bypass infrastructures of the peri-urban fringe
Credits

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bypass infrastructures of the peri-urban fringe

WORKSHOP REPORT

Editor
Karl Beelen
with Janani Ganesan

IGCS
Indo-German Centre for Sustainability
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Surveying the fringe

Shortly over two hundred years ago, one William Lambton persuaded the Madras Government to fund a triangulation right across the Indian peninsula, south of the river Krishna. Lambton was a crown officer and surveyor in the English East India Company at the time, but his request in Madras would lay the foundation of the Grand Trigonometrical Survey of India – the fulfilment of a ‘scientific gaze’ that took close to seventy years to accomplish.

In 1802, in the months of April and May – when the mercury in Madras climbs up to forty degrees and more – Lambton set out to measure the base of the starting triangle, from Fort St. George’s Wallajah Gate in the heart of colonial Madras to St. Thomas Mount in the outskirts of the town. As his measuring chain recorded the distance, Mount Road – that historical backbone of the city and its main commercial point of orientation – would become permanently enshrined as the survey’s starting reference, the eponymous Madras baseline. For every distance recorded and for the duration of the Grand Trigonometrical Survey, Mount Road, measuring 12.1 kilometers in length, would serve as the entire subcontinent’s geographical point of reference. If, in the predominant cartographic illusion of the time, the survey’s resulting territorial archive was believed to be India itself (rather than just representing India), then Mount Road was essentially the yardstick for that particular way of looking and constructing empirical, on-the-ground information.

Now consider the following juxtaposing example. In a small lecture room over at Google's Bangalore offices, a small group of open-source coders, geohackers, geospatial analysts, data activists, and environmental governance advocates convene over the issue of open data. The event’s organizers are Datameet. This ‘open data camp’ is dedicated to urban emissions, pollution sensor demos, weather data hacks, as well as the Indian Government’s draft Geospatial Information Regulation Bill (May 4th, 2016). The discussions bear mostly on urban data, but their main point of access continues to be the map. By and large, that map looks like the map we’re used to: roads, lakes, buildings, and parks feature as lines and contours of different colours. Their positions are referenced and updated within an overarching GIS system, itself supported by networks of mobile communication and data storage – this digital age’s equivalent to the Grand Trigonometrical Survey. Although the map looks by and large the same, its gaze has radically shifted. All sorts of data – from pollution measurements to smart-phone data to information scraped right off the net – are pushing the map’s gaze to shift from that of the State to that of a fledgling group of app developers, counter-mappers, environmental activists, and regular phone users, who (unwittingly or wittingly) build a new map with every picture and movement that they make.

I am juxtaposing the previous two accounts at the start of this report because they converge with the report in two related ways. One relates to the map in terms of its location. The other relates to the map in terms of the gaze that it constructs (through the gaze that is embedded in it).

This booklet is the first outcome of a recent lab and workshop held in Sriperumbudur, a rapidly transforming area and town some forty kilometers out of Chennai (Madras). My main purpose with the lab was to experiment with the potentials in urban research of on-the-ground, empirical observations, using both conventional tools of observation as well as others that have recently come within reach of a general public. For this end, Sriperumbudur’s location – on the Chennai–Bangalore highway, in the languid heat of the flat plains stretching out from Chennai – seemed to offer the right canvas.
At face value, Mount Road (today’s Anna Salai) and Sriperumbudur, although forty kilometers and two hundred years apart, stand at the threshold of a similar future and transformation. Defined by their respective positions on the edge of the map (at different times in history), both locations represent a pivotal moment in the city’s history where the city would jump beyond its existing limits and leap into uncharted territory – a de facto white space off the surveyors’ map.

In Lambton’s time, the end of the Carnatic wars had heralded the end of fortifications and the emergence of a wide-open hinterland waiting to be appropriated and absorbed into the contours of the unleashed colonial city. Even if not linked formally, survey and urbanization certainly seem to have walked closely hand in hand.

In the case of Sriperumbudur, ‘clean-slate’ urbanization and greenfield developments seem to represent a similar opportunity for lucrative expansion. Real-estate investments, gated townships, manufacturing industries, walled-off farms, industrial enclaves (SEZs), migrant shanties, bypass roads, and desolate wastelands appear to be turning the area into a gray zone that appears neither black nor white, urban nor rural, emerging nor decaying, and that exhausts conventional classifications in general.

Physically, economically, or socially, however, Sriperumbudur’s history is by no means blank and the town’s built history and heritage stretch back far beyond the founding of Chennai as colonial Madras. So the question arises as to what extent our own difficulties at categorization are not themselves a consequence of our own gaze, conditioned by the maps that we turn to when we probe for places off our own intellectual maps. Is Sriperumbudur really undergoing urbanization; is it really at the edge of a wave of transformation that emanates from the centre, or, Chennai? Or does it constitute a new condition altogether that is neither urban nor rural, but something we haven’t managed to qualify correctly as yet? How do we avoid reinscribing the very categories that we are questioning? These were questions I wanted to raise in the context of the lab. If the urban is planetary, using peri-urban as a category outside the administration of the urban does not help us in understanding the processes and practices that inform such places. The name ‘Bypasslab’ is an open reference to that impossibility: how do we remain open to observations without containerizing and sealing ourselves off, from the very first sentence that we begin to write?

Although the words ‘peri-urban’ and ‘fringe’ feature right up in the title of this report, in organizing this lab I wanted to look beyond categorizations of peri-, ex-, or sub-, and train the lab’s lenses at empirical observations on the ground. This brings in its own methodological challenges: How do you gather descriptive observations on an area that is too vast and dynamic to ever really be covered? Or how do you make sense of practices whose underlying logics may already have ceased to exist? In order to ‘triangulate’ these questions – two hundred years and barely forty kilometres from the Great Trigonometrical Survey’s own ground zero – we can begin by setting out some fixed points. One of these is the notion of the bypass, as reflected in the title of the lab – Bypasslab.

**Bypassing the fringe**

The name ‘Bypasslab’ is a direct reflection of the lab’s own particular genesis. It is both a reference to what it seeks to do, as well as to what it seeks to look at.

On the one hand the lab is directly rooted in, and grafted on, my individual research as a post-doctoral fellow at IGCS. This on-going research seeks to discuss the transforming Indian urban landscape through the metaphor of the bypass. The bypass road – circumventing the city while at the same time facilitating its expansion – is a paradigm of Indian (peri-)urban development, and of its inherent contradictory nature. But it is also a paradigm of the many vernacular initiatives that, while bypassing restrictions, re-inscribe the subject and try to make sense of place and space. Although my research has focused mainly on urban remote farmers and counter-mappers, the lab offered an opportunity to expand that focus and look at a broader set of methods – both emerging and existent – to bring those and other ‘bypass’ initiatives into view.

