

MONSOON ASSEMBLAGES

CHENNAI FIELD TRIP REPORT

July – August 2017

Beth Cullen + Lindsay Bremner



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**UNIVERSITY OF
WESTMINSTER**

**MONSOON
ASSEMBLAGES**



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Itinerary

Week 1	Monday 3 rd July	Tuesday 4 th July	Wednesday 5 th July	Thursday 6 th July	Friday 7 th July	Saturday 8 th July	Sunday 9 th July
Notes	Arrive in Chennai	Tour of Perungudi & Perumbakkam	AM: LB + BC meet PM: Meet environmental researcher 1	AM: Meet academic 10 at IIT Madras) PM: Meet IGCS team	AM: Meet academic 6 at MIDS PM: BC visits IIT Madras library LB Visits and interviews architect 4	AM: Meet members of a Lake Association PM: Walk around Perungudi	Rest day LB photographs Injambakkam area inc. Buck Canal
Week 2	Monday 10 th July	Tuesday 11 th July	Wednesday 12 th July	Thursday 13 th July	Friday 14 th July	Saturday 15 th July	Sunday 16 th July
Notes	LB meets residents of the neighbourhood she is staying in	Cauvery Delta Workshop	AM: BC meets a photojournalist, LB meets building material traders on East Coast Road	LB photographic documentation in Injambakkam area Inc. Casa Grande Elita on ECR.			BC: Visit to Karasangal Lake

Week 3	Monday 17 th July	Tuesday 18 th July	Wednesday 19 th July	Thursday 20 th July	Friday 21 st July	Saturday 22 nd July	Sunday 23 rd July
Notes	AM: BC visits an environmental ngo LB visits Perumbakkam housing developments with architect 3		AM: LB and BC meet an activist writer.			AM: LB visits Ennore Creek with the activist writer.	
Week 4	Monday 24 th July	Tuesday 25 th July	Wednesday 26 th July	Thursday 27 th July	Friday 28 th July	Saturday 29 th July	Sunday 30 th July
Notes	AM: LB and BC meet retired Professor 1 PM: LB and BC meet academic 10's team and environmental activist 1	AM: BC meets academic 2 PM: LB gives talk at Spaces	AM: BC meets with a rainwater harvesting expert LB interviews a retired professor. PM: BC visits MIDS library	AM: CG arrives LB visits Anandammal Nagar with an Anna University student	AM: BC visits an environmental ngo. PM: All meet with academics 2 and 5 and LB meets with a council official	AM: Project meeting PM: Walk along coast	PM: LB and CG visit Dakshina Chitra museum

Week 5	Monday 31 st July	Tuesday 1 st August	Wednesday 2 nd August	Thursday 3 rd August	Friday 4 th August	Saturday 5 th August	Sunday 6 th August
Notes	AM: BC meets independent researcher 2 LB and CG interview retired IAS officer 2	AM: LB and CG meet and interview a meteorologist PM: LB interviews architects 6 and 7	AM: LB visits Anna University SAP and MEASI	AM: LB and CG photograph sunrise in Besant Nagar; BC + CG visit an environmental ngo; LB visits Anna University Arch Library	AM: LB interviews an urban activist	Trip to St Thomas Mount	LB: Visit s a lake guardian in Perumbakkam
Week 6	Monday 7 th August	Tuesday 8 th August	Wednesday 9 th August	Thursday 10 th August	Friday 11 th August	Saturday 12 th August	Sunday 13 th August
Notes	AM: LB and CG visit a citizens rights organisation	BC to Pondicherry, LB and CG to Kanyakumari	BC to Pondicherry, LB and CG to Kanyakumari	AM: LB meets with staff at MEASI	AM: BC meets a PWD Engineer, LB meets retired IAS officer 2 at a restaurant	LB to Pondicherry	LB in Pondicherry
Week 7	Monday 14 th Aug	Tuesday 15 th Aug	Wednesday 16 th Aug	Thursday 17 th Aug	Friday 18 th Aug		

Notes	LB in Pondicherry	LB in Pondicherry	AM: AP arrives; BC + CG meet with retired professor 1; LB + AP meet a rain water harvesting expert.	BC leaves Chennai AM: LB interviews academic 7 PM: LB an CG video interview retired IAS officer 2	AM: LB and AP walk in Theosophical Society grounds PM: LB interviews a property developer.		
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FIELDNOTES

Summary

During July and August 2017, Lindsay Bremner and Beth Cullen spent just under seven weeks in Chennai conducting fieldwork, they were joined on 27th July (week 4) by new project member Christina Geros. During the course of fieldwork, they interviewed officials, academics, architects and planners, and met with a number of NGOs and professional groups. The work was mostly oriented around south Chennai, the IT Corridor and Pallikaranai Marsh. Lindsay conducted research into construction and encroachment practices. Beth based her work around rainwater harvesting tanks, focusing on Perungudi tank. Christina used the trip to become acquainted with the project, accompanied Beth and Lindsay and spent time around the Buckingham Canal and visited the salt pans to the south of Chennai.

BETH CULLEN

WEEK 1

Monday 3rd July

- Arrived in Chennai. BC took pre-paid taxi from Airport to Airbnb accommodation in Valmiki Nagar. Met host family (parents, one daughter, one son) and spoke about arrangements including meal arrangements, household routine, Wifi, access, transport etc. Accommodation is an apartment on 4th Seaward Rd along the coast with rooftop balcony area. LB staying in separate accommodation further south.

Tuesday 4th July

- Had breakfast with the family, Lindsay came to the house at 9.30am. We had coffee together and discussed our research plans and prepared a route for the day. As a way of orienting ourselves we planned to travel between Perungudi and Perumbakkam to get an overview of two sites and general context. My hosts ordered a FastTrack taxi for us and we spent the day travelling around Chennai according to the rough itinerary we had sketched out: Valkimi Nagar to Perungudi Lake; Perungudi Lake walk; Perungudi Lake to 200 Feet Rd (via OMR); 200 Feet Rd to Velachery Tambaram Rd; Velachery Tambaram Main Rd to Perambakkam Main Rd; Anandammal Nagar walk;

Nookampalayam Rd to PN Palayam; PN Palayam walk + TNSCB Tenements; Perambakkam Main Rd to OMR (Sholinganallur Main Rd); drop LB at Injambakkam; Injambakkam to Valmiki Nagar.

- We travelled to Perungudi Lake first, just off the OMR in a bustling neighbourhood. surprised to see the lake filled with water due to reports of water shortages prior to fieldwork. Lake was smaller than expected (approximately 50 acres). It has a concrete walkway (covered with clay tiles) all the way around with a wall and fence in varying conditions. The wall is painted turquoise with various 'nature-inspired' artworks painted on the side. The side nearest the road (and therefore most visible) has more decoration. The paintings depict mostly birds (including penguins!). The lake is roughly triangular in shape with the tip pointing west (towards the marsh) and the base to the east. A road has been built across the lake at the tip separating a smaller section which appears to be used as a temple tank. There are two temples, one is located along the road to the north (Sri Vettri Vinayagar Alayam) and the other to the south (Sree Paripurana Vinayagar Alayam). The tank is triangular in shape, the structure has been lined with concrete and two sets of access steps have been constructed. In the middle there is a circular borehole structure. There is another temple/shrine on the northern edge of the lake, along the road (not named on google maps) and a small shrine on the south-east corner with a trident and stone. It is clear that the lake is used for various purposes, there were a number of people washing clothes at the edge of the lake, hanging them to dry on the nearby trees, bushes and wall. A woman was also bathing in the lake (on the same side where the body had been recovered). The lake is teeming with life, aquatic plants grow abundantly in certain places including water hyacinth in the south-east corner. There are a number of water birds including what look like cormorants and fish are visible. A

kingfisher was very active, perching on trees growing along the water line. (Some of the trees were dead and they perhaps indicate the previous water line, before the lake was restored and reached capacity). It is clear that the water levels vary significantly. [Also observed a body at the lake being taken away by police, people said the person had drowned, not sure whether it was suicide]

- Drove to across the Pallikaranai marsh along the 200-Foot Road, stopped to photograph signage related to birdlife installed by the Tamil Nadu Forestry Department (text on the signs state 'Pallikaranai Marsh Land helps in Mitigation of Floods'. Saw Perungudi dumpsite from afar. Photographed roads that cut through the marsh and other infrastructure including water towers. Turned off 200-Foot Road onto Velachery-Tambaram Main Road and drove south. Stopped at temple tank titled 'Lotus Pond Pallikaranai' on Google maps. From there went to Anandammal Nagar (site identified by BC and MV during fieldtrip in 2016) where we spent time observing and documenting encroachment and construction practices. Travelled along Perumbakkam Main Road (which also transects the Pallikaranai marsh), observed bird life (including flamingos) and water buffalo. Ended the day in Perumbakkam where we documented real estate signage, construction practices and marshland encroachment. Observed traditional step well in agricultural periphery and the Tamil Nadu Slum Clearance Board tenements.

Wednesday 5th July

- BC began the day by having breakfast with host family. LB arrived at the apartment early to prepare for meeting with environmental researcher 1 at her organisation's offices. Discussed possible research themes: encroachments into the marsh as a form of 'slow violence' and tanks as a lens through which to understand monsoonal socio-ecological assemblages.

- arrived slightly early at environmental researcher 1's offices and met environmental researcher 2 who explained that they are very busy working on an Urban Greening project. Chennai Corporation very keen to ensure that they get saplings planted before the monsoon season. Huge number of saplings required, they are providing recommendations for the species and location for planting, depending on land use etc. Enquired about the water shortages that we had heard about before leaving the UK. According to environmental researcher 2, there are problems in particular neighbourhoods. Water availability varies markedly between different neighbourhoods, depending on the geography and the infrastructure. It will be important to explore these water arrangements in more detail.
- Long meeting with environmental researcher 1 (listen to audio recording for more details). She responded well to the idea of studying the micro-practices of encroachment (these are harder to regulate than the 'big players'). Thought it would be useful to look at the activities of the middle-class environmentalists and the slum dwellers (i.e. using Perungudi Lake as a focal point), expressed irritation with the activities of middle-class environmentalists (fractured relations lead to a weakening of the ecological cause).
- Following the meeting we went to a café for a 'debrief' session.

