Importantly, the Kochi-Thrissur urban agglomeration (Thrissur lies 50 miles north of Kochi and was once the capital of

the feudal Cochin kingdom) is also the State's financial capital. Owing to its central role in the Indian Ocean spice trade, this region has been home to some of the oldest private sector banks in India (Das and Thomas, 2014). Today, it is the headquarters of several regional financial institutions, like public sectors banks, community-, caste-, and religion-centered private sector banks, chit fund companies, gold loan companies, lottery companies, and other new-age financial institutions, that provide easily accessible debt capital for both real estate developers and buyers.

Importantly, Kochi is a second-tier provincial city that lies "off the map" (Robinson, 2002) of global urban theory. While recent work has pushed the geographical and conceptual boundaries of critical urban theory by extending the cities under examination from a few select Global North-centered "world cities" to several "ordinary cities" across the Global South, this scholarship has still tended to be dominated by the experiences of a few exemplary Southern megacities (see Figure 3), like New Delhi, Mumbai, Bangalore, Jakarta, and Lagos (Bunnell and Maringanti, 2010; Mukhopadhyay et al., 2020). Recent scholarship in South Asian studies has argued that provincial cities across South Asia have historically played and will continue to play a crucial role in creating wealth and absorbing new urban dwellers, sometimes totally bypassing the networks of more illustrious megacities (Chattopadhyay, 2012; Scrace et al., 2015; Gold, 2017). By examining urban development processes in Kochi, my project will further provincialize and extend theories of global urbanism by foregrounding how these middleweight cities are being incorporated into the global economy through diverse mechanisms (Sheppard et al., 2013; Amin and Thrift, 2017).

Figure 3: Map showing India's most populous cities (credit: Author)

While Kochi is Kerala's largest city, it is by no means Kerala's only urban center. The State is home to 4 large cities, Kochi, Thiruvananthapuram (the State capital), Kozhikode, and Kannur, who all have international airports, making Kerala the State with largest number of international airports in India. Kerala is also home to two of the world's fastest growing urban agglomerations: Malappuram and Kollam (Nijeesh, 2020). Beyond these urban centers, Kerala displays a unique extended rural-urban "desakota" style spatially distributed urban development pattern with hundreds of networked small towns interspersed with tiny patches of agrarian farmland spread across its landscape (Casinader, 1992; Pauchet and Oliveau, 2015). While the State's narrow geography (the distance from the Arabian Sea coast to the Western Ghats foothills is a mere 25 miles at Kochi) and its feudal socioeconomic organization can be credited with triggering a desakota-style spatial development pattern, the establishment of 19th century Western Ghat

plantations cemented Kerala's diffused mode of urban development. Home to indigenously grown spices like pepper, clove, and cardamom, modern plantations were established in Kerala's Western Ghats in the 19th century by European colonialists. The development of roads, canals, and other transportation infrastructures to ferry plantation products from remote mountainous regions to mercantile coastal cities as well as the development of several small towns catering to the production, processing, and export of plantation products stemmed the agglomeration of people and economic activities in a particular city and facilitated a more spatially distributed desakota-style pattern of urban development (Sreekumar, 1990).

In the post-colonial decades, this distributed urban development pattern was further reinforced by the newly formed State's unwavering pursuit of its much-lauded "Model" of development. Ever since Kerala became home to the world's first democratically elected communist government in 1957, successive State governments have implemented redistributive and social justice-oriented development policies that have given it some of the highest human development indicators in the Global South in terms of access to healthcare, infant mortality, education and literacy, standard of living, equitable land ownership, access to clean drinking water, and decentralized governance (Franke and Chasin, 1994; Dreze and Sen, 2013). Kerala's quick progress in attaining high human development indicators, despite relatively low levels of industrialization, has baffled development economists since the 1970s by offering an alternative vision of development for the Global South that was a far cry from the false promises of "trickle-down economics" advocated by mainstream development institutions and actors. However, India's adoption of neoliberal economic policies has challenged the Kerala Model's foundational ethos and its spatially distributed urban development pattern which is causing rising socio-economic polarization and greater concentration of wealth and power in big cities like Kochi (Oommen,

2008; Raman, 2009). This makes Kochi an important site to examine how the progressive visions of post-colonial development are being challenged and contested today in the face of rapid neoliberal urbanization.

Critics have also argued that the "Kerala Model" has been heavily subsidized by remittances from the State's substantial diasporic workforce in the Arabian Gulf. Since the 1960s Gulf "Oil Boom", hordes of working-class Keralite men and women have migrated to the Gulf Cooperation Council (Gulf) countries of the United Arab Emirates (UAE), Saudia Arabia, Kuwait, Oman, Qatar, and Bahrain to work in their oil-driven economies. Today, almost 10 percent of the State's population lives in the Gulf and the remittances sent back by these workers constitute 36 percent of Kerala's GDP, the highest proportion of any state in India (Rajan and Zachariah, 2019). In 1996, the State also became the country's first to constitute a separate "Department for Non-Resident Keralite Affairs". Due to the ubiquity of transnationalism in Kerala, it is also one of the few Indian States to be impacted regularly by global turbulent events, like the 1990 Kuwait war, the 1997 Asian financial crisis, the 2008 subprime mortgage crisis, the 2020 coronavirus pandemic, and the 2022 Russia-Ukraine conflict. Kerala's Non-Resident Indian (NRI) Gulf-based diaspora has also been heavily involved in shifting the form and typology of Kerala's urban built environment from caste- and community-based traditional houses to independently developed palatial and quirky "Gulf houses" from the 1960s onwards to standardized real estate developer-built luxury "NRI flats" from the 1990s onwards, most of which are concentrated in Kochi. This makes Kochi an excellent field site to examine the transnational interdependencies mediated by infrastructure construction.

The mass migration of blue-collared Keralite workers to the Gulf's oil rich economy has also created an urgent demand for working class labor in Kerala. This demand was met by the

largescale migration of laborers from rural lesser developed States of north and east India, like Assam, West Bengal, Odisha, Jharkhand, Bihar, and Uttar Pradesh. Today, there are more than three million migrant workers employed in different economic sectors of Kerala, thus representing one of the highest proportions of migrant workers per capita of any State in the country. Importantly, most migrant workers are employed in the construction sector to perform activities of differing skill categories, like masonry, carpentry, electrical and plumbing work, shuttering and formwork, binding work, and concreting work, among others (Peter and Narendran, 2017). Furthermore, due to the concentration of construction work in Kochi, the city also has the highest concentration of migrant workers in Kerala. These reasons make Kochi an excellent field site to conduct this research.

Finally, Kerala has long been at the forefront of the sustainable building movement in India due to the work and legacy of renowned architect and urbanist: Laurie Baker (Bhatia, 1991). A Gandhian and staunch advocate of low cost, energy-conscious, and environment-friendly construction techniques, Baker built over a thousand buildings across the State over a span of four decades until his death in 2007. By doing so, he instilled an ethos of environmental consciousness and social justice-oriented building practices among government bureaucrats, architects, civil engineers, urban planners, activists, and ordinary homeowners in Kerala (Burte, 2007). As the State and its economic capital ushers in an era of unfettered neoliberal urban development, it is important to examine how these sustainable building values and ideologies are being challenged or taken forward by Kerala's construction sector actors today. Taken together, these factors make Kochi city in Kerala, south India an excellent field site to conduct this dissertation research.

IV. Infrastructure as Methodology

Beyond its usefulness as an analytical framework and as a mode of entry into the field, infrastructure also serves as a methodology for my dissertation research. But how does infrastructure become a methodology? For some scholars, infrastructure is the mode of analysis itself (Bjorkman, 2015; Liu and Shen, 2023). For example, Bjorkman (2015: 1) shows how for her, "water infrastructures were simultaneously an object of inquiry, as well as the medium and methodological entryway for studying those same processes". This approach helped her identify eight distinct "methods" or sites of analysis which were "simultaneously ways of accessing water…and also ways for accessing knowledge about water" (*ibid*: 5). In this way, water infrastructures became her "method" of research. Similarly, Abel and Coleman (2020: 8) argue that infrastructures "provide an empirical site…for examining the entanglement of affects, passions, and morals with and alongside materialities of life and labor". For Anand et al. (2018: 14), "thinking from and with infrastructure" is a useful strategy "precisely because they are sites of conceptual trouble that refuse the easy separation of the human and the material" (*ibid*: 27).

My approach to studying infrastructures is heavily indebted to the work of cultural anthropologists, STS scholars, and human geographers who have mobilized the unique qualities of ethnography to study infrastructures and their inequalities. This approach opens the "black box" of infrastructures by producing "thick descriptions" (Geertz, 1973) of how infrastructures are implicated in shaping everyday social and political life. It also involves examining cities and their infrastructures from the "inside out" (Amin and Thrift, 2017) using the practice of "redescription" (Simone and Pieterse, 2017). For Simone and Pieterse (2017), redescription is an inventive method that "attempts to compose urban knowledge of what can be as well as of what is" (*ibid*). At its core, it necessitates a commitment to describing things happening in cities and their infrastructures not with the goal of confirming or rejecting macro-level top-down theory or structural forces but

rather with the aim of following ground-up horizontal sociotechnical networks and assemblages that are usually unseen, deemed unimportant, or are surprising and unexpected. Drawing on Pierce (1934), Bjorkman (2015: 2) argues that such an "abductive" mode of inquiry that directs analytical attention to unexpected or surprising things enables the questioning of "taken-for-granted, even latent categories and concepts which are unable to account for some phenomenon" (*ibid*) and thus opens spaces and possibilities for new meanings and understandings to emerge from the field (Peck and Theodore, 2012). This is akin to what Burawoy (1998) call the "extended case method" where unexpected observations are used to reconstruct and extend existing social theory by foregrounding "theoretical gaps and silences" (*ibid*) from the field, a process that other scholars have called "stress testing" theory (Peck, 2015: 176). While this is a way of producing "situated knowledge" (Haraway, 1988) that is attuned to the feminist politics of knowledge production, positionality, and reflexivity (England, 1994; Faria and Mollett, 2016), it is also a way of producing more robust postcolonial "mid-level theory" (Roy and Ong, 2011) that is better equipped to deal with the distinct "geohistories" of Global South spaces (Sheppard et al., 2011).

To further illustrate my methodology, I draw on Larkin's (2013) conceptual definition of infrastructures. For Larkin, infrastructures are "things and also the relation between things" (*ibid*: 329). Building of this conceptualization, my ethnographic study of the production process of apartment buildings in Kochi city in Kerala, south India consisted of examining its two related conceptual parts: *(i) things*, and the *(ii) relation between things*. Below, I explain how I used ethnography to study these two parts.

i) Things: Over the last two decades, scholars in the social sciences and humanities have increasingly attended to the distributed agency of nonhuman things, materials, and objects in

shaping the human world. Buoyed by new theoretical developments from new materialisms (Bennett, 2010; Bennett and Joyce, 2010; Coole and Frost, 2010), assemblage theory (Deleuze and Guattari, 1987; McFarlane, 2011; Anderson et al., 2012), actor-network theory (Callon, 1986; Latour, 1993; Farias and Bender, 2010), and object oriented philosophy (Harman, 2013; Morton, 2013; Meehan, 2014), scholars have embraced more tangled webs of causation with the nonhuman world playing a previously unexplored role in constituting, shaping, and structuring social and political life. This approach has been important for recalibrating critical scholarship so that social analyses can involve and attend to more expansive notions of agency, power, and responsibility, thus producing what Whatmore (2006) calls "more-than-human" geographies. Importantly, a serious engagement with nonhuman agency also helps us reckon with the urgencies and exigencies of more frequently occurring climate change-induced extreme weather events, like floods, landslides, heatwaves, sandstorms, polar vortexes, cyclones, hurricanes, tornadoes, typhoons, storm surges, and avalanches, in the Anthropogenic era (Ghosh, 2016; Goh, 2021). While some of this work has been criticized for lacking an attention to uneven power relations and unequal responsibility shared between humans and nonhumans (Tolia-Kelly, 2013; Hecht, 2018), some excellent ethnographic work has transcended these concerns by taking into account the distributed agency of nonhuman actors along with a focus on uneven power relations as outlined by critical Marxist, feminist, and postcolonial perspectives (see Harvey, 2010; Anand, 2017; Truelove, 2011; Doshi, 2017; Fredericks, 2018; etc.). My approach to ethnographically studying "things", i.e. materials like sand, that are extracted, commodified, and consumed for constructing apartment buildings in Kochi and the interdependent relations and vulnerabilities this commodification process creates between human and nonhuman actors is inspired by this cutting-edge work.

ii) Relation Between Things: Infrastructure is inherently a relational concept. By reorienting analytical attention to relationality, infrastructures enable the examination of complex "relations, networks, and webs of practice" (Law, 2015) between and among different actors spread across dispersed sites. But as Star (1999) asks, how does one mobilize ethnography that is so wedded to the "production of knowledge through immersion in local worlds" (Bjorjkman, 2015: 1) for the study of relationalities and interdependencies that are translocal? To answer this question, I draw from the rich scholarship in human geography that has long championed the study of relational, distributed, and diffused processes that connect people, places, and things across space and scale. Since the "relational turn" in the 1970s (see Harvey, 1973; Massey, 1978; Soja, 1980; Smith, 1984), critical human geographic scholarship has foregrounded translocal relational processes through the study of spatially distributed, but connected, socio-spatial phenomena. This meant that during the early days of globalization in the 1990s, human geographers were particularly well placed to lead the study of the "multiscalar, polymorphic, and restlessly mutating geographies" (Brenner, 2019: 14) of global capitalist expansion.

One methodological approach that was championed by human geographers and was useful in untangling the knots of translocal socio-spatial interconnectivities was the "follow the thing" methodology (Cook et al., 2004). Building on multi-sited ethnographic approaches from anthropology (Marcus, 1995; Hannerz, 2003) and cultural-economic analyses of commodity chains (Appadurai, 1986; Harvey, 1990), Cook et al. traced the journey of papayas from Jamaican farms to UK supermarket shelves. By doing so, they reconnected exploited Global South producers to wealthy Global North consumers with the aim of de-fetishizing commodities and politicizing its transnational production, distribution, and consumption. Since then, geographers, and other scholars, have used similar methodological toolkits to examine uneven translocal

interdependencies created by the commodity chains of different kinds of "things", including bargain store knickknacks (Hulme, 2015), cement (Choplin, 2023), matsutake mushrooms (Tsing, 2015), acoustic guitars (Gibson and Warren, 2021), uranium (Hecht, 2018), donated blood (Sodero, 2018), Mardi Gras beads (Redmon, 2014), maize husk (Long and Villareal, 1998), tortilla chips (Lind and Barham, 2004), cut flowers (Hughes, 2000), children's products (Miller, 2003), ethnic foodstuff (Cook and Michelle, 2003), broccoli (Benson and Fischer, 2007), coffee (Smith, 1996), bananas (Murray and Raynolds, 2000), tomatoes (Barndt, 2002), chewing gum (Redclift, 2002), and cotton shirts (Ramamurthy, 2004), data (Akbari, 2020), policies (Peck and Theodore, 2012), money (Christophers, 2011), and finance (Hughes-McLure and Mawdsley, 2019), among others.

I draw on this rich vein of scholarship in human geography to adopt a "follow the thing" methodology in my dissertation research. Beginning from a single apartment building construction site, I deploy a "follow the thing" methodology to trace the translocal networks of three "things" – money, materials, and labor – that are mobilized for constructing apartment buildings in Kochi city in Kerala, south India. This multi-sited methodological approach took me to glitzy real estate expos in Dubai, UAE where real estate condominiums in Kochi were being marketed and sold to middle-class Indian diasporas; sand extraction sites and stone quarries in remote rural regions of the ecologically sensitive Western Ghat mountains in southwest India where upper-caste landowners were converting former plantation lands to sand extraction sites catering to the demands of Kochi's construction industry; and migrant worker camps in Kochi's peripheries where thousands of north Indian migrant construction workers were being housed, looked after, and managed by intermediary construction contractors (see Figure 4). Along these translocal networks, I conducted ethnographic fieldwork using the methods and techniques as described below.

Figure 4: Map showing Kochi's translocal social and environmental relationalities
(credit: Deepika Amonkar)

Methods and Timeline: In February 2021, my spouse Deepika Amonkar – a landscape architect – and I arrived in Kochi, Kerala. Within a month we had found a rental apartment in an apartment building in the Kadavanthra neighborhood of the city and had begun to settle into the rhythms of life there. Simultaneously, I had also started activating my research networks in the city that I had cultivated over six weeks of pre-dissertation fieldwork in the summer of 2019. I had already received permission to conduct ethnographic fieldwork from one of Kerala's top real estate developers who was related to me through kinship ties. As I was busy identifying which of the developer's construction projects I would begin ethnographic fieldwork at, India was hit by the second wave of the Covid-19 pandemic in April 2021 which killed millions of Indians. What followed were six anxious and uncertain months of intense lockdowns and movement restrictions

which made fieldwork impossible. I used this time to immerse myself in secondary data analysis which I could do from the relative safety of my apartment without jeopardizing the lives of my research participants, some of whom belonged to the most marginalized communities in Kerala. When lockdowns and restrictions were slowly lifted in September 2021, I cautiously restarted fieldwork. I spent two months visiting different construction projects in Kochi to identify the specific projects where I would commence ethnographic fieldwork. I also used convenience sampling techniques to interview some actors in Kochi's construction industry who I was already familiar with from preliminary fieldwork. However, due to the severity of the second wave of the Covid-19 pandemic, several interview requests were denied. Just when I had identified which construction project I would begin ethnographic fieldwork at, India was hit with the third wave of the Covid-19 pandemic (Omicron variant) in December 2021 during which my spouse and I both contracted the virus. After slowly recovering from the virus and after the third wave had passed, I finally commenced ethnographic fieldwork in February 2022.

I had selected two apartment building projects in Kochi which would serve as the starting points for my multi-sited ethnographic fieldwork. Both projects were being developed by the same private real estate developer but were chosen because they had some important differences. One was located close to the city center near Edappally, was nearing completion, and was being built by a third-party construction company who had been specifically contracted for the job. The other was located on the outskirts of the city near Aluva, was just beginning construction, and was being built directly by the real estate developer. The selection of these two projects ensured that I observed different stages of construction, interview different sets of actors involved in these different stages and learn about diverse construction labor and material mobilization practices. The first few months of fieldwork were spent regularly visiting both construction sites. I would spend

two to three hours observing construction practices and "hanging out" with migrant construction workers, construction foremen, site engineers, and site managers at both projects every day. Once done, I would return to my apartment sometime after lunch when there were government mandated extended lunch breaks on construction sites in Kerala to prevent workers from suffering heat strokes from soaring summer temperatures which sometimes exceed 40 degrees Celsius (104 degrees Fahrenheit). At home, I would digitalize my fieldnotes, download images from my phone camera to my computer, anonymize and back-up this data on UW-Madison's cloud storage platform, write analytical memos, and plan out the next days' activities. I continued this initial pattern of fieldwork for four months until June 2022 when the annual monsoon season brought Kochi's construction sector to a grinding halt.

Since sand extraction sites in the Western Ghats are also mandated by the State government to halt production activities due to increasing landslide risks during the monsoons, I could not visit extraction sites or interview actors along sand's commodity chain until the end of the monsoon season in September 2022. However, after four months of ethnographic fieldwork at the two construction sites, I had gained a better understanding of the practices through which migrant workers are mobilized for infrastructure projects in Kochi. I then used a chain sampling technique to solicit semi-structured interviews with actors who were involved in mobilizing migrant workers for the two infrastructure projects. These actors included construction companies, building contractors, intermediary subcontractors, and labor brokers. Once I gained access to these actors, I used snowball sampling techniques to solicit interviews with more participants from the actors' social networks. Using a combination of chain and snowball sampling techniques, I conducted semi-structured interviews with a critical mass of participants until I reached a point of data saturation and no new themes, insights, or patterns were emerging from the data. To supplement

my findings on construction worker mobilization practices, I also used purposive sampling techniques to conduct semi-structured interviews with key actors in Kochi's construction industry, like architects, urban planners, civil engineers, government officials, and migrant worker rights activists. I also attended architect, engineer, and subcontractor professional meetings and conferences to conduct participant observations and focus group interviews. To triangulate my ethnographic findings, I collected copies of primary textual documents like daily-wage worker timesheets, medical insurance and provident fund documents, construction contract documents, construction signboards, government policy documents, NGO reports, newspaper articles, and pamphlets and posters advertising contractor services.

Once the monsoons ended in September 2022, I began using chain sampling techniques to visit sand extraction sites in the Western Ghats and solicit interviews with actors involved in the mobilization of sand for my two infrastructure projects. These actors included sand procurement managers at real estate and construction companies, sand quality testing and control personnel, intermediary sand vendors, tipper truck drivers, stone crusher owners and managers, and stone quarry owners and managers. Once I gained access to these actors, I used snowball sampling techniques to solicit interviews with more participants from the actors' social networks. Using this combination of chain and snowball sampling techniques I conducted semi-structured interviews with a critical mass of participants until I hit data saturation. To corroborate my findings on sand mobilization practices in Kochi, I also used purposive sampling techniques to conduct semi-structured interviews with government officials, environmental activists, and local community members who had been impacted by environmental degradation caused by sand extraction. I also attended environmental activist and NGO meetings to conduct participant observations and focus group interviews. To triangulate my ethnographic data, I collected copies of primary textual

documents like government policy documents, sand extraction permits, environmental regulation compliance reports, NGO reports, newspaper articles, and posters advertising the sale of sand.

From January 2023, I shifted my ethnographic attention to tracing the trail of money flowing into my two infrastructure projects. I first used purposive sampling techniques to conduct semi-structured interviews with key actors involved in Kochi's real estate and urban development sectors, including real estate developers, urban planners, and government officials. I then deployed a combination of chain and snowball sampling techniques to solicit interviews with actors involved in the mobilization of money for my two infrastructure projects. These included, real estate sales and marketing executives, banking sector officials, real estate sales and marketing agents, and real estate brokers in Kochi. I also attended real estate expos and real estate sales and marketing events in Kochi to conduct participant observations. To triangulate my ethnographic findings, I collected copies of primary textual and visual documents like government policy documents, real estate brochures, pamphlets, and billboards, real estate payment schedules, home loan application forms, home loan policy documents, architectural renderings, NGO reports, and newspaper articles.

Importantly, my "follow the thing" money trail took me to Dubai UAE. In May 2023, I wrapped up the Kochi leg of my fieldwork and set up base in a budget hotel in Dubai's Al Karama neighborhood, a hub of the Keralite diaspora community. This time my spouse did not join me. In Dubai, I continued using chain and snowball sampling techniques to solicit interviews with actors along my transnational money trail. These included members of Kerala's diaspora community who had bought apartments in my two Kochi apartment buildings, representatives of Dubai-based Indian banks, Dubai-based Indian real estate sales and marketing agents, and Dubai-based Indian real estate brokers. I also attended real estate expos, real estate sales and marketing events, and Keralite cultural events sponsored by real estate companies to conduct participant observations.

To triangulate my ethnographic data, I also collected copies of primary textual and visual documents like posters and pamphlets of Dubai-based real estate events, non-resident Indian banking policy documents, and Government of India foreign exchange policy documents.