On the other hand, and quite simultaneously, ‘Bypasslab’ also refers to the critical distance that I wanted to keep from IGCS’s own two-year project on peri-urban Sriperumbudur, which served as the larger platform to this postdoctoral research. The lab takes the ‘peri-urban’ as an empirical point of access, as a spatial outcome of underlying logics and practices. To investigate these underlying ‘infrastructures’ the lab pushed for participants to come up with their own tools, categories, and ‘lenses’ of observation beyond those of existing maps, surveys, or questionnaires. Is peri-urban Chennai becoming urban or rural, depleting or filling up, or yet something different altogether? Bypasslab as a name thus served as a sobriquet for two central questions: Can we use the format of the ‘lab’ and its forwarded position in the heart of peri-urban Chennai (Sriperumbudur), as a testing ground for a broader set of methodologies? And can it also serve as a fitting moment to reflect on what it means to be doing research in a vast, sprawling context like that of peri-urban Chennai?

To meet this challenge, the Bypasslab invited thirty...
participants, which it handpicked from over two hundred applicants across India. Ranging from practitioners in urban design, planning, and data analytics, to students in geospatial analysis and development studies, participants were arranged into six multidisciplinary outfits. IGCS partnered with the Rajiv Gandhi National Institute of Youth Development, whose campus is located in Sriperumbudur. Using the institute’s campus as their base station, and for seven consecutive days, each group leveraged peri-urban Chennai as a site for novel ways of looking, investigating, and re-thinking fieldwork.

They were assisted in this work by a week-long program of lectures and input sessions, designed in part to provide context to the Sriperumbudur region and the changes it has undergone in recent decades. More crucially, this supporting program sought to warm up participants to other methodologies or ‘lenses’ and to instill the notion in them that each of these lenses (whether visual, cartographic, or anthropological) brings its own gaze, which can help organize inquiries and trigger unanticipated field investigations.

Deepta Sateesh of the Design+Environment+Law Laboratory in Bangalore, brought in the pivotal notion of design inquiry as a tool to focus on time, practices, and relationships in urban settings. Durganand Balsavar, design chair of VIT School of Architecture in Vellore, invoked the larger history of peri-urban Chennai (‘Investigating Desolate Peripheries’) and particularly the city’s half-hearted engagement with planned satellite townships over the last half century. Kiran Keswani and Seetha Raghupathy drew on their own work to highlight the complexities of the social streetscape and the potential of remote sensing, respectively, in the context of South Asian urbanisms. Arunava Dasgupta, head of the Delhi School of Planning and Architecture’s Department of Urban Design, put the last chip of information on the participants’ table before all of them dove headlong into the last night of work ahead of the final presentations. Drawing on over a decade of observations and student design work in the distant mountain regions of Himachal Pradesh, Dasgupta brought home the argument that the peri-urban is not a zone in the margin of the city but that it can be found in the most remote mountain locations.

Another part of the program was more centrally dedicated to the issue of mapping. Mapbox’s Arun Ganesh, Sajjad Anwar, and Pratik Yadav imparted the insight on the participants that there is a lot more to a map than just buildings and streets, and that visual media, including maps and drawings, remain essentially open to entirely different sets of data than those that we are customarily exposed to. Together with Siddharth Hande’s consecutive presentation (Hande is a geospatial analyst and founder of the Urban History Project in Chennai), Mapbox’s examples hinted at the fact that methods like GIS, mapping, and geo-hacking have now become so accessible and easy to use that they are becoming feasible as wide-spread, grassroots tools of observation and critique — incidentally also one of the lab’s starting assumptions.

Learning from the fringe

That ‘peri-urban’ Sriperumbudur is as multifaceted as the strategies to read and describe it becomes clear from the lab’s resulting contributions. Five days’ worth of fieldwork produced six relatively diverse research projects, which are presented consecutively in this report. The ‘Poro(s)city’ group

General Plan of the Triangles
opens up this line of projects with a reflection across different scales. Their objective was to ‘capture the “essence” of the transforming “peri-urban” landscape through the notion of porosity, purely based on insights gained through on-field observations, photo documentation, sketches, and short interviews [...].’ Starting from the Tamil concept of sandhu (alleys that branch from the streetscape like ‘pores’), their project embarks on a journey that slices lengthwise through the larger Sriperumbudur landscape, from the ancient street layout of Sriperumbudur town, up to the arched gateways, and multicolored curbstones of an aspirational landscape of speculation that is all consuming of the area’s remaining pores.

If this lab’s subtitle – bypass infrastructures of the peri-urban fringe – meant anything it was this: the aspiration to use the lab’s position ‘out there, in the field’ to bring out that sensitivity as a necessary first step to a more productive and challenging intellectual engagement with the peri-urban.

The ‘Kadai Kadhal’ group exhibits a similar kind of interest in the ‘margin’ but pursues it through different phenomena and means. Their contribution examined the highly controlled, semi-private environments of the industrial enclaves (SEZs or Special Economic Zones), so prominent around Sriperumbudur. Given the rigid restrictions in access to these zones, the group focused on the kadais (improvised roadside shops, both mobile and stationary) at the threshold of these zones, construing their emergence as everyday practices of ‘rebellion’ to the SEZ’s inclination for surveillance and control. Starting from a visual decomposition of the kadais’ physical presence, the group sought to analyze the kadais’ persistence in terms of the temporal, economical, and spatial interstices that the kadais manage to accommodate and exploit.

The ‘Liminality’ group, then, is the last in a list of three projects to explore the notion of the margin. Starting from on-the-ground observations that water tanks (man-made water bodies that serve to store monsoon precipitation) within the area hardly ever align with cartographic representations, this project builds a powerful critique of the representation of water in maps, suggesting that the crucial variable to depict in the representation of these tanks should be their liminality and fluctuation, rather than their extent. By transposing this notion to practices that take place in the tanks’ border zones (licensed or unlicensed, built or unbuilt), the group hints at the fact that water and urbanization may not be entirely antithetical after all, if only their mutual fluctuations could be aligned better in time.

The ensuing three projects adopt slightly divergent approaches from the previous three. The ‘Anakaputhur’ group took a particular interest in an area of weavers called Anakaputhur, whose street grid adapted itself in length and width to the technical demands of the weaving processes. As changes set in and many of the weavers either switched to other trades or materials, the group explored the capacity of the area’s built ‘fabric’ to accommodate that change. The analogy to the loom’s warp and woof allows the group to explore the surprising (typological, social) adaptability of the area’s long-stretched buildings constructed perpendicularly to the grid across entire blocks, vis-à-vis that of the grid characterized by the inertia of its underlying infrastructures.

The ‘Negotiability’ group took an interest in the short time span of urbanization along one of the main access routes in the area. A glitch in their video app (Mapillary) caused them to realize that local cattle negotiated traffic in ways that allowed it to continue plying its old routes – long after the pastures it had frequented had given way to plots, walls, and, yes, traffic. In the inquiries that followed, the group then explored how people and cattle negotiated the structures, buildings, and obstacles that were cropping up at one of the crossroads along their routes. A similar kind of interest can be seen to exist with the group looking at ‘Social Gatherings’. They seek to record and gather how eateries along the area’s main commercial streets serve as gathering spaces, by looking at the fluctuations in the number of visitors registered by various types of eateries along such streets.