Thursday 6th July

- BC spoke with hosts over breakfast about water issues; the male host said that Valmiki Nagar is apparently located over an aquifer and is known for its "sweet water". This area not affected by floods, but badly affected by Cyclone Vardah. Started analysing newspaper articles on Perungudi and pulling out significant quotes. Interesting connections between de-silting, urban development and. Discovered that one of the members (Executive Committee) of the a Lake Association BC had identified

to meet with was a photo journalist who works for The Hindu. Has long-term link with Pallikaranai.

- Very productive meeting with academic 10 and his team at IIT Madras and, temporary library card granted (after meeting with International Liaison Office). Arranged to visit a second environmental ngo next week, an organisation working on tank restoration. One of academic 10's team has used participatory mapping techniques and is looking for ways of restoring a temple tank by mobilising local youth. Another mentioned he is living in neighbourhood where there is hardly any water, water from borehole is available but not good quality ("murky").
- Eradication of prosopis from IIT campus (invasive species), huge amounts of greenery have been cut down (mistook this for the impacts of cyclone Vardah). Environmental researcher 1 also mentioned debates around the management of prosopis. Academic 10 mentioned problems with monkeys and dogs which have got out of control. Observed the "greening" of campus through lawns involving large amounts of irrigation (despite water). Observed dragon flies swarming (wondered if there would be rain this evening)
- Cafe de-brief session with LB: mapped out tentative research framework, discussed ways forwards. Identified three main areas: climate, construction and weather. Certain methods in common: video, mapping, visualisations.
- Conservation with my hosts' domestic helper about water shortages where she lives and experiences of flooding. Water shortages are severe, lead to multiple problems including increased burden for women, spoilt food and conflict. Discussions over dinner. My female host mentioned that she had walked through a slum area and observed that every household had washing machines. She was shocked by this (seen as not necessary). Suspected they were freebies (i.e. like Jayalalitha products). Mentioned that the rice cookers etc. that were handed

out were sometimes sold by domestic workers to the middle class and upper-class women they work for.

- Rained in the evening in Valmiki Nagar. Rainfall seems to be highly localised.

Friday 7th July

- BC emailed a MONASS Advisory Board member and prominent Chennai academic to ask for contact details and requested her to put us in touch with the Chance2Sustain team, also asked for the contact details of water activist who lives on 4th Seaward Rd.
- Met academic 6 at MIDS: positive meeting and gained some valuable information about the projects that she is currently working on and the associated research themes, most of which are very relevant to our research. Advised me to work with both middle class and people from Kallukuttai as both perspectives are important. (See interview)
- Went to IIT Madras again and sat in the cafe by the main library. Spoke about the meeting with academic 6.. Discussed photo survey method for street in Injambakkam and Perungudi Lake.
- LB went to meet architect 4, BC stayed at IIT Madras and used the library, found some useful information on Tamil terminology and place names. Rained in the afternoon. Found information online about city wide lake restoration activities including links to construction (i.e. the use of “saduvu soil/sand” which is removed during de-silting exercises). Starting to understand that Chennai’s position in a “rain shadow” has resulted in the construction of tanks, look at the construction of the eries and the small modifications in the landscape to retain water (compare these to the current modifications to the built environment and how that alters the hydrology of the city). These can be understood as attempts to modify environment and climate.
- Back home late, invited to go out with family but declined (too tired). The daughter commented on the bad smell of the water

that had gathered in puddles after the rain (she was very specific that the precipitation that fell in the afternoon was a drizzle not rain).

Saturday 8th July

- This morning BC arranged to meet with a south Chennai Lake Association. Woke at 6am, left the house at 7.30 and arrived at retired Professor 2’s apartment by 8.00am. Met LB at the entrance to the gated community where he lives. An amazing south Indian breakfast had been prepared by his wife. He introduced everyone and stressed that everyone was from a range of backgrounds and professions. He then went on to explain some of the history of the group and their activities. After some time, we took a break and had breakfast (idli, uttapum, sambal, poori etc.) Some additional members joined later including a younger woman who works for an IT company, and her husband and the photojournalist.
- After we finished eating we were invited to move to the photojournalist’s house where the members normally meet. As we left the apartment block the damage from cyclone Vardah was in evidence in the form of Palmyra trees which had been destroyed and their vegetation placed in a walled area near the edge of the compound. We travelled through the neighbourhood and they showed us the vacant lots where they organise the annual Perungudi Lake Festival. We travelled through the buildings to the road along the lake bund and arrived at the house of the photojournalist. The place is an amazing green-inspired building positioned right on the edge of the lake that he has designed and is making (using daily labourers) using recycled materials, designing building to fit the materials including a photo studio that capitalises on the natural light. Planning a rainwater harvesting system and solar panels on the roof. Well and compost system outside. The lake association’s members usually meet in

the ground floor area where it is spacious and cool. From here we moved to the studio area that he is also planning to use as a gallery. We mentioned our interest in Pallikaranai Marsh so the photojournalist showed us a photo book that he is in the process of producing titled 'Eye on the Marsh: A voyage through Pallikaranai Marsh'. The book is a collection of photos that he has taken documenting the story of the marsh over the past 13 years. The photos tell a story in photos starting with the ecology of the marsh and then moving to document the rubbish dump and the people who make a living from it. One section has been written by environmental researcher 1 and another by an activist writer. After looking at the book we went up onto the roof to see a viewing platform that the photojournalist has constructed which gives incredible views over Perungudi and the lake. When we came down from the roof we had tea and spent some time talking informally. The photojournalist showed us a display of photographs of Perungudi Lake made for a previous lake festival showing changes to the lake over time and drone images of the lake from above. These photos also included pictures of the lake association's clean-up activities and the Lake Festival. There is a huge amount of images to draw on for analysis. After looking at the photos we went down to the ground floor to discuss our research plans with the group. LB presented the project concept. This was followed by questions, most of which seemed to be oriented around why we are coming to do research in India and whether we will be able to share expert knowledge, case studies or 'good practice'. I presented my research plans very briefly.

- Following the meeting we took a walk around the lake with the photojournalist and another member of the association. This was a fantastic opportunity to discuss the key features of the lake, discuss some of the issues and the changes over time.

- Very tired and dehydrated following the meeting. Went to café in Besant Nagar with LB. Discussed the meeting and our research plans.

Sunday 9th July

- Rest day: stayed at home working on notes from the previous week, reading about Perungudi, observing satellite images, testing equipment.
- Heavy rains in the evening, host family unaware, didn't seem to notice. Spent the whole day inside the house, sheltered from the outside with curtains drawn, air conditioning on etc. Travelling by car for errands means people are removed from the immediate environment and weather. Cloudburst announced by Tamil Nadu Weatherman, heavy rain in Valmiki Nagar

WEEK 2

Monday 10th July

- BC went to IIT Madras to work in the main library. Spent the time going through the information collected so far about Perungudi and research approach for the coming weeks.
- Contacted an architecture student working for the environmental ngo and we agreed to meet in the afternoon at 15.00 at Ciclo cafe in Koturpuram. Discussed my proposed research in Perungudi. She advised checking information that the Jonas Langlasen Real Estate Management company has on real estate values in Perungudi and to check for information with other real estate consultants in the local area. Also recommended travelling by train from Thiruvanmiyur to Perungudi MRTS to view the area from above. Also discussed the monsoon. She explained that there are two main seasons in Tamil Nadu, winter and summer, not four like the British. Southwest monsoon rains are less in Chennai, northeast monsoon is when the area gets the majority

of rain (Oct/Nov/Dec). Advised looking at Panchangam, book/script produced every year by traditional scientists/astrologers, everyone follows this calendar and it guides festivals and key dates. Tamil year starts on April 14th, calendar is linked to stars. Calendar is also used to predict rainfall for the year, all Brahmins follow this. Different associations with the months, i.e. Aadi is associated with strong winds, proverbs associated with the different months. People worship water during this month, e.g. festivals held at the Cauvery River.

- Returned to Valmiki Nagar and had dinner with host family, went to shopping mall for south Indian food. Apparently, the children attend the Shishya School, one of the most expensive school's in Chennai, sited in the grounds of a former palace. Children mentioned that their school used to flood because the playground used to be a tank/pond but was filled in when the school was built. They have had days off school in the past because of flooding when it rains Now they have fixed the problem by installing storm drains.

Tuesday 11th July

- Invited by Academic 6 to attend the Cauvery Delta workshop at MIDS. Arranged to meet a retired journalist in the morning before the workshop started (he was also attending), a Special Correspondent to The Hindu newspaper and member of the State High Level Committee on Water and Sanitation. (We had met him previously at the IGCS Peri-Urban conference at IIT Madras, very passionate about water and sanitation issues)
- Cauvery Delta workshop lasted all day from 10am to 5.30 pm. Packed programme which featured talks about the Cauvery Delta vulnerability to rising sea-levels, salt water intrusion, coastal erosion, rising water tables, storm surges and increasing intensity of cyclones. Many of the talks focused on vulnerability analysis at a village scale – largely using village surveys and quantitative

analysis (see audio recordings and photographs for further details). Managed to meet and arrange a meeting with a retired professor who has published extensively on water management issues in Chennai.