By the time I had completed fieldwork in July 2023, I had conducted semi-structured interviews with 205 research participants, had conducted observations at 252 different field sites, and had collected copies of 392 textual and visual documents. All interviews were conducted in English, Malayalam (Kerala's official State language), and Hindi (India's most widely spoken language) depending on who I was interviewing and what language they were comfortable in. To travel to different research sites in Kochi and beyond, I used a combination of different public and private transportation options, including autorickshaws, buses, metro rail, boat ferries, rental cars, and railway trains. In Dubai, I mainly used the metro rail, buses, ferries, and taxis. During the second year of my fieldwork in Kerala, I was formally affiliated with the Center for Development Studies in Kerala's capital, Thiruvananthapuram, as a PhD Research Scholar where I also gave a guest seminar based on my research findings. I also had the opportunity to give guest lectures at the SCMS School of Architecture in Kochi, the NMIMS Balwant Sheth School of Architecture in Mumbai, and a TEDx talk at the National Institute of Technology, Calicut which allowed me to share my research findings with a wider set of actors and refine my analysis. During fieldwork in Dubai, I also had the opportunity to discuss my research findings with scholars affiliated with NYU Abu Dhabi and the American University of Sharjah, thus allowing me to test the veracity of my data and further finetune my analysis.

Throughout my fieldwork, I practiced a critical feminist reflexivity that was attentive to how my positionality was shaping my ethnographic data and its interpretation (England, 1994; Faria and Mollet, 2016). My positionality was constantly shifting along the fluid "insider-outsider"

spectrum during different stages of fieldwork depending on who my research participants were, where I was conducting research, and the research context (Mullings, 1999; Parikh, 2020). For example, during fieldwork with migrant workers and subcontractors, while I was an outsider because of my class status, I was also a "partial insider" because of my fluency in Hindi which set me apart from other Keralites thus making me part of conversations that I would otherwise have not been privy to. Similarly, during my interactions with upper-caste quarry owners and members of Kerala's "sand mafia", I had to foreground my upper-caste credentials and my construction sector background so that sand mining actors didn't see me as a threat to their business operations. This was important not only to gain access to reticent and media-wary sand mining actors but also to ensure my own safety. On the other hand, my upper-class status and my transnational background made it relatively easier to interview real estate developers, real estate brokers, and non-resident Indians in Dubai who were more than willing to share their jet-setting lifestyles and experiences. In all the above cases, my gender identity played an important role in helping me gain access to key interlocutors because the real estate and construction industry in India is heavily gendered. Most actors I interviewed were men who displayed distinct masculine traits and personalities regardless of their position in the construction hierarchy which ensured the gendered gatekeeping of the industry and its explicit exclusion and discrimination against women and other gender minorities. I discuss these dynamics in more detail in the three empirical chapters of my dissertation as outlined below.

V. Infrastructure as an Organizing Framework

In this dissertation, I also use infrastructure as an organizing framework to structure it. Each of my three empirical chapters – *Chapter 1*, *Chapter 2*, and *Chapter 3* – discusses the everyday practices

involved in mobilizing the three most important "things" needed to construct any infrastructure: *money*, *materials*, and *labor*, respectively. By doing so, my aim is to make the dissertation accessible to a wider range of readers beyond academia, including architects and urban designers, civil engineers, urban planners, real estate developers, building contractors, environmental activists, and other urban practitioners, who are also interested in the idea of creating socially and environmentally just urban futures. The rest of my dissertation is structured as follows.

Chapter 1: Dubai Diasporas, Transnational Remittances, and Intimate Infrastructures of Finance in India draws on frameworks from global urban studies, critical finance studies, and migration studies to examine how Dubai-based Indian banks and financial institutions act as "shadow actors" during the production of urban space in India. I highlight how these banks work in tandem with India-based real estate developers to financialize the remittances of Dubai-based Indian diasporas into standardized debt instruments that produce unevenly developed urban spaces in Kochi. By doing so, they also shift financial risks associated with transnational real estate investments away from real estate developers to diaspora communities by incorporating formerly intimate and intra-household remittance flows into volatile global financial circuits. This chapter is forthcoming in *Environment and Planning A: Economy and Space*.

Chapter 2: Sand, Plantation Urbanism, and the Extended Political Ecology of Infrastructures in India combines perspectives from urban political ecology, STS, and critical plantation studies to reveal complex rural-urban linkages during the extraction of sand from India's Western Ghat mountains for infrastructure projects in Kochi. Here, I argue that sand extraction sites in the Western Ghats should not be viewed as "new" extractive frontiers created by the demands of planetary urbanization. Rather, they must be examined through the lens of "plantation urbanism", a concept that accounts for the failure of colonial-era Western Ghat plantation

economies in the free-market era and their ensuing conversion to sand extraction sites. This chapter is forthcoming in *International Journal of Urban and Regional Research.*

Chapter 3: Construction Contractors, Credibility, and Middling Cultures of Enterprise in India engages theory from economic geography, critical entrepreneurship studies, and South Asian studies to examine the diverse enterprise cultures displayed by mid-level labor subcontractors in Kochi's construction industry who mobilize, manage, and deploy complex socially differentiated networks of north Indian migrant workers on infrastructure projects in the city.

In my *Conclusion: Ordinary Cities, (Extra)Ordinary Relationalities*, I argue that the extraordinary translocal social and environmental relationalities mediated by infrastructure construction in Kochi offer an alternate decolonial map of global urbanism. This map situates itself in the unique geohistories of ordinary cities like Kochi and traces the translocal interconnectivities that make ordinary cities truly extraordinary. I argue that to continue the work of provincializing and decentering global urban theory, one needs to adopt an "infrastructural approach" to highlight the complexity, heterogeneity, and agency of the world's countless ordinary cities that continue to remain underexamined.

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CHAPTER 1: DUBAI DIASPORAS, TRANSNATIONAL REMITTANCES,
AND INTIMATE INFRASTRUCTURES OF FINANCE IN INDIA[1]

Abstract: Recently, cities across India and the Global South have been constructing "world-class" infrastructures. Scholars have examined the global financial instruments and investment vehicles facilitating this infrastructure boom in Southern cities, which is furthering uneven urban development. But we know little about other more intimate flows of capital that are also supporting Southern urban transformations. In this paper, I examine how remittances from middle- class Indian diasporas in Dubai, UAE become financial instruments to fund luxury real estate projects in Kochi city in Kerala, India. I do this by examining the everyday financial practices of transnational actors, including Kochi-based real estate developers, Dubai-based Indian diasporas, and Indian banks and financial institutions. I show that by packaging remittances into standardized debt-based instruments, Indian banks act as financial intermediaries between developers and diasporas to manage risks associated with transnational investments. Thus, Indian banks and financial institutions act as "shadow actors" during the production of unevenly developed urban spaces in India. My work extends literature in economic geography, financial geography, and global urban studies by highlighting how informal sources of capital are financialized and made visible to formal financial circuits, furthering uneven development in Southern cities.

Keywords: urban development, real estate, financialization, remittances, migration, Global South

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[1] Manuscript forthcoming in *Environment and Planning A: Economy and Space*

I. Introduction

As you exit the "world's first solar-powered airport" in Kochi, a city of more than three million people in the south Indian State of Kerala, your eyes are drawn to a series of multi-coloured billboards along the main highway connecting the airport to the city centre. Most of these larger-than-life, neon-lit hoardings advertise luxurious condominiums, exclusive gated communities, and high-end real estate projects in the city by deploying extravagant phrases, like "premium", "spectacular", "new luxury", "next level", and "world-class". These phrases are accompanied by sleek images of roof-top infinity pools (see Figure 5), billiard rooms, fitness clubs, mini-theatres, French windows, Italian marble floors, and US-style bathroom fittings.

Figure 5: A billboard advertising a luxury condominium in Kochi, Kerala (credit: Author)

Such billboards are not restricted to Kochi but can be found jostling for space amidst the teeming skyline of rapidly developing cities across India and the Global South, which have

witnessed a recent spurt in the construction of high-end infrastructure projects. The widespread construction of these infrastructures for elite consumption, including highways, metro-rails, airports, shopping malls, and condominiums, are being financed by an array of global financial institutions and instruments. These include pension funds, asset management companies, investment banks, hedge funds, realty investment funds, infrastructure investment funds, private equity groups, venture capital, and sovereign wealth funds, all seeking higher returns of investment for their international shareholders. This world-class urban transformation has created new patterns of uneven development, dispossession, and marginalization in Southern cities, like New Delhi (Searle, 2016), Mumbai (Ranganathan et al. 2023), Bangalore (Gidwani et al., 2024), Jakarta (Anguelov, 2023), and Phnom Penh (Nam, 2017), prompting scholars to pay close attention to the financialization of urban infrastructures (Aalbers, 2019; O'Neill, 2019).

The liberalization of India's economy in the 1990s, followed by the Government's 2005 decision allowing foreign direct investments into Indian real estate, has ensured that today the production of urban space in India's large metropolitan centres is largely determined by the interests of local real estate developers and global institutional investors (Goldman and Narayan, 2021). However, not much is known about other intimate and informal forms of capital that are also being mobilized for high-end urban development, especially in cities and regions that don't have access to mainstream financial networks and lie "outside the metropolitan shadow" (Mukhopadhyay et al., 2020: 582). One such form of capital is transnational remittances: the money sent back to the home country by diaspora members living and working abroad.

In this paper, I examine how transnational remittances are being reinvented to facilitate the construction of elite urban development projects in India. Traditionally, remittances have been considered an informal, independent, and intra-household form of finance which has helped

addressed issues of social reproduction, household poverty, and chronic unemployment in underdeveloped remittance receiving regions of the Global South. Recent scholarship has sought to highlight how remittances are being increasingly integrated into global financial circuits through the "financialization of remittances" (Guermond, 2022; Kunz et al., 2020). Some work has also looked at how remittance flows are being financialized to produce urban spaces in the Global South (Ortega, 2018; Zapata, 2018). But more research is needed to understand the motivations, logics, and techniques used by actors to divert remittances toward new circuits of urban infrastructure production for capital accumulation.

This paper addresses this knowledge gap. It is divided into six sections. First, I situate my research in relation to debates about the financialization of infrastructures in the Global South and emphasize the need to consider remittances as an important source of finance for Southern urban development projects. In the section that follows, I discuss how remittances from Indian diasporas in the Arabian Gulf have been shaping Kochi's and Kerala's built environment since the 1960s-70s Gulf "Oil Boom". Here I also illustrate why Kochi and Kerala make an excellent case study to examine these broader structural processes. In the fourth section, I draw on ethnographic data to illustrate the financial risks and uncertainties faced by Kochi-based developers and Dubai-based Indian diasporas while investing remittances in real estate projects back home. In the penultimate section, I reveal how Indian banks and financial institutions act as financial intermediaries between developers and diasporas to mediate and manage the financial risks associated with changing immigration laws and transnational investments. In conclusion, I reflect on the implications of considering remittances as infrastructures of finance and what it tells us about broader patterns of financialization and remittance-driven urban transformations in Southern cities.

II. Transnational Remittances as Intimate Infrastructures of Finance

Over the last few decades, cities across the Global South have witnessed a spectacular urban transformation, as evidenced by the widespread construction of new glitzy infrastructures. Economic and urban geographers have highlighted how the production of these unevenly developed urban spaces is undergirded by an array of financial instruments or "infrastructures of finance", which are "sociotechnical systems that channel investments in the forms of equity and debt into urban production" (Halbert and Attuyer, 2016: 1347). These infrastructures of finance, which include pension funds, insurance bonds, real estate investment funds, infrastructure investment funds, private equity funds, and sovereign wealth funds, have devised new mechanisms and technologies to invest capital in infrastructure projects in Southern cities with the aim of generating higher, but riskier, returns for their international shareholders (Furlong, 2020; Rouanet and Halbert, 2016). Scholars have shown how this financialization of urban infrastructures is part of the broader process of extending financial technologies, logics, and institutions from the Global North to the South which some have called "peripheral financialization" (Becker et al., 2010).

While this work has been useful in moving literature on the financialization of urban infrastructures beyond Euro-American geographies, it has come under criticism for reinforcing Global North-South hierarchies (Mawdsley, 2018; Pollard, 2013). Some critics have argued that it reproduces imaginaries of modernization and developmentalism where Southern cities become just another empirical ground for the extension of universal economic theories from the North (Goldman, 2023). Others have said that the logics of urban financialization extend beyond the narrow economistic concept of speculation to include social, cultural, religious, and emotional dimensions that also merit critical attention (Prouse, 2023). For these scholars, there exist a

diversity of actors, practices, and logics underpinning the financialization of urban space in the Global South (Fields, 2023; Leitner and Sheppard, 2023).

Building on this line of thought, I am interested in examining the financialization of infrastructures in Southern cities that don't have access to formal institutional capital and who must thus rely on other sources of capital to fund new urban development projects. One such alternative source of capital is transnational remittances. Remittances or the money sent by precariously employed migrant workers in high-income remittance-sending "destination" countries help in addressing issues of poverty and unemployment in low and middle-income remittance-receiving "source" countries. These intimate, independent, and intra-household fund transfers significantly trump top-down institutional money flows into low and middle-income countries, like Official Development Assistance and Foreign Direct Investments and thus act as a major source of subsistence and social reproduction for Global South households (Ratha et al. 2024). Importantly, a significant portion of remittances are invested in housing and property construction, as witnessed in the countless "remittance houses" (Lopez, 2015) spread across major remittance-receiving countries, including Mexico (Lopez, 2015; Sandoval-Cervantes, 2017), Cuba (Wijburg, 2023), Trinidad and Tobago (Conway and Potter, 2012), Ecuador (Murcia and Boccagni, 2022), Colombia (Zapata, 2013), Senegal (Melly, 2010), Ghana (Obeng-Odoom, 2010), Zimbabwe (McGregor, 2014), Tanzania (Mercer, 2024), China (Liu, 2022), the Philippines (Banta, 2024; Ortega and Katigbak, 2022), Sri Lanka (Thurairajah et al., 2020), Pakistan (Erdal, 2012), and India (Bose, 2014; Varrel, 2020). In other words, remittances have been an important mode through which urban space is produced in the Global South for several decades now.

Things have changed in recent years. Faced with decreasing levels of funding for official development assistance, international development institutions have increasingly heralded

remittances as a key source for addressing developmental goals. These actors have started promoting the integration of remittances into global financial circuits with aim of reorienting developmental interventions via mainstream financial markets and institutions, a process that some scholars have called the "financialization of remittances" (Kunz et al., 2022; Guermond, 2022). For these scholars, attempts by development, government, non-profit, and private sector actors to link remittances, which were formerly an informal and independent form of money, to formal financial markets and institutions, is aimed at reproducing the global financial system while also trying to address poverty and underdevelopment in the Global South (Hudson, 2008; Zapata, 2013).

Some scholars have also shown how remittances are being financialized for housing and real estate development. For instance, Wijburg et al. (2021) demonstrate how in the absence of institutional investments or mortgage finance in Havana, remittance investments from US-based Cuban emigres drive the city's high-end construction boom while simultaneously creating new opportunities for speculative investments for global capital. Elsewhere, Ortega (2018) demonstrates how The Philippines government has devised new laws that require Overseas Filipino Workers to register themselves as members of a state-backed mortgage fund that smoothens transnational property investments in the country and produces exclusive gated enclaves in per-urban Manila. In a similar vein, Zapata (2018) shows how the Colombian government has devised new remittance-for-housing schemes, like *Mi Casa con Remesas*, to draw remittances from Columbian diasporas in the UK and elsewhere into risky housing projects thus restructuring the State's developmental role in housing provision and shifting housing away from a mode of consumption to a mode of financial speculation and investment. However, more work

is needed to understand the everyday practices, logics, and rationales of actors involved in the financialization of remittances for urban development in Southern cities.

My work addresses this lacuna by examining how remittances from middle-class Indian diasporas in Dubai, UAE are financialized for high-end real estate development projects in Kochi city in Kerala, India. How are remittances from Dubai mobilized for real estate construction in Kochi? Who are the actors and institutions involved in its financialization for real estate construction? What are the logics, rationales, and motivations of these actors? What are the technical processes and financial mechanisms that enable the integration of informal flows of money into formal debt-based financial instruments? In effect, I am interested in understanding how transnational remittances, which are considered a more intra-household, informal, and intimate source of finance, become packaged and integrated into mainstream financial products to create "world-class" real estate condominiums in Kochi. Before answering these questions, I first highlight what makes Kochi and Kerala a good case study for this research. I also trace some of the key historical events that have established robust networks between Kerala and the Arabian Gulf.

III. Kerala, India, and the Arabian Gulf[2]

Today, India is the world's largest migrant sending country with more than 66 percent of its 18 million migrants living in the six countries of the Gulf Cooperation Council (Gulf), which include the UAE, Saudia Arabia, Kuwait, Oman, Qatar, and Bahrain. Due to its large diaspora, India is also the world's largest recipient of remittances (US$125 billion in 2023) which accounts for 15 percent of global remittance flows and almost half of this comes from these six Gulf countries

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[2] Henceforth, when I use the word "Gulf", I refer to countries of Gulf Cooperation Council.

(UN, 2024). From India's total remittances inflows, around 20 percent goes to Kerala, the largest share of any Indian State. Importantly, these remittances constitute 36 percent of Kerala's GDP (Rajan and Zachariah, 2019). Furthermore, more than 90 percent of Kerala's remittances comes from Gulf countries (*ibid*). In other words, Kerala's economy is driven primarily by Gulf remittances.

Kerala's ties to the Arabian Gulf are not new. Located on the southwest coast of the Indian peninsula along the shores of Arabian Sea, the State has been connected to the Gulf for more than three millennia. In the early days, the fabled port city of Muziris, whose remains lie just 20 miles north of present-day Kochi, served as the anchor of the Indian Ocean spice route from where spices like pepper and cardamom were exported to the Mediterranean coast via the Gulf. These trade routes also ensured that Kerala became home to the first Jewish, Christian, and Muslim settlements anywhere east of the Gulf. These historical links have given today's Kerala a unique demographic profile where Muslim (27 percent) and Christian (22 percent) communities constitute a significant portion of the State's population, compared to the national average of 14 percent and 2 percent, respectively (Census of India, 2011).

The Gulf's historical trade networks with Kerala were mobilized by the latter's residents in the 1960s-70s, especially by its Muslim residents, to migrate there during the Gulf "Oil Boom" (Nidheesh and Chandran, 2016). Faced with relatively high levels of literacy and human development owing to progressive policies pursued by feudal kingdoms and the leftist post-colonial State, as well as high levels of unemployment due to anti-industrialization policies pursued by the latter, Keralites migrated in droves to work in the oil-rich Gulf economy. The remittances received from Gulf migrants have transformed Kerala's economy from being one of the poorest States in the country in the 1950s to a State with one of the highest GDPs per capita in

India today (Ministry of Finance, 2023). Scholars have also credited remittances for heavily subsidizing the post-colonial leftist State's much lauded social development-oriented "Model" of development, which has given it some of the highest human development indicators in the Global South (Kannan, 2022). In 1996, the State also constituted a separate "Department for Non-Resident Keralite Affairs", then a first among Indian States, which regularly collects data on international migration patterns from Kerala with the aim of mobilizing remittances for the State's development.

The influx of Gulf remittances has also transformed the State's financial landscape. Owing to its role as important Indian Ocean trade hub, Kerala has been home to some of the oldest private sector banks in India (Das and Thomas, 2014). Gulf remittances further reinforced the region's already existing banking culture. Since the 1970s, countless small-scale private, co-operative, and community-centred banks and financial institutions have mushroomed across the State catering to the transnational banking needs of Gulf migrants. Today, Kerala's small towns and villages have some of the wealthiest bank deposits in India (Saran, 2004). The State also has one of the highest bank penetration and financial inclusion rates in the country, with more than 3300 bank branches spread across its landscape (State Planning Board, 2017). A decade ago, it became the first Indian State to have a bank branch in every village and more recently it became the country's first "fully digital banking State" (The Economic Times, 2023).

Another important transformation catalysed by remittances were "Gulf houses": palatial multi-bedroom concrete bungalows built with Gulf remittances (see Figure 6). In the initial decades of Kerala's Gulf migration, Indian banks were hesitant to lend money for housing, such that that their lending towards housing constituted a mere 0.5 percent of their total deposits (TEAL, 2020). In the dearth of access to formal housing finance, Gulf migrants used different informal mechanisms to facilitate house construction. Most migrants saved up remittances over a lifetime

of toil in the Gulf. These savings were then liquidated on their return to Kerala after retirement to build a house. Migrants who didn't want to wait till retirement, and who had steady jobs, regularly remitted money to relatives or friends in Kerala, who constructed a house on their behalf. Migrants who didn't have stable jobs resorted to borrowing money from relatives or friends to finance construction. Those who didn't have any of these options borrowed money from informal money lenders at exploitative interest rates. In fact, building a typical gulf house became an important rite of passage for Gulf migrants and was tied to values of success, masculinity, and modernity (Osella and Osella, 2000).

Figure 6: A typical independent "Gulf house" under construction in Kerala (credit: Author)

This diversity of housing finance mechanisms produced a variety of house designs based on the individual tastes and idiosyncrasies of Gulf migrants. Traditionally, all houses in Kerala were built with locally sourced materials, like mud, laterite, kiln bricks, wood, and clay roof tiles (Baker, 1997). But things changed rapidly from the 1970s onwards with the influx of remittances,

ideas, inspirations, and aspirations from the Gulf. Soon, these humble earthy materials gave way to gaudy cement blocks, kitsch concrete slabs, garish synthetic paints, and outlandish wall textures that were intended to showcase the higher social status and vanity of successful Gulf migrants. Gulf houses became the most defining symbol of Kerala's Gulf connection, specifically for their conspicuous consumption, lavishness, and over-the-top aesthetic styles (Castelier, 2019).

Kerala's Gulf migration patterns started changing from the turn of the millennium onwards owing to a conjuncture of structural processes occurring on both sides of the Arabian Sea. On Kerala's side, decades of State investment into literacy, health, and human development, coupled with the liberalization of India's economy in the 1990s, ensured that Kerala and India, had an abundance of young middle-class highly skilled workers seeking higher value jobs in the global economy (Young et al., 2017). On the Gulf side, since the 2008 global financial crisis many Gulf States have been actively implementing foreign labour reform policies with the aim of attracting such higher-skilled foreign workers to diversify their economy away from fossil fuel dependence (Al Jazeera, 2022). Thus, while the first waves of Kerala's Gulf migration consisted of blue-collared lower-skilled workers employed in primary, secondary, and lower-level tertiary sector economies, like oil and gas production, construction, manufacturing, transportation, repair, maintenance, nursing, and housekeeping, recent migrants have been younger highly skilled workers involved in higher level tertiary and quaternary sector economies, like medicine, engineering, architecture, media, marketing, finance, entrepreneurship, IT, and AI technologies (Calabrese, 2020).