Thus infrastructure emerges as one of the last ‘fixed points’ that this introduction would like to touch upon. There had been no particular output or format put forward by the lab’s organizers, but once the six groups had found ways to handle their internal multidisciplinary set-up and composition, they came up with original contributions that reflected their research trajectories over the preceding week. In spite of the width of investigations being quite broad as a result, they developed a kind of sensitivity to the infrastructure of the peri-urban landscape: foregrounding its materials, temporality, sense, and aspirations. If this lab’s subtitle – bypass infrastructures of the peri-urban fringe – meant anything it was this: the aspiration to use the lab’s position ‘out there, in the field’ to bring out that sensitivity as a necessary first step to a more productive and challenging intellectual engagement with the peri-urban.

Notes

6 Mapbox is a US-based data visualization and mapping company whose Indian office is in Bangalore – currently home to India’s most vibrant open source and open data community. The company’s work revolves around visual mapping interfaces and open-access data in cities.

7 Special Economic Zones

Porosity

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Text by: Sannihit and Rajeswari Ravi
Our objective was to capture the essence of the transforming ‘peri-urban’ landscape through the notion of porosity, purely based on insights gained through on-field observations, photo documentation, sketches, and short interviews within the limited time-frame of the lab.

We started looking at the historical town of Sriperumbudur, and gradually scaled up our fieldwork to the larger post-agrarian area, caught in-between two arterial roads that stretch from Sriperumbudur up to Chennai’s corporation bounds. The following text presents our observations in the course of that fieldwork. It doesn’t seek to make any definitive claim towards a detailed research or analysis, but it does aim to open onto a discussion about the nature of current transformations in areas like Sriperumbudur, and what the framework of porosity might bring to it.

What is porosity, and what does it mean in the transforming, peri-urban context of Sriperumbudur? How do we construe it, and read it into Sriperumbudur’s emerging landscape of migration, speculative development, and transformation? And finally, how do we qualify the condition of porosity: as a mere category of description, or rather as a category of analysis that touches on questions of desirability and intervention? In other words: how desirable are the porosities that we analysed?

We examined the condition of porosity through each of the following themes:

**Natural landscape and hydrology: reminiscent of traditional wisdom**
The region is filled with water bodies of varying sizes – shallow lakes, tanks, ponds, and wetlands – interconnected by streams and water channels reminiscent of the traditional water management system of ancient Tamil Nadu. The land dips and rises to form lake beds and ridges constituting the hydrological landscape of the place. The interplay of land and water is manifested in a variety of native flora that is well-adapted to the hot and humid conditions – they have lower transpiration losses and need lesser ground water. Traditional wisdom persists in the use of native plants like neem, mango, palm, and tamarind as food or medicine. Meanwhile, large tracts of land are now being planted with water-guzzling migrant varieties like the paddy and eucalyptus. When cultivable land is left fallow, they are encroached upon by rampant growth of karuvelam or velikathaan (an invasive species known for depleting ground water and soil quality). There are also a number of private ‘gardens’ and nurseries growing exotic plants, as land value here is relatively lower than in cities.

**Practice**

**Organic development versus plotted development and the logic of maps**
The ancient town of Sriperumbudur is a telling case of organic development centred around the Adikesava Perumal temple complex. The concept of sandhu (alleys that branch from the streetscape like ‘pores’) seems to be a common feature in the built environment. Essentially a public access way, it is housed within a private residential property and is managed based on a shared understanding between the residents. The sandhu across different...
scales (as apertures, lanes, and alleys) renders permeability to the dense fabric allowing movement of both living (man, animals, and birds) and non-living elements (light and ventilation).

The line of division between the residence or the private, and the mada street (four streets bordering a temple compound in a traditional layout) or the public, seems perforated in the absence of a ubiquitous urban element – the compound wall – enabling constant negotiations between the private and the public. The private extends into the public in the form of a ramp, steps, a thinnai (an open, raised, hardened platform, often roofed, extending from a house onto the street and which serves as a multifunctional space), or simply a kolam (an ornamental floor drawing at the entrance, usually drawn by the women of the house) – welcoming the public (or a part of it) in.

A common feature that seems to have sprouted up more recently is the 'grill' – an equivalent of the traditional ‘jaali’ – not only seen wrapping up verandahs and balconies of private residences but also the once porous mandapas (pillared outdoor hall leading to the temple) and the temple tank. These grills seem to underscore the ongoing transformation of the area, allowing only for insular developments and selective permeability.

In stark contrast, the new plotted layouts are conceived as gated communities with impervious edges dividing the inside from the outside – forming dislocated fragments devoid of local specificities. Such developments interfere with traditional and formerly existent rights of way of man and animals through porous open fields, adding many miles to once shorter distances.

Accessibility of plots within such rectilinear layouts is determined by the logic of the map, than through any evolved sense of order evident in organic developments. Maps straighten roads, shorten distances and make beelines to and from highways, amenities, and landmarks. As distances shorten, identities merge – villages (with distinctive features) merge with the nearest town (with its own distinctive qualities) that in turn merge into one heaving city.

In reality, we found the dense fabric of traditional, organic development to be more porous and permeable on ground, while the newly-plotted developments proved less easily accessible and less permeable than one is led to believe looking at the map alone.

Social landscapes of the built environment
The peri-urban sees a steady influx of migrants who fall into the following broad categories:

1. Migrants from southern parts of Tamil Nadu or the other southern states of India in search of a better job/education, who might choose to settle down with family. They blend in easily with the native population because of common language and/or practices. They prefer to rent houses within existing settlements.

2. Migrants from north India (the ‘hindi-kaara-pasanga’ or Hindi-speaking boys) – usually young men recruited in groups as contractual labour in factories by mediators. They stick out from the crowd and live in rented bachelor accommodation (a row of basic rooms with a common bath or toilet), at a walkable distance from work, specifically built to take advantage of their situation. They receive two meals per day at their workplace, but depend on local food stalls and markets to supply their third.
3. Invisible migrants or (potential) investors of the speculative market, whose presence is felt only in the empty plots and gated communities waiting to be bought, built, and occupied sometime in the future. These empty plots and layouts are indicative of a distant future landscape, but trace their presence in the aspirations of the here and now.

But even the built environment of native settlements reflects a steady shift from vernacular traditions – changing aspirations and the influences of modern materials and technology. A spontaneous influx of materials from the neighbouring industrial sector can be observed as piecemeal additions and alterations to existing vernacular structures – such as asbestos, rubber and felt sheets, packaging material, and flex banners.

**A landscape of signage: a symbolism of aspirations**

The extensive local landscape of symbols and signage offers yet another interesting insight into the aspirations of the locals and the migrants.


Beyond the main access roads, in the heart of the peri-urban fabric, one is drawn to multicoloured fencing, markers, and arched gateways with strange new names that weave their own tale of aspirations. Prefixes like ‘Ashtalakshmi’, ‘Kuberan’, and ‘Golden’ act as signifiers of wealth and prosperity to the investor, while popular prefixes and suffixes like ‘Green’, ‘Sylvan’, and ‘Paradise’ promise peace and respite to the harried city dweller. We also find proclamations of an ‘out-of-the-world’ living experience hinted at by the words ‘Sky’, ‘Galaxy’, ‘Jupiter’. Overall, the region seems to be a fertile bed for hybrid names like ‘Om Shree Kubera Saibaba Gomatha Trust’ or even a ‘Rajinikanth Nagar’, where conventional names like Kannanthangal or Vengadu (names that often reveal the local topography or geological nature of land) are being lost in the global narrative.