Wednesday 12th July

- BC spent the day carrying out a transect walk around Perungudi neighbourhood to observe socio-economic dynamics and the connections between the IT Corridor, water bodies and the marsh. Travelled along the IT corridor to the Taramani MRTS. Took MRTS from Taramani to Perungudi, then to Velacherry and back to Thiruvanmiyur. During walk around Perungudi I observed and documented a range of water infrastructures which manage monsoon rainwater, these included traditional eris (tanks), temple tanks, drainage pipes, water supply tankers, overhead water storage tanks, stand pipes and hand pumps. I also observed graffiti at the MRTS stations promoting rainwater harvesting initiatives and environmental awareness. I noted various real estate developments in the area (many of which were being constructed on marshland) and documented the signage and advertising boards associated with them. Took photographs and video forage. When I got back to Valmiki Nagar I made my first visit to Thiruvanmiyur beach near the house – noticed fishing village not far along the beach and views of Port infrastructure to the north.
- BC spent the evening planning meetings for the coming few days. Spoke with LB on the phone. Contacted an architecture student from Anna University regarding assistance with site visits and translation. Contacted University of Madras researcher regarding historic satellite imagery. Contacted the photojournalist to set up a meeting for tomorrow.

Thursday 13th July

- In the morning BC met with the photojournalist who gave contact details for other members of the Lake Association and a PWD official who is familiar with the history of Perungudi tank and other tanks in the area. He gave copies of his photographic documentation of Perungudi Lake since the early 2000s. Recommended that I notify the Panchayat Office that I was doing research in the area. He also spoke about a channel that is being constructed along the Taramani Link Road to drain surplus water from the Velacheri area which floods during monsoon season (and was particularly badly affected during the 2015 floods).
- Spent the afternoon walking around Perungudi Lake, observing human and nonhuman interactions with the lake and taking photographs and video footage. Spent time visiting area immediately adjacent to the marsh (walked along Periyar Rd through informal settlement to the edge of the marsh). The whole area seems to be constructed on top of marshland and there is evidence of ongoing land filling using garbage (rubble, broken tiles, plaster board, plastic waste) to extend the area that is available for housing. Also, evidence of people trying to raise level of roads through dumping of materials – apparently this area was badly affected during the floods.

Friday 14th July

- Heavy rain during the night, woke to cloudy skies and cooler weather. BC decided to visit the Tamil Nadu archives in Egmore (to build on historical information gathered from British Library prior to fieldwork).
- Took Ola taxi to the Madras Record Office, now known as the Tamil Nadu archives – one of the oldest and largest document repositories in Southern India containing valuable information about the British-era Madras Presidency, particularly information regarding management of tank infrastructures. (On the way

noticed that Ola taxi adverts were offering discounts for ‘monsoon escapades’). On arrival at the archives, I was given forms to fill in to gain access, but upon inspection of the forms discovered that evidence of a research visa was required so was not able to get necessary permissions. First time visiting this part of town so stayed for a while and walked around. Had lunch in a place opposite the Chennai Egmore train station – red brick colonial-era building and then took taxi back to Valmiki Nagar and worked on notes and planning meetings.

- LB moved accommodation, we arranged to meet in the evening for dinner.

Saturday 15th July

- In the morning BC met the Anna University student. Spent much of the day in Perungudi. Walked around the Perungudi lake (tank) and along the edge of the marsh – roughly following route I had taken on Wednesday. Traced the overflow channel that connects the tank to the marsh and spoke informally with a range of people that we met along the way. People commented that the channel has been obstructed by buildings and a road, and now the water overflows and floods the streets. In the last floods, the area was submerged with water levels reaching one and a half to two meters in places. They also mentioned that the depth of the lake has changed over time. The areas has changed dramatically during the last 6 – 7 years, before that there were only a few buildings, but not it has become a big neighborhood. Despite the lake and the marsh, people don’t have good access to water. They rely on either tanker water or harvesting their own rainwater. There are tensions between higher and lower-class people in the area, particularly around how people utilize the lake. Met, a local man who seemed knowledgeable about the lake and how it has changed over time. Mentioned a local politician dredging the lake a number of times which made it

much deeper than it has been previously – sand and silt removed from the lake was sold for construction purposes. Lake is apparently under the authority of the drinking water department of TN – they have taken over the lake and are trying to utilize it to provide drinkable water. The PWD helped to set up the pathway around the lake and the boundary wall. Gained valuable information and useful contacts during the walk around Perungudi and arranged to meet certain people again next week to talk in more detail about the history of the area and change over time.

- Went to cinema with host family in the evening –to see Planet of the Apes film at the Phoenix Mall in Velachery. This was my first time in one of the major shopping malls and I was conscious that the mall had been constructed by encroaching on a tank. Surreal experience. Everyone stood and sang the national anthem before the movie started. Also showed historic footage of former Chief Minister Jayalalitha and MGR. People very vocal during the movie.

Sunday 16 July

- Today I had been invited on a field trip with a member of academic 10's team to visit Karasangal Lake which is undergoing restoration. Woke early. My host dropped me at the Thiruvanmiyur bus depot at 8 am. He told me not to take any buses past Tambaram on my own as then I would be travelling into "the interior" and it would be a risk as transport is not reliable. The drive out of Chennai was fascinating, we travelled along the OMR, then 200 feet road through the marsh and out to the west of the city. The drive revealed the scale of urban development as well as attitudes towards water bodies - the 200 feet road cuts through so many eris (tanks). Took the bus from Thiruvanmiyur bus depot to Tambaram bus station and met the member of academic 10's team and her two sons. From

Tambaram we took a bus to Karasangal Lake (near Padappai). On the way, we spoke about issues related to politics and problems of corruption and bribery. She said that the middle classes are very politically disengaged because their involvement doesn't bring about change. The civil society sector, NGOs and activists alike are only able to bring about limited change because their efforts ultimately depend on political will and approvals. Even well-intentioned NGOs and activists get into problems because politicians "play them like fools".

- When we reached Karasangal Lake we met a coordinator for an environmental ngo whose focus is lake restoration. He is civil engineer by training but left the profession because he didn't enjoy the work. Most of his friends are IT workers but he wanted to do something different, to contribute to the wider community. As we walked around the lake, he explained the background of the restoration initiative. He emphasised the fact that his organisation only supports a 'natural' approach to lake restoration, based on scientific research. Use of satellite imagery to assess each water body on an individual basis, limited to Google Earth which only goes back to 2001. (Working on the basis of a relatively short time frame, the lake may have been different prior to this as illustrated by Perungudi). They do not support the use of concrete because it limits water percolation. As much as possible, they work with native/indigenous plant species. They had also left 'islands' in the lake to provide habitat for native and migratory bird species. Guru mentioned problems involving young people (teenagers and older) because of their involvement with political activities (Dravidian parties), and gang-like activities. Also mentioned that EFI is not working on Perungudi because it is seen as a dump yard area.
- In the evening, I spent time talking with the host family. They mentioned that the Chennai floods were manmade: caused by the opening of the dams which flooded the city, also attributed

the heavy rains to climate change. Ola started renting boats during that time, and provided “rescue boats”. Streets were flooded so drains and holes in the street were invisible. People drowned, three dead bodies were found. Afterwards the city was covered in rats and crows.

WEEK 3

Monday 17th July

- BC had conversation over breakfast with another Airbnb guest. He used to live in Perungudi 8 years ago when he worked for Tata as a software engineer. At that time, there were far fewer buildings and he described the area as being almost forest land. He said that he used to work about 20 minutes from the bus stop on the OMR to his place in Perungudi. He commented on the number of temples in the area. From Perungudi he commuted to the Tata office on the OMR every day. I asked why there were so many software engineers working in Chennai and he said it is because companies require many software engineers to manage their business. There are no longer any companies which are not computerised. Every aspect of business requires some form of software or app development and maintenance. Each company therefore has a large IT department consisting of different sub-departments which manage everything from app creation, development, user experience, client interfaces etc. People work long hours often synced with international time zones, e.g. US. US also syncs with India although there is a disparity in terms of the hours worked by the US and Indian employees. Indian people end up working through the night because they are required to do so. According to Muli, US employees do not want to do this. Commented that IT workers are cut off from the environment in which they work.
- After breakfast BC went to meet with environmental researcher 2 at her organisation’s offices at 11 am. Had a long conversation about the MONASS research. Discussed the cascade structure of the traditional rainwater harvesting tanks and she showed me a photo of the southern part of Tamil Nadu where the system is particularly visible in satellite imagery. She explained that the reasons the eris are the shape they are is because they are formed around meandering rivers and that bunds are created where the river forms an ox-bow. During the discussions, BC mentioned the number of temples seen around the Perungudi tank and she said that they are often used as a way of securing access to land and the tank as a resource. No one can question the location of a temple, not even government! Temples can also be constructed in various forms and with limited resources. Avantika also did not seem to know about EFI or the work they are doing on lake restoration. It seems that there is very little coordination between the various groups and NGOs. EFI doesn’t seem to collaborate with other NGOs but works mainly with corporate clients and state government.
- After leaving the meeting, BC went to IIT Madras to meet with a social work student. She lives in a girl’s hostel in Sriperumbudur, but her family live in an informal settlement in central Chennai in an area called ‘Parrys’ and is in need of financial support to finish her studies. Agreed that she would work with BC for two days (Thursday and Saturday). Discussed the research and called the Perungudi resident BC had met the previous week and arranged to visit him on Thursday.
- At the host family’s house in the evening BC had another conversation with the domestic helper about water. There is still no water available in her area. She is relying on pump water (bore well) across the road, which her husband carries to the house every morning, and rain water which she collects in buckets. Pump water is bad quality but she doesn’t take tanker water

because there is too much fighting between the local residents when it arrives. Uses pump water for washing clothes and bathing. Uses canned water for cooking and drinking (previously mentioned that food spoils quickly if she uses pump water for cooking). Her family use approximately one can every day (40 rupees per can) at the moment due to the water shortages. She said that she normally spends around 600 rupees per month on (canned) water, but is spending more at the moment. She is paid 7,000 INR per month by the host family and 2,500 INR by the woman she works for in the morning (she mentioned that she also does other work and gets 1,000 INR for cleaning toilets). In terms of costs she spends 3,500 on rent per month and 589 for a gas cylinder, the people who deliver demand an extra 50 INR for transportation costs.