Changes to Kerala's Gulf migration patterns have also impacted the State's built environment. Constructing a typical independent Gulf house is not an aspiration anymore for new middle-class migrants because of the challenges involved in constructing, managing, and

maintaining these palatial bungalows from afar. Many have also grown accustomed to the "world-class" amenities and living standards afforded by the Gulf's "global cities", like Dubai, Abu Dhabi, and Doha (Varrel, 2020). The demand for world class housing options for new Gulf migrants is being supplied by private real estate developers who have become influential urban development actors in India since the country's economic liberalization. Today, developers actively target middle-class non-resident Indians (NRIs)[3] with "NRI flats": luxury apartment units in multi-storeyed condominiums which are professionally constructed, maintained, and managed by real estate developers (see Figure 7). Located in exclusive gated communities, these condominiums are equipped with the latest luxury amenities, safety features, and designs, including rooftop swimming pools, fitness centres, US-style bathtubs, Italian marble floors, and French windows. In fact, from 2001 to 2011 Kerala witnessed in surge in housing development with the total number of residential buildings increasing by almost 20 percent to 11.2 million (Jacob, 2024). This construction boom has transformed Kerala's built environment, and especially that of its largest city Kochi (population: 3.5 million), which has seen a spate of elite infrastructure projects, like the "world's first solar-powered airport", IT parks, hotels, shopping malls, and condominiums, catering to the globalizing tastes of upwardly mobile NRIs.

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[3] "Non-Resident Indian" or NRI is the official term used by the Government of India to refer to citizens of India who are currently not living in India. They fall under a different income tax bracket. In this article, I use the term "NRI" in a broad sense and interchangeably with the word diaspora.

Figure 7: A luxury sea-facing "NRI flat" under construction in Kochi (credit: Author)

While we know that Kochi's world-class urban transformation is being financed by Gulf remittances, not much is known about the intermediary role played by Indian banks and financial institutions in facilitating this transformation, especially in enabling the shift from aesthetically diverse and independent Gulf houses to standardized NRI flats with identical "global" aesthetic features. To understand how banks and financial institutions mediate transnational relationships between Kerala and the Gulf, I conducted two years of multi-sited ethnographic fieldwork in Kochi and Dubai from 2021 to 2023. Due to its status as Kerala's economic and financial centre, Kochi witnessed the development of Kerala's first "NRI flats" and has the highest concentration of real estate developers in the State. I began ethnographic fieldwork at two condominium construction sites in Kochi from where I deployed a "follow the money" (Hughes-McLure, 2022) methodology to trace the flow of remittances to Dubai, a four-hour long flight and 1700 miles away. With a population of more than five million, Dubai is not only the Gulf's largest city after Riyadh, but also its wealthiest (Dubai Statistics Centre, 2020). What began as a sleepy fishing and pearl diving

settlement in the 18th century quickly transformed into a global shipping, logistics, and financial hub after oil was discovered in the Arabian Gulf in the 1960s (Vora, 2013). Those events catalysed a "world-class" urban transformation that has today made Dubai a "global city", which is regularly ranked among the world's most diverse metropolises and among its top financial centres. More importantly, Dubai has the highest number of migrant Keralites in the Gulf and serves as the regional headquarters for Kerala's real estate developers and financial institutions.

Economic and financial geographers have highlighted the challenges associated with following money owing to its wide scope, distinguishability, and complex temporal dimensions (Christophers, 2011). However, like Hughes-McLure (2022), I was able to overcome some of these challenges in my case study by following remittance investments in specific real estate projects rather than in a more abstract sense. Using this rationale, I set the end points of my remittance trail as two condominium construction projects in Kochi where remittances were being materialized in the form of bricks, cement, and steel. From there I traced back the source of this construction money to Dubai-based middle-class Indians who had invested remittances in buying apartments specifically in these two condominium projects. Along this remittance trail, I followed money as it changed form from Dirhams in Emirati bank accounts, to Rupees in Indian bank accounts, to equated monthly instalment payments to Indian financial "home loan" instruments, to Indian real estate developers, and finally to condominium construction projects (see Figure 8). Furthermore, I interviewed actors along this remittance trail, including Dubai-based middle-class NRIs (n=13), Kochi and Dubai-based bank officials (n=11), Kochi and Dubai-based real estate sales and marketing executives (n=14), and Kochi-based real estate developers (n=13). Beyond using the chain sampling technique to solicit research participants, I also used snowball sampling techniques

at every stage of the remittance trail to diversify my sources and get a critical mass of participants to answer my research questions.
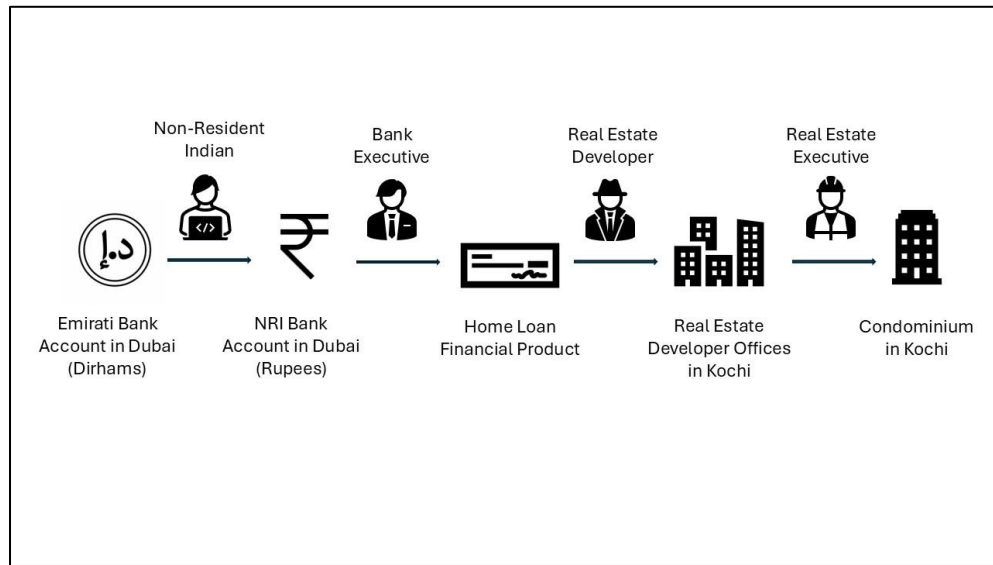
Figure 8: Infographic showing transnational remittance trail from Dubai to Kochi
(credit: Author)

I conducted interviews in English and Malayalam (the official State language of Kerala) at different sites along the remittance trail, including homes and offices of middle-class NRIs in Dubai, bank representative offices in Dubai and head offices in Kochi, hotels and real estate expos in Dubai and Kochi, real estate satellite offices in Dubai and head offices in Kochi, and real estate construction sites in Kochi. The NRIs I interviewed were from middle and upper-class backgrounds who were employed in Dubai's service sector industries, like banking, finance, marketing, sales, media and telecommunications, and software and IT engineering. My access to research participants was shaped not only by my methodology but also my social identity. For example, most actors I interviewed were middle-class Hindu men from middle and upper-caste backgrounds who shared a similar class, caste, gender, and ethno-religious identity as mine which

access to them easier. On the other hand, I found it difficult to interview middle-class NRI women because real estate executives routinely directed me towards their husbands who they believed were their household's main decision makers. While following this remittance trail, I also collected and examined home loan agreements, bank policy statements, government policy documents, real estate trade publications, real estate brochures and advertisements, and architectural renderings in Kochi and Dubai to triangulate my ethnographic findings. In the two sections that follow, I draw on these interviews and ethnographic data to illustrate my argument.

IV. Encountering Risk and Uncertainty

On a sweltering afternoon in February 2022, I entered the air-conditioned office of a major real estate developer in Kochi. Here I met the Managing Director Praveen[4] who was seated at an oversized wooden desk next to a glass cabinet containing a few books, the most conspicuous of which was Thomas Piketty's *Capital*. I asked Praveen about the company's Gulf operations. Loudly slurping a cup of hot *rasam* (a spicy south Indian soup-like dish), he responded,

> "There is hardly any demand for luxury apartments in the local market. That's why most real estate developers in Kochi rely on Gulf NRI market to boost their sales. The Gulf NRI market has been our main focus since we started operations in 2006."

Praveen's response highlights the importance of the Gulf to Kochi's and Kerala's real estate sector. While developers from other Indian cities also rely on Gulf sales, their dependence is not as much as that of Kochi's developers. For example, while NRI customers represent around

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[4] All names are pseudonyms.

10-15 percent of total real estate sales in Bangalore (Varrel, 2020), the figure is around 60-70 percent in Kochi. Similar percentages were recounted by 12 other real estate developers I interviewed in Kochi. Due to this dependency on Gulf remittances, most developers host lavish "NRI fests" in Kochi where sales staff, placed strategically at five-star hotels and shopping malls frequented by NRIs during their annual visits home, attempt to sell them luxury flats. Most developers also have satellite offices in Gulf countries that are staffed by sales and marketing employees. Some may not have a permanent presence in the Gulf but will still display UAE and Saudi Arabia registered phone numbers on their websites, which will be managed by Kochi-based personnel. Furthermore, new real estate projects are always launched first in the Gulf to collect advance bookings and kickstart construction financing. Usually, a team of senior executives will travel to the Gulf where they will host multiple marketing roadshows. Apart from independent roadshows, developers also collectively participate in annual third-party "property expos" in the Gulf organized by real estate trade bodies and popular Malayalam newspapers who receive significant ad revenue from developers. Similar transnational real estate practices are witnessed in other prominent remittance-receiving countries, like Cuba (Wijburg et al., 2021), Zimbabwe (McGregor, 2014), and The Philippines (Banta, 2024). But why are Gulf NRIs investing so heavily in Kochi's real estate sector?

This question was answered by Vinay, a 53-year-old middle-class NRI, who lives in a stuffy rental apartment in Dubai's low-rise Al-Karama neighbourhood, a hub of the South Asian diaspora. Vinay first arrived in Dubai in the 1990s in search of stable employment. After working as a mid-level sales manager in several foreign companies, he was now employed as a senior marketing manager at a Dutch multinational corporation. Around a decade ago, Vinay had purchased a real estate flat in Kochi. When I enquired about it, he responded with a glum face,

"Look, I've spent almost 30 years of my life in Dubai. I know Dubai more than I know
Kerala. Yet, I don't have any kind of long-term residency here. My residency status is tied
to my work visa. Tomorrow, if I lose my job or retire, I will lose my status. My family and
I will be forced to relocate back to India. My Kochi flat is a fall-back option when such a
day comes."

Vinay's response highlights the paradoxes of the Gulf immigrant lifestyle. While the region
has long addressed Kerala's chronic unemployment issue by employing millions of Keralites over
the last five decades, these jobs are accompanied by a precarious residency status. Migrant worker
jobs in the Gulf are regulated by the Kafala system, a highly regressive and exploitative visa regime
that requires migrant workers to have local Emirati sponsors who are legally responsible for the
former's residency. While some Gulf countries have tried reforming this system owing to
widespread criticisms from human rights organizations (Iskander, 2021), migrant worker precarity
is still prevalent. For example, the UAE recently tried to modernize its foreign worker visa regime
with the aim of attracting higher-skilled workers to transition from fossil fuel-dependent
economies to tertiary and quaternary sector economies[5]. Yet, foreign workers don't have a route to
permanent residency, let alone citizenship, and must be sponsored by an employer for a temporary
work visa. If the worker loses their job, they have six months to either find a new one or leave the
country (Buckley, 2012). If they reach the retirement age of 60, then they have no option but to
leave. While these conditions are usually associated with low and semi-skilled precariously

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[5] Over the last decade, the UAE has tried to liberalize its expat worker visa regime by proving long term
"golden visas" for higher skilled workers, entrepreneurs, and investors with the aim of attracting and
retaining highly trained foreign workers who can facilitate its transition to a post-oil economy. Since then,
other Gulf states have followed suit (Al Jazeera, 2022).

employed foreign workers, they are equally relevant for middle-class service-sector professionals (Banta and Pratt, 2021). As Vora (2013) argues, middle-class Gulf NRIs have long embodied this kind of transnational precarious positionality. While they've established long-term roots in a distant land, they're also fully aware that this cannot become their "home". It's no wonder that out of the 11.2 million houses in the State, more than a million remain unoccupied by NRIs who visit occasionally during festivals or family emergencies (Jacob, 2024). Thus, a real estate house in Kochi for Gulf NRIs becomes a contingency plan to hedge against premature departure from the Gulf.

The Kochi real estate sector's dependency on Gulf remittances has also made it particularly susceptible to turbulent global events. This was explained to me by Sajeev, a senior sales executive of a Kochi-based developer, who I met at an NRI home expo in the lobby of Kochi's posh Grand Hotel,

"Whenever there is turmoil in the Gulf, we have received more sales enquiries from Gulf NRIs. But this can't be a long-term strategy for Kochi's developers. Our Gulf sales have also slowly been coming down in recent years. I'm really worried about what the future holds for us."

Here, Sajeev explains the risks involved for Kochi's real estate developers due to its Gulf dependency. Gulf NRIs are prone to sudden job losses due to global events. For example, during the COVID-19 pandemic, around a million Gulf NRIs returned to Kerala after losing their jobs, displaying one of the largest cases of "reverse migration" ever experienced by the State since Gulf migration began in the 1960s (Slater et al., 2020). Similar cases of large-scale reverse migration

have been witnessed during previous moments of crisis, like 1991 Kuwait war, 1997 Asian financial crisis, and the 2008 global financial crisis (Gardner, 2010). During such events, Gulf NRIs usually liquidate their savings from Gulf-based Emirati banks and buy real estate in Kochi as both, a contingency plan in case they are forced to vacate the Gulf and as a safer investment option for their hard-earned savings (Varrel, 2020). As a result, Kochi's real estate sector has experienced momentary growth spurts in the immediate aftermath of such crises. However, this is a risky growth strategy for Kochi's developers because in many cases of job losses, the NRI also loses the ability to pay for luxury apartment units. Moreover, there has been a decreasing trend in their Gulf sales owing to recent changes in Kerala's migration patterns (Ravi, 2025). Similar anxieties about the future of the Gulf NRI market were displayed by 13 other real estate sales and marketing executives I interviewed in Kochi and Dubai.

Investing in Indian real estate is also fraught with risk for Gulf NRIs. This was explained to me by John, a senior executive at a garment export company. We met at his office in the warehouse district in International City on the outskirts of Dubai. He said,

> "I know several friends who've lost money in shady real estate investments. Many developers have gone bankrupt and fled with investors' money. Many projects have been left incomplete or have been demolished by municipal authorities for code violations. It's difficult to know where to invest your money while sitting here in Dubai."

John's anxieties are not unwarranted. While India's real estate sector has witnessed a boom, it has also seen a surge in fly-by-night developers who operate in grey zones between legal and illegal. Such developers generate investments for a particular project and then divert it towards

other speculative projects. If the latter fail, then the original project for which the money was generated also fails, leaving home buyers in the lurch. Over the last decade, Kerala and India have seen countless real estate projects fail due to such unregulated practices (Searle, 2016). Many developers have also routinely flouted environmental regulations. For example, in 2020 the Kerala Government demolished four luxury condominiums for Coastal Regulation Zone violations in Kochi (Joseph, 2021). The demolition sent shockwaves through Kochi's real estate sector and the Gulf NRI community, many of whom had invested their life savings in these flats. Since the demolition, most NRIs are cautious about investing in Kochi's real estate sector. While the establishment of India's Real Estate Regulation and Development Act in 2016 has ensured that the industry is more transparent and regulated, major issues persist. Similar anxieties were recounted by Davish, Varsha, Hakim, and 10 other Dubai-based middle-class NRIs interviewed. The anxieties of Gulf NRIs have added to the already existing woes of Kochi's real estate sector.

In the above sections, I have highlighted the risks and uncertainties encountered by both Kochi-based real estate developers and Dubai-based middle-class NRIs during transnational real estate investments. I have shown how Dubai-based NRIs are investing in Kochi's real estate to hedge against economic uncertainties and job losses in the Gulf which could force their premature relocation back to Kerala due to their precarious residency status. I have also revealed that Kochi's real estate developers are anxious about their future growth prospects because of their over reliance on the Gulf market, which is susceptible to the impacts of sudden global crisis events and immigration policy changes. Furthermore, I have foregrounded how transnational real estate investments in Kochi are fraught with risks for NRI buyers who could lose their life savings to fraudulent real estate practices. How do these actors navigate these challenges across this transnational landscape of risk and uncertainty? In the next section, I answer this question by

showing how Indian banks and financial institutions step in as intermediaries between anxious real estate developers and uncertain NRIs to manage the risks and uncertainties associated with real estate development in India.

V. Mediating Risk and Uncertainty

In my interactions with Kochi-based developers and Dubai-based middle-class NRIs, I was routinely reminded about the important role played by Indian banks and financial institutions in mediating relations between these two sets of transnational actors. For example, most developers' offices contained large glass showcases with plaques proudly displaying their tie-ups with various banks and financial institutions. Real estate expos in Dubai and Kochi also displayed stalls of banks and financial institutions alongside those of real estate developers. To understand how this close association functioned, one morning I walked into the regional head office of a prominent private-sector bank in Kochi. As it was early in the day, the office was relatively empty except for two well-heeled customers involved in a heated discussion with a cowering bank representative. I asked Samjith, the bank's Regional Manager, about their NRI home loan operations. Dressed in two-piece grey suit, he responded with an assured smile,

> "Home loans are our most important financial product. They involve significant sums of money compared to other products. That's why we highly encourage our branches to disperse home loans. We know the senior executives of many real estate companies in Kochi. We tie-up with them to market our home loans in the Gulf NRI market."

Samjith's response reveals how important home loans are to India's banking sector. Since the liberalization of India's economy in the 1990s, housing finance has the seen the proliferation of commercial banks and private financial institutions, triggering a steady increase in India's mortgage to GDP ratio (National Housing Bank, 2023). Samjith reveals how banks work hand in glove with real estate developers to target the Gulf NRI community. Most bank officials and real estate executives know each other through caste and kinship networks. Some real estate personnel have had previous trysts in the banking sector and vice-versa. Banks and real estate developers approach each other to arrange mutually beneficial tie-ups. Once established, both actors market each other's products to Gulf NRIs. Bank representatives advertise lists of real estate projects to NRI customers that were "pre-approved" for home loans. Similarly, developers display bank tie-up mementos and plaques in their sales offices. Banks and developers also share NRI databases with each other, which they deploy for targeted tele-marketing and social media outreach campaigns. In this way, home loans are marketed and sold as a "packaged deal" with real estate flats to Gulf NRIs.

This packaged deal appeals to most middle-class Gulf NRIs like Prasad, an investment consultant who I met in Business Bay, Dubai's glitzy central business district which is also home to the world's tallest building: Burj Khalifa. In 2018, Prasad had bought a flat in a real estate project in Kochi using a home loan from an Indian bank. When I asked him why he selected this flat he responded,

"The main reason I chose a flat with this developer was because the building project had been pre-approved for home loans by several banks including State Bank of India. This

reassured me about the safety and security of my investment. I knew that the developer was genuine. This made my investment decision much easier."

Prasad makes an important point. Since the passing of India's Foreign Exchange Management Act, 1999, it has become increasingly easier for NRIs to avail home loans for purchasing real estate in India. Most Dubai-based NRIs prefer using home loans from Indian banks as compared to Emirati banks because the value of the Indian rupee has been steadily depreciating against the UAE Dirham over the last two decades. Keeping this in mind, developers use home loan tie-ups as unique selling points to market their products to Gulf NRIs. Most developers try to get their projects pre-approved for loans by at least half a dozen different kinds of financial institutions, from traditional public sector banks to new-age private sector banks, and more recently to private non-bank finance companies specializing in home loans. This ensures that Gulf NRIs have an array of financial instruments to choose from when buying a real estate flat. This makes the whole purchase process easy and convenient for NRIs. Importantly, when a bank has pre-approved a real estate project for a home loan, this means that the bank's legal team has thoroughly scrutinized all legal aspects associated with the project. This assures the Gulf NRI about the genuineness of the developer and the project. If a project is not pre-approved by several banks, and especially by India's largest bank: the government backed State Bank of India, it raises a red flag in the minds of NRIs. In fact, all the NRIs I interviewed in Dubai had bought real estate apartments in Kochi through home loan tie-ups facilitated by real estate developers. This shows how Indian banks and financial institutions work to manage and mitigate risks associated with transnational real estate investments for Gulf NRIs.

To further understand how banks mediate financial risks for real estate investments in Kochi, I spoke to Vinod, one of 11 representatives of Indian banks and financial institutions I interviewed. We met at a real estate expo in Dubai where his bank had setup a marketing kiosk amidst several stalls of Indian developers. Vinod had just concluded an animated discussion with an NRI couple before turning towards me to answer my question. He said,

> "While NRIs are an important category for us, they are also an extremely high-risk category compared to Indians who live in India. But we try to manage this risk as much as possible. We check all their financial details here in Dubai. They don't even need to visit India. We can take care of everything for them from here."

Here Vinod mentions something important. NRIs are considered "high-risk" customers because they don't reside in India and it is often difficult for Indian banks and government agencies to initiate legal proceedings against transnational loan defaulters. Due to this, Indian bank branches in Dubai play a key role in ascertaining the creditworthiness of high-risk NRI customers. All Indian banks in Dubai operate out of "representative offices", key institutions of UAE's globalized economy that are meant to serve as local Emirati outposts of foreign registered companies (Varrel, 2020). Bank representative offices offer limited financial services and products, one of which is home loans. When they receive home loan enquiries, bank personnel will conduct standard Know-Your-Customer procedures to check the financial background of the NRI. If approved, the NRI is urged to give Power of Attorney to a friend, relative or chartered accountant in India who will act as the bank's point of contact in case the NRI cannot be reached. Once loan documents are signed, the NRI can begin remitting Dirhams from their Emirati bank account to their NRI bank account,

from where an equated monthly instalment in Indian Rupees is auto debited every month by the home loan financial instrument. By conducting financial background checks and ascertaining the creditworthiness of NRIs, Indian bank representative offices in Dubai manage the financial risks associated with lending money to high-risk NRI customers for real estate investments in India. Importantly, this also benefits real estate developers.

This was confirmed by Mujib, a prominent Kochi-based real estate developer who I met at his company's headquarters on the top floor of a busy shopping mall in Kochi, which had also been developed by them. He told me,

"Our job is only to market our products to Gulf NRIs. Once they're interested, we connect them to our many financial partners. Thereafter, it's between them. We don't get involved. If the NRI is approved for a loan by the bank, we get into a tripartite agreement with them. It protects us. Even if the NRI defaults later, we get paid by the bank. Then it's the bank's headache how they recover their money."

Here, Mujib foregrounds how developers sign Tripartite Agreements with the NRI and the bank. A Tripartite Agreement is a legally binding contract signed between the "Buyer", the "Builder", and "Lender" under India's Transfer of Property Act, 1882. This legal instrument is used by a buyer to get a home loan from a financial institution to buy real estate that is currently under construction by a real estate developer. This works in favour of real estate developers because the risks associated with potential NRI defaults are managed by the bank. The developer still gets paid by the bank regardless of NRI defaults. Importantly, the interests of banks and other institutional lenders are also protected by the provisions of the Securitization and Reconstruction

of Financial Assets and Enforcement of Security Interest Act, 2002, a legislation passed by the Indian government as part of its financial reform measures that empowers banks to seize and auction property of defaulters to recover "bad" non-performing loans. Using these legal provisions, banks and financial institutions whisk the risk of transnational financial investments away from themselves and real estate developers and transfer it to NRI homeowners. It's no wonder that developers and financial institutions are so eager to tie-up with each other.