The dense villages and towns are however filled with aggressive advertisements of a different nature – strategically located visual imagery/symbols of political parties and boards reminding people of government initiatives/schemes in the past. Perhaps it is the remote location of these vote banks that necessitates such loud visual reminders.

**Concluding remarks and need for further study**

Porosity is desirable and even essential to the sustenance of a place, allowing for a healthy movement of people, materials and practices, and socio-political exchanges, as well as the ability to transform over time. In fact, being porous is a sign of life, whereas on the other hand, being impervious to change could signify death, decay, or extinction. However, as a word of caution, it may be added that though change is both welcome and inevitable, there is a need for policies and interventions mitigating the negative impact of rapid urbanization on the emerging ‘peri-urban’ landscape. In addition to the themes through which we have sought to examine this landscape, porosity might hold even more promise on this particular level: as a fascinating framework to weigh up and conceive of such interventions.
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Kadai
The story of shops

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We wanted to go above and beyond standard pictorial representations of space. Instead of treating our subject as a whole which elides smaller components and sub-processes, we sought to break the kadai wide open and create a more granular understanding of the spaces which comprise it.

Sriperumbudur, the area focussed on during our workshop, is not urban, but neither is it rural. If it is neither of these conventional developmental definitions of space, then what is Sriperumbudur? In order to answer this question, or at least begin arriving at something like an answer, we decided to zoom in on two industrial complexes in the region — SIDCO (Tamil Nadu Small Industries Development Corporation Limited) and SIPCOT (Small Industries Promotion Corporation of Tamil Nadu Limited). Alongside these highly regularized industrial zones, planned and unplanned residential and commercial dwellings have also sprouted up. We decided to focus on the small commercial set-ups, run by individuals from a temporary structure made of reclaimed materials. We call them kadai (meaning shops; but usually referring to small, neighbourhood shops). We don’t call them street vendors or hawkers, as is usually the case, because such a terminology puts them in the category of the unlicensed and the illegal.

We chose to go beyond standard pictorial representations of space. Instead of treating the subject as a whole that elides smaller components and sub-processes, we deconstructed the various elements constituting a kadai through visual imagery and representation in order to create a more granular understanding of the spaces that comprise it. Kadais are usually looked at as either encroachers and a nuisance that ought to be removed, or as powerless agents whose rights have to be protected by the civil society. We decided to look not directly at these kadais but around them, attempting to understand how they constituted space around them and how they in turn were constituted by this space. We tried to look at the kadais as organic elements of their environment. We imagined kadai, from being a phenomenon that is looked at, as a story (kadhai) of its own, that can be deconstructed to illustrate that the kadais are a practice that construct and organize spaces around them. This deconstruction is represented in the primary image that explains how we carried out this deconstruction.

Kadais are not unique to the Sriperumbudur area, they are ubiquitous across Tamil Nadu and even the rest of the country. They offer a wide range of goods and services, from tea/coffee stalls that also sell biscuits and cigarettes to mobile vans that sell both pre-made meals as well as meals to order. They can be both licensed and unlicensed shops.

We observed eleven kadais (seven stationary and four mobile) in the SIPCOT area and three kadais (stationary) in the SIDCO area. These kadais had set up shops against trees in order to be in a shaded region. Their customers – industrial workers, clerks, managers, executives, truck drivers, passing motorists, residents of nearby villages – often spilled out onto the roads. The space claimed by these kadais are neither public nor private. Then what are they? Could we understand mutating regions like Sriperumbudur through the lens of kadais?

During the course of the research, we noted the industrial zones to be highly controlled, semi-private environments, subjecting those within them to rigorous paradigms of discipline and surveillance. Using this observation to inform our discourse, we studied the emergence of kadais as a rebellion against these very systems.

The location of the kadais was no accident, governed by a logic of supply and demand. Many of these small make-shift shops positioned themselves at the intersection of different flows of industrial workers at different times; kadai owners would hurry and set up shop in time to catch the morning inflow of workers, cook...
in time for lunch or make tea/coffee and snacks for people coming out of shifts, thus earning an assured income. This economic decision to insert themselves into the spatial and temporal movement of labour, in between shifts and on breaks, brought the labourers together, who were otherwise under strict surveillance in the industrialised zones.

Having to face the brunt of weather as well as the authorities in the form of cops, civic inspectors, and representatives of the industrial zones, these shops employed inventiveness in putting together their kadais, rigging up their ships from natural and recyclable materials they had at hand – discarded tarpaulins, wooden crates, furniture – displaying a distinct improvisatory logic. Amongst swanky eat-outs that insist on using shiny new materials, can these temporary set-ups address some of the environmental concerns of twenty-first century? This form of temporary construction, while on the one hand exposed them to the forces that be, on the other allowed them to dismantle and set up shop again, in the same or different location. This temporariness ironically leant a metaphysical permanence to the existence of their informal economy.

In the context of a certain policy-making discourse that privileges formal accreditation and permanent construction in urban regions, these street-side entrepreneurs in the ‘informal’ sector find themselves in an increasingly precarious situation. There is a need to understand and document the contribution they make to the community, to question and counter prevailing stereotypes of ‘hawkers’ and ‘encroachers’, and to emphasize how vital they and their activities are to this new entity of what is called as the ‘peri-urban’.

The maps trace where the kadais are set up in the two industrial areas, how they influence the surrounding environment, and how their location is determined by the greenery in the region.

- Industrial areas
- Residential areas
- Strategically positioned kadais
- Mobile Kadais
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Liminality of Water

Cross-sectional view of six water bodies in the Sriperumbudur region, with their minimum and maximum boundaries and the land-use pattern in the liminal region.
Land Use Legend of Liminal Areas

- Minimum extent of water body in a dry year
- Maximum extent of water body in a wet year
- Manmade boundary
- Natural boundary

Liminal Area: 62.62 sq.km.

Minimal: 18.24 sq.km.
Maximum: 80.86 sq.km.

Land Use Legend of Liminal Areas
Borders are never what they seem; they are not fixed lines as maps lead us to believe. Water bodies especially are constant shape-shifters. Wet and dry seasons, encroachments and reclaimed land, silting and desilting, all cause water bodies to contract and expand throughout the year.

Chennai faced a disastrous flood in December 2015, when the loss of life and property was huge. While the government and many media outlets hurried to blame it on ‘unprecedented rainfall’ and climate change, factors (all man-made) that prevented the city from dealing with a heavy rainfall – poor city planning, illegal constructions, and encroachment of water bodies – were largely ignored.

We decided to study the liminality of water bodies in a changing landscape like that of Sriperumbudur, in the hope that there might still be scope to change ways of planning so as to let the boundaries of water bodies breathe and expand when necessary.

Liminal regions are those that can come under water in a wet season, but will remain as dry land when the water recedes. Sometimes liminal regions stay dry for long periods but there is always the possibility of water reclaiming the land.

This project began as an attempt to study what happens when an industry (JK Tyre) is built near a water body (Adyar river). Our first field visit was planned based on Google maps and OpenStreetMap boundaries. But upon reaching the field we realized that the borders on the map were different from the borders we observed on the ground, and on subsequent trips we found water bodies that weren’t even listed on online satellite maps.