Tuesday 18th July

- Morning spent sending emails and preparing questions for Thursday, and prep for meeting with one of academic 10's team at IIT Madras this afternoon. In the afternoon went to IIT Madras for the meeting but unfortunately, he was not available. Met with an urban planner working with the team instead. We spoke about how to obtain census data, to track change over time in terms of population size, social composition, livelihoods, dwellings, infrastructure and facilities. Information about water provision (drinking water) and land tenure can also be found from the Panchayat Office. Land tenure information may not be available in PO, survey on use of land and owner of land is documented under the Adangal Register. The urban planner also explained the administrative structure: Kancheepuram District > Sholinganullur Taluk > Perungudi Town Panchayat > Wards. Each taluk is a constituency with an elected representative. Under each taluk there may be both village and town panchayats. There are also 'census towns' which are areas that are experiencing

increased population but their governance structures are still rural, (i.e. Sriperumbudur?). Asked about the numbers on the CMDA land use map and he said that they are survey numbers which equate to land ownership (plot no.), subdivisions are indicated by a/b after the number. Town Panchayat's are divided into wards with their own elected officials. Map of the wards can be found in the Panchayat Office. Old land use maps can be found from the Director of Town & Country Planning (DTCP) located on Mound Road (also known as Anna Salai). Current land use maps are available from the CMDA. Greater Chennai Corporation is responsible for conserving water bodies (particularly following the floods), but the PWD has ownership (of some) water bodies and for those under their control they must give permission for any work that is carried out. PWD can also allocate funds to the local constituencies to carry out the work, i.e. MPs. CMWSSP (water & sewerage board) is responsible for drinking water provision, sewerage and drainage, they are not involved in conservation of water bodies, for this they must coordinate with the PWD via the Corporation for any work that needs to be carried out on lakes/tanks/water bodies. PWD classifies lakes into system and non-system: can find the classification for Perungudi Lake from their records, there also may be information from the Taramani Water Resources Dept. PWD have designs and regulations for tank maintenance, these are based on the topography, land use, type of water body etc. Asked about how to trace inflows and outflows and connections with other water bodies. Apparently, many of the connections are difficult to find from maps or satellite imagery. Toposheets are large scale so don't cover smaller scale water bodies. LandSat is 30m x 30m resolution so not fine scaled enough. Best source of information for connectivity is the village maps which are available from the 1940s - 50s and can be found in the local Panchayat offices. Land & Survey Settlement Department (sub-division of the PWD) have

maps which provide the base map for the CMDA land use maps. The urban planner recommended that I check for historical maps from activist who used to work for IGCS, (independent researcher 2) who has been working on making these maps available via a website. Other libraries that may have relevant historical information are: State Water Resource Department in Taramani and the CMD Library. He thought it might be difficult for me to obtain information from the State archives but more feasible from local panchayat office.

- In the evening LB arranged for us to have dinner with an academic 9. Over dinner we discussed the current political vacuum following the death of Jayalalitha (Chief Minister), difficulties with institutional contacts, Veg/Non-Veg divides and neighbourhood classifications in the city. She described Chennai as a difficult place to work, invited us to visit her at Pondicherry.

Wednesday 19th July

- In the morning LB and BC arranged to meet an activist writer working on the Save Ennore Creek campaign. We met at his organisation's offices in Besant Nagar. Discussed the recent floods and extreme weather events and his comments in press articles about 'bad planning' being responsible (flooding is not a 'natural' event). Spoke about indiscriminate urban development and processes of encroachment and the role of the middle-classes and elites (although the poor are scapegoated). Also discussed how people relate to the monsoons that Chennai experiences and their different 'characters', he made an interesting comment that "the northeast monsoon is a rogue monsoon and the southwest monsoon is a well-behaved monsoon". Mentioned that traditional knowledge of the monsoon (held by fishers and other communities) is struggling to adjust to rapid changes – both

urbanization and climate change. Discussed the work of his organization and he invited us to go on his tour of Ennore Creek.

- Following the meeting LB and BC spent time discussing the work so far and ongoing research plans. Following this BC sent emails, prepared maps of Perungudi to use during conversations with local residents and questions / themes.

Thursday 20th July

- BC met an Anna university student at the Taramani MRTS station in the morning. Travelled to Perungudi to meet with a local resident. We met at his restaurant (small-scale road side business) and spoke to him as he was working. Met various people working in the restaurant, local business owners and an employee of the Panchayat office. Spoke about the history of the Perungudi area and changes to the environment over time. Verified things he had mentioned during conversation the (previous week about dredging of the lake and changes to its ecology, including movements of fish species between the lake and the marsh. Mentioned encroachment of the tank by local government who have used the land to construct a school and have granted permission to developers for apartment buildings. Silt taken from desilting was used to make foundations for buildings along the IT corridor. Tank has become smaller over time and less diverse ecologically. Changing depth of the tank has changed the kinds of species that it supports. Also mentioned that the temperature of the area is gradually increasing, which he believes is partly due to the increase in buildings which block the cooling sea breeze and the use of AC which generates heat.
- After speaking in the restaurant the local resident invited us to visit his home (on the Panchayat Main Road near to the Lake). Met his wife and mother. Spoke about traditional Tamil food and how people use certain foods and particular plants to manage their health and diseases which change with the seasons.

Mentioned particular plant species that 'live with humans'. Long discussion about former Chief Minister of TN. Said he would introduce me to people in Kalukuttai (informal settlement bordering the lake and marsh), and take me to the old temple north of the lake where he knows the 'teacher'.

- Spent time in the afternoon walking around Perungudi, spoke with the Anna University student about issues around water. She mentioned that bottled water is not good for health, chemicals in the water affect wellbeing and fertility. Copper, not plastic is traditionally used as a vessel for water because of the purifying qualities. On my way to Valmiki Nagar I noticed women breaking bricks for construction along the IT Corridor – although construction workers seem to be mostly male. Passed through in Thiruvanmiyur on my way back to the Airbnb and saw women selling fish on the street – had been told by Anna Uni student that women from fishing villages are responsible for selling the catch.
- Dinner with Lindsay in the evening.

Friday 21ST July

- BC not feeling well and spent the day working in Besant Nagar writing up notes, downloading and labelling photos and video materials taken so far and transcribing interviews. Met with LB in the evening.

Saturday 22nd July

- In the morning BC went to visit another member of the Lake Association. Her house was located on Ramappa Nagar Main Road in Perungudi in an area where many middle-class professionals had bought land to build their own homes in the late 1980s. At that time, the land was much cheaper and the area was still undeveloped. She commented that the road was one of the only ones at the time, and it was surrounded by marshland and agricultural fields. "Suddenly after the OMR emerged, the

whole place developed". One of the main motivations for them to move to the area was access to groundwater. "In Chennai, the biggest problem is groundwater... we found that this place has good groundwater and so that is when we decided to build here". Following acquisition of the land they had battles to secure it – apparently there were a lot of struggles over land between private buyers and real estate developers. Lots of scams and corruption over land access. They showed me around their house and spoke about their rainwater harvesting system which they have established around the grounds of the house. They have also been careful with their planting of trees around the house to maintain shade and reduce evaporation. She and her husband are also keen gardeners and had developed an extensive vegetable garden on the roof. They are involved in the Lake Association because they want to protect the lake, partly to maintain the environment but also because the presence of the lake helps to conserve groundwater in the area.

- In the afternoon, BC met with the Anna University student and we went to speak with people living in informal housing along the edge of the Perungudi Lake. Met two women sitting on the street outside their homes preparing drumstick leaves (moringa, known in Tamil as *muringai maram*). One (Saroja) moved to Chennai from Aroor in Dharmapuri District in western Tamil Nadu and has been living in Perungudi for the past 10 years. The other (Santhi) moved from Thiruvannamalai and has lived in the area for 22 years. They both work as domestic workers. We spoke about their access to water and they said that they relied on Perungudi Lake for bathing, but use Metrowater to wash vessels and for cooking, and canned or bottled water for drinking (which costs 35 INR per can). They mentioned that in some areas nearby there is only salt water and no potable water, pinpointing certain streets for the quality of the water. They commented that the continuous dumping of solid waste and garbage has spoiled the

water quality in the area. They said they had not been badly affected during the floods but people they know living in Nethaji Nagar (near Velachery eri) were badly affected, their huts were destroyed and they received no support from the government. They settled in Perungudi due to the IT Corridor and the many employment opportunities. We also spoke about the seasons and how they influence quality of life, the availability of food and people's health. They commented that the rainy season is a difficult time due to mosquitoes and other insects, as well as water snakes. This period is also known as dengue-fever season so people have to protect themselves from many weather-related dangers.

Sunday 23rd July

- In the morning BC met with another member of the Lake Association. Had afternoon tea and his wife mentioned that it was an auspicious day (amavasya/new moon?) related to ancestors. He is originally from a place near Kanyakumari in the south. He used to work for a company called Larsen & Toubro, one of India's largest engineering companies (started by two Danish engineers). Spoke about the Perungudi area, mainly focused on land ownership, infrastructural and real estate developments and the Lake Association. Mentioned that the area was still under construction when he moved there. Commented that the area was already filled in when he moved, but said "some of the native people say this was all part of the lake, they have filled it up". Also spoke about 'slum encroachments' in the area, and he commented "once they get in it's very difficult to get them out, they encroach on the road, they encroach on public properties, tanks, all that". Enthusiastic about initiatives where citizens self-organise to improve the city and its environment (but must be 'good citizens' to be effective, i.e. pay taxes etc.). Members of Green Acres have a lot of clout because of their status and

connections. Very aware that there is a significant divide between such residents and those in the neighbouring lower-class areas. He mentioned that the main objective of the Lake Association was to stop people from encroaching on the lake, otherwise it would disappear one day. Lake cleaning efforts "is only to make people understand something is going on, that some people are watching".