What are the consequences of financial risks being transferred to NRI homeowners? Over the last few years, there have been countless cases of Indian banks foreclosing houses for loan repayment defaults. Many families have been ousted from their homes after they were seized by banks (The Hindu, 2022). Some foreclosed homeowners have suffered mental health issues. Some have committed suicide owing to the pressure and shame associated with home foreclosures (Onmanorama, 2022). In many cases, home foreclosures have followed the inability to repay home loans after working members of the family were laid off from their Gulf jobs (The New Indian Express, 2022). The issue of home foreclosures is particularly prevalent in Kerala because of the State's high rates of financial literacy and inclusion. In fact, in 2024 Kerala became the country's first State to pass a legislation allowing the government to grant moratoriums in foreclosure proceedings with the aim of providing temporary relief to foreclosed families (Kerala Kaumudi, 2024).

The above vignettes highlight the effects of the financialization of remittances for real estate construction in India. I have shown how Indian banks and financial institutions act as financial intermediaries between Dubai-based NRIs and Kochi-based real estate developers to manage risks associated with transnational real estate investments. However, I have also shown how banks use home loans to filter financial risk away from developers and themselves to NRI

homeowners. This creates dual challenges for Gulf NRIs. Not only do they have to contend with long-term residency uncertainty in the Gulf but must also deal with the imminent threat of home foreclosures in Kochi in case they lose their Gulf jobs and are unable to repay loans. This is what happens when remittances, which were formerly associated with the intimate and familial domain, become integrated into mainstream financial circuits to facilitate the production of urban space. The risks associated with transnational real estate investments are filtered away from real estate developers and banks by financial instruments and shifted onto the intimate lives, bodies, and households of precariously positioned diaspora homeowners, often with deadly consequences.

VI. Conclusion

Since the 1960s-70s, Indian citizens from the south Indian State of Kerala working in Arabian Gulf States have invested remittances to build lavish "Gulf houses" back home, which had distinctive and idiosyncratic aesthetic styles. These investments were made through informal and intra-household mechanisms and were usually mediated by intimate kinship and familial ties. The liberalization of India's economy in the 1990s triggered the proliferation of private real estate developers in Kerala's largest city, Kochi, who began actively drawing remittances into luxury real estate projects, which have identical standardized "world-class" design features. I have shown that remittance investments into Kochi's real estate are fraught with risks and uncertainties for both Kochi-based developers and Dubai-based middle-class diasporas. In this context, Indian banks and financial institutions have emerged as key financial intermediaries that manage risks and uncertainties associated with transnational real estate investments by facilitating the financialization of remittances for luxury property development in Kochi. However, in doing so they also offload financial risks away from developers to diaspora communities. I argue that not

only does the financialization of remittances for world-class city-making produce unevenly developed urban spaces in Kochi, but it also compounds already existing difficulties for Gulf diasporas, many of whom have had homes foreclosed, had mental health setbacks, and have lost lives due to financial setbacks associated with the integration of remittances into mainstream financial circuits.

Two important theoretical takeaways emerge from these findings. First, recent scholarship has theorized the production of unevenly developed "world-class" urban spaces in Southern cities as the effects of mainstream financial technologies, actors, and logics being exported from the Global North to the South (Aalbers, 2019; Halbert and Attuyer, 2016). My study calls into question these claims by showing how Kochi's uneven urban transformation is being facilitated by financial practices that draw on its unique relationship with the Arabian Gulf and the Indian Ocean world, often dubbed the world's "first global economy" (Campbell, 2008). This demonstrates the need to examine other lateral South-South economic interdependencies that move beyond binary and hierarchical ways of conceptualizing hemispheric North-South economic relationships, i.e. the former as dynamic sites of financial innovation/revolution and the latter as passive sites of financial experimentation/implementation. My work also foregrounds alternative routes of becoming "global" that do not privilege the economic logics, value regimes, and financial technologies emanating from the 1970s Global North context, which some scholars have called "provincial globalization" (Upadhya et al., 2018). By examining the mutating geographies of provincial globalization, we can continue destabilizing economic geography from its Eurocentric foundations (Pollard and Samers, 2007; Pollard et al., 2009).

Second, there has tended to be a conceptual divide between different ways of theorizing urban transformations in the Global South. Due to the association of remittances with social

reproduction and the household, migration scholars have emphasized the social, affective, and emotional dimensions of remittance-driven urban transformations (Boccagni and Erdal, 2021; Lopez, 2015). On the other hand, urban political economy scholars have highlighted the top-down global financial instruments and institutional capital flows that facilitate urban transformations (Goldman and Narayan, 2021; Rouanet and Halbert, 2016). By revealing how remittances become bundled and financialized into mainstream financial instruments that facilitate urban transformation, my work bridges this conceptual divide and thus contributes to debates on the "financialization of remittances" for urban development (Zapata, 2018; Ortega, 2018). My work also extends literatures on "transnational urbanism" in the Global South (Conway and Potter, 2012; Ortega and Katigbak, 2022) by showing how the seemingly homogenous skylines of rapidly transforming Southern cities are produced by a diversity of economic practices and financial actors that need to be seriously accounted for.

In addition to extending scholarly debates on the financialization of remittances and transnational urbanism, my findings provoke questions that need further investigation. If remittances play such an important role in the production of built environments in many Southern cities, then how do diaspora communities interpret their role as producers of urban space back "home"? How would the production of remittance-driven urban landscapes change if remittance investing practices change? What measures are governments in remittance sending countries deploying to induce *in situ* remittance investments into their built environments? Answers to these questions will further our understanding of the coproduction of urban built environments on both ends of transnational remittance corridors.

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CHAPTER 2: SAND, PLANTATION URBANISM, AND THE EXTENDED POLITICAL ECOLOGY OF INFRASTRUCTURES IN INDIA[6]

Abstract: Recently, large parts of India and the Global South have witnessed widespread sand extraction from rural sites for urban infrastructure projects, causing extensive environmental damage. Critical scholarship has theorized these sites as new extractive frontiers that facilitate the needs of green energy transitions and planetary urbanization. In this paper, I offer a postcolonial decentering of this narrative by examining the commodity chain of "m-sand" or manufactured sand, which binds urban infrastructures in Kochi city in Kerala, India to sand extraction sites in the rural Western Ghat mountain ecologies of southwest India. I argue that sand extraction sites are better analyzed through the lens of "plantation urbanism", a concept that accounts for the failure of colonial-era Western Ghat plantation economies in the free-market era and their ensuing conversion to sand extraction sites. Plantation urbanism also foregrounds how colonial plantation logics shape the production of urban space in Kochi via sand's commodity chain.

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[6] Manuscript forthcoming in *International Journal of Urban and Regional Research*

I. Introduction

It was an overcast morning in June 2022. Moisture-laden clouds were meandering across the Arabian Sea towards the coastal State of Kerala in south India, signaling the arrival of the annual monsoons. I was at the construction site of a 17-storey condominium. The building was being constructed by a private real-estate developer to house the city's middle-class and elite residents. But construction work was progressing slowly due to a city-wide sand shortage, a key ingredient for concrete construction. Site manager Satheesh informed me that more than two weeks had passed since he had run out of sand. With his outstretched finger he pointed to two conical mounds of gray granules lying in a corner (see Figure 9) saying, "This is my last batch of *mannal* (sand)".

Figure 9: A mound of sand on a construction site in Kochi (credit: Author)

The ubiquity of sand for infrastructure projects, and its scarcity, is not unique to Kochi or Kerala. Over the last few decades, cities across India and the Global South have witnessed the

widespread construction of urban infrastructures, including roads, malls, and condominiums (Menon, 2023). These infrastructures are built with concrete—the de facto "materiality of urbanization" (Abourahme, 2015: 213)—and require around 50 billion tons of sand per year or 18 kilograms of sand per person per day (UNEP, 2019). This means that sand extraction accounts for 85% of all mining activity on earth, making it the *world's most extracted natural resource* after water (*ibid*). Global demand for sand, dredged primarily from freshwater riverbeds, floodplains, and riverbanks, is causing environmental issues in several countries of the Global South, including Ghana (Dawson, 2021), Indonesia (Miller, 2022), Cambodia (Lamb et al., 2019), Myanmar (Lamb and Fung, 2022), and India (Jeyaranjan, 2019), prompting scholars to pay more attention to its "granular geographies" (Jamieson, 2021).

In India, some State governments have responded to environmental degradation caused by river sand dredging by promoting the use of "m-sand" or manufactured sand, as a more environment-friendly alternative (Srivastava, 2023). M-sand refers to sand-like granules that are made by mechanically crushing mountain rocks into fine granules, thereby eliminating the need for river dredging and its associated environmental destruction. However, not much is known about how m-sand is produced, who the actors involved in its production are, and the socio-spatial implications of its increasing use in infrastructure construction.

To study m-sand's spatial economy, I deploy a "follow the thing" (Cook, 2004; Choplin, 2023) methodology to track granules of m-sand from infrastructure construction sites in Kochi city, Kerala back to stone quarries in remote rural regions of the Western Ghat mountains in southwest India. Recent scholarship has highlighted how new dispersed "extractive frontiers" are produced by the material demands of green energy transitions (Andreucci et al., 2023; Bruna, 2023) and planetary urbanization (Barua, 2024b; Bathla, 2024). This framing has received

pushback from scholars who emphasize the mutual constitution of rural and urban regions (Gillen et al., 2022; Wang et al., 2023). In this paper, I extend these debates by arguing that m-sand's extended commodity chain not only mediates rural-urban interdependencies but also indicates the workings of "plantation urbanism" (Poe and Bellamy, 2020). I do this by showing how m-sand extraction sites in the Western Ghats are deeply entwined with plantation logics that unevenly incorporated this region into the colonial world system in the 19th century. I further argue that these colonial plantation logics do not remain restricted to rural Western Ghat regions but extend to Kochi city and shape the uneven production of its urban space through m-sand's commodity chain.

This paper is divided into six sections. In the next section I situate my research in relation to debates about rural-urban entanglements within global urban studies and urban political ecology. In the third section I discuss how the Western Ghats mountains of southwest India were incorporated into the colonial world economy through the establishment of export-oriented plantations in the 19th century. In the fourth section I draw on ethnographic data to illustrate how rural plantation owners are converting plantations to sand extractions sites due to the failure of colonial plantation economies in the contemporary free-market era and thus reproducing colonial plantation logics in the m-sand economy. In the penultimate section, I reveal how these plantation logics do not remain restricted to rural extraction sites but extend to and shape the uneven development of Kochi's built environment through m-sand's[7] supply chain. In conclusion, I reflect on the implications of studying rural-urban entanglements by using a materiality-infused lens and what it tells us about new patterns of urban transformation and green extractivism in the Global South.

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[7] Henceforth, I use the words "sand" and "m-sand" interchangeably to refer to manufactured sand from stone quarries. I use "river sand" when referring to sand dredged from rivers.

II. Plantation Urbanism and the Extended Political Ecology of Infrastructures

Since the late 20th century, an increasing number of scholars in the humanities and social sciences have tried to highlight the complexity of rural-urban interactions by moving beyond simple rural-urban binaries (see Cronon, 1991; Harvey, 1996; Swyngedouw, 1996; Williams, 1973). Critical urban scholars have renewed this effort in recent years by mobilizing Lefebvre's (2003) concept of "planetary urbanization" to examine cities not as spatially bounded units, but as specific morphological forms along the extended geographies of global capitalist urbanization that lie somewhere along the rural-urban spectrum (Brenner, 2019; Schmid and Topalovic, 2023). Urban political ecologists have deployed this framework, along with its foundational emphasis on urban metabolisms and circulations, to show how the extended trails of contemporary urbanization create extractive resource frontiers in distant non-urban spaces (Arboleda, 2016; Fenton III, 2021). In doing so, they have advanced new vocabulary to account for the extended spatialities of contemporary urbanization, including "political ecology of urbanization" (Angelo and Wachsmuth, 2015: 23), "more-than-urban political ecology" (Tzaninis et al., 2020: 4), "spatialized political ecology" (Keil, 2020), "landscape political ecology" (Connolly, 2019), "megapolitan political ecology" (Gustafson et al., 2014), and "exurban political ecology" (McKinnon et al., 2019).

While this work has been useful in further unsettling rural-urban binaries, it has come under criticism for its tendency to read all socio-spatial phenomena as signs of urbanization, i.e. "methodological urbanization" (Jazeel, 2018: 407). Some critics have argued that it reproduces colonial logics of developmentalism and modernization that viewed rural regions of the Global South as backward and non-agential (Ghosh and Meer, 2021; Roy, 2016). Others have contended

that this urban-centric gaze privileges socio-spatial phenomena emanating outwards from city centers while completely eclipsing processes of agrarian transformation, rural land regimes, and land-use change that deserve analytical attention on their own accord (He and Zhang, 2022; Wang et al., 2023). For these scholars, cities are also experiencing processes of "reverse ruralisation" (Walker, 2015: 188). In other words, the rural is not an empty spatial container waiting to be unidirectionally transformed by the marauding forces of global capitalism and planetary urbanization. Instead, rural spaces have agency and dynamism and coproduce the urban in multiple ways (Mishra, 2020; Krause, 2013).

Scholars have highlighted the complex relationalities between rural and urban spaces in several Global South contexts. Mercer (2024) has shown how suburban houses in Dar es Salaam, Tanzania are oriented towards the rural countryside rather than the city-center because house-building practices are shaped by pastoral social, cultural, and legal practices that have produced "landscapes of extended ruralisation". For Ortega (2020), suburban transformations at the fringes of Metro Manila, Philippines are better understood through the lens of "desakota 2.0" rather than planetary urbanization, because the former situates rural-urban fringes in the Global South as sites of dynamism, learning, and theorization, thus disrupting the totalizing narrative of the latter. Similarly, Gururani (2020) has demonstrated how new housing projects in Gurgaon, India are embodiments of "agrarian urbanism", in which the relationship between caste hierarchy and land ownership, traditionally associated with the village, is reworked and restructured rather than being completely erased in the city. These case studies highlight how agrarian economies, governance and land tenure structures, rural forms of sociality, and cultural practices are also driving the transformation of cities and their peripheries.

In this paper, I contribute to these debates by incorporating a methodological focus on the mundane materiality of cities and their infrastructures. I draw theoretical inspiration from science and technology studies (STS) and the material turn in the social sciences to argue that a materiality-infused approach provides a more empirically grounded, coarse, and "gritty" (Kirsch, 2013: 434) understanding of rural-urban entanglements as compared to an emphasis on social, economic, and aesthetic concerns as outlined by the above scholars. The infrastructural materiality I examine in this paper is sand. I deploy a "follow the thing" (Cook, 2004; Choplin, 2023) methodology to trace the translocal networks through which sand travels during its extraction, distribution, and consumption for urban infrastructure projects in Kochi. Much like Hecht (2018), I deploy sand as an "interscalar vehicle" to follow its journey from rural stone quarries and sand production plants in the Western Ghat mountains, to sand distribution yards and intermediary suppliers in Kochi's peripheries, and finally to infrastructure construction sites in Kochi city. I also draw on Hutton's (2019) concept of "reciprocal landscapes", to show how the production of urban infrastructures in one place (Kochi) is predicated on the transformation of a landscape elsewhere (Western Ghats). A "follow the thing" methodology to trace the intimate ties between these two places not only dismantles rural-urban binaries but also indicates the workings of "plantation urbanism" (Poe and Bellamy, 2020).

Recent scholarship at the intersection of human geography, cultural anthropology, and critical race studies has foregrounded how colonial plantation logics are "no longer confined exclusively to the agricultural enclave" (Paredes et al., 2024) but are found in everyday spaces we think of as modern (Tsing, 2012). As McKittrick (2013: 3) notes, "in agriculture, banking, and mining, in trade and tourism, and across other colonial and postcolonial spaces—the prison, the city, the resort—a plantation logic characteristic of (but not identical to) slavery emerges in the

present both ideologically and materially". Similar plantation logics can be observed in the Western Ghat mountains. The emergence of sand extraction sites in this region are deeply tied to the failure of colonial plantations economies, that unevenly incorporated this region into the colonial world system in the 19th century, in the contemporary free-market era. In this paper I argue that the sand economy is the reproduction of a plantation economy with its own distinct plantation logic, that relies on the extraction of surplus value from both mountain ecologies and differentiation of lower-caste labor. I further show that these plantation logics do not remain spatially restricted to rural sites of sand extraction in the Western Ghats but extend to Kochi city via sand's commodity chain and shape the uneven production of its urban space, hence my use of the term plantation urbanism.

Plantation urbanism is a useful concept to frame my findings because it enables a clearer understanding of how Kochi's urban transformation is being facilitated by rural plantation logics. Importantly, it brings together two spatially disconnected sites: the "plantation", typically associated with surplus value extraction from rural ecologies or "factories in the fields" (McWilliams, 2000), and "urbanism" which denotes a "distinct kind of site (the city), separable from other (rural) places" (Sheppard et al., 2013: 893). By doing so, it holds the rural and urban in tension together, highlighting how urban and peri-urban transformations are not only produced by unidirectional urban-driven processes but also by reverse rural-driven processes, like colonial dispossession, plantation failures, post-colonial land use change, caste and ethno-religion-based landownership patterns, and subaltern livelihood struggles.

Second, plantation urbanism foregrounds how the exploitation of lower-caste workers and the hierarchical relations of production witnessed in colonial-era plantations are restructured and reworked in contemporary sand and construction economies in Kochi. As Poe and Bellamy (2020:

143) foreground, the "legacy of plantation regimes reproduces a particular social management system that reinvents itself through economic diversification in real estate, planning, policing and surveillance" (Poe and Bellamy, 2020: 143). While Poe and Bellamy's use of the concept is tied to racial capitalism and settler-colonialism due to its geohistorical setting in the US south, my use of plantation urbanism highlights how other kinds of social difference, like caste, indigeneity, and ethno-religion, are implicated in the reproduction of plantation logics in Global South urbanization processes. Scholars have highlighted the problems of blindly applying theoretical frameworks developed in Global North contexts to Global South cases (Ghertner, 2014). While I acknowledge these concerns, my use of "plantation urbanism" is inspired by Roy's (2009) provocation to use mid-level theories as "conceptual vectors" that travel across different geohistorical contexts but are reconstructed by the situated particularities of specific places and regions.

Lastly, plantation urbanism orients our attention to the root causes of largescale environmental destruction during our current climate crisis. Plantation scholars have noted how the colonial establishment of plantations around the world have altered indigenous landscapes into monocrop export-oriented plantation ecologies that maximized the extraction of value from ecology. As Barua (2024a: 14) argues, through such plantation legacies the "colonial past continues to operate as a duration, combining with the present in novel ways and bursting through to create fraught combinations and arrangements." Some of these "fraught combinations and arrangements" include global environmental issues, like human-animal conflict, extreme weather events, biodiversity loss, water scarcity, soil fertility loss, desertification, toxic environments, and illicit criminal political economies (Besky, 2013; Li and Semedi, 2021). Similar processes can be observed in Kochi's urban transformation, where the conversion of colonial Western Ghat plantation landscapes into sand extraction sites for infrastructure construction in Kochi is creating

new rounds of environmental destruction and ecological vulnerabilities in the Anthropocene, that have been implicated in exacerbating extreme climate events, like recurring floods and deadly landslides in Kerala. However, as Ferdinand and Davis (2022: 3) argue, an analysis of these new rounds of environmental destruction must contend with the "double fracture" of modernity, by tracing the root causes of contemporary environmental degradation to the colonial history of forest enclosure and the violent creation of plantations. The use of plantation urbanism addresses this "double fracture" by decentering "green extractivism" away from mechanisms of contemporary global capitalism and planetary urbanization towards a postcolonial understanding of extractive frontiers that account for the encounter of the Western Ghats with colonial plantation capitalism. Before illustrating my argument, I first discuss how colonial plantation economies were established in the Western Ghats in the 19th century.

III. Plantations in Kerala's Western Ghat Mountains

Traditionally, all buildings in Kerala were built with locally sourced materials like mud, laterite, stone, and wood. The British first introduced concrete in India in the late 19th century but it was only used to construct large buildings and infrastructures for the colonial and post-colonial state (Tappin, 2002). This changed in the 1970-80s during the "Gulf boom" when there was a mass migration of workers from Kerala to Arabian Gulf countries to partake in the oil economy (Wright, 2021). The backflow of remittances from these workers saw the emergence of the State's first "Gulf houses": large palatial houses built with concrete which needed sand (Gopikuttan, 1990). If cement is the binder that holds concrete together, sand is the skeleton that defines its form, shape, and physicality. Sand is found in riverbeds, coastlines, and deserts. However, the smooth edges of desert sand give poor bonding with cement, making its use unsuitable. The salinity of coastal sand

induces cracking in concrete making it also unsuitable. In short, concrete needs river sand for its structural integrity.

Initially, this was not a problem in Kerala because 44 freshwater rivers crisscross the State. One could find a *kadavu* (riverbank) near most construction sites from where *puzha mannal* (river sand) was dredged by sand contractors. But things changed from the 1990s onwards when India's adoption of neoliberal economic policies triggered a construction boom in Indian cities (Rehman et al., 2023). Soon private real estate developers were constructing large infrastructures, like luxury condominiums, shopping malls, IT parks, and hotels for elite consumption in cities like Kochi, Kerala's largest city with around 3.5 million inhabitants (Cushman and Wakefield, 2023). This infrastructure boom accelerated river sand dredging and caused widespread environmental issues, like depleting ground water tables, the intrusion of salinity into freshwater sources, the destruction of riverine flora and fauna ecosystems, changing river flow patterns, fisherfolk livelihood concerns, dam regulation issues, and recurrent flooding. In response to largescale grassroot environmental protests, the Kerala government introduced new regulations in 2001 which curtailed river sand dredging, triggering a sand scarcity that hit the State's economy. To tide over this scarcity, in 2004 Kerala became India's first State to actively promote the production of *paazha mannal* (m-sand) as an environment-friendly alternative to river sand (Bhoopathy and Subramanian, 2022). Since then, other State governments, like Rajasthan, Uttar Pradesh, and Tamil Nadu, have announced similar policies promoting the use of environment-friendly m-sand (Srivastava, 2023).

Today, most infrastructures in Kerala are built with m-sand extracted from the Western Ghats (also called Sahyadri), a mountain range that runs parallel to India's west coast traversing more than 1000 miles across six States. However, almost 40% of the mountains lie in Kerala, thus

covering over half of the State's landmass. They serve as a key watershed region for the State's 44 rivers, supporting agriculture, irrigation, fisheries, industrial production, and electricity generation (Gadgil, 2011). Spices like pepper, clove, and cardamom are native to these mountains and have been historically foraged by the Ghats' *Adivasi* or indigenous inhabitants, like the Kadar, Paliyan, Karumba, Hill Pandaram, Nayadi, Kannikar, Muthuvan, and Urali Ulladan communities (Morrison, 2002). These foraged products were traded with coastal merchants who then shipped them from ancient port cities, like Muziris (near present-day Kochi), to Graeco-Roman towns along the Mediterranean coast. In this way, the Western Ghats have formed the bedrock of the Indian Ocean spice route for thousands of years.