Deciding to study the water bodies of Sriperumbudur and their various borders, to understand what happens in the liminal regions between the many borders of a water body, we sought out the wettest and driest years over the last three decades. Using rainfall pattern, we narrowed down on 1991 and 1992 to be the driest year and 2006 and 2015 to be the wettest years. We decided to focus on 1992 and 2006, as the clearest satellite images were available for these two years.

We mapped the boundaries of all the water bodies in the region using satellite images, and as expected, the boundaries of all the water bodies in the region differed considerably between 1992 and 2006. Choosing six of these water bodies at random, we observed the land-use pattern in the liminal region using sectional views and photography for the year 2014, for which the most recent data was available.

Almost all water bodies have two different kind of boundaries – static and dynamic boundaries, man-made and natural boundaries. Man-made boundaries tend to be static while natural boundaries are more dynamic.

Sriperumbudur Lake, one of the water bodies that we observed, had a descending slope from west to east (left to right in the image). We observed dykes on the eastern side, which were created to store water. This eastern boundary, with the man-made barrier, remains static even if the water level rises. But this is different for the natural boundary on the western side; because there is no wall or obstacle preventing the flow of water, there is an increase in horizontal extent of the lake when water level rises.

Natural boundaries are more vulnerable to changes, and we noted that these boundaries were not being treated as dynamic by the planners or the residents. For instance, an apartment building had come up in the liminal region of the Sriperumbudur Lake, and when we compared the boundary of the lake to that in 2006, the wettest year, it was evident that the apartment would come under water in the next wet year, when the lake would expand. There would be no way to move this apartment or protect it in a year of high rainfall. The building is a static entity on a dynamic land. There were also slums with more temporary structures that were built in these liminal areas. Often, the slums would get flooded, but the people would come back to build their settlements in the same area when the lake dried up. They did this for various reasons — when natural boundaries change, the residents of the slum would have to walk longer distances to access water and so it mattered that they stay as close to the water source as possible. There are of course other factors like scarcity of land, access to livelihood opportunities, etc., which we didn’t get to examine in the course of the week-long workshop.

Clearly, satellite maps of any given period cannot be the sole indicator of the extent of water bodies. Given their fluid nature, and the various factors that govern them — rainfall, slope of the land, available drainage, man-made obstructions — activities have to be carefully planned around water bodies to enable proper movement of water in wet years. GIS is based on categories that become rigid and impermeable when converted into lines on the map; lines automatically divide left from right and top from bottom as if all possibilities in-between have to be expunged. Our project is essentially a critique of the paradigms of categorization that underlie GIS when applied to water or land-use mapping. Through this project we examined what happens when these borderlines are slit lengthwise and studied as liminal spaces that can be investigated for many more actors than just the constructed average of the map’s (hypothesized) waterline.
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Anakaputhur

The Fabric

Aparna Sharma, Murari Aishwarya, Prasoon G Das, Sarveswaran Ganapathy SP, Vivin Richard

Text by: Prasoon G Das

The Singular
Each weave is close enough and even, done skillfully such that the fabric is pure with a single type of thread.

The Multiple
The fabric is an interwoven mix of people from different cultures and the urban form is a choice to accommodate the multiple.
With an inclination to study the handloom industry, we explored the region of Sriperumbudur, and were instead led to a small village on the banks of Adyar river. Nestled between Chennai’s airport, a National Highway, and the river, Anakaputhur was once famous for its traditional weaving business. But its importance has now declined in the market.

The structure of houses, the layout of the streets, and the entire social order of the place had formed themselves around the activity of weaving, in order to facilitate the occupation for the entire region. But declining government support, better employment opportunities, changed aspirations of the residents, and competition from the powerlooms have affected the handloom industry in Anakaputhur.

We asked ourselves: If a place and its social order have supported one prominent activity, what happens when this activity is no longer sustainable? How do the residents of such a place adapt to the changes and how do the traditional structures adapt to these changes? Can such a region continue to survive by just moulding the prominent activity – weaving – to the new changes? Or does it have to refashion itself? What are the consequences of this? This exploration involved attempts at analysing the changes in the built fabric of the place.

It only seemed fit to use weaving itself as the lens through which to look at the changes that have occurred in this place over the years – weaving as the subject as well as the tool of enquiry. We decided to present this analogy between weaving and Anakaputhur in various visual graphs, where the images are of the place but the text that describes these images is drawn from the language of weaving – the warp and the weft, the knits, and the woven textures are reflected in the place’s fabric of road networks, built and open spaces, and networks of people.

How did urbanization change ‘the fabric’ of the place?

The warp – threads that run lengthwise – and the weft – threads that run across – make up the fabric. We used ‘fabric’ as an analogy to examine the layout of Anakaputhur, equating the warp and the weft to the street grid and the buildings respectively.
In late twentieth century, the Indira Gandhi government had provided subsidy to the people of Anakaputhur because of the large revenue generated by the region from exporting handloom products abroad. Now, as priorities change and the environment is in focus more than ever before, the government has new policies that restrict Anakaputhur from discharging any polluting substance into the Adyar river. This has forced the weavers to change the ways in which they die the cotton fabric – they have ceased to produce any colored cotton fabric. Meanwhile, the scarcity of cotton has led them to explore new fibers derived from aloe vera and banana stem.

The changes in the city of Chennai, especially of urbanization, is reflected in the lives of the people in Anakaputhur. Such influences of the city are visible in the built typology of the village. The houses used to have a horizontal linear interior spread to facilitate the continuous threading work required for sarees. Threading was also done on the streets, which used to be shut down for public use while weaving work went on. Now the use of roads by cars and other vehicles is high enough to restrict threading to a few streets, which adversely affects the production.

Anakaputhur is under considerable influence from tangible and intangible forces. The practice of weaving exists in traces but is gradually being replaced. The Jute Weavers Association is involved in the research and extraction of fibres from natural materials like aloe vera, flax seeds, and banana. Only some of the elderly and women continue to be employed as handloom weavers. This is in contrast with the youth and men, who have the luxury of education and opportunity to opt for other jobs. The inability of the handlooms to compete with powerlooms, little government support, and change in people’s aspirations fasten the decline of weaving.

Anakaputhur is a woven fabric: of culture, of heritage, and change. The analogy of Anakaputhur as a fabric begins with understanding the three determinants that make the fabric: the process, the apparatus, and the product.

It only seemed fit to use weaving itself as the lens through which to look at the changes that have occurred in this place over the years – weaving as the subject as well as the tool of enquiry.
a. Weaving: The process of superimposing the village layout with social order and occupational divisions.
b.  Loom: The apparatus for making the fabric by weaving the threads of infrastructure and time together.
c.  Fabric: The product derived from weaving different strands – culture, resources, material, and policy – together.

A street grid is more permanent than its infill. It is the inertia of the grid (the cost of changing its underlying infrastructures – from ownership structures to sewage lines to carriageways) that facilitates the variability and adaptability and contingency of the buildings. Because of the change in the apparatus between the past and the present, the fabric produced now is different. The built form of the place has taken shape to mimic the aspiration of the new generations. The houses are no longer linear, on the other hand, houses are growing vertically, reflecting a different kind of linearity – multistoried buildings. Moreover, these house are also built with materials that are not sourced locally, as was once the case.