- He gave me a tour around the gated community in which he lives. The architects who designed the layout also live there he said. The compound has its own water harvesting, sewage treatment and composting facilities. There is also a playground, swimming pool and residents club. Apparently the whole plot used to be a farm so the wells that are currently used to provide water for the residents were once used for agricultural purposes. Spoke about floods in 2015, which affected parts of the compound, particularly the car parking area where some of the cars were underwater. Residents responded following the floods by raising the levels in certain parts of the Green Acres compound, i.e. those areas that had received the most water. He mentioned that the residents of Green Acres helped people from the surrounding 'slums': "we of course helped the slum, we opened a kitchen here. Our own people, like gardening and housekeeping staff and the guards, all come from there. So we all contributed". He mentioned that everyone in Chennai was supporting one another, "humanity is still surviving".
- Speaking with me hostess over dinner we talked about heating and cooling foods. Cold water is regarded as having heating properties and should be avoided. Her children have been told to avoid drinking cold water due to their history of illness) Balance of heating and cooling foods are used to deal with the climate at different times of year, linked to seasonally available foods also... This is common knowledge and something people don't even think to mention.

WEEK 4

Monday 24th July

- LB and BC met with retired professor 1. Meeting was arranged at a café on the grounds of IIT Madras. LB started by introducing the Monsoon Assemblages project and aims of the research. Spoke about the 2005 and 2015 floods in Chennai, he commented “if you don’t understand your fundamentals you will pay for it. Your city should be built along the lines of what is given to you. If you keep building your city in the way that you want, you will pay for it”. Spoke about the importance of considering weather, topography, hydro-geography, all of which are connected. Complained about the lack of comprehensive planning, nothing that he has recommended after the floods in 2005 and 2015 has been taken seriously. Spoke about the importance of water bodies (particularly tanks). “Every single water body can create its own micro-climate. It is this micro-climate which gives you the macro-climate”. Mentioned that over the last 30 to 40 years there have been billions of rupees spent on “tank modernization”, “they just do some earth works, clean the bunds and whitewash it and then they say it is modernized”. But there is a lack of understanding about how the tanks work together as a system. Argues that the tanks are important both for mitigating flooding and to store water: “you need a tank not only to save you from flood, but also to save water”. Says that the CMDA is responsible for tank encroachment. Master Plans only consider how many buildings and FSI.
- In the afternoon, LB and BC met with environmental activist 1. Met at his offices in Besant Nagar. Spoke about his approach to lake restoration, which they have been working on for 10 years. He explained that the first goal is to protect water bodies in their current condition, “If I know that 40% of the water body is

encroached, I am not going to wait for the courts to come down and tell the government to remove all the encroachment to restore the 100%” Also said that they are trying to consider future developments, such as changing rainfall patterns, potential infrastructural developments etc. They are not concerned with beautification but about creating bio-diverse hotspots and using the tanks to raise awareness of the “economic and health benefits of a clean, protected water body”. Commented that Chennai is a city where large numbers of people have come from outside, “nobody is a native here” (which was presumably a reference to people being unaware of the city’s environmental history and the role of the tank system). However, there is a demand for public space, cleaner water and restored water bodies. “We have everything that it takes to be the world’s water capital... despite this we are a water-starved city after a 19-month period of flood and rainfall. It only shows human mismanagement, it is not nature’s fault”. Only spoke briefly about where funding comes from. Seems that companies (e.g. Lars & Toubro) invest in lake restoration by providing machines, fuel and labor. They also crowd fund through a digital platform called “Better India”.

Tuesday 25th July

- In the morning BC met with environmental activist 2. Her organization had established a tree park using species that are characteristic of tropical dry evergreen forest (which is native to this coastal area of Tamil Nadu). The park was established on the site of a former dump. It is used as a place to educate local school children about the tree species, described it as a ‘tree library’. Sited along the banks of the Adyar River, but the water is very polluted. Park was affected by Cyclone Vardah but trees are starting to recover. Lots of butterflies and insect life in the park. Talked about the importance of genuine grassroots activities (in

which people are truly invested) to make meaningful change in the city. Also mentioned that it is mainly when there is a crisis that people see the need to take action.

- In the afternoon BC met with academic 2. Spoke about water geography of the city: distinctions between hard and soft water, sweet water is soft water, hard water can be brackish or saline. Changes in water quality linked to changes in weather, i.e. complaints about deteriorating water quality during seasons of water shortage. Asked about the meaning of 'sweet water' and apparently it is just a term used to indicate water that is good for drinking. Palatable due to the taste (as well as the quality). In some areas of Chennai, the water is oily due to the geology of the area. Explicit link between monsoon and groundwater... extreme weather events act as a warning/reminder about the importance of water.
- In the evening LB gave a talk about Monsoon Assemblages at Spaces in Besant Nagar.

Wednesday 26th July

- In the morning BC met with a rain water harvesting expert at his offices. Saw the model rainwater harvesting systems and took photos of all the posters and displays. Asked about links between RWH initiatives and ecology and he said that he just addresses water, doesn't talk to people about anything else (simple and targeted messages). Some water can be kept for immediate use and the rest can be put back to the soil. Asked about links between RWH initiatives and water bodies/lakes/tanks. Water bodies are essential for ensuring ground water recharge, but are often not considered by developers. Areas around water bodies can be urbanised, right to the edge, but the water body itself should not be compromised. What exists must be retained and preserved as much as possible. Asked whether any research has been done about water spread/seepage in relation to water

bodies/lakes/tanks and he said this is not well understood. Some researchers have suggested using radioactive isotopes to trace the extent to which water travels in the areas surrounding waterbodies, but this also needs to be done in relation to wells. Seepage is influenced by the soil types and this varies massively according to location etc. Water quality: people should learn to live with different types of water and utilise it for different purposes (used the example of London water: people brag that they can even drink their toilet water because it is so clean, but this is not something to be proud of, in the current state of the world there needs to be better use of water resources, processing water takes energy etc.) Apparently, people complain about the quality of metro water due to the high amount of bleaching powder, this means that water filters cease to work effectively (find precise name of water filter from audio recording). Motivated by a desire to eliminate waste: since he was a child he has been frustrated by the waste or misuse of resources. Says he tries to make use of everything, including wearing his clothes until they are rags. Believes the most important people to influence are architects and builders. They are key to changing the way that water is considered in the design of buildings (and in urban development processes). But they blame one another as a way of avoiding responsibility. References to a lack of adequate planning, as a result Rain Centre are trying to work with CMDA, i.e. by providing adequate drawings for how RWH should be designed for different types of buildings ('the previous ones were wrong'). Very little consideration for hydro-geology in the design and construction of buildings, or by the people who purchase the buildings, there needs to be a broad-scale education.

- In the afternoon BC visited the MIDS Library, managed to find a copy of the book 'Tanks of South India' edited by A. Vaidyanathan – not available in the UK. Scanned relevant pages related to Tamil

Nadu. Very useful section on the regional distribution of tanks along the coastal area which “reflect variations in topography and rainfall patterns”. Also read some of the recent newspapers and took copies of stories related to weather events and groundwater

- In the evening, BC met with environmental researcher 2. Spoke about some of the themes that have emerged during conversations with people so far, particularly water quality. She mentioned that in a recent meeting with the head of MetroWater she asked what percentage of the city is supplied by MetroWater and apparently, he didn't know. Lack of data about service provision. Many people not linked to piped water supply and rely on tanker water. Asked about bleaching powder and she said there is advice that people should not put pet fish directly into piped water (or they will die), but should leave it to stand for some time. Not sure how the quantities of 'bleaching powder' (chlorine?) is measured, reports of the water smelling strongly of chlorine. Cables are being put underground at the moment following damage caused by Cyclone Vardah. Spoke about the current tree planting initiatives that her organisation is working on and she mentioned that she feels emotional looking at the trees and how they continue to support the city even though they are not looked after and often invisible
- Rained this evening.

Thursday 27th July

- BC spent morning writing up notes and arranging meetings. Had planned to go to Perungudi with her translator, but she cancelled due to college commitments. Contacted academic 3 to ask if an Anna University PhD student could assist me. Waited until 2pm but she also cancelled due to classes. Wrote up some notes and organised data (video/photos/audio), but day was not very productive.

- LB, BC and CG met for dinner, Christina arrived in Chennai early this morning. Went to where LB and CG were staying and spent a few hours there, mostly discussed informally and agreed to meet on Saturday to discuss the project and work so far.

Friday 28th July

- BC visited the environmental ngo's offices again. Spent time with environmental researcher 2. She showed me a newspaper article about CMDA proposals for utilising construction waste for buildings and infrastructure, rather than taking it to landfills or dumpsites. There are concerns about how the city's construction and demolition debris is being managed, particularly as the city's construction boom is expected to get bigger over the next decade. Asked for some advice from one of the ecologists regarding fish species mentioned by Perungudi residents, confirmed some of the names, referring to the Pallikaranai Marsh species list as well as the Tamil names and habitat types. Met with Jayshree and asked for her help with translation, particularly for Kallukuttai. She recommended that I work with an (employee of the environmental organisation in Perungudi, although his English is limited. Spoke about the research around Perungudi Lake. She confirmed the position of the bund and that it has shrunk over time. The whole area was once covered in palm trees, and she said the whole marsh used to be a sheet of water that extended to the Mutukadu Creek. Completely seasonal area with many types of fish... Apparently there used to be a channel that linked the Perungudi Lake with the Buckingham Canal but it disappeared in the 70s. Need to try and find map-based evidence of this. It seems that Kallukuttai is notorious for all kinds of illegal activities (boot-legging, prostitution, brothels, etc.) It was described as a 'dirty place' which absorbs and represents all the ills of the city. It is built on government (University) land, and apparently there is a High Court case which aims to clear the

settlers. Kallukuttai highlights the links between Poramboke land, water bodies and informal settlements. The area is regarded as prime land and will undoubtedly be developed over time, once the slum dwellers are cleared to resettlement colonies further south.