Due to Kerala's centrality to Indian Ocean trade networks, it has experienced religious and cultural influences from around the world. These influences have given the State a heterogenous demographic profile which is unlike the rest of India, where the State's 34 million inhabitants are composed of Hindus (54.90%), Muslims (26.60%), Christians (18.40%), Scheduled Caste/SC groups (9.10%), and Scheduled Tribe/ST groups (1.45%) (Chandramouli, 2011). Since ancient times, the Kingdom of Travancore, much like the other two Malayalam[8] speaking regions that formed the modern State of Kerala in 1956, has been governed by the caste system where the highest Hindu caste group, Namboodiri Brahmins, controlled access to religious knowledge while Nairs, just below them in the social hierarchy, controlled administration, revenue collection, and agricultural production for different principalities (Sakthidharan, 2019). These upper-caste groups used SC communities, like Pulayas, Parayas, Velars, and Kuravas, as agrestic slaves until slavery was officially abolished in the mid-19th century (Saradamoni, 1980). Other lower-caste groups,

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[8] Malayalam, Kerala's official State language, is one of 11 classical languages officially recognized by India.

like Ezhavas, Shanars, Nadars, and Thiyyas, worked as indentured laborers and tenant farmers for upper-caste landlords (Namboodiripad, 2010). Travancore's Cristians were divided into Syrian and Latin Christian groups. Syrian Christians, said to be the descendants of Thomas the Apostle, were influential merchants and entrepreneurs, considered on par with upper-caste Nairs in the social hierarchy. Latin Christians consisted of later low-caste Hindu converts from agricultural and fishing communities and were thus considered lower in the social hierarchy. Mappila Muslims were also low-caste Hindu converts from small-scale trading communities, thus occupying a similar marginalized social position to lower-caste Latin Christians (Chandramohan, 2016).

This complex social milieu was transformed in the mid-19th century when plantations were established in Travancore when it became a vassal state of the British Empire. British planters cleared forests in the Western Ghats regions of Travancore to grow commodity crops, like tea, coffee, rubber, and cardamom, for the colonial export economy which brought substantial foreign exchange earnings for plantation owners (Suresh and Suchitra, 2021). For example, the British brought Natural Rubber saplings from the Brazilian Amazon for Western Ghat plantations because rubber was an extremely profitable global commodity through the 19th and 20th centuries (Tully, 2011). Since slavery had been abolished in the mid-19th century, landless SC, ST, and lower-caste communities were absorbed as indentured and low-waged workers on labor-intensive plantations (Raj, 2022). In this way in the 19th century, British planters transformed the Western Ghats landscape from diverse tropical forests to largescale monocrop plantation crops for the colonial export economy. Furthermore, the injection of British capital into Western Ghat plantations also offered lower-caste communities a partial escape from feudal caste-based hierarchies of the region, as many were employed as low-waged laborers in the new plantation economy (Chandramohan, 2016).

Things changed again in the 1940s when the Syrian Christian community took control of the Western Ghats plantation economy from British planters (Rammohan, 2008). While Travancore's economy boomed in the early 20th century due to plantation exports, it became increasingly dependent on imported Burmese rice for daily subsistence. When Japan invaded Burma in 1942, Travancore lost its key source of rice triggering a devastating famine that claimed more than 90,000 lives (Balasubramanian, 2023). In response, the State promoted settlement schemes which granted ownership rights to farmers who could grow food crops in the Ghats. This policy triggered a mass migration of Syrian Christian families from coastal areas of Travancore to the mid and high ranges of the Ghats to cultivate rice, tapioca, and coconut. When the food shortage was overcome, food crop farms were converted to commodity crop plantations which continued to be a lucrative industry. Thus, while the injection of British capital into Western Ghat plantations in the mid-19th century had provided a temporary escape from caste-based occupations for lower-caste communities, mid-20th century changes saw these communities again working as indentured and low-wage laborers on upper-caste Syrian Christian plantations, reproducing the feudal caste hierarchy (Nair and Moolakkattu, 2017). In other words, the mid-20th century Western Ghats plantation economy was an amalgamation of both, global plantation capitalism that extracted value from ecology, and caste-based agrarian feudalism that extracted value from differentiated lower-caste labor, thus representing the complexities of post-colonial economies (Sanyal, 2007; Gidwani and Wainwright, 2014).

The condition of Kerala's oppressed agricultural and plantation laborers improved, to some extent, in the 1970s when the post-colonial Kerala government implemented land reforms by setting a 15 acre per person land ceiling. Surplus land was taken by the State and distributed to landless lower-caste communities. However, plantations were exempted from the Act because of

their economic importance to the State. For example, in the post-WWII era of import substitution industrialization and trade protectionism, India was one of the world's largest rubber producers (K and Sethuraj, 1996). Since Kerala accounted for more than 80% of India's rubber output, it brought significant revenue to the State economy. This exemption allowed upper-caste Syrian Christian plantation owners to continue accumulating wealth and power by extracting surplus value from the alpine ecology and the labor of poorly paid lower-caste workers (Koothanady, 2020).

Further changes occurred in the 1990s when India's adoption of neoliberal economic policies severely hit the plantation sector by exposing it to global competition. For instance, India's entry into the World Trade Organization in 1995 saw an initial increase in domestic rubber prices but soon major Indian rubber consumers were importing cheaper rubber from southeast Asia precipitating a fall in domestic rubber prices (Sajitha, 2023). India's signing of the ASEAN-India Trade in Goods Agreement in 2009 triggered another dip in rubber prices. The vagaries of global markets, along with rising input costs and recurring extreme weather events, have made plantation cultivation untenable for most Western Ghat planters (Suchitra, 2015). In this structural context, plantation owners have been seeking alternative ways of generating value from their land, which include growing exotic fruits, building luxury resorts, and establishing educational and religious institutions (Suresh and Suchitra, 2021). Importantly, many have begun converting plantation land to stone quarries and m-sand production centers while actively promoting the use of m-sand as a superior alternative to river sand for infrastructure construction. Research participants told me that some quarry owners had also financially supported environmental protests against river sand mining, thus accelerating the construction sector's shift to m-sand.

To understand how the conversion of plantation land to m-sand extraction sites occur and its socio-spatial implications, I conducted two years of ethnographic fieldwork from 2021 to 2023

beginning from Kochi city in Kerala, India. I commenced fieldwork at two building construction sites in Kochi from where I deployed a "follow the thing" (Cook, 2004) methodology to trace the commodity chain of sand from urban construction sites back to rural stone quarries in the Western Ghats, some more than 100 miles away. Like Choplin (2023), I used a "follow the thing" methodology to trace m-sand's extended supply chain and "tell the story of the different stages, spaces, and actors involved in its production, distribution, and consumption" (Choplin, 2023: xxxix). This process led me to stone quarries from where rocks are blasted and to sites where rocks are crushed into m-sand granules in remote regions of the Western Ghat mountains, to tipper drivers and intermediary sand vendors based in peri-urban regions who distribute sand across the region, and to urban construction sites in Kochi where sand is consumed in infrastructure projects. At these different sites along sand's commodity chain, I observed everyday practices and conducted interviews in Malayalam and English with 41 actors involved in sand's commodification, including quarry owners, sand production managers, intermediary sand suppliers and vendors, tipper drivers, building contractors, and site managers. While some actors were reluctant to be interviewed, I was able to leverage my caste, class, and gender positionality[9] along with my decade-long construction-sector experience[10] to develop research relationships with other interlocutors. I discuss data from these observations and interviews in the following two sections.

IV. Plantation Logics in the Western Ghats Sand Economy

[9] I am a male researcher from the dominant caste Nair community. All my research participants were male, and many of the quarry owners I interviewed were also from dominant caste communities. This made it slightly easier for me to gain access to them and collect data.

[10] I have 10 years (2006-2016) of architectural training and practice experience in India's construction industry.

Figure 10: Stone Quarry in the Western Ghats (credit: Author)

One morning in February 2023, I travelled 42 miles southeast of Kochi to Kottayam district in the mid ranges of the Western Ghats, the heartland of India's rubber industry. Quarry owner Thomas[11] met me at the town[12] center and whisked me away to his quarry in a chauffeur-driven electric SUV. After winding through dense rubber plantations for around 20 minutes we arrived at an imposing gate beyond which stood a gigantic wall of gray granite towering 100 feet above us (see Figure 10). Stepped terraces interrupted the sheer verticality of the wall. On the topmost terrace, a team of laborers, wearing orange helmets and fluorescent vests, were busy drilling holes in the rockface in preparation for the day's blasting. Like most quarry owners in the Western Ghats mountains of

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[11] All names are pseudonyms.

[12] I have not revealed town names because they would give away the quarry owner's identity.

south-central Kerala, Thomas belonged to the upper caste Syrian Christian community[13]. I asked him about his foray into the sand business. Dressed in a spotless white *mundu* (wraparound garment worn around waist) and a matching half-sleeved shirt, the sexagenarian replied with a disarming smile,

> "All this is my family land. It was a rubber plantation earlier. Then in 1992, I started a concrete block manufacturing facility because rubber was giving poor returns. That's when I realized I could make sand for concrete right here from the rocks on my plantation land. I then started a stone quarry and sand production unit. I have made more money selling sand than I would have ever made cultivating rubber."

Thomas' response reveals why plantation owners are converting their plantations into stone quarries. While rubber cultivation wasn't giving good returns, the layer of bedrock three feet below the ground on which rubber trees grew held immense value as an untapped resource of rocks for sand production. Naturally occurring granite and basalt outcrops found in the Western Ghats are made from prehistoric geological processes (Viju, 2018). Due to extensive manual labor involved in quarrying, breaking, and transporting rocks, historically they have only been used for building iconic architecture in Kerala, like temples, palaces, and forts. However today, m-sand is used for almost all construction projects because it is produced by mechanized crushing processes which pulverize ancient mountains rocks into fine granules within hours.

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[13] In the plantation economy of south-central Kerala, the upper-caste Syrian Christian community owns extensive plantation land in the Western Ghats, which they have recently begun converting to stone quarries and sand extraction sites. Other mid-level and subaltern castes, like Ezhavas, Pulayas, Parayas, Latin Christians, and Mappila Muslims, don't own plantation land and thus occupy lower-value positions in the sand economy.

Thomas proceeded to explain the production process. First, land is cleared of rubber trees and topsoil using excavators to reveal rock substratum. Then, rockfaces are drilled and blasted with non-electric detonators and ammonium nitrate to form an open-pit quarry. From here, large boulders are blasted and transported via tipper trucks to the primary crusher unit, usually located in a nearby building, where it is crushed into smaller rocks. These rocks are then carried to the secondary crusher via a conveyor belt where they are broken again into even smaller sized aggregates which are sorted and stored in large silos. Around 30% of all aggregates are transferred via a final conveyor belt to the sanding plant to make m-sand and p-sand[14], measuring 0-4.75mm and 0-2.36mm respectively, which are graded, washed, and sold to construction sector actors (see Figure 11). Thus, while plantation products had been giving dwindling returns in the free market era, sand extracted from the same ecology has become profitable. These circumstances had encouraged Thomas to convert his rubber plantation to a stone quarry.

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[14] P-sand or plastering sand is finer than m-sand and is used only for cement plastering purposes.

Figure 11: Crusher producing m-sand in the Western Ghats (credit: Author)

Similar experiences of plantation failures were recounted by Ranjit, a 43-year-old Syrian Christian quarry owner from the Cardamom Hills regions of Idukki district, around 90 miles east of Kochi. Situated in high ranges of the Western Ghats more than 2000 feet above sea level, the Cardamom Hills produce more than 90% of India's Small Cardamom output. However, much like rubber, cardamom plantations started becoming unprofitable around the turn of 21st century (Krishna, 2014). As Ranjit explains, it was during this time that his father converted their cardamom plantation to a stone quarry,

"My father began quarrying here sometime in the 2000s because cardamom plantations were not profitable. Today sand is more valuable than gold. There is a lot of money in this business. But a lot of it is also illegal. I don't have all the quarrying permissions, but I have my ways of getting things done. Sometimes locals create issues. But I give them jobs and support their businesses so that they don't create problems for me in the future."

Here, Ranjit confirms the economic logic that underpinned his father's decision to convert their unprofitable cardamom plantation to a profitable stone quarry. Importantly, Ranjit also reveals that he routinely conducts illegal quarrying activities that require the mobilization of historically accrued caste and class power. While plantations were exempted from land ceiling regulations of the Kerala Land Reforms Act 1969, the conversion of plantations to non-agricultural purposes, like stone quarries, is considered illegal and would invite provisions of the Act. These conversions have been legally challenged in recent years, leading to pitched battles between plantation owners and environmentalists (The Lede, 2019). Furthermore, the widespread conversion of plantations to stone quarries has also been implicated in precipitating deadly landslides in Kerala (Viju, 2018). Illegal quarrying activities alter steep alpine ecologies such that they become more prone to mud slips during bouts of extreme rainfall, the frequency of which has been increasing in recent years due to climate change. In fact, between 2015 and 2022, Kerala witnessed more than 1000 landslides, the highest anywhere in India. Most landslides occurred within a 10km radius of stone quarries (Shaji, 2022). Multiple high profile environmental protection committees have mooted stricter policies for regulating unfettered quarrying activities in the Ghats. Yet, widespread illegal quarrying continues unabated under the aegis of the powerful "sand mafia" (John, 2016).

This is because the quarry sector is a huge cash cow for the State as it contributes more than Rs.5000 crores (US$600 million) to its exchequer through taxes, license fees, and royalties (Kumar, 2023). For example, Kerala's Revenue Department makes Rs.24/ton (US$0.30/ton) as royalty, which itself is a paltry sum considering it sells for Rs.1400-1600/ton (US$16-19/ton) in Kochi's construction market. However, a lot more money is lost to illegal quarrying activities because only 750 out of the nearly 6000 quarries in the State have valid licenses (Sajeev and Alex,

2017). To facilitate illicit operations, quarry owners routinely bribe government officials in village panchayats, Department of Mining and Geology, Kerala Police, Revenue Department, and Road Transport Office. They also make significant cash donations to local political parties during elections to secure their business interests (Thomas, 2022). Some elected representatives even have equity in quarrying companies operated by friends and family members, highlighting a clear conflict of interest. Quarrying activities are also vociferously supported by the Syrio-Malabar Church leadership further confirming the ethno-caste identity of the quarry lobby (Nair and Moolakkattu, 2017). In these ways, upper-caste Syrian Christian plantation owners have been able to convert plantation land to stone quarries and sand production centers by mobilizing their caste and class power to accrue tremendous profits in the new sand economy. As Ranjit notes, they have also provided jobs to many locals in this economy. But not everyone has benefited equally from sand production. For lower-caste communities, who have historically faced the brunt of poorly paid plantation work, the new sand economy has reproduced their exploitation under upper-caste plantation landlords.

This fact was made clear by Suresh, a 41-year-old tipper truck driver from a small town in Ernakulam district, around 25 miles from Kochi. This is another site along m-sand's extended commodity chain. Most mid-level sand vendors and tipper drivers I interviewed operated out of interstitial spaces between Kochi city and the Western Ghats, which allowed them to be mobile and transport sand across the wider city-region (see Figure 12). We met outside his house where his shiny new tipper truck was parked. Suresh belongs to the lower-caste Ezhava community. His father and grandfather had worked on rubber plantations as tappers. But Suresh wasn't interested in following this path because of its overt caste connotations. Instead, he became a tipper driver in the sand economy. Now he spends most days on the road transporting sand from quarries deep in

the Western Ghats to construction sites in Kochi. But things have not been smooth. As Suresh explains,

> "Most illegal quarries are run by upper-caste Syrian Christian families with political links. I don't have those networks. Small-timers like me are most vulnerable to being harassed by the police. Nobody cares to check where I got the illegally quarried sand from. There are huge profits to be made in this industry if you have the right connections and deep pockets to absorb financial setbacks like fines and bribes."

While the 20th century witnessed a mass youth migration from Kerala's coastal areas to the mid and high ranges of the Western Ghats to work in the booming plantation economy, the 21st century planation crisis has triggered a "reverse migration" from the mountains back to coastal cities, like Kochi (Thomas, 2021). Those unable to migrate, many of whom belong to lower-caste communities, are forced to work in the few productive sectors in the Western Ghats, like sand production. Today, Kerala's sand economy employs more than four million people (Kumar, 2023). While the production process is mostly mechanized, human labor is still required for precarious drilling and blasting work, performed mainly by circular migrants from north India (Peter and Narendran, 2017). Other mid-level work, like managing north Indian workers, operating heavy machinery, and driving tipper trucks, is performed by lower-caste Malayali workers, like Suresh. However, as Suresh explains, this work not only creates financial burdens but also puts him at the mercy of upper-caste landlords, a situation he was trying to escape in the first place.

Figure 12: Tipper trucks collecting sand from a crusher in the Western Ghats (credit: Author)

To participate in the sand economy, Suresh had mortgaged his house and his wife's gold jewelry to buy two tippers. He now earns around Rs.1.50 lakh (US$1800) per month from each tipper by doing daily rounds from rural quarries to urban construction sites. But he also pays the bank a monthly installment of Rs.1.30 lakh (US$1500) for each tipper. Within those margins, he pays for diesel and vehicle maintenance. There is not much leftover profit once all expenses have been accounted. To tide over financial uncertainties, Suresh had borrowed money from an upper-caste quarry owner at exorbitant interest rates. Unable to repay his loan on time, he is now forced to work off his debt by transporting sand only for the quarry owner at subsidized rates. Thus, while Suresh had joined the sand economy to escape the caste hierarchies of the plantation economy, he now occupies a similar position in the new sand economy.

Similar experiences were recounted by Naufal, an intermediary sand supplier from the Mappila Muslim community who I met at his sand stockyard on the outskirts of Kochi. Naufal had

previously worked as a river sand contractor but had shifted to selling m-sand when Kochi's construction industry shifted to the latter. When I asked him about his role in the sand trade, Naufal responded while gently stroking his henna dyed beard,

> "I'm just a supplier. I don't make much profit like quarry owners. My margins are slim. All quarry owners are part of an association which suppliers like me cannot join. They control the whole sand economy. They also try to undercut suppliers by selling directly to big real-estate developers and construction companies in Kochi. Financially, I can't compete with them."

Here, Naufal explains his relative marginal status in sand's commodity chain. The shift from river sand to m-sand has shifted the balance of power in favor of upper-caste Syrian Christian communities who own plantation land in the Western Ghats. Earlier, almost any person could become a river sand contractor. All you needed was some basic dredging equipment and permission from the local administrative body in charge of the riverbank. But now, to start a stone quarry and sand production center, you need land in the Western Ghats. You also need specialized quarrying and crushing equipment, imported from overseas, which costs around Rs.10 crore (US$1.2 million). Not all communities had access to these resources. To continue in the sand trade, Naufal had become a mid-level sand vendor. Now he buys sand at cheaper rates (Rs.42/US$0.5 per cubic feet) from Western Ghat quarries and sells it to builders and contractors in Kochi at slightly higher rates (Rs.62/US$0.75 per cubic feet). He must also pay for tipper transportation, lease stockyard land for storing sand, and procure earth movers for un/loading purposes. Things are not easy for him.

Through the above vignettes I have argued that the contemporary Western Ghats sand economy is in fact a plantation economy because plantation logics are being reproduced, reworked, and restructured here. Plantation logics are characterized by the exploitative relationship between capital, ecology, and socially differentiated labor that was first witnessed under European colonialism a few centuries ago (Moore et al., 2019; McKittrick, 2013). The land on which Western Ghat stone quarries are located is not terra nullius that just appeared as an untapped "extractive frontier" in the context of sand demand and supply equations. Rather, it is deeply entangled with historic flows of transnational capital into plantation production systems that unevenly incorporated it into the colonial world system in the mid-19th century. These flows of transnational capital radically altered the Western Ghats through violent dispossession of indigenous people from and private enclosure of common lands, and the largescale conversion of biodiverse tropical rainforests into monocrop plantation farms catering to the colonial export economy. It was underpinned by a logic of maximizing value extraction from tropical alpine ecology by transforming the native landscape. We see a similar logic in the Western Ghats sand economy today. Not only are stone quarries and sand production centers located on former plantation lands, but they are also characterized by the extraction of as much value from the alpine ecology as possible regardless of the ecological costs involved. It's no wonder that stone quarries and sand production sites are routinely implicated in triggering deadly landslides during extreme weather events in Kerala, thus creating new rounds of environmental vulnerabilities in the Anthropocene for communities living in precarious mountainous regions.

Furthermore, I have also shown how caste-based social relations of the colonial plantation economy are reworked and restructured in the contemporary sand economy. While the British first established Western Ghat plantations in the mid-19th century, by the mid-20th century the plantation

economy was controlled mainly by the upper-caste Syrian Christian families. Similarly, while slavery in Kerala was officially abolished in the mid-19th century, former slaves from lower-caste communities continued working on upper-caste Syrian Christian plantations as indentured and low-paid laborers well into the 20th century. Today, most quarry owners are former plantation owners from the dominant Syrian Christian community while lower and mid-tier workers in the sand economy belong to lower-caste communities, like Ezhavas, Latin Christians, Pulayas, Parayas, and Mappila Muslims, whose forefathers toiled in the plantation economy. Not only do these communities face financial difficulties and criminalization, but they also rely on Syrian Christian quarry owners for their livelihoods, thus locking themselves into intergenerational caste-based dependency relations which look very much like plantation social relations. This shows how plantation logics "underline a range of contemporary social and spatial arrangements, not solely in terms of production but as a persisting form of community, characterized by inequality and immiseration" (Barua et al., 2023). In the next section, I discuss how these plantation logics do not remain spatially restricted to rural mountainous regions but extend to and shape the uneven production of space in Kochi city through the extended commodity chain of sand.

V. Plantation Logics in Kochi's Construction Economy

One morning in February 2023, I visited the construction site of a small house in Kochi where I met Joshy. Joshy belonged to the Latin Christian community. His father had worked as a daily wage laborer in the coir industry, but Joshy didn't want to pursue this path. Instead, he apprenticed with a mason on large infrastructure projects before taking small house construction contracts on his own. I asked Joshy about his experiences working with m-sand. He replied,

"There are many quality control tests to be conducted for m-sand. I don't have money to follow all of them. Only big construction companies and real estate developers can do so. When they reject a batch of m-sand, suppliers sell it to smaller contractors like me. I have no choice but to work with poor quality sand. It impacts the quality of my projects, but what can I do? I can't compete with them."

Here, Joshy highlights how m-sand's materiality has changed construction practices in Kochi much to the detriment of small-time independent contractors. When river sand was dredged from riverbeds, it was accompanied by impurities like silt, gravel, clay, and organic matter. But once these impurities were sieved and removed, it was ready for use in construction. No further action was necessary. River sand granules were also rounded in shape due to the continuous erosion of rocks by flowing water over thousands of years. On the other hand, due to the mechanized crushing process, m-sand granules have angular and jagged edges, which offer better bonding with cement. M-sand also has better consistency in quality and gradation because of the controlled production process. However, it leaves considerable room for human error. There can be variations in granule size, texture, and angularity based on which quarry the batch came from and what quality control procedures they employ. Due to this, it undergoes extensive washing and screening processes to remove impurities during the production process, which increases costs and on-site testing requirements. Furthermore, the higher angularity and jaggedness of m-sand granules, because of the way rock is cut by sharp metal, also requires a higher water-cement ratio for the workability of wet concrete. Water reducing admixtures can be used to compensate for this, but it further adds to construction costs. Thus, if not tested regularly variations in size, grade, texture, and granularity can cause serious problems to the structural integrity of infrastructures.