The fabric of the past was singular, of one kind of material. There was singularity in the aspirations of the people, producing a ‘fabric’ that looked uniform throughout. But now there are multiple materials, cultures, aspirations, and the urban form or fabric thus formed has to accommodate the multiple.

The analogy of Anakaputhur as a fabric begins with understanding the three determinants that make the fabric: the process, the apparatus, and the product.
A cross-section of the region, where we mapped the various weaving processes carried out by different households in the neighbourhood. The final process of weaving was carried out in the inner streets, which were named after the land-owning Chettiar class, such as Gopal Chetty Street in this map. Secondary activities were carried out in the peripheries, such as on Shanmuga Mudali Street on this map.

The settlement pattern used to be largely based on the weaving processes, which require linear spaces as seen in 'Early Linearity'. Though in newer structures, this has transformed into a vertical linearity, denoting a move away from weaving as occupation towards achieving aspirations – of a certain kind of urban living in multistoried buildings.
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Once a pastoral land, Melattur, a village about 14–15 km from Sriperumbudur, is strategically located between Sriperumbudur and Chennai. In the last decade or so, urbanization has brought in an influx of people. The landscape has undergone drastic changes and continues to do so. How did people negotiate with these changes, with the environment, and with each other? While trying to broach these questions we soon discovered that our focus was still too broad. We decided to let a random glitch in our cameras guide our observations and play with its selectivity as a methodological focus.

Our main tool of observation was the panoramas that our phones stitched together as we drove along Melattur’s main road. This digital stitching may work well when standing still, but it creates a particular form of distortion while moving, known as ‘pause points’. In Melattur, we observed that there were two elements that caused such distortions – one was livestock moving in the background and the other one was traffic from individual vehicles. Vehicle-induced distortion may be a common phenomenon in urban settings, but the one induced by livestock caught our attention.

During our fieldwork, we noticed two distinct groups of cows that moved along the same routes, at the same time of the day, and took breaks in the same area (midway between their routes), everyday. The reason for this wasn’t obvious and their habits were curious to us. The residents informed us that in the north, where now the Government Primary Health Centre is located, used to be a pastoral land and in the south, which is now a settlement, was another pastoral land. The cows travelling from the north-east direction everyday were moving towards the once pastoral land in the south and paused midway, which used to be a watershed area. Even though there is hardly any grazing fields left in the north or the south now, the animals continue to move towards what once used to be pastoral land, gorging on garbage piles along the way.

This movement of animals made us wonder if people possess muscle memories of routes as well. Through video, we observed the same traffic junction for a week. We noticed that different vehicles paused at a particular point, for seemingly no reason at all, just like the cattle, and then proceeded after, say, having had a conversation with a passer-by. To try and understand the reason behind this, we divided the video into two-second segments and started plotting livestock, people, two-wheelers, and four-wheelers from the video segments onto a grid. If we animated this into a gif, it would be possible to see when and where mobility comes to a brief pause.

One phenomena that we found peculiar was people randomly interacting on the streets, which appeared to be more of a peri-urban phenomena, rather than an urban one. Some potential indicators that would corroborate this reading could be: pedestrians stopping on the road to chat with each other; vehicles not maintaining a particular speed range but driving at random and variable speeds; or spillovers of people from many small shops that jut out into the road. These are usually not acceptable in cities/urban spaces and meanwhile, in rural areas, there isn’t that much vehicular traffic to create these patterns of negotiations.


Cities are amalgams of buildings and streets; of people, flows and practices. Typically, the latter tend to be seen as the more accommodating and flexible. At first reading, when Melattur opened up to different lifestyles, jobs, houses or industries, they etched themselves onto the village’s physical structure. But in Melattur’s fast-transforming landscape, the town’s flows and practices seemed to be the more permanent fixture. So when people and animals develop ways to incorporate new buildings and structures into their old habits – rather than the other way around, then perhaps the ‘pause points’ of our cameras were less a glitch, than a call to really look more closely at what structures such (peri-)urban changes can and can not influence.
**A lens for negotiability:** Camera Panorama Algorithms, which are exceptionally versatile for curved 360 degree photos cause distortions when applied to take linear photographs. Such distortions slice and repeat the background when movement is slower, and repeat the same for foregrounds at faster paces. This produces stark pause points which can then be taken as an event of mobile negotiability. This repeated over a wide variety of places produces temporal events that can be represented by static visuals.

It is worth noting that most mobile negotiability events in the fringe occur due to livestock and vehicles. Both of these events were then mapped and looked into.

In Melattur’s fast-transforming landscape, the town’s flows and practices seemed to be the more permanent fixture.

The Melattur Junction lies at the intersection of the State Highway 13 (Sriperumbudur–Kundrathur, Darkas Road–Tamaram) and Somangalam Road. With a vibrant atmosphere characteristic of the peri-urban fringe, this crossing provides the perfect study of negotiations among people, infrastructure and livestock.
Livestock had become our primary means of spatial negotiation study. They are major influencers of road mobility and are a repeating factor.

School students bring in a temporal shift and the soundscape changes with the chatter of students. Girls cluster around the bus stop while boys loiter in small groups. Boys are also prominent customers of local shops.

Meat shops and canines have a peculiar interaction. Dogs wait in front of tea stalls and butcher shops for scrap. The direction of movement is not direct and seems purely instrumental. Interestingly, opposite the meat stall, a mobile vet van was observed.

Interaction between people is observed on the streets. Areas of non-activity on streetsides act as a hub of interaction.

- **Urban Aspirational**: Services such as computer sales and services, beauty parlours add to the aspiration of the urban. The intersection has an educational centre that offers spoken English, guitar lessons ‘certified by’ Trinity College of Music and chess classes.

- **Poximal Negotiation**: Proximity to areas of major influence results in proximal negotiations. The presence of the school and the local branch of State Bank of India (SBI) has led to a slew of photocopy shops in that stretch. Opposite the SBI is also a Seva Kendra that offers paper services such as application assistance.

- **Spillover Negotiation**: The most noticeable form of negotiation is in the form of spillover. People are observed outside tea stalls, on the roads and by the walls. The buses and share autos do not have a demarcated space for boarding/disembarking. Similarly, waste generated by the shops is dumped on the road and in nearby open drains.

- **Protective Negotiation**: Understanding of the public and the private becomes fuzzy in the peri-urban. Questions of territoriality can be challenged. While the house next to the church had a durable compound wall, the house opposite had simple fencing. The neighbouring house did not have any sort of boundary.

- **Intangible Negotiation**: Another form of negotiation is understood from the practices in the area. School students prefer to park their cycles outside the church citing greater safety owing to ‘eyes on the street’. Share autos provide lesser trips on Tuesdays and Fridays because locals prefer to attend the local church rather than travel to Tambaram.
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We documented what takes place around different anchors (where social gatherings happen) at different points in time.
When one looks at a close shot of the satellite map of the city, it is easy to point out where various physical structures like water bodies, farmlands, highways, residential areas, and commercial complexes are located, but not what is happening there at any given point in time. How are these spaces animated, who uses them, at what time, what for, how do they fluctuate and what sort of practices do they actually gather on the ground?