- In the afternoon BC met with academic 2 at Anna University. Had lunch together at the University campus.
- LB, BC and CG met with academic 5 at Anna University. Spoke about her work in relation to water bodies in the peri-urban areas of Chennai. One of the focal areas of research is on watershed management, including erosion, and rainwater recharge using modelling techniques. Mentioned a sociologist colleague working with participatory techniques on watershed management. Part of what they focus on is how to mitigate flooding. Mentioned a project working on interactions between climate change and coastal / fluvial flooding. Mentioned issues with flood and drought and vulnerabilities of TN.
- BC and CG met for dinner. Spoke about the project so far and agreed that there is a need to map the themes, research, connections in order to visualise potential outputs. Discussed that sites we are focusing on may seem micro in relation to the scale of the city, need to consider how to link the research to bigger processes and systems.

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Saturday 29th July

- Whole team met in the morning (LB, BC and CG) to discuss the project so far, and the Chennai research. LB and BC gave an overview of work so far. Discussed that the sites we have focused on in the south of the city need to be understood in relation to the broader context (both in terms of the regional landscape and the meteorological conditions).
- After the meeting, we went for lunch at Elliot's Beach (Biryani restaurant)

- Following lunch, we walked along Elliot's Beach to mouth of the Adyar River. Walked through the fishing village at the northern end of Elliot's beach along the coast, saw traditional and modern fishing equipment. Met some local fishermen and watched them collecting bait. Took photos of the things that had been washed up along the shoreline, including a dead dragonfly. Really refreshing to be next to the sea. Walked as far as the 'broken bridge' at the mouth of the Adyar River. Bridge was constructed to connect fisher villages on either side of the river and was a popular place for fishing, it collapsed in 1977 due to strong currents and has never been repaired. Around the bridge we saw sand mining taking place (possibly illegal).
- In the evening, we met for a drink at Keys Hotel. As the sun went down large numbers of flying foxes emerged, flying in relatively large numbers. Haven't seen them before. Not sure why there were suddenly so many and whether it is a regular occurrence or seasonal etc. People around us seemed to take no notice of them.

Sunday 30th July

- BC arranged to meet with a former railway engineer and resident of Perungudi. The meeting was arranged by the photojournalist who met him when he was doing an article for The Hindu and they stayed in touch – they are both originally from Kerala. Engineer was one of the first settlers to Perungudi before the IT expansion, played an important role in filling in the lake and 'improving' the area. Purchased land from rich gentleman to build house, church and school. Spoke about the importance of neatness and cleanliness – improving the environment. Apparently, people were attracted to Perungudi because of the village feel... and its similarities to Kerala. There is a significant Keralan community in the area. Spoke about the irony that a desire for village life facilitates urbanisation. He mentioned that

deepening the lake helped to raise the groundwater table and enabled people to live in the area. Perungudi has always been associated with 'bad' elements. It has also served as a dumping ground for a long time. Interesting conversation about garbage: i.e. It should be put somewhere out of the city. The photojournalist made the point that Perungudi used to be outside the city which is why the dump is there, moving it just shifts the problem elsewhere.

- After the meeting BC went to Perungudi Lake, on the way to the engineer's house had observed preparations for a festival happening at the shrine on the corner of the lake. Man was painting a goddess effigy – told it was a seasonal festival for the month of *Aadi*. Spent some time with the people preparing the festivities – living in informal settlement on edge of the lake including a woman I had spoken to previously. Spent afternoon with them watching and recording the festivities. Celebrations included preparation of Koozh (fermented porridge) and drumstick leaves. Neem leaves hung around the shrine. Goddess effigy placed inside temporary shrine made from palm leaves. Ritual singing and dancing, woman who was referred to as 'priest' seemed to be in a trance-like state. Goat and chickens slaughtered as part of the rituals. Not sure which Amman the shrine is for (possibly Mariamman). Need to confirm this and try to understand more about the activities in the Aadi festival and whether Amman rituals are linked to rain/fertility?
- Rained in the evening.

Week 5

Monday 31st July

- BC met with independent researcher 2 in the morning; used to be part of academic 10's team at IIT Madras but now works as an activist and directs an organisation which aims to prevent

recyclable waste from ending up in landfills. He was responsible for setting up a website which aimed to collect historic maps of Chennai to highlight encroachment of water bodies over time. He commented that the most important academic exercise would be to think about the importance of eris as a regional kind of water management and the way that the British classified both eris and marshland as poramboke and how the city has taken them over. The aim of his website was to overlay revenue maps with topo maps and cadastral maps to highlight how the water bodies have been eradicated and by whom. He stated that the speculation around IT was enabled and started because of the city's eris (e.g. Tidel Park was built on an eri), so they are facilitating processes of urban development. They had intended to include in the map the land records and certificates of change which are required to convert land-use types (i.e. from agricultural to land that can be built on). Spoke about the importance of data and visualising change over time, but in a way that can be utilised (rather than for academic purposes). Gave advice on who to target and work with in Chennai, was very disparaging towards extractive research saying "please don't be like them".

- In the afternoon LB, BC and CG met to discuss how to organize work over the final week or so.
- In the evening BC spoke with domestic helper at her AirBnB again. Aadi month meant to be time of heavy rain, started two weeks ago, but only little rain. most difficult time of the year is the summer (April/May) due to the heat. Has to walk far with the umbrella. Her and her children drink a lot of water, consume one can per day. Too difficult, very tiring. Village is not hot because there are trees. Chennai is getting hotter but doesn't know the reason why. Best time is the rain time, January/February. Cool time, good sleep. People feel relaxed. Older women like to wear cotton sari, but younger women wearing synthetic materials,

(particularly house cleaners...) because it is easier to wash and dry.

Tuesday 1st August

- Working from home. Went to photograph crow's nest on the roof and then asked to take photos from the neighbour's balcony which is closer. Neighbour loves plants, spent a lot to decorate and plant the roof terrace with flowers, herbs and fruit. He said that I should go to the scrub area in front of the houses as there are many butterflies there. Apparently he planted all the trees in the front of his home. I asked whether the trees make a difference to the climate and he said "of course, they keep the place cool". He was in the middle of his morning puja when we visited. Showed me the sandalwood and camphor that he uses. Mentioned that camphor is a germicide which purifies the environment and removes negativity.
- Conversation with hostess over lunch about food. Supposed to eat rice here because it is a cooling food, but not in the north because it is a cool climate.
- In the afternoon BC met with a water activist living in Valmiki Nagar who is involved in the Save Pallikaranai Marshland Forum. Started by talking about the monsoon. "Now there is no more typical monsoon. All those days are gone. Now it's a question of extreme precipitation. There will be one day of 15 cm rain and then that's all, you will not have any rains. Or you will have rain continuously, like the flooding we had in 2015". He spoke about how the regional rainfall patterns have changed during his lifetime. Talked about his activities with the marshland forum which is trying to protect Pallikaranai. Latest proposals involve the construction of a waste-to-energy plant. Marshland used to be far more extensive (as historic maps attest). Roughly 1,000 acres of the marsh is under protection, but 300 acres is used as a dumpsite – the dumpsite is expanding and blocking inflow of

rainwater to the marsh. Northern portion of the marsh has been encroached on by MRTS station, Velachery road and informal settlement (Kallukuttai). During 2015 floods the whole areas was flooded as water had nowhere to go. Now they are trying to create a drainage channel towards the Buckingham Canal to remove excess water. Spoke about plans for future expansion of the city – "mega city mission" that will merge three districts. This will see large-scale conversion of agricultural lands into urban plots without following due process. Likelihood is that flooding and water shortages will increase in the future.

- Started raining heavily in the evening (around 10.30pm). Conversation with members of host family about rain and the fact it seems to rain only during the night. They were familiar with this pattern and said it is due to the nature of the depressions that form in the Bay of Bengal. Apparently it has been a recognised phenomenon in Chennai for some time. Heat is too high during the day but as it cools at night the rain falls. The pattern is generally that it starts to rain around 2am and finishes before 7am. They told me that this is common knowledge.

Wednesday 2nd August

- BC met with CG in the morning, went to AirTel shop to get SIM card and then walked along Buckingham Canal from Indira Nagar to Thiruvanmiyur (between the two MRTS stations). Took photos and video footage. Saw new footpath being built to link the MRTS with one of the IT Corridor buildings. Interesting exhibition in the Thiruvanmiyur MRTS station – potential space for future events. Also observed ongoing construction work along the OMR.
- Went to IIT Madras to meet with academic 10's team. Bumped into one of advisory board members who was visiting. Spoke about the politics of Chennai. Reference to divides between academics and activists. Starting to learn about the relations between the different people we have been talking with. She

commented that her work had not gone down well in Chennai, with activists being very critical of it (apparently they responded “we already know all of this” and accused her of having no tangible policy recommendations).