Joshy mentions that two sieve tests are performed for each new batch of sand that arrives on construction sites. One is performed at the site itself while another is done at an external testing laboratory. Only when both tests give satisfactory results is the sand batch approved for construction use. Otherwise, it is rejected and sent back to the quarry or supplier from where it was procured. Importantly, Joshy also reveals that rejected sand batches are usually sold to smaller contractors like himself, indicating the workings of a "secondary circuit of value" (Gidwani, 2015: 576) in the sand economy. Most small independent building contractors don't have the resources to conduct expensive quality-control checks. Only large construction companies and real estate developers follow detailed testing procedures. Smaller contractors are forced to use poorer quality sand which will cause their infrastructures to develop structural issues over the long term.

Similar experiences were recounted by Sharad, Binu, Jeslin, and eight other independent building contractors I interviewed, most of whom belong to lower and middle-caste groups. They said that the "quarry lobby", composed of upper-caste Western Ghat quarry owners, preferred not engaging with smaller contractors like themselves. They would rather sell directly to large real estate developers and construction companies because it suited their monopoly. They controlled m-sand prices by calling for indefinite production strikes if they felt their monopoly was being threatened. These strikes, which have been occurring more frequently in recent years, bring Kochi's construction industry to a standstill because sand production completely stops, triggering a city-wide sand shortage (Kerala Kaumudi, 2023). Attempts at bypassing strikes by importing sand from neighboring States of Tamil Nadu and Karnataka, often result in violent confrontations with the quarry lobby (The Times of India, 2023). In this context, most small independent building contractors procure sand from mid-level sand vendors and intermediary suppliers, which is of inferior quality. This means that while Kochi's "world-class" infrastructures, like airports,

shopping malls, hotels, and luxury condominiums, will remain structurally stable over a longer time, smaller "ordinary" infrastructures, like independent family-owned houses, community-oriented infrastructures, and non-profit schools and hospitals will deteriorate faster.

These vignettes show how the livelihoods of small and mid-level actors in Kochi's construction economy, like independent building contractors and smalltime builders, many of whom belong to subaltern caste groups, depend on the political-economic power of the quarry lobby which is controlled by upper caste Syrian Christian plantation landowners in the Western Ghats. This is how plantation urbanism operates. It shows how the production of urban space in Kochi is dictated by the same plantation logics that accompany sand granules from the Western Ghats to Kochi city.

The workings of plantation urbanism were made clearer when I met quarry owner Shashi at his 17th floor penthouse apartment in a luxury condominium overlooking India's largest shopping mall in Kochi. Shashi belongs to the upper-caste Nair[15] community and his quarry, which was also once a rubber plantation, was in Pathanamthitta district, more than 100 miles south of Kochi. While he spends weekdays at the quarry site overseeing blasting, crushing, and sanding operations, his weekends are mostly spent in Kochi. When I asked him why this was the case, Shashi responded with a wry grin,

"Look, I don't enjoy life at the quarry much. It's a rural area. There's not much to do there. Here, I can visit the mall regularly. I own two shops in the mall, one of which is a fine-

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[15] While the Syrian Christian community mainly benefitted from the 1940s settlement schemes in the Western Ghats, some upper-caste Nair communities also acquired plantation land especially in the south Kerala districts of Pathanamthitta and Thiruvananthapuram.

dining restaurant run by my son. I'm also planning to build a 5-stor hotel near the airport which will have musical fountains like Dubai and vertical gardens like Singapore."

Shashi reveals something important. Quarry owners like himself are reinvesting their profits from sand production in the Western Ghats, most of which is unaccounted "black money" (Matrubhumi, 2022), into Kochi's elite infrastructure projects. For example, Shashi owns two shops in India's largest shopping mall, one of which is a fine-dining restaurant operated by son. He owns multiple apartments in luxury condominiums across the city, on which he earns a steady rental income. He is now planning to invest money in a real estate company to build a 5-star hotel near the international airport for which he will borrow architectural ideas from Dubai and Singapore. This means that profits earned from sand extraction in the Western Ghats do not remain restricted to those rural regions. Instead, quarry owners are actively reinvesting surplus profits in Kochi's high-end infrastructure projects to diversify their business interests and continue the accumulation of capital by acquiring valuable rent-giving real-estate assets in Kochi (OnManorama, 2019). This again shows how the production of urban space in Kochi is mediated by plantation logics.

This fact was further reinforced by Sebastian, the 70-year-old Syrian Christian proprietor of a real estate and hotel company, who I met at an upmarket coffee shop in Kochi. When I asked him how he sourced his sand for his real estate projects, he said,

"Our family owns extensive planation land in the Western Ghats. In fact, we started our first luxury hotel property there and then branched out into Kochi. Now we have converted some of that plantation into a stone quarry and sand production unit. My brother runs the

quarry. We source sand for all our real estate and hotel projects from there. It keeps our construction costs in check."

Sebastian's response reveals how deeply entangled the rural quarry-urban construction nexus in Kerala is today. Sebastian owns a real estate company in Kochi which has its origins in the Western Ghats plantation economy. He had built his first luxury hotel project on his ancestral plantation land and was able to expand his real estate and hotel operations to Kochi by reinvesting profits from that project into the city. Now he has converted part of the plantation to a stone quarry which his brother manages. He sources sand for all his Kochi-based real estate projects from there.

Similar experiences of reinvesting profits from Western Ghat stone quarries into Kochi's high-end real estate sector were narrated by 12 other quarry owners I interviewed. Some owned luxury condominium apartments and sprawling villas in Kochi. Others had invested money in Kochi's booming education and medical sectors by building expensive higher-ed colleges and private hospitals. Some had put money into building malls, hotels, and restaurants in Kochi, catering to its growing tourism industry. Still others preferred building a second home near Kochi's international airport because it enabled them to undertake regular international trips to the Arabian Gulf, which has deep ties with Kerala. Some quarry owners had invested money in luxury retirement and senior care facilities, another growing economy in Kochi. Some had diversified their businesses by starting new Kochi-based real estate and construction verticals under the same quarry name. Others had bought equity in already existing real estate and construction companies as "silent partners" to hide their illicitly gained wealth from illegal sand extraction. This means that Kochi's booming construction economy is being supported by investments from stone quarries

in rural areas of the Western Ghats with direct links to 19th century colonial plantations. This is plantation urbanism.

These vignettes illustrate the workings of plantation urbanism in Kochi where colonial plantation logics of extraction and exploitation do not remain confined to rural sites of sand extraction in the Western Ghats but extend to the city through the extended commodity chain of sand, thus actively shaping the uneven production of urban space in Kochi. I have shown how the materiality of sand extracted from the Western Ghats is changing urban construction practices such that large elite infrastructures will have better structural stability and longer lifespans compared to smaller houses and ordinary infrastructures. I have also shown how quarry owners are reinvesting their surplus capital in Kochi's elite infrastructures furthering socioeconomic polarization and wealth concentration in large cities. While colonial plantations can be credited with catalyzing a "desakota" style spatially distributed model of urban and regional development in Kerala in the mid-19th century (Casinader, 1992; Sreekumar, 1990), Kochi's plantation urbanism today is creating new patterns of uneven urban development, that is predicated on the extraction of surplus value from alpine ecologies and lower-caste labor from the Western Ghats and its investment into Kochi's high-end urban infrastructures. In this way, Kochi's contemporary pattern of plantation urbanism is challenging and reversing decades of gains made by Kerala's much lauded economic justice and social development-oriented model of development in the State's fight against poverty and inequality.

VI. Conclusion

In this paper, I have examined the widespread extraction of m-sand from rural Western Ghat mountains for urban infrastructure projects in Kochi city in Kerala, south India to theorize the

complexity of rural-urban entanglements in rapidly urbanizing regions of the Global South. I have shown how the blasting, crushing, and sanding of ancient mountain rocks into m-sand granules is causing extensive environmental damage in the Western Ghats, which have been implicated in triggering recurring landslides in Kerala. Critical scholarship has theorized the production of these distant extractive frontiers as the effects of the needs of green energy transitions and planetary urbanization. In my study, I have used a "follow the thing" methodology to offer a postcolonial decentering of this explanation because it fails to fully capture the complex and multidimensional dynamics of urban transformation in Kochi and Kerala. Instead, I have argued that the case of sand extraction and its associated environmental destruction in Kerala should be analyzed through the lens of "plantation urbanism", because it more accurately situates socio-spatial transformations in the region within the geographies and histories of plantations in the region.

My findings have revealed how the workings of plantation urbanism impact the production of sand extraction sites in the Western Ghats and urban infrastructures in Kochi. Faced with dwindling profits from colonial-era plantations in the post-1990s liberalization and free-market era, upper-caste plantation owners have used their historically accrued caste and class power to convert plantations to stone quarries and sand production centers. Sand produced from these rural sites is being transported to urban construction sites in Kochi city to build elite infrastructures. The profits made from sand production are also being reinvested into many of these infrastructure projects. Furthermore, the extractive logics and social relations of rural quarry sites, first established and practiced in colonial-era plantation economies, are being recreated and reworked in Kochi's real estate and construction economies much to the detriment of lower-caste communities who occupy lower value positions in the sand economy. The growing concentration of wealth and power in Kochi's elite infrastructures, through plantation urbanism, is transforming

Kerala's State-driven social and economic justice-oriented distributed spatial economy leading to uneven urban and regional development.

In addition to deepening our understanding about rural-urban entanglements and uneven development in India, my work has furthered debates in global urban studies. My central contribution to these debates is that meta-level theories like planetary urbanization are not only ahistorical and aspatial, thus limiting our understanding of urban transformations in the Global South, but they also foreclose other ways of understanding them. Different parts of Global South have distinct geographies and histories and it is important to situate our analyses within these specific contexts to continue the work of producing "mid-level theories" (Ghertner, 2014) that can better explain the "restlessly shifting socio-ecological terrains of the global urban" (Ortega, 2020: 669), so that we can continue the work of decentering global urban theory from its Euro-American moorings (Roy, 2009).

My findings have also revealed how new extractive frontiers in the Global South created by the needs of the emerging green economy and planterary urbanization are not only not "new" but are also not peripheral "frontiers". Much of the Global South has already experienced several cycles of dispossession, extraction, and exploitation during centuries of colonialism that were central to the development of contemporary capitalism and the modern world. It is important to remember that the roots of planetary degradation in the Anthropocene can be traced back to these historical processes (Barua, 2024a). By situating our examination of global environmental change within these colonial histories, we can move towards a "decolonial ecology" (Ferdinand and Davis, 2022).

Lastly, my research has helped move theoretical debates beyond the "regional closets" (Jegathesan, 2021) of plantation theory. While the recent focus on plantation legacies by critical

scholars has revealed the complicit role of settler colonialism and racial capitalism in creating our current ecological crisis, it still dominated largely by a trans-Atlantic lens. By foregrounding how plantation legacies operate in the sand extraction and construction economies of Kerala, I have emphasized the urgent need to study how plantation legacies are "refracted through the architectures of the postcolonial present" (McKinson, 2024: 2) in other regions of the Global South, like Jamaica (McKinson, 2024), Singapore (Strange, 2024) and Ecuador (Fenton III, 2021), that were also integrated into the colonial world system under similar, yet different, circumstances. By not analyzing what these similarities and differences are we risk the chance of building more robust theoretical frameworks through comparative cross-cultural analysis across world regional divides.

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CHAPTER 3: CONSTRUCTION CONTRACTORS, CREDIBILITY,
AND MIDDLING CULTURES OF ENTERPRISE IN INDIA

Abstract: Recently, cities across India and the Global South have witnessed an infrastructure boom, which has necessitated the mobilization of a large migrant construction workforce. Economic and urban geographers have highlighted how this socially differentiated and exploited labor is crucial for producing the city as a site of capitalist accumulation. However, not much is known about how this labor is mobilized and the work performed by intermediary construction sector actors, like labor subcontractors, in its mobilization, handling, and deployment. In this paper, I trace the everyday work of labor subcontractors who mobilize and manage north Indian migrant workers on construction sites in Kochi city in Kerala, south India. Drawing on the recent focus on mid-level actors in South Asian Studies, I examine the diverse cultures of enterprise displayed by these subaltern actors. I argue that while these enterprise cultures represent cosmopolitan and pluralistic values, they also embody social exclusions and conflicts based on class, caste, gender, and religious differences that reflect the growing socioeconomic polarization in the Indian society today.

I. Introduction

"Hop on", said Suresh, as he tried to kickstart his rickety secondhand motorcycle. Setting aside my trepidations, I gingerly followed his command. Within minutes we were whizzing through Kochi's busy streets, overtaking laboring buses and cutting dangerously past speeding SUVs, incidents that put my heart in my mouth. I could only take a deep breath when Suresh parked his motorbike in front of the construction site of multistory apartment building (see Figure 13), one of the three infrastructure projects in Kochi which he had been subcontracted to provide laborers for. As I followed Suresh on the site, he went from one floor to another relaying instructions to his laborers. He spent about an hour discussing architectural drawings with the site engineer, explaining minute construction details to the masons in a mix of Malayalam and rudimentary Hindi, and planning the next day's work with the foreman. After a short tea break, he was ready to move onto his next project site and repeat the same activities. Before riding away on his motorcycle, he said, "This is my life. I do this every day. I enjoy being a subcontractor!"

Figure 13: Subcontractors' motorbikes parked in front of a construction site in Kochi

(credit: Author)

This scene is not unique to Kochi but can also be found in rapidly developing cities across India and South Asia. Over the last few decades, Indian cities have experienced an urban development boom as witnessed in the widespread construction of infrastructures for elite consumption, including airports, metro rails, highways, malls, hotels, and condominiums. The colossal labor demands for this infrastructure boom have ensured that India's construction industry has become its largest employment generator after agriculture, providing jobs for more than 50 million people (Srivastava and Sutradhar, 2016). In the neoliberal context of the "roll back" of public sector industries and a sluggish private sector job creation (Kannan and Raveendran, 2019), construction sector jobs have provided a lifeline to millions of young men from rural India who migrate to work on urban construction sites in cities. However, the persistence of casual and

informal work arrangements in this sector have created new patterns of exploitation and marginalization on construction sites in cities like New Delhi (Sargent, 2021), Mumbai (Sturman, 2020), and Gurgaon (Dharia, 2022), prompting scholars to pay more attention to the lives of this "infra-structural labor" (Gidwani, 2015).

Ever since the 1960-70s "Oil Boom" in the Arabian Gulf, the largescale migration of young Keralite workers to the latter's oil-driven economy has ensured that the State has faced a dire shortage of laborers in different economic sectors, especially infrastructure construction. This situation was further compounded by the liberalization of the Indian economy in 1991 which catalyzed an urban infrastructure boom, necessitating the hiring of even more numbers of construction workers. This shortage was met by the largescale circular migration of workers from rural regions of comparatively lesser developed north Indian States of Assam, West Bengal, Odisha, Jharkhand, Bihar, and Uttar Pradesh (Peter and Narendran, 2017). These migrant workers are mobilized, managed, and deployed on infrastructure project by an intermediary network of subcontractors, young men from lower middle-class and caste backgrounds who use their business acumen and entrepreneurial skills to eke a living in the interstices of the construction economy (Prasad-Aleyamma, 2017). However, not enough is known about who these mid-level actors are, how they operate, and about the ideologies and cultures mobilized, reinforced, and appropriated during their daily work. How do labor subcontractors mobilize and manage migrant workers from distant places with diverse cultures on infrastructure projects in Kochi?

In this paper, I use the opening ethnographic vignette as an analytical launching pad to examine the everyday work practices of labor subcontractors in Kochi's construction industry. Research on urban South Asia has tended to be divided along two lines: those who study powerful actors at the top-end of urban hierarchy, i.e. upper-middle class citizens, elite private corporations,

and powerful state actors (Searle, 2016; Ghertner, 2015; Ranganathan et al., 2023), and those who study actors at the bottom end of the hierarchy, i.e. different marginalized sections of the urban poor and the urban majorities (Harvey, 2003; Roy, 2011; Benjamin, 2008). Recent work has tried to bridge this empirical and conceptual divide by examining the role of various kinds of mid-tier actors – middlemen, intermediaries, brokers, fixers, and *dalals* – who operate at more intermediate scales and act as crucial conduits mediating relationships between these two extreme ends (Bjorkman, 2021; Banerji, 2024; Sud, 2014). One branch of this scholarship has highlighted the cultures of enterprise that are mobilized, reinforced, and contested during this intermediary work (Jeffrey and Young, 2014; Gooptu, 2013; Deuchar and Dyson, 2020). My work extends these debates by examining the enterprise cultures that enable the rise of mid-level labor subcontractors in Kochi's construction industry and the contestations around the same.

This paper is divided into six sections. In the next section, I situate my research in reference to debates about economic brokerage and enterprise cultures in economic geography, South Asian studies, and urban studies. In the third section, I discuss the structural conditions that have triggered the rise of labor subcontractors in Kochi's construction industry. Next, I draw on ethnographic data to highlight the cultural competencies and skills needed to succeed as a labor subcontractor in Kochi. In the penultimate ethnographic section, I illustrate how these enterprise cultures create certain kinds of omissions and exclusions that reproduce traditional social hierarchies. In the conclusion I reflect on the implications of taking seriously the rise of subaltern enterprise cultures in Kochi's construction industry and how this can help us rethink established frameworks in economic geography.

II. Middling Cultures of Enterprise in South Asia

Over the last few decades, cities across India and South Asia have undergone an urban development boom, as witnessed in the construction of countless infrastructures for elite consumption, including highways, metro rails, airports, hotels, malls, and condominiums. Critical urban scholars have examined the production of this high-end urban space at two extreme ends of value chain. Some have revealed how certain top-level actors, like private real estate developers, government agencies, and elite upper-middle class groups, are complicit in drawing transnational capital into Indian cities to facilitate uneven urban development thus excluding urban majorities from participating in everyday urban life (Searle, 2016; Ghertner, 2015; Ranganathan et al., 2023). Others have shown how these marginalized, dispossessed, and differentiated urban majorities co-opt, contest, and challenge these top-down processes leading to sometimes contradictory political outcomes (Harvey, 2003; Roy, 2011; Benjamin, 2008). While this scholarship has been useful in highlighting how the production of urban space in South Asian cities is a highly uneven, complex, and contested process, less is known about the lives of urban actors who operate at more intermediate scales and whose lives are precariously positioned in the interstices between these two oft-examined social classes.

Recent work in South Asian studies has tried to fill this gap. Scholars have brought attention to the quotidian practices of various kinds of mid-tier actors – middlemen, intermediaries, mediators, negotiators, brokers, fixers, and *dalals* – who operate somewhere in the "global interregnum" (Bjorkman, 2021), and whose work is vital for the functioning of South Asian cities (Searle, 2018; Cook, 2015). While the adoption of neoliberal economic policies was meant to herald an era of seamless market integration for residents of South Asian countries, it has further revealed the existence of vital material, institutional, legal, and informational gaps in everyday life

that have needed the intervention, knowledge, and expertise of mid-tier actors (Sud, 2014; Nelson, 2018). Brokers and fixers operate in these interstitial gaps as they mediate, fix, and broker relationship between states, markets, and societies, thus fixing the fabric of everyday life in society (Banerji, 2024; Reddy and Haragopal, 1985). One branch of this scholarship has focused on the ambivalent and morally fraught practice of political brokerage where brokers suture relationships between the state and its differentiated citizenry, often creating physical violence (Hansen, 2001), bureaucratic dependencies (Gupta, 2012), corruption and illegalities (Witsoe, 2012), and feudal patronage relations (Piliavsky, 2014). Another branch of this scholarship has emphasized the work of mid-level land brokers and land aggregators who connect global financiers and private real estate developers to peri-urban agriculturalists and cultivators, thus playing an important role in producing urban space for capitalist accumulation in South Asia (Baka, 2013; Gidwani and Updadhyay, 2022; Roy, 2020).

I am interested in understanding the third branch of this scholarship which focuses on economic brokerage and subaltern entrepreneurial practices. Since economic liberalization, public and private sector actors in South Asia have increasingly valorized the role of the independent risk-taking entrepreneur who uses his creative skills, daring personality, and dynamic agency in the pursuit of economic profit for himself as well as for national and global development (Bjorkman, 2021; Young et al. 2017). Simultaneously, faced with the "roll back" of state-supported welfare schemes and the consequent reduction in formal sector job, there have emerged diverse cultures of enterprise where young men from lower and middle class and caste backgrounds work as informal entrepreneurs in mid-level hierarchies of different sectors of the economy (Young and Jeffrey, 2012; Gooptu, 2013). These enterprise cultures are not simply produced by the diffusion of American-style entrepreneurial ideas from state and private sector actors in big metropolitan

centers in a top-down manner. Rather, they are produced in multiple sites – villages, provincial towns, peri-urban spaces, and secondary and tertiary cities – across South Asia (Jeffrey and Young, 2014; Jeffrey, 2009), which account for the bulk of the region's youth population and are dynamic spaces of aspiration, agency, and cosmopolitanism (Scrace et al., 2015; Chattopadhyay, 2012).

At the same time, scholars have also argued that these cultures of enterprise do not operate in a power vacuum but are often refracted through intersecting dimensions of social difference like class, caste, gender, and ethno-religion that exclude certain sections of society from participating in entrepreneurial activities. For example, Barve (2024) reveals how the vernacularization of enterprise cultures by Mumbai's last mile cable television operators or *cablewallahs* not only allows them to navigate socioeconomic marginalization wrought by neoliberal economic restructuring but also reinforces narrow ideas of citizenship and belonging in the city based on religious and ethno-linguistic identities. Deuchar and Dyson (2020) show how in the wake of structural unemployment in Dehradun, young men mobilize their educational experiences to create entrepreneurial opportunities for themselves in the booming private education sector while also creating gendered and class-based exclusions in this sector. Gooptu (2009) highlights how skill training programs provided by new malls to their employees in Kolkata not only create disciplined entrepreneurial subjects but also encourage individualist and self-centered thinking that discourages cooperation and collective action in the face of widespread institutional inequalities. In other words, emerging cultures of enterprise in South Asia constitute ambiguous, multivalent and contested practices that can engender new liberatory and progressive pathways but can also simultaneously concretize traditional oppressive and exploitative structures.

My work extends these debates by examining enterprise cultures displayed by mid-tier labor subcontractors in Kochi's construction industry. Labor subcontractors act as a key link that

connects private real estate developers who draw transnational capital into Kochi's real estate market with the migrant labor power needed to materialize and fix capital into Kochi's urban landscape for further capital accumulation. Labor subcontractors also connect private capital and migrant labor to factions of the state which set the limits on the amount of surplus value that capital can extract from labor during the production of infrastructures in Kochi. How do labor subcontractors mobilize and manage migrant workers for construction projects in Kochi? What are the cultural competencies and social skills needed to become a labor subcontractor? How do labor subcontractors mediate and negotiate stable relationships between competing interests of private capital, state agencies, and migrant labor? Who is excluded from labor subcontracting work and in what ways? Answers to these questions will reveal how subcontracting is a morally fraught and contradictory practice that necessitates the mobilization of diverse skills, techniques, and ideologies that serve profit-making motives and nation-building goals but also excludes certain sections of society based on gender, caste, and ethnicity. Before illustrating my argument, I first trace some of the main structural processes that have precipitated the rise of subcontractors in Kochi's construction industry.