We chose to broach these questions by zooming in on what we call ‘social gatherings’ in the Sriperumbudur region. The social gatherings in this area add to as well as exemplify the ‘peri-urban’ character of Sriperumbudur. Rural life in Sriperumbudur is influenced by the aspiration for a metropolitan lifestyle. Later we would find that the kind of social gatherings here is a fusion of rural culture and urban lifestyle.

Initial conversations with locals revealed that traditional meeting spaces (such as thinnai – raised, covered platforms attached to the front of the house that offer shade both to residents and outsiders), which had typically facilitated ‘conversational’ gatherings, were increasingly being replaced by more ‘commercial’ gatherings, such as the ones that accumulate around markets, transit routes, food stalls, and places of consumption. By using ‘social gatherings’ we simply wanted to underscore the width of the gatherings’ practices and their non-reducibility to singular forms of usage, such as meeting, eating, buying, etc.

We set out to mark ‘anchors’ or ‘anchoring’ elements around which people gathered for various reasons and for various periods of time: the temple, the market, transit routes, animals, food, or indeed, thinnai. We consecutively used these anchors to focus on the forms of gatherings that occurred around them during the day.

We zoomed in on one road, which used to be more of a residential area, but had transformed over time to include many commercial set-ups. We mapped all forms of social gatherings observable – around water, thinnai, markets, pushcarts, restaurants, and bus stops. Such gatherings were not restricted to the main road, but also occurred in small avenues or inside building complexes. By mapping these, we hoped to illustrate the intensity of social gatherings present at a point in time in one small street.
We also noted the various degrees of gatherings within an anchor, for instance in the temple. The entrance to the temple had a different gathering than the one inside the temple; at the entrance were many vendors selling products to use in prayer, and this was also the place where people ran into family, friends, or acquaintances, while inside the temple people were more absorbed in prayer itself and hence not that conversational. We also noted that different anchors gave rise to different spatial elements in the gathering. While people in a restaurant are more ordered because of the seating arrangement, people at the temple entrance or in a bus stand are more chaotically spread.

The drawings presented here were for us a way to start structuring these observations. They don’t offer a definitive analysis, but we think they do hint at the potential of gatherings as a lens to read fluctuating street spaces, particularly now that Sriperumbudur’s street scape is being infused with all sorts of exchanges and meetings from passers-by on the highway to office-goers and migrant workers in search of a quick meal.

Traditional meeting spaces, which typically facilitate ‘conversational’ gatherings, are increasingly being replaced by more ‘commercial’ gatherings.
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**BYPASSLAB Workshop Team**

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Abinaya is a passionate urbanist, with a background in architecture and urban planning coupled with varied professional experience in India, France and the Netherlands. Her primary interest is curating interactive cities and sustainable communities, through engaging arts-based participatory methods. While she isn’t busy trying to solve all issues urban, she is either dancing or cooking away to her heart’s content or often both at the same time.

**Arun Ganesh**
Arun is an open source geographer and data analyst at Mapbox. Arun is an interaction designer, programmer and according to Pascal Neis’ OpenStreetMap profiles — a crazy mapper booking more than 7,000 edits on OpenStreetMap. He is an avid editor on the Wikipedia project where he contributed to many of India’s maps. Arun has helped Mapbox build a team of expert mappers improving OpenStreetMap and other vital data sets powering Mapbox maps. Prior to joining Mapbox, Arun worked with the Tata Institute of Social Sciences to help develop the geography portion of a national education plan for youth in India.

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Arunava is an urban designer and architect, presently heading the Department of Urban Design, School of Planning and Architecture, New Delhi. As founder member and former National Secretary of the Institute of Urban Designers India, he is actively promoting the idea of holistic urban design proposals across the country. Arunava has been involved in multiple projects at urban scale for a range of Indian cities as adviser and consultant to various state and municipal government agencies and is a member of the Board of Studies in a number of architectural and urban design programs in our country. He has made presentations and lectured extensively in India and abroad on issues of sustainable habitats, heritage and regeneration, city futures and educational paradigms. Within the academic arena, Arunava spearheads experimental design studio engagements that nurture exploration by students as citizen designers as well as community-centric applied research labs ranging from complex metropolitan conditions to changing rural habitations in the Himalayas.

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Deepta is an ecological designer concerned with the environment and communities. She is Director of the Design+Environment+Law Laboratory, where she conceptualizes complex design projects to catalyze change in contentious landscapes. The lab is a space where designers, lawyers, scholars and activists work together to challenge existing legal, environmental, social, economic and cultural frameworks, in these landscapes. In the past, Deepta has worked on large-scale planning projects in China, Korea, Vietnam and Colombia, including the master plan for the Beijing Olympics 2008 site and the proposed Bogota Metro Project, building on her knowledge and experience in environmental leadership, strategy and ecological design. Deepta is Dean of the School of New Humanities & Design at Srishti Institute of Art, Design and Technology. She holds a Bachelor of Architecture (Manipal Institute of Technology, 1998), and a Master of City Planning (University of Pennsylvania, 2000). Her doctoral research is led by design inquiry in ‘Reimagining the Western Ghats’.

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Durghand is an architect, architect and writer – founded Artes Human Settlements Research Collaborative to address urban policy, rural, environmental planning and participatory processes. Graduating from CEPT, Ahmedabad/ ETH, Zurich, Balsavar apprenticed in Paris before returning to India to work on several Urban and Housing projects. Balsavar has been involved in disaster mitigation and war refugee rehabilitation. He has been a nominated member of the Federal Republic of Germany-Climate Policy 2050 program, UK Program on Architecture Education, etc. He is a member of the CMDA Master Plan and Monitoring Committee. Balsavar has also been on various national and international juries, including the prestigious IIT, Gandhinagar jury for selection of Architects for their new campus. Artes projects for Tsunami Rehabilitation were named in UNDP best practices and published by MIT Press Boston, DOMUS and Routledge Press, USA as well as CSE India. He has co-authored three books and regularly contributes to The national, international and journals on cultural landscapes, future cities, heritage and environment. Durghand is Convenor of Confluence 10 Forum and Jaipur Architecture Festival and Design Chair-VIIT School of Architecture, Vellore.

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Karl is an architect and urbanist by training, who has worked in Amsterdam and Chennai. He is currently an IGCS research scholar with the Department of Humanities and Social Sciences at IIT-Madras. He completed a PhD in urbanism at Eindhoven University of Technology, which examined the implicit, erasive urbanisms emerging in the margin of infrastructural logistics and urban planning. His current research engagements in the city of Chennai and carries a particular interest in grassroots urbanisms and everyday notions of ‘design’. He is currently an affiliated member of Heidelberg University’s Cluster of Excellence: Asia and Europe in a Global Context.

**Kiran Keswani**
Kiran graduated from architecture from Mumbai in 1988 and was a Netherlands Fellow at the Institute for Housing and Urban Development Studies at Erasmus University in 1996. She has had a design practice for 15 years. She is currently pursuing her doctoral studies in Urban design at the Faculty of Architecture, CEPT University, Ahmedabad. Her research focuses on the ‘Informality of urban space as an outcome of everyday practices’. She has been teaching a two-week course on ‘The Everyday City’ as part of CEPT University’s Summer-Winter School program. Her recent publications include a chapter in the book ‘Informal Urban Street markets: International Perspectives’ published in January 2015 and a paper accepted in the Working paper series at the Asia Research Institute, NUS in March 2015. She writes a blog ‘Everyday City’ for Citizen matters, an online news magazine.