- Meeting with two members of academic 10’s team. Spoke about their experiences during the 2015 floods. One seemed to think that the reactions to the floods is nothing new, commented that happened before in 1989 or 1990 – at that time the entire lower floor of their house flooded and they had to move to the top floor. People just do their best to adapt to what is happening. In terms of linking the value of tanks to mitigating flooding, they said there is no scientific evidence. If such evidence was to be made available then people would understand. At the moment government narratives about water bodies treats them as single entities, cleaning them up and removing encroachments but not thinking about the interconnectedness. Need scientific evidence of this to persuade policy makers.
- Came back to Valmiki Nagar after IIT Madras. Travelled to a cashpoint with my host. It started raining heavily as we left the house, one of the few times that I have seen it rain during daylight during this trip. On the way to the cash point we could see water logging on many of the roads and side streets. This prompted her to speak about her experiences of the floods. “The worst thing was the rain stopped, but the water level was constantly rising. It was an endless source. Water levels rose up to waist level, we had boats around our house. There were no street lights, no electricity, no telephone. We were on generators for one week. Everything was complete chaos”. She was adamant that the flood were not natural “it was our own doings, it was nature’s way of taking its revenge”. Health/disease was a prominent theme. Dengue an issue in Chennai during rainy season.
- Dinner with family in S. Indian place in one of the local malls.

Thursday 3rd August

- In the morning visited the environmental ngo’s offices with CG – introduced her to the team. Spoke with environmental researcher 1 who introduced us to Representative from Forestry Commission. Spoke about disjointed relations between different organisations in the city and how it can be difficult to coordinate activities between departments. Each of them have plans but they need to be coordinated with one another.
- In the afternoon, BC and CG went to Perungudi with an employee of the environmental ngo. Aim was to try and speak to residents in Kalukuttai (informal settlement on edge of the marsh). Walked from IT Corridor to edge of the marsh and spoke with people along the way. Apparently *kallu* means stone and *kuttai* means a small waterbody – indicating that it was a small quarry in the past. People started coming to settle there and then their relatives also came, now there are 2,000 or 3,000 families. People have moved there because it was government land. Even though basic infrastructures are not available for people they believe that eventually the government will allocate the land for them and give them what they need. People begin by constructing traditional style houses using local materials but then try to upgrade them to concrete structures. During the rainy season the area gets badly flooded but because the value of the land is high people won’t move to another place. People get good income from surrounding area.
- Dinner with LB & CG

Friday 4th August

- BC spent morning at Airbnb accommodation writing notes. Not feeling well, tired and upset stomach. Mentioned to host and they believed it to be linked to change in season. She mentioned

the day before that she prepares the children for the monsoon season by feeding them things to boost their immunity. Festivals around this time are linked to the change in seasons. Rituals focus on protecting people from illness, all linked to a change in temperature, humidity etc. The common (sacred) plant species that people keep in their homes are geared towards medicinal uses. Chicken pox/measles which occurs at this time of year is understood to be both linked with climatic conditions and a spiritual illness (see info about these illnesses as anger from the goddess). Mariamman likes cool things and should be pacified with offerings of cold food. Amman rituals take place because the months of Aadi is a time of seasonal change and sickness. The environmental ngo employee mentioned Aadi as a time when the winds change. In agricultural contexts Aadi features a different velocity of wind, ideal for seed sowing - links with fertility. Use of tumeric as an antiseptic that kills microorganisms that emerge from soils during first rains. People read landscapes very differently, i.e. Urban monsoon landscape is full of dangers... worms in food, mosquitoes and vector borne diseases, rats etc. Water (and weather) intensifies these things... pushes them out into the open. Kolams happen on doorsteps, threshold between public and private spaces, pacifying insects. Amman festivals practised by the people still most vulnerable to the weather and elements... People advised not to eat green leafy vegetables during this season due to presence of worms. Monsoon/rainy season a breeding ground for pests. Notions of cleanliness, purifying the air.

Saturday 5th August

- LB, BC and CG meet in the morning to catch up on work so far and then travelled to St Thomas Mount. Travelled via MRTS.

Walked up to top, where there is a national shrine. Amazing view over the city. Observed rainstorm moving towards us across the landscape, caught in torrential rain shower. Took video footage and photographs.

Sunday 6th August

- BC moves out of Airbnb accommodation into hotel in RA Puram with LB and CG.

WEEK 6

Monday 7th August

- BC spent morning writing up notes and labelling photo/video materials. Met with a co-ordinator of the lake restoration ngo to discuss assistance with interviews.

Tuesday 8th August

- BC visits Kaancheepuram
- BC on leave in Pondicherry

Wednesday 9th August

- BC on leave in Pondicherry

Thursday 10th August

- BC travels back from Pondicherry
- Meeting with the tour guide from the student field trip.
- Meeting with LB & CG

Friday 11th August

- In the morning BC arranged to meet a retired PWD engineer who used to be the Director of water resources. Took me to his former office at the PWD compound on Marina Beach, housed in colonial-era buildings. Told the history of Perungudi tank. Perungudi is an isolated tank, rain-fed so not part of a cascade.

Apparently constructed during the Pallava period for a village called Kandanchavadi, which means 'resting place'. (Perungudi located along the pilgrimage route to Thiruporur temple). Mentioned that there are no records of Perungudi Lake from the British time. Advised me to work on a "bigger and better lake", gave me some examples that I should look at, all of which are in rural or peri-urban areas. Suggested these would be better for anthropological purposes as they show the lakes as they "should be". Perungudi Lake is in a "miserable condition", local people don't maintain it properly. Spoke about design of tank structures (drew a diagram to illustrate how they work and encourage 'seepage' and percolation of water).

- After the interview went to Fort St George. Visited St Mary's Church – sign outside stated that the Church had been consecrated in 1680 and proclaimed it "the oldest Church East of the Suez". Tried to access the Fort St George museum but was told it was closed due to a public holiday so only the church was open. Seemed like an event was going on inside the building - lots of officials and government vehicles, taking photos was restricted. Lots of Aadi festival celebrations going on around the city today. Noticed an Amman shrine near the entrance to the Fort and spent some time observing the rituals. Both men and women were worshipping, noticed 'naga stones' and snake effigies and a mound underneath a ficus tree strewn with milk packets – indicating presence of a cobra.
- After walking around Fort St George went to Kodambakkam area, visited the temple of Murugan (god of war), popular with Tamil people. Area where the temple is located is part of the Tamil film industry, felt very different to other parts of the city. Saw temple tank, not well maintained. Had lunch at Veg restaurant (Hotel Saravana Bhavan). Travelled back to the hotel.

- BC spent the day working in Perungudi. Met at hotel 8.30 am, went to Perungudi, worked there until 4.30pm. Spent time speaking with men from informal settlement next to Panchayat Rd, all of whom had been involved in the Amman festivities observed on 30th July (previous week). Spoke about the festivities, they explained that this month is the hardest month so they make offerings to the Goddess to protect people. Festivities are held for three days and on the night of the third day the effigy of the Goddess (made from clay) is immersed in the lake. Also spoke about the real estate developments in the area, many wells, smaller water bodies and channels that used to exist have been filled in. "Now in between all the houses have been built on, the natural water ways have been blocked". As a result, the surrounding ecology has changed dramatically. Mentioned the reduction in plant species, particularly grasses, which affect the bird species. Walked around the lake and spoke with priest at the more formal temple located on the northern edge of the lake, named '*Erikkarai Angalamman Aalayam*'. Many people have died in the lake so the temple was constructed to protect the devotees and other people from the community. Commented that many companies have taken sand from the lake and the water depth has increased over time. It is filled with rain water and when it is full this water flows to the Pallikaranai marsh. The area has experienced a great change due to urbanisation and pollution. Priest felt that temperatures are increasing and rainfall patterns changing.
- BC spent afternoon walking around the neighbourhood around the lake and speaking with people we met along the way. Met elderly lady herding goats behind Green Acres, she spoke about how the land had been cleared and that the flow of water in the area has changed, "there is more water stagnation in this place compared with the past". Spoke about lake restoration, carried out by politician K.P.K. Kanthan. Says that it is good work but that

Saturday 12th August

channels should be build to allow water to flow – this would help to avoid flooding. Also spoke about a well that used to be in Perungudi “everyone came to take water from that well”, but now it is broken and polluted. Says the environment has changed a lot, particularly since the dumpyard came to Perungudi and caused huge pollution. Earlier there was many different plant and animal species in the area, “in the bushes you could find snakes, including cobra. In the past, you will find many of these snake species but now you can’t find them due to the buildings”.

- BC Returned to hotel for dinner and then visited Mariamman temple near to the hotel. Lots of lights and festivities, stage set up with music and dancers. Spoke with hotel staff in the evening about Aadi month. Mentioned the issues with business being slow at this time of year. Winds change direction, people in rural areas fear “twisters” which affect sowing of crops (seeds are sown at this time). Pongal is the next significant festival, to celebrate harvest. Advised to go back to the temple around 4pm tomorrow, lots of people will be there. Sprinkle water on people (similar to holy water).

Sunday 13th August

- In the morning BC went back to Perungudi. Left hotel early at 5.30am and spent time filming Aadi preparations at temples along the way. Arrived at the lake early and watched woman at the lakeside temple making kolams – music playing on loud speakers. Weather was very overcast and started raining as I filmed the lake. Visited a local resident and his family at their home. Walked around the lake and he pointed out medicinal and herbal plant species growing around the lake – some of which are remnants from when it was used for agricultural purposes. Many trees and plant species were grown on the lake bund in the past. Spoke about changing weather patterns and mentioned that the tank is like a “mirror to the sky” because the tanks affect rainfall patterns. “When we make a mistake like changing their structure

or composition we face problems”. Started raining again and we were invited to his house for lunch – spent some time filming monsoon rain.

- After lunch walked to edge of the marsh and spoke with a couple living in a house in the informal settlement there. Man had worked in Dubai as a labourer on construction site and made enough money to build small house. The area was flooded badly during 2015 and badly affected by Cyclone Vardah but they have invested in the house so do not want to move – also good place for work and low transport costs. Showed me where the water reached during 2015. Mentioned that people are trying to raise the land to protect the area from flooding in the future. Apparently, materials are diverted from neighbouring dumpsite and brought there at low cost. Couple were preparing for Aadi celebrations, hanging garlands of neem leaves.
- Went back to hotel and visited Mariamman temple near the hotel. Filmed festivities, including procession. In the evening BC visited Airbnb hosts in Valmiki Nagar for dinner and to say goodbye.