III. The Rise of Labor Subcontractors in Kochi's Construction Industry

With the liberalization of India's economy in the 1990s and the influx of private capital into the construction industry, there has been a shift in construction laborer employment practices. Traditionally, most buildings were constructed with locally sourced materials by a master craftsperson and a team of apprentices who often belonged to specific construction-oriented castes and communities (Gopikuttan, 1990). Today, new buildings and infrastructures in Indian cities are built by professional construction companies and building contractors who employ migrant

workers from different parts of rural India. These workers travel thousands of miles from their lesser developed "source" regions to perform precarious construction work in cities. In fact, India's construction industry engages nearly 50 million such workers making it the country's largest employment generator after agriculture (Srivastava and Sutradhar, 2016). However, more than 95 percent of workers lack formal contracts and are engaged in casual work arrangements, exposing them to workplace exploitation and abuse (Soundararajan, 2013).

In Kerala, construction worker employment practices started changing in the 1970s during the Gulf "Oil Boom" when the State witnessed a largescale out-migration of lower-skilled working-class men to work in the Arabian Gulf's emerging oil-based economy. This created a demand for construction workers in the State which was met by the in-migration of laborers from the neighboring states of Tamil Nadu and Karnataka (Harilal & Andrews, 2000). Things started changing again in the 2000s when private real estate developers and construction companies started building largescale infrastructures like airports, container terminals, metro rails, malls, and condominiums in Kerala's metropolitan centers, like Kochi, which needed a larger pool of laborers to construct. This gap was filled by the largescale in-migration of lower-skilled "guest workers"[16] from poorer, rural, and underdeveloped States of north and east India, like West Bengal, Odisha, Jharkhand, Bihar, Uttar Pradesh, and Assam. There are around four million guest workers in Kerala and most of them are involved in different kinds of construction work (Peter and Narendran, 2017).

Importantly, there are a diversity of ways in which migrant workers are recruited for construction work. For large-scale construction projects commissioned by the Central government, State government or private real estate developers, migrant workers are recruited by professional

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[16] The State Government of Kerala officially designates internal migrants as "guest workers" and have instituted a set of policies for their welfare and inclusion into Kerala society.

labor agents or companies who use their contacts in different parts of rural India to source laborers for construction work in exchange for a fee (Prasad-Aleyamma, 2017). In this case, workers don't have much agency to select their workplace as they are tied to their company and can be shifted from one construction site to another based on the company's needs. Another mode of labor recruitment is through individual (sub)contractors who are commissioned to work on certain portions of construction work on a piece rate basis. Here, migrant workers arrive in Kerala through their social networks and are engaged by smaller and mid-level contractors for construction work. These workers are more footloose and have more agency to choose their employers and workplaces. Some migrant workers, especially those who have been in Kerala for a long time and have built relationships with site managers, are recruited directly by real estate developers (Peter and Narendran, 2017).

The empirical sections that follow build on data collected over two years (2021-2023) of ethnographic fieldwork at two apartment construction projects in Kochi. Beginning from the two construction sites, I traced out the networks through which construction workers were mobilized and deployed on construction sites. This methodological approach took me to labor camps and migrant work settlements, like Perumbavoor, in small towns and suburbs on the outskirts of Kochi where large number of migrant workers had established long term roots. Importantly, it also took me to an important set of intermediary actors in the construction hierarchy – labor subcontractors – who have largely been ignored in critical social science theory. I conducted semi-structured interviews with 62 actors, including labor subcontractors, construction site managers, migrant construction workers, migrant worker rights activists, and government representatives. I also conducted participant observations at several sites, including construction sites, labor camps, tea shops, contractor's homes, and NGO offices. To triangulate my ethnographic findings, I collected

copies of textual materials, like daily-wage worker timesheets, medical insurance policy documents, provident fund policy documents, construction contract documents, construction signboards, government policy documents, NGO reports, newspaper articles, and pamphlets and posters advertising contractor services. Most labor subcontractors belonged to lower middle-class and caste communities from Kerala and north Indian States of West Bengal and Odisha. Based on who I was speaking to, I conducted interviews in Malayalam, the official State language of Kerala spoken by its 34 million residents, and Hindi, India's most widely spoken language used by more than 400 million people mainly in north India. My familiarity with both languages and my positionality as a Mumbai (north India)-raised Keralite allowed me to slide along the fluid "outsider-insider" spectrum depending on the interview context. I draw from this ethnographic data in the empirical sections that follow.

IV. Constructing Credibility

"Get in here", bellowed Vishwajit from across the street, barely audible under the constant pitter-patter of raindrops falling on the tin roof of a derelict *chaayakada* (teashop). I ran across the street and joined him for a cup of hot *kattan chaaya* (black tea) and flaky egg puffs, classic accompaniments for the inclement weather. Vishwajit is a 34-year-old labor subcontractor from the East Medinipur district of West Bengal. He first came to Kochi in 2008. After working for a few years as a brick mason and developing good relationships with Malayali site engineers, he was offered the chance to become an independent labor subcontractor on a project. Since then, he has subcontracted labor for more than 30 construction projects in Kochi. I asked Vishwajit how he gets new contracts. His face beamed with pride as he responded,

"It takes years of building trust and credibility. After working diligently, people slowly started noticing the quality and integrity of my work. Now I know all the *saablog* (senior management personnel) like site engineers, project managers, and managing directors of big real estate and construction companies in Kochi. They call me whenever they have new projects."

Vishwajit highlights the importance of building trust and credibility in his line of work. He came to Kochi as a teenager and worked as a mason on construction projects. After developing a trustworthy relationship with local site engineers, he was able to bag his first independent labor subcontract. Thereafter over 14 years, he has continued producing good quality work and building trustworthy relationships with senior management personnel at several real estate and construction companies in Kochi. He mobilizes these long-term trust-based relationships to get new labor contracts.

This idea of establishing trust in entrepreneurial work is not new. Business and management scholars have routinely characterized "trust" as a form of social capital that can facilitate entrepreneurial success. Scholars also argue that trust is especially needed in Global South contexts where the persistence of "institutional voids" (Khanna and Palepu, 2010) – like the absence of strong legal safeguards, written contracts, enforceable regulations, and foolproof market information – necessitate the use of informal intermediaries and local expertise to bridge these institutional voids and enable business success (Khanna, 2018). Scholars have also highlighted how, in the absence of state-provided welfare infrastructures in Global South cities,

social relationships of trust based on kinship ties, familial connections, religious networks, and gendered labor become social infrastructures themselves that allow marginalized urban majorities to socially reproduce themselves (Simone, 2004; Elyachar, 2010). As Bjorkman (2021) argues, it is this absence of trust in the Global South that creates opportunities for actors with entrepreneurial proclivities to build a trustworthy reputation and make themselves indispensable to the functioning of different economies. In this context, labor subcontractors like Vishwajit are using their social skills and expertise to not only build infrastructures in Kochi but also craft new social values of trustworthiness, integrity, and credibility that will allow them to get new contracts in the future. Importantly, not only do labor subcontractors need to build trust with top-level actors in the construction economy who they must rely upon for procuring new contracts, but they must also build trust with bottom-level actors, like migrant construction laborers, who they need for doing backbreaking construction work.

This was made clear to me by Girish, a 36-year-old Malayali contractor who I met at a labor camp – a shared accommodation provided by the subcontractor to house his daily wage laborers – on the outskirts of Kochi. The camp had basic amenities that allowed laborers to socially reproduce themselves at the end of their workday. A greasy kerosene stove lay in a corner where a designated cook was charged with preparing steamed rice, *chapatis* (north Indian flat bread), and *dal* (north Indian lentil soup). Coir sleeping mats and Hindi language magazines lay strewn around the room. Washed vests and undergarments were strung out to dry on a sagging clothesline (see Figure 14). A deck of playing cards along with a half empty liquor bottle seemed to have been sloppily tucked away under a pillow. I asked Girish how he manages his workers. He replied,

"Currently, I employ 42 *Hindikaaran* (Hindi speaking workers). Most of them have been with us for many years. They trust us because we take good care of them and pay them regularly every week. I also take accident insurance for them and give them PF (Provident Fund). Just like we Malayalis go to the Gulf for work, similarly they have left their homes to come here and work. We understand their struggles. This is their Gulf."

Girish makes an important point. Trust must be earned across all sectors of the construction hierarchy. North Indian migrant workers constitute around 10 percent of Kerala's population and are crucial for the function of its economy. Yet, they work in some of the most precarious and harmful conditions, especially on construction sites. Over the last decade, there have been many cases where migrant workers have been killed on construction sites due to negligent or nonexistent safety precautions. There have also been countless cases of subcontractors not paying migrant workers on time, thus leaving them in the lurch. In fact, the nonpayment of wages is an important accumulation strategy used by subcontractors (Prasad-Aleyamma, 2017). These issues are further compounded by the fact that in India's construction sector, more than 95 percent of workers don't have formal, written, and legally enforceable labor contracts (Soundararajan, 2013). In this context of widespread migrant worker precarity, most migrant workers in Kerala are a footloose population and part of the "footloose proletariat" (Breman, 1996). If they feel like they are being mistreated or exploited, they will leave their current subcontractor and seek another one through their social networks. Thus, it becomes vitally important for subcontractors to build trust-based relationships with migrant workers so that they can rely on them for construction work in the long run. In other words, the entrepreneurial success of subcontractors depends on their ability to build and manage trustworthy relationships with migrant workers.

Figure 14: A "labor camp" at a construction site in Kochi (credit: Author)

Girish mentions that he employs 42 migrant workers, most of whom have been with him for several years. He has built a trust-based relationship with them because he takes good care of them. He calculates their daily wages and dispenses cash on the site at the end of each week. He subscribes to a group accident insurance scheme to compensate workers in case of workplace accidents. He also provides provident fund payments to workers through the Employees' Provident Fund Organisation, India's statutory retirement plan. Furthermore, he also provides decent accommodation facilities for their workers and supplements their meals with a weekly dose of chicken and fish. Through these practices, migrant workers have come to trust Girish and thus have stuck him for several years.

Girish also equates the struggles experienced by migrant workers in Kerala to those experienced by Malayali workers in the Arabian Gulf. While Kerala's Gulf migration trajectory has been growing since the 1970s, most Malayali workers have experienced precarious and exploitative working conditions in Arab society, best captured by several popular Malayalam novels and films (Karinkurayil, 2024). Girish himself knows of horror stories experienced by friends and family members who have migrated to the Gulf. In this way, subcontractors like Girish construct an intersubjective relationship with migrant workers based on their shared experiences of migration, thus enabling them to build trust and succeed in their entrepreneurial endeavors. Similar instances of building trust based on shared migration experiences were recounted by 10 of the 13 Malayali subcontractors I interviewed. Thus, while popular portrayals highlight the macho go-getter individualistic disposition of successful entrepreneurs, it often elides the fact that entrepreneurship is often an "intersubjective practice enabled by particular institutional and sociocultural configurations and networks" (Bjorkman, 2021: 8). As scholars have argued, the grueling intensity of work on construction sites can create new social relations, intimacies, and intersubjective shared solidarities (Dharia, 2022). Subcontractors rely on these intersubjective practices to move deftly across different classes of society knowing well what cultural practices to mobilize in what context (Young and Jeffrey, 2012).

The ability to move across different cultural contexts also helped subcontractors navigate diverse spatial contexts. Most labor subcontractors I interviewed had either just returned from extended stays in north India or were on the verge of travelling there. Even in Kochi, subcontractors spend considerable time on the move shuttling between several locations – construction sites, labor camps, real estate developer and construction company's offices, the district Labor Commissionerate's office, and banks – for which they used a variety of transport,

including motorcycles (like Suresh in the opening vignette), cars, buses, and metro trains. The ability to navigate diverse spaces seemed like an important skill needed to succeed as a subcontractor. This was confirmed by Pintu, a 26-year-old subcontractor from Khordha district in Odisha,

> "I usually take a flight home once every three to four months to meet my parents. I also use this opportunity to recruit workers from my village community for construction work in Kochi. The best part about my job is travelling to different places, meeting new people, and setting things up. The first few months in a new place are always difficult because you must make your team adjust and settle down. But once the basic things are set, then it's a breeze."

Here, Pintu reveals how he routinely travels home every few months to not only perform care work for his aging parents, but to also recruit new workers from his community for construction projects in Kochi. A major mode through which circular migration occurs within India is network migration, i.e. migration mediated by social networks (Peter and Narendran, 2017). In this context, potential migrant workers hear about distant places from their kin and kith who have migrated there and use these social networks to themselves undertake migration for the first time. Subcontractors like Pintu also act as crucial conduits in facilitating this migration as they routinely travel between migrant sending and receiving destinations and actively recruit migrants from their communities based on caste, ethnicity, and religious ties. Similar experiences of building patronage and trust relations to secure long-term supplies of labor have also been documented in construction

economies in other South Asian cities (Sargent, 2019; Dharia, 2022). Scholars have shown how community and kinship ties based on caste, class, gender, and ethno-religious relations play an important role in enabling economic activities in South Asia (Gidwani, 2008; Chari, 2004), thus exhibiting the workings of post-colonial capitalism (Sanyal, 2007). Something similar is witnessed in Kochi where trust built through the mobilization of caste and kinship networks are central to the workings of labor subcontracting practices in Kochi's construction industry.

Importantly, Pintu also reveals how he relishes the challenges that travel throws up. He enjoys travelling to new places, meeting new people, recruiting them, accompanying them during their maiden migratory journeys, and helping them get accustomed to new places and cultures. In other words, the ability to tactfully navigate diverse spaces, some more than a few thousand miles apart, seems like a necessary skill needed for succeeding as labor subcontractor. Most subcontractors I interviewed specifically highlighted their ability to traverse different spatial settings, like rural and urban, north India and south India, real estate developer offices and government offices, and banks and construction sites. Similar kinds of spatial acuity and competency have also been displayed by young entrepreneurs in other sectors of the economy, like microfinance lending (Young, 2010), private tertiary education (Jeffrey, 2009), and informal street economies (Jones, 2010).

The ability to tactfully traverse diverse spatial contexts also dovetails with the cultural competency needed to communicate in multiple languages. This was explained to me by Binu, a 28-year-old Malayali contractor who I met at a construction project in Kochi where he and his team of workers were engulfed in an animated discussion around a large architectural drawing. As I tried to slowly elbow my way into the huddle, I heard broken sentences in several languages

including Malayalam, Hindi, Bengali, and Odiya. Later I asked Binu how he navigates this linguistic diversity on construction sites. He said proudly,

> "Oh, this is nothing! I've worked on projects in Mumbai, Bangalore, and Chennai. Initially I used to struggle there because no one spoke Malayalam. I used to wonder what foreign language people were speaking. Then slowly I picked up the local language and things became easier. Now I can speak a bit of Hindi, Kannada, and Tamil. I can also understand bits of Bengali and Odiya. You need to know many languages if you want to be a subcontractor."

Binu is right about the importance of knowing multiple languages for subcontracting work. Ever since the reorganization of Indian States into ethno-linguistic territories in 1956, language has been a hotly contested topic in the country. Currently, India recognizes 22 official languages but there are hundreds of other languages spoken across the country that are dying a slow death. Furthermore, to develop national unity and facilitate cooperative federalism, two languages: Hindi and English, are recognized as official languages of the central Government. However, in practice, Hindi which is spoken by over 400 million people primarily in north India, has been gaining ground as the de-facto official language much to the chagrin of south Indian states of Kerala, Tamil Nadu, Karnataka, Telangana, and Andhra Pradesh who consider it a foreign language whose Brahminical Aryan roots are antithetical to the south's more egalitarian Dravidian culture. Hindi's hegemony is not only enabled by popularity of mass media platforms like Bollywood but also by the deliberate maneuvers of the ethno-nationalist rightwing BJP political party which wants the

Republic of India to adopt Hindi as its sole official language. These moves have been vehemently opposed by the southern States, especially Tamil Nadu. Since the 1930s, violent protests have erupted in the Tamil Nadu against the top-down imposition of Hindi by the central government. Similar kinds of protests have also been witnessed in Kerala in 2025 in opposition to the BJP-ruled central Government's latest measures to forcefully impose Hindi on southern States.

Amidst this landscape of contested ethno-linguistic regionalism, something interesting has been occurring in Kerala. While the State officially opposes the top-down imposition of Hindi, many Malayalis have begun organically engaging in Hindi due to the State's overreliance on north Indian migrant workers. Around two decades ago it would have been difficult to hear Hindi on Kochi's streets. But now, across Kochi and Kerala, one can often hear Hindi words spoken on the streets as well as find Hindi language signboards on construction sites, private buses, restaurants, grocery stores, cinema halls, and shopping malls (see Figure 15). Nowhere is this cultural transformation more evident than on construction sites, which accommodate more than 60 percent of the State's four million migrant workers (Peter and Narendran, 2017). Due to their dependency on north Indian migrant workers, Malayali subcontractors like Binu have acquired conversational skills in Hindi. In fact, conversing in Hindi was highlighted as important skill by all the 13 Malayali subcontractors I interviewed. In this way, languages skills picked up by subcontractors allow them to command respect from north Indian workers and build long-term relationships with them.

Figure 15: Construction signboard written in Malayalam, English, and Hindi in Kochi

(credit: Author)

The above vignettes underline the different cultural competencies needed to develop trust and succeed in the labor subcontracting business in Kochi for young men from lower- and middle-class and caste backgrounds. I have shown how labor subcontractors use their position as mid-level actors in the construction economy to cultivate long-term trust-based relationships with both top-level actors, i.e. managerial and executive personnel of real estate and construction companies and bottom-level actors, i.e. migrant laborers. I have also shown how success in subcontracting depends on the ability of young men to inhabit diverse spatial and cultural worlds, like traveling between rural and urban spaces, and learning several languages. These skills allowed subcontractors to develop "provincial cosmopolitan" (Chattopadhyay, 2012) identities that are crucial for their entrepreneurial success. As Gidwani and Sivaramakrishnan (2003: 345, italics in

original) note, cosmopolitanism "*is that art of being which is able to straddle a political world of difference and deploy the technologies of one to some advantage in the other*". Furthermore, I argue that by straddling worlds of difference, subcontractors also become entangled in the political and contested project of nation-building. But rather than being an authoritarian top-down form of nation-building as practiced by the Indian State, theirs is a more subtle, organic, and bottom-up form of nation-building that has had more success in binding culturally diverse south Indian States to the rest of the country. However, mid-level enterprise cultures do not always produce emancipatory political outcomes. In many cases, they reinscribe and consolidate traditional social structures as I discuss in the next section.

V. Compromising Credibility

One evening in July 2022 I attended a lavish banquet at a hotel in Kochi hosted by a prominent real estate developer for their professional associates, i.e. architects, civil engineers, and labor subcontractors. The room was teeming with mostly young men, dressed in their best attires, busy networking with each other over drinks and snacks. A little while later, the developer's brand ambassador – a famous Malayalam movie star – ascended the dais and thanked the associates for attending the event. It was then the CEO's turn to address the crowd. In his rousing speech, he acknowledged the entrepreneurial agency of the company's associates which had facilitated the growth of the company and had created thousands of new jobs. The room thundered in applause as the young men nodded at each other, their faces beaming with pride. Later, I asked the company's general manager Ranjit why the room was filled with so many men. Ranjit responded with a dismissive shrug of the shoulders,

"Look, we're actively trying to employ women across our operations. But women are afraid of site work. They can't cope with the demands of it, like working under the hot sun, working on high rise projects, and dealing with subcontractors. They are more suited to the air-conditioned confines of office work. That's why all our subcontractors are men."

Ranjit's blunt answer reveals the sexist ideologies underpinning construction work in Kochi. He said that the real estate company preferred working with male subcontractors because he was unsure if women could handle the rigors of site work, i.e. working long hours under hot and humid weather conditions, working on high rise projects under precarious safety conditions, and negotiating with contractors and vendors. Such gendered ideologies of site work can be found on construction sites across India making them highly masculine spaces (Dharia, 2022; Sturman, 2020). In fact, all the migrant construction workers I encountered during fieldwork were men, many of whom had left their parents, wives, and children in their rural north Indian hometowns to work on construction sites in Kochi. The few women I encountered during fieldwork were either architects or engineers from upper-middle class backgrounds who had come to do brief site visits but would then return to their offices. Furthermore, of the 23 subcontractors I interviewed, all were men who spoke about the physical demands of site work with a certain bravado and machismo that reveled the masculinist ideologies associated with subcontracting work. This means that while subcontractors are constructing infrastructures, they are also constructing masculine identities that exclude women from participating in these economies and are thus reinforcing traditional patriarchal gender norms and ideologies. Similar kinds of gender-based exclusions have been documented in other enterprise cultures in India which make it difficult for women to succeed as entrepreneurs (Young and Jeffrey, 2012; Deuchar and Dyson, 2020).

In addition to gender, occlusions also occur along ethnic lines. This was confirmed by Avijit, a 27-year-old contractor from the North 24 Parganas district of West Bengal. Avijit had followed his cousins to Kochi to work as a daily wage laborer on construction projects. After working for several years, he had risen the ranks to become a labor subcontractor. Dressed in denim jeans and a printed T-shirt, his earphones dangled around his neck in as if anticipation of an important phone call from one of his construction sites. A self-proclaimed Salman Khan fan, he wore a silver bracelet with a blue gemstone around his left wrist, much like his idolized Bollywood star. I asked Avijit about his plans to grow his business operations. He responded with a slight grimace,

"In the future I want to become a big contractor who can take full civil works contracts. Right now, I don't have money to do that. I will need to take a loan from a bank or moneylender and that's a risk I can't afford right now. I need to make more profit and become stable before I can think about it."

Here, Avijit expresses ambitions to become a bigger contractor who can undertake material contracts in addition to labor contracts. In Kochi, most north Indian subcontractors like Avijit are small-time labor subcontractors. They employ around 30-50 migrant workers who they manage at 2-3 construction sites at a time. In these projects, they are subcontracted by the main contractor on a piece rate basis to perform specialized tasks, like shuttering, formwork, concreting, and blockwork. He calculates and pays his laborers' wages on a weekly basis and aims to make a profit of 15-20 percent of the contract once all labor expenses have been accounted for. But the value of

these piece rate subcontracts is generally small compared to the costs of full civil works contract that main contractors get and so is the profit. For example, piece rate subcontracts can range from Rs. 80 lakhs to Rs. 1 crore while full civil works contracts usually are in the range of around Rs. 10 crores for a multistory building. Thus, one can earn almost 10 times the profit if one were to take a full civil works contract. However, as Avijit notes to become a big contractor requires investing in building materials, heavy machinery, safety equipment, and storage yards, in addition to labor, all of which require huge sums of capital which small-time subcontractors like him don't have. He would have to take a loan from the bank or a money lender at usurious rates, but this is a risk that he can ill afford at this stage in his career. Similar anxieties about their inability to move up professional ladder were displayed by 7 of the 9 north Indian subcontractors I interviewed.

It is no wonder that all the big contractors I interviewed in Kochi were Malayali men, many from middle and upper-caste backgrounds. Unlike north Indian contractors like Pintu, they were born and raised in Kerala and knew how the local political-economic system operated. They had friends and family members in powerful institutions, like state bureaucracies, real estate and construction companies, and banks and financial institutions who they could rely upon to get new contracts, get required licenses, and pay fines and bribes. As Dharia (2022: 12) argues, construction economies "replicate caste hierarchies and operate through caste-based affiliations and networks and are deployed to produce capital through the maintenance of caste hierarchies". Importantly, Malayali contractors also own land which they can use as leverage to get loans and overdraft facilities from banks, thus enabling them to take full civil works contracts which require large amounts of capital and the ability to absorb payment delays and also make advance payments. In this context, north Indian subcontractors remain only small-time labor subcontractors where their

work has become "ethnicized" (Sturman, 2020: 81), while Malayali subcontractors are able to rise the professional ladder to become big contractors.