**Lalitha Subramanian**
Lalitha is currently an assistant professor in the Department of Social Engineering, RGNiD, Sriperumbudur and handles subjects for the M.A. Social Innovation and Entrepreneurship students. She has a Ph.D. (Social Work) from the University of Madras with a Master of Philosophy (Social Work) from Loyola College, Chennai and a Master of Arts (Social Work) from Stella Maris College, Chennai. She qualified UGC-NET in Social Work and holds a PG Diploma in Human Resource Management from Annamalai University. She has undertaken Administrative Management-certificate course in Japan during the year 2011. She has also undertaken a Master Trainer program in social entrepreneurship conducted by IIM-Kozhikode in 2014 which was sponsored by the British Council, India. With the financial grant received from the British Council she trained 353 young women on social entrepreneurship during the year 2014 and 2015. Lalitha has presented papers in the national and international conferences.

**Lalit Kishor Bhati**
Lalit is an Urban Planner from CEPT, Ahmedabad has been based in Auroville for last 16 years & engaged with Auroville’s planning & developmental activities for well over 10 years in various capacities, including being a team member of Auroville’s Master Plan formulation. He has been following his keen interest in the field of ‘learning from Auroville& Integral Sustainability’ via organising various national & international learning programmes, workshops & facilitates numerous study visits to Auroville for students and participants coming from very diverse age & background. He has taught short course on ‘Planning and Design of Sustainable Cities’ at IIT Roorkee and conducted “Holistic Sustainability Workshops” in many Architecture & Planning Institutions in India. Also co-runs an Architecture & Planning consultancy Studio called ‘PATH’ in Auroville which organises educational activities under the umbrella of ‘Auroville Integral Sustainability Institute. Also a founding member of Auroville Campus Initiative; an Auroville based entity engaged with further learning activities.

**Pitabasa Sahoo**
Pitabasa is currently the faculty head at the Department of Social Engineering and head, Centre for Training, Orientation and Capacity Building at RGNiD in Sriperumbudur. He obtained his Ph.D (in Planning and Development) with Master of Regional
Seetha Raghupathy
Seetha received her Master of Architecture in Urban Design from the Harvard Graduate School of Design and her Bachelor of Architecture from Anna University. As a Senior Urban Designer in AECOM's Singapore studio, she has worked on several projects in the region including Tengah New Town, a large public housing project for the Housing and Development Board; Changi Airport Land Use Study that addressed its expansion and the River of Life project in Kuala Lumpur that will transform the Klang River into an active and livable riverfront apart from other mixed use projects. She is currently also a visiting lecturer at the National University of Singapore. Prior to joining AECOM, she worked at Skidmore Owings & Merrill and for the University of California at Santa Barbara. As Project Designer for the Museum Without Walls initiative at culture NOW, she co-curated an exhibition ‘Mapping the Cityscape’ at the Center for Architecture in New York. Her expertise includes master planning, urban design, architecture and participatory planning.

Siddharth Hande
Siddharth is a spatial data analyst by training. He is interested in social entrepreneurship, technology, the environment and urban planning. He is the founder of Kabadiwalla Connect, an award winning social enterprise that uses IT to leverage the circuits of the existing informal waste ecosystem to send less recyclable waste to the landfill in urban India.

Vidhya Mohankumar
Vidhya is an architect and urban designer with over a decade of work experience in India, Ireland and the United States. Vidhya’s work is focused on creating urban spaces that are people-oriented and centered around transit as part of a sustainable development agenda that she is passionate about. She advocates the same through training & capacity building programs for various stakeholder groups and within academia through her association with several universities as visiting faculty and guest critic. Her urban design projects include master plans, redevelopment plans, strategic planning projects, regional plans, local area plans, campus master plans and urban design studies for existing and proposed developments in various cities around the world. In 2011, she founded Urban Design Collective (UDC), a collaborative platform for architects, urban designers and planners to create livable & sustainable cities through community engagement. She received a master’s degree in urban design with distinction from the University of Michigan, Ann Arbor and a baccalaureate degree in architecture from the National Institute of Technology, Tiruchirappalli, India.

Pratik Yadav
Pratik works as a data analyst at Mapbox and focuses improving OpenStreetMap data using a combination of satellite imagery, customer feedback, and probe data. Pratik joins the team with a background in GIS and remote sensing. He holds a master’s in Geoinformation Science and Earth Observation with a specialization in geoinformatics from University of Twente, the Netherlands. When not staring at maps, he loves motorcycling, traveling off the beaten path, and tea.

Sajjad Anwar
Sajjad builds data processing and productivity tools to scale Mapbox’s data team. He has been working closely with OpenStreetMap data and technology for over 6 years. As a strong advocate of open data, he is actively involved in its movement in India with initiatives like DataMeet and GeoBLR. Prior to Mapbox, Sajjad built a platform for monitoring natural resources in the Democratic Republic of Congo and the data infrastructure to improve accountability and transparency of public schooling in Karnataka, India. Sajjad holds a bachelor's degree in computer science.

Roos Gerritsen
Roos is an anthropologist from University of Heidelberg. Her research focuses on popular visual culture, media and urban aesthetics and cultural politics in south India. She is currently developing two new research projects. The first addresses sustainable and ethical food consumption and the imagination and articulation of ‘everyday utopias’. It investigates vernacular transition movements in Chennai as they seek solutions for sustainability in foodscapes and neo-traditional, local and the organic consumption. The second project focuses on media practices in social and political anxieties around gender and issues of public visibility. Roos currently has a short-term lectureship at IGCS, supported by the German Academic Exchange Service DAAD and BMBF.

Uthra Radhakrishnan, Senior Project Officer
Uthra is currently working on water in the peri-urban context. Her interests lie in climate policy, social psychology, and environment and culture.

Arjun Bhargava, Senior Project Officer
Arjun currently works on water and climate change issues in Sriperumbudur. His interests lie in international environmental policy and sustainable urban development.

Henrik Otte, Intern
Henrik contributed to the peri-urban research project at IGCS through his work on ‘Geo-Spatial Analysis of Water Management Problems and Public Health Outcomes in Sriperumbudur Taluk.’

Ramchandran A, Project Officer
Ram is an analyst and GIS expert.

IGCS Support Staff
Amrutha AA, Senior Project Officer
Amrutha contributes to data modelling at IGCS and her expertise lies in the area of optimization in electricity planning.

Arjun Bhargava, Senior Project Officer
Arjun currently works on water and climate change issues in Sriperumbudur. His interests lie in international environmental policy and sustainable urban development.

Henrik Otte, Intern
Henrik contributed to the peri-urban research project at IGCS through his work on ‘Geo-Spatial Analysis of Water Management Problems and Public Health Outcomes in Sriperumbudur Taluk.’

Ramchandran A, Project Officer
Ram is an analyst and GIS expert.