Many times, exclusions from subcontracting work can also occur along religious lines. This was explained to me by Shaumiran, a 27-year-old subcontractor from Kolkata district of West Bengal, who I met at a house construction site in peri-urban Kochi. When I asked him how he deals with labor issues on construction sites, creases appeared on his forehead as he said,

"Usually there are no issues. However, one issue which keeps cropping up concerns food. My Hindu workers are not comfortable sharing kitchen space in the labor camp with Muslim workers who eat beef. This has caused me several problems. Many times, I've had to rush to the labor camp in the middle of the night to mediate the matter. Now I avoid hiring Muslims on my construction sites. If I do hire them, I tell them strictly that beef cannot not be cooked in the common kitchen."

Shaumiran makes an important point about food politics in contemporary India. Over the last decade, India has witnessed the rise of right-wing political party – the BJP – which has spread its vile and extremist brand of communal, non-secular ethno-nationalist politics across the country. Due to this, food and especially beef eating (considered taboo to dominant caste Savarna Hindus) has become a bone of contention and mode of afflicting sectarian violence on marginalized Muslim lives, bodies, and homes. Across north India, countless Muslim men have been lynched by vigilante Hindutva mobs on the mere suspicion of ferrying cows or consuming cow meat. In almost

all cases, these suspicions have been unfounded, and the culprits have been let go scot-free by the administration.

This kind of food politics is slowly creeping into Kerala. Due to more than a millennia of trade relations with the Indian Ocean world, Kerala has a unique demographic profile with where Muslims (27 percent) and Christians (22 percent) constitute a significant portion of the State's population compared to the national average of 14 percent and 2 percent, respectively (Chandramouli, 2011). This demographic profile along with its history of religious harmony and interculturalism has ensured that beef eating is not only not taboo but is instead celebrated as a cultural marker of being a Malayali and is widely consumed by more than 80 percent of the State's population. These cultural factors have also ensured that the BJP's brand of exclusionary Hindutva politics has failed to flourish in Kerala both electorally and culturally (see Figure 16). But things have been changing recently with increasing influx of migrant workers from north India and the recent electoral success of the BJP in the 2024 Lok Sabha elections when the party opened its account for the first time in Kerala. This has created more communal issues between the State's Hindu, Christian, and Muslim residents.

Figure 16: A framed picture depicting the Hindu deity Ganesha, Jesus Christ, and the holy Quran at a construction site office in Kochi (credit: Author)

These tensions have also percolated onto construction sites and labor camps further blurring the boundaries between spaces of production and social reproduction. For migrant construction workers and subcontractors, their spaces of production (construction sites) are also their spaces of social reproduction (labor camps usually located on or close to construction sites). In this context, confrontations around food and eating habits can often spill over onto workplaces thus affecting subcontracting practices and construction work. Due to this reason, Shaumiran has stopped hiring Muslim laborers on his construction sites. Similar experiences of contestations around food were recounted by 12 other subcontractors I interviewed. Thus, as feminist scholars have long argued, social differentiation also occurs *within* subaltern groups because marginalization and oppression are always compounded by intersections of ethnicity and religion (Lawhon et al., 2014; Doshi, 2017). In this way, Muslim migrant workers are not only excluded

from construction work but are also robbed of the opportunity to rise up the ranks of the construction hierarchy and become independent subcontractors themselves.

In the above vignettes, I have examined the complexities and contestations inherent in the enterprise cultures of labor subcontracting. Labor subcontractors possess the cultural competencies to straddle multiple worlds of difference and play an important role in constructing national imaginaries through their daily work. Their cosmopolitanism also produces new intersubjective modes of being and novel social relations based on shared realities of grueling construction work. However, as scholars have argued these kinds of subaltern enterprise cultures do not always produce egalitarian social outcomes (Gidwani, 2006; Jeffrey and McFarlane, 2008). In many cases, enterprise cultures are constituted by oppressive and exploitative functions that reinscribe and reproduce traditional social structures rather than break them (Gooptu, 2013). I have highlighted the exclusions that occur in subcontracting work based on gender, ethno-linguistic, and religious differences. Thus, I argue that enterprise cultures do not occur in a power vacuum. Rather they are refracted through intersecting dimensions of social difference that points to emerging forms of differentiation in and differential access to entrepreneurship practices in contemporary India. Furthermore, they also point to emerging forms of contestations around nation-building processes in contemporary India.

VI. Conclusion

Since the 1990s-2000s infrastructure boom in Indian cities like Kochi, construction projects have demanded large numbers of laborers to do construction work of varying skill categories, like masonry, carpentry, electrical and plumbing work, shuttering and formwork, etc. This labor

demand has been met by the largescale migration of internal migrant workers from rural lesser developed parts of north India, like Assam, West Bengal, Odisha, Jharkhand, Bihar, and Uttar Pradesh to work on construction projects in cities like Kochi. These migrant workers are mobilized, managed, and deployed by an array of mid-level construction sector actors – labor subcontractors – who are usually young men from lower class and caste backgrounds who display enterprise cultures which have been much celebrated in the mainstream Indian media and policy circles. I have highlighted the cultural competencies, cosmopolitan skills, and the diverse cultures acquired and displayed by these entrepreneurial actors to become successful labor subcontractors in Kochi. I have also shown how these celebrated enterprise practices do not operate in power voids but instead reflect and embody the social and economic tensions of contemporary Indian society because subcontracting practices exclude people based on gender, ethnic, and religious identities.

Two important theoretical takeaways emerge from these findings. First, scholarship in critical urban studies has tended to mainly focus on actors at the top and bottom ends of the urban production hierarchy. In my work I have drawn on the recent focus on "mid-level" actors in South Asian Studies to highlight the importance of labor subcontractors who act as crucial conduits connecting the top and bottom ends of the construction hierarchy. I argue that urban studies will do well to address such mid-level actors because socio-spatial inequalities and uneven development are produced across different intersecting scales and thus it is important to situate our analyses in these different sites. Second, by focusing on the complexities of enterprise cultures in Kochi's construction industry my work has also contributed to debates in economic geography and critical entrepreneurship studies by highlighting the different ways in which the cosmopolitanism of subaltern enterprise cultures is compromised by social exclusions based on class, caste, gender, and religious differences.

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CONCLUSION: ORDINARY CITIES, (EXTRA)ORDINARY RELATIONALITIES

In this dissertation, I have highlighted the spatially dispersed networks of relationality and interdependency created by the development of buildings in Kochi city in Kerala, south India to understand how the production of urban infrastructures in fast-developing cities of the Global South are implicated in creating uneven geographical development that entangle diverse places and scales. To do this, I used a "follow the thing" (Cook et al., 2004) methodology to trace the translocal networks of remittances, sand, and laborers that are mobilized to produce buildings in Kochi. Ethnographically following these three trails took me to distinct places, both near and far, and foregrounded various kinds of social inequalities and environmental vulnerabilities that are created during the production of urban infrastructures. An analysis of how these inequalities are produced and their socially differentiated impacts formed the core content of the three empirical chapters of my dissertation as I summarize below.

In Chapter 1, I traced the flow of remittances back from construction sites in Kochi to real estate expos and sales/marketing events, real estate satellite offices, Indian diaspora homes and workplaces, and Indian bank offices in Dubai, UAE. Recent scholarship in economic and urban geography has highlighted how the production of unevenly developed urban spaces in Southern cities are the effects of mainstream financial technologies, actors, and logics being exported from the Global North to the Global South (Aalbers, 2019; Halbert and Attuyer, 2016). My study refutes these overgeneralized claims by showing how Kochi's uneven urban transformation is being facilitated by financial practices that draw on its own unique relationship with the Arabian Gulf and the wider Indian Ocean world. Rather than relying on global financial institutions and networks, I have shown how Dubai-based Indian banks work hand in glove with Indian real estate

developers to financialize the remittances of diaspora members to produce "world-class" buildings in Kochi. This creates two problems. First, it produces uneven urban development in Kochi and Kerala. Kerala has long been known to display a "desakota" style distributed pattern of urban development best typified by the millions of independently standing, aesthetically diverse "Gulf houses", built with the remittances, dreams, hopes, desires, aspirations, and idiosyncrasies of generations of Gulf migrants. However, the financialization of Gulf remittances for real estate development in urban metros like Kochi is cementing the concentration of wealth, status, and power in a select few gated communities, that are changing the State's spatially diffused urban morphology as well as challenging the socialist and redistributive ideals of the much lauded "Kerala Model" of development. Second, the financialization of Gulf remittances to produce luxury buildings in Kochi also discreetly shifts financial risks associated with transnational real estate investments away from real estate developers to the lives, relationships, and bodies of precariously employed Gulf-based Indian diasporas by integrating formerly intimate and intra-household money transfers into volatile global financial circuits. This not only shows the diversity of financial practices that undergird global capitalist urbanization but also foregrounds other cartographies of being "global" and practicing "globality" that do not privilege the economic logics, value regimes, and financial technologies emanating from the 1970s Global North.

In Chapter 2, I traced the flows of sand granules back from building construction sites in Kochi to sand extraction and production sites in the ecologically sensitive Western Ghat mountains of southwest India. Recent scholarship has shown how "new" spatially dispersed extractive "frontiers" are created by resource demands of planetary urbanization and green transitions. However, by following sand granules to their source I have argued that not only are these extractive sites not "new", but they are also not "frontiers". Most sand extraction sites in the Western Ghats

are located on former plantation lands that were established in the late 19th century during colonialism and from where plantation products, like cardamom and rubber, were extracted and exported to European metropoles that enabled the development of the latter at the expense of the former. The failure of colonial-era Western Ghat plantation economies in the post-1990s free market era has encouraged upper-caste plantation owners (who took over plantation economies from European colonialists in the 1940s) to convert plantation lands to sand extraction and production sites to cater to Kochi's emerging construction economy. This shows how different regions of the Global South that were unevenly incorporated into the colonial world system during centuries of colonial exploitation were central to the production of the modern unequal world and it is important to situate our analysis in these distinct geohistories to produce decolonial political ecologies. Furthermore, by mobilizing the concept of "plantation urbanism" my work has not only highlighted the coproduction of urban and rural but has also shown how powerful rural upper-caste plantation landowners extend their socioeconomic power to urban areas and unevenly shape the built environment of Kochi city much to detriment of historically marginalized lower caste and class communities.

In Chapter 3, I traced the networks through which migrant construction laborers from lesser developed north Indian States of Assam, West Bengal, Odisha, Jharkhand, Bihar, and Uttar Pradesh are mobilized, recruited, deployed, and managed on construction sites in Kochi. Scholarship in urban geography has largely focused its analytical attention on actors at the top-end of the production of urban space hierarchy, like private real estate developers, global financiers, and government actors, and on those at bottom-end, like migrant laborers, informal sector workers, and various socially differentiated urban majorities. Instead, I have drawn from the emerging scholarship on "mid-level" actors in South Asian Studies to examine the cultures of enterprise

displayed by lower-middle class construction subcontractors who act as important links between the top and bottom ends of urban construction hierarchy. By examining the daily work practices of subcontractors, I show how enterprise cultures in contemporary India are not produced by a diffusion of top-down discourses from government, media, and private sector actors and found in big innovative metropolitan cities but instead are found in countless small towns, villages, and per-urban areas across the country that are also implicated to producing cosmopolitan national identities and imaginaries. However, I also show that show how these diverse and creative enterprise cultures are not produced in a power vacuum but are refracted through everyday social inequalities, which not only excludes certain communities from climbing the entrepreneurial ladder based on intersections of class, caste, gender, ethnic, and religious identities, but also compromises the post-colonial Indian project of cosmopolitan nation building. By doing so, I extend debates in economic geography and critical entrepreneurship studies by highlighting how Southern cities are also dynamic sites of entrepreneurship, innovation, and inventiveness that need to be seriously accounted for.

Beyond contributing to theoretical debates in three interrelated sub-fields of human geography, my dissertation also extends major debates on "postcolonial urban studies" (Robinson, 2002: 533) that began around two decades ago. In her now classic book *Ordinary Cities: Between Modernity and Development*, Robinson (2006) highlighted how the "global cities" and "world cities" approaches in urban studies was shaped by the experiences of a select few Global North metropolises, like New York, London, Paris, and Tokyo, that were theorized as "modern" sites of economic dynamism and creativity and were thus heralded as the command-and-control centers of the globalizing world economy. In contrast, cities of the Global South – popularly characterized as third-world, underdeveloped, poverty-, corruption-, and crime-ridden, or slummy – were seen as

their conceptual Other, residual spaces lacking modern urban traits of financial innovation and thus needing development interventions that could help them "catch up" with their Northern counterparts. Robinson had two main issues with the "global cities" framework. First, it revealed the colonial and neo-imperial logics embedded in contemporary urban theory that classified, ranked, and indexed cities based on their global financial integration and innovativeness thus placing Northern cities at the top of the hierarchy. Second, by focusing analytical attention on a select few Global North cities, it limited the building of a truly "global" urban studies that "draws inspiration from the complexity and diversity of city life, and from urban experiences and urban scholarship across a wide range of different kinds of cities" (Robinson, 2006: 16). Instead, she advocated for an approach that began by examining all cities as "ordinary", i.e. an approach that "takes the world of cities as its starting point and attends to the diversity and complexity of all cities" (*ibid*).

Since then, several scholars have made similar calls to extend and expand the geographies of global urban theory, furthering different approaches for "provincializing global urbanism" (Sheppard et al., 2013). For example, Roy (2009) urges scholars to immerse themselves in diverse area studies literatures so that they can appreciate the "heterogeneity and multiplicity of metropolitan modernities" (*ibid*: 821) and thus produce "new geographies of theory" in the 21st century. Similarly, for Bunnel and Maringanti (2010: 418), producing non-metrocentric urban theories necessitate "ethnographic engagement with urban spaces and lives beyond 'global' financial districts, demand the use of languages other than English and require the kinds of cultural competencies that are usually associated with area studies training." Building theory from cities that lie "outside the metropolitan shadow" (Mukhopadhyay et al., 2020: 572) means "prioritising insights and concerns of writers from a wider range of languages, backgrounds, scholarly and

theoretical traditions and geographical contexts" (Robinson, 2021: 100) and comparing these insights with those from other cities by creatively "thinking through elsewhere" (Robinson, 2016). Examining the geographies of this "'other' urbanization" (Scrace et al., 2015: 224) also means looking at cities with a fresh pair of eyes through "redescription" (Simone and Pieterse, 2017) thus highlighting how the urban "surfaces" in different places and comes to matter for the world's urban majorities (Simone, 2011). Only then can we have an urban theory that more accurately accounts for the diversity, complexity, heterogeneity, and plurality of global urbanisms in the urban age (Lawhon and Truelove, 2020; Myers, 2020; Bhan, 2019).

One strategy for provincializing global urban theory that has become extremely popular is the "worlding cities" framework (Roy and Ong, 2011). In their important intervention in these debates, Roy and Ong mobilize Spivak's (1999) concept of "worlding" to call for "situated accounts of how urban environments are formed through specific combinations of the past and the future, the postcolonial and the metropolitan, the global and the situated" (Ong, 2011: 10). They argue that such an approach is a form of "mid-level theorization" (Peck, 2015: 169) that "dives below high abstraction to hover over actual human projects and goals unfolding in myriad circumstances of possibility and contingency" (Ong, 2011: 12). Such a tactic also shifts our analytical attention away from the study of already formed, pre-given "world cities" to a processual understanding of how all cities become world city-like through "worlding" practices, like urban modelling, inter-referencing, and the creation of new solidarities. To do this, they advocate for a reflexive methodology akin to "following" urban policy mobilities "across distended networks of relationally connected sites, and accounting both for dominant patterns and trajectories of transformation, but also for unscripted deviations and alternative mutations" (Peck and Theodore, 2012: 29). This would produce "distinctive visions of the global that exist without essential

reference to the West" (Ong, 2011: 21) by highlighting an "interconnected and interreferenced Asia, a complex circuitry and hierarchy of expertise, investment and development crisscrossing Mumbai, Singapore, Shanghai, Dubai, Manila and Jakarta" (Roy, 2011: 230).

Politically, I am on board with Roy and Ong's postcolonial agenda of extending the geographies of global urban theory. Contemporary urban studies is in need of new "'meso-level' conceptual innovations" (Brenner, 2019: 326) that are made by the "spatio-temporalities of a particular site and consequently transformed by the new geographical configurations of its destination" (Ortega, 2020: 672) thus revealing previously unexamined sites of theory building. However, Roy and Ong's approach of examining worlding practices of modelling and inter-referencing still privileges the study of big metropolitan centers. While it has shifted (to some extent) analytical attention away from a select Global North "world cities" to "worlding practices" in several Global South cities, the latter are overwhelmingly represented by quintessential metropolises (Bryson et al. 2021). For example, nine of the eleven chapters in their own agenda-setting book *Worlding Cities: Asian Experiments and the Art of Being Global* examine urban processes in extraordinary Southern megacities, like Kolkata, New Delhi, Mumbai, Bangalore, Beijing, Hong Kong, Dubai, Shanghai, Manila, and Singapore, which themselves act as financial hubs and command-and-control centers of their world regional economies. This kind of "urban bias" (Kanai et al. 2018: 2578) towards metropolitan centers in global urban studies is best highlighted in Kanai et al.'s (2018) excellent bibliometric assessment of the global urban studies literature over a 15-year period from 2010 to 2015. They argue that because of urban theory's long-standing focus on big urban centers in both the North and the South, there is now a "vast world of cities which have not yet been the focus of social science urban publications" (*ibid*: 2579). More importantly, most of these cities that lie "off the publication map" are in the Global South.

Apart from the reasons already outlined by the likes of Bunnel and Maringanti (2011), Roy (2009), and Kanai et al. (2018) for the metrocentric bias of global urban studies, there is also a deeper methodological issue here. Roy and Ong's (2011) approach of examining urban modelling and inter-referencing practices among competing Asian, and Southern, cities still reproduces familiar, exclusionary global urban cartographies because urban policies, knowledge, and expertise trudge paths already laid down by finance capital. As the de facto handmaidens of finance capital, they work hand-in-glove with the latter to create conditions for capital accumulation in Global South frontiers. However, these "frontiers" usually tend to be already-established metropolitan centers that have long been unevenly shaped by geohistorical processes like colonial expansion, structural racism, neo-imperialism, cold war geopolitics, fossil fuel extraction, etc. and which represent the best chances for capital's reproduction. Much like how water flows along pre-established furrows because of uneven topographical features, liquid finance capital – along with its handmaidens: urban policies, knowledge, and expertise – flow along unevenly developed topographies of the Global South. In doing so, they completely bypass provincial cities, small towns, and other nondescript peri-urban spaces which are, in fact, highly networked, dynamic, and cosmopolitan spaces that have historically played an important role in fostering progressive politics (Scrace et al., 2015; Chattopadhyay, 2012; Menon, 2019) and who will continue to play an important role in accommodating the bulk of the world's new middle-class urban residents in the coming urban age (Amin and Thrift, 2017; Mukhopadhyay et al., 2020).

So, how do we produce "counter topographies" (Katz, 2021) of global urbanism that do not reproduce familiar exclusionary global urban hierarchies that privilege financial logics, technologies, and value regimes emerging from the 1970-80s Global North but instead highlight the complexity, diversity, heterogeneity, and plurality of the contemporary global urban condition?

Marxist feminist geographers have long grappled with similar kinds of questions. For Katz (2001: 1216), this meant mobilizing "topography" as a research method to trace the "specific ways globalization works on particular grounds in order to work out a situated, but at the same time scale-jumping and geography-crossing, political response to it". For Massey (2005: 140), this meant untangling the messy "throwntogetherness" of place by tracing the social interactions they engender and foregrounding how they are mutually constituted by these entanglements with other places (Massey, 1991). For Dyck (2005: 243) this is a scalar question because a focus on the ordinary "holds tremendous potential for opening up understanding of processes operating at regional, national and global scales". But we know that scale is relative, experiential, and socially constructed (Marston et al., 2005). Then as Bryson et al. (2021: 10) argue, to develop a more inclusive and variegated global urban theory, one needs to "focus on unravelling the social construction of scale as it is experienced, constructed, and enacted by people and organisations" in ordinary cities because "extraordinary things happen in ordinary cities" (*ibid*: 6).

In my dissertation, I heeded Bryson et al.'s (2021) call to unravel the "extraordinary" transcalar and translocal relationalities of my "ordinary" city: Kochi in Kerala, south India. With a population of 3.5 million people, Kochi is one of the countless ordinary cities of the Global South that are "off the map" (Robinson, 2002) of global urban theory, significantly overshadowed by more populous and financially "innovative" South Asian peers, like New Delhi (34 million), Mumbai (20 million), and Bangalore (14 million). And yet, Kochi is extraordinary because of its unique geohistory which made it the bedrock of the ancient Indian Ocean world – "the first global economy" (Campbell, 2008) – for more than 3000 years. It is extraordinary because of its colonial plantation legacies that unevenly incorporated it into the 19th century world system which aided the development of West at the expense of south India while simultaneously destroying one of the

world's most biodiverse ecosystems and triggering our current climate emergency. And Kochi is also extraordinary because in the post-WWII decades, it was an important part of the State that gave the world its first democratically elected Communist Government which enacted social justice-oriented and redistributive development policies: the "Kerala Model", whose benefits are still accrued by millions of dispossessed and marginalized migrant workers today.

In my dissertation, I have untangled Kochi's extraordinary transcalar and translocal relationalities by drawing on the "infrastructure turn" (Amin, 2014: 138) in the social sciences and by "thinking from and with infrastructures" (Anand et al., 2018: 14). As Anand et al. note, "where we think from and what we think about affects what is it we are able to think" (*ibid*). Thus, rather than beginning research by examining urban policy mobilities and urban expertise networks as "worlding cities" proponents advocate, I have used an "infrastructural approach" to start research from the mundane built environment of an infrastructure project in Kochi to develop a more complex set of translocal social and environmental interdependencies. By doing so, I have foregrounded a critical "counter topography" (Katz, 2021) of Kochi's urbanization, one that connects "world-class" infrastructure development in the city to other places, regions, and scales in uneven and contradictory ways (Vegliò et al., 2025). By mobilizing "infrastructure as method" (Bjorkman, 2015), I have shown how the production of infrastructures in Kochi creates new, but also old, "topological" (Harvey, 2012) relationships between the communism-infused backwaters of the south Indian State of Kerala, the "Disneyfied" (Thani and Heenan, 2016) and "petrocapitalist" arid landscapes of the Arabian Peninsula, the tropical alpine plantation ecologies of one of the world's top "biodiversity hotspots": the Western Ghat mountains of India, and the distressed and unevenly developed agrarian farmlands of north and east India. By doing so, I have highlighted an alternate mode through which ordinary cities like Kochi practice globality and

become global, which some scholars have called "provincial globalization" (Upadhya et al., 2018). By tracing the contours of provincial globalization mediated by infrastructure development in Kochi, I have offered a postcolonial decentering of global urban studies and heterodox economics by revealing new transscalar interconnectivities and translocal interdependencies between/among countries and regions of the Global South which do not reference the Global North. This shows how all ordinary cities of the world are also simultaneously extraordinary. One needs to empirically situate our analyses in such ordinary cites in a "world of cities" (Robinson, 2005) to continue the important work of provincializing global urban theory and expanding the geographies of heterodox economic theory.

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