WEEK 7

Monday 14th August

- BC spent the morning printing photos to give to Perungudi residents. Had coffee with CG then arranged to meet at the environmental ngo’s offices.
- In the afternoon visited Perungudi with CG. Took final photos and video footage, including the artwork around the boundary wall of the lake.
- Drinks and dinner

Tuesday 15th August

- In the morning BC met with the photojournalist again. India's Independence day so attended celebrations with the Lake Association. Went to ward office to get maps, was allowed to photograph two maps of the area, but both looked recent, not historical. Independence celebrations taking place in the compound. Lake Association members described the councillor as a 'good man' and more open and accessible than other local politicians. (Lake split between two wards, one is led by the male councillor and the other by a female councillor). On the way to the ward office I noticed a large temple (Amman) which I hadn't seen before, apparently a very important one for the area. Kerala connection between members of the Lake Association group as many from Kerala originally. One man's wife also from Kerala (but grew up in Chennai), worked in the UK for M&S for 9 months in the IT Department, also worked in the US. Compared India with Western countries and commented on how different things are, in terms of organisation and planning.
- New people had been seen cleaning the lake, went to meet them. Turned out to be from 'Art of Living' foundation, Linked with IIT Madras, water resources department. Cleaning lakeside area, collecting trash. Have plans to introduce a bio-enzyme to the lake to deal with pollution and contaminants. This is something they have developed (eco-enzyme) and can be made using household compost. Seems there is very little coordination between the various people who are working to 'improve the lake'. Students turned up to help with the clean-up operation, started raking litter from the edge of the lake. The photojournalist told them not to remove the oxygenating plants from the water as they are shelter for small fish. Students did not really know what they were doing and didn't seem to have had much in the way of instruction. Dramatic contrasts between the students who had armed/protected themselves for the clean-up operation with gloves and equipment and a local resident who came to bathe in the lake.
- Observed tensions between the Lake Association members and the people using the shrine at the edge of the lake. (Difficult because I have been spending time with both groups). One of their members was very confrontational, said they should remove the shrine completely as it is a form of encroachment. He explained to me that once one temple is there then other forms of encroachment will come. Referred to the fact that temples will be built, in all three corners of the lake. The photojournalist also spoke with them but was more approachable. Priest (old man) referred to him as 'sir'. The photojournalist referred to them as 'local people'. In their exchange apparently the people taking care of the temple said that they belong to the area so they have every right to be there, the Lake Association members are newcomers and have no right to try and remove them. The photojournalist commented that this man sometime works for him as a welder. The man told me that him and the photojournalist are 'friends'.
- Following the Perungudi work I went back to the hotel and organised a car to do a drive along the 200 Ft Link Rd that cuts through the marsh towards the Chembarambakkam Ery. Stopped to photograph the eris and people using them for fishing, bathing and washing vehicles. Drove to Chembarambakkam and spent the afternoon taking photographs and video footage, it had rained as we drove there so the skies were very dramatic. Took video footage of monsoon rain and photographs of people sheltering under flyovers.
- In the evening arranged to meet with environmental researcher 2. When discussing cleaning operations I had observed at Perungudi, she commented that their idea of 'cleaning' means removing everything to create a sanitised environment. This same approach is used during the beach clean-up operations

- when the volunteers even remove the beach vegetation... Interesting conversation about the use of gloves, face masks and chlorine powder. She also mentioned that social activities around such lakes (e.g. temples and worship) are connected to conservation, and without the social connections these activities stop.

Wednesday 16th August

- Anthony Powis (MONASS PhD researcher) arrived in Chennai this morning. Met for breakfast.
- BC and CG arranged to meet with retired professor 1. He had agreed to give us data that he had gathered on the city's tanks as part of his 'social survey'. Spoke about the design of traditional tanks - built by kings because they had observed the water runoff to the sea. Also mentioned relations between tanks and rain shadow – all of them are connected. Commented that you can't control climate or rainfall but you can control the landscape so people work with what they can control. Mentioned current

LINDSAY BREMNER

WEEK 1

Wednesday 5th July

- BC and LB visited an environmental ngo for a meeting with environmental researcher 1. In the meeting were botanists working with the ngo to prepare a visual guide to the trees of Chennai. We were told that an engineer from IIT Madras would be at their offices on Friday and encouraged us to meet him. In response to my questions about preparing a "hydrological plan for Chennai," and the two people I had read who wrote about it (an activist writer and a retired IAS officer) environmental

attempts that people are making to raise land and housing to mitigate flooding.

- BC, CG and LB met with academic 2 at Anna University (12.30), she agreed to find us village maps for Perungudi and the surrounding area and Perumbakkam. She commented that her students find the complexity of landscape scale work daunting. She had a streaming cold, and when I commented on it she said "this is the season for it". Apparently, it is common for people to get colds and flu at the start of the monsoon season and then things settle down. Spoke about attitudes towards tanks. She commented that the 200 Ft Link road is famous because it cuts through so many lakes (at least 10). Tanks are invisible elements in the landscape.

Thursday 17th August

- Leave for Sri Lanka
-

researcher 1 responded that the number of people able to give critical responses on environmental issues is very few. The government tends not to take them seriously – tells them to organise more, to be more responsible. Retired IAS officer 1 has held positions in government, so people take him as more credible. He also always consults before making a statement and is willing to listen. Is a "holistic" person. The writer activist is, in her opinion, is a concerned person, but a firebrand and viewed as not grounded; has no technical skills, comes from a privileged

background. She suggested that there are other people working under the radar who are more important to consult with on planning matters: and suggested I speak with architects 3 and 5 and a council official.

On small time encroachers, she said that the big corporates are easy to get rid of because they care about their reputation but small time encroachers not so easy. Encroachment usually begins with a Temple, small shrines, then a shop etc. They are then 'regularised' before elections as a vote gaining ploy. Historically, temples were always the nuclei of settlements.

- To access TNSCB housing, she suggested the People's Union for Civil Liberties and that I speak to village admin officers at Perumbakkam and Shollilangalur for data. One of her employees could help with this and with field work. LB and BC to draw up requirements and what we can pay should we need him. Further advised us that pre-independence data would be in the state archives and the PWD museum library, or the Board of Revenue Records for the Chingleput and Saidapet Districts. The government of Tamil Nadu's Survey Department is also a useful source.
- She informed us that 'Pallikaranai Marsh' was a name that they gave it as wetlands are generally land with no name, just called 'kavelli'. She would look up whether marsh at Perumbakkam was a protected forest or not.

Thursday 6th July

- BC and LB met with Academic 10 at IIT Madras. He suggested a number of people for us to make contact with.
- Mentioned that surfing clubs are one example of overcoming the class gaps – SE Perungudi, Kovolam Beach where Australian surfer taught fisher youth to surf. They now teach surfing to middle class kids in a Surfing Academy.

- For demographic data we should look at the census at a block level. Two members of his team will be able to help. Might be able to map it, if we tell them which info we want.
- He also mentioned that we meet with the council official; said he was very busy but we should try to see him. Suggested too that I talk to academic 7, an engineer at IIT Madras with a PhD from Stanford on Building Management – an Ethnographic study of the Delhi Metro.
- On the way to lunch I spoke about the twitter post this morning about an interview with a weather blogger. At the end he says that he is a climate change denier, on the grounds that the hottest day in Chennai for 200 years was in May 2003 and it has not been reached since, so global warming cannot be true. However, he said that what we should be doing is looking after rivers and ponds. One of the people we were with said that this was a common narrative amongst city officials. We spoke then of the uncertainty and unpredictability of the weather now and that that is what should be being addressed, not whether one is a climate change denier or not. That is irrelevant. Another person spoke of how Chennai used to have two equally reliable monsoons, but that now it probably relies 80% on the NE monsoon and 20% on the SW monsoon. She then mentioned a Tamil phrase that used to be used in reference to the SW monsoon.

Friday 7th July

- AM: BC and LB met with Academic 6 MIDS. She told us that her current research is on 'boundary spanning' with a Dutch team from IHD. It is a term from org behaviour / business, crossing boundaries and how that helps. Applying it to urban regeneration in India between states, markets and communities as critical for urban change; looking at Delhi, Bombay and Chennai. In Chennai, resettlement sites are claimed to be mass, state of the art,

integrated townships, but are always underserved ghettos (we are 40 yrs behind Paris). Therefore people do all sorts of things. In fishing villages on Ennore Creek there is a lot of boundary spanning going on.

- She spoke of lake restoration as boundary spanning. There are a huge set of state initiatives, many schemes of lake restoration, city wide initiatives by NGO's, some collaborative, some not. Environment Foundation of India does Sunday things around lake restoration. Arapoor is another organisation. Perumbakkam Lake has had some lake side restoration. Has a little group that they are going to meet there, but their site choice for this work is Korothur Lake.
- She also spoke about edge urbanisms, edges within cities, asking what does urbanism mean from those sites. Rivers as commons versus rivers as home. Peripheral urbanisms. Waters edge in cities. Cities and Rivers.
- She suggested two references for us: Solly Benjamin, *Decommoming of Bengaluru and* Harini Nagendra, *Nature and the City*. She suggested that we contact retired professor 1 who has done lots of work on water bodies and an activist writer who had been working on Tamil terms related to seasons.
- PM: LB interviewed Architect 4 (see transcript).

Sunday 9th July

- Did some early morning photography of building supply shops on ECR (east Coast Road) in Injambakkam and afternoon photography of Baljanai Coil Street and Bethat Nagar. Incredible sites of water infrastructure (storm water drains, backwaters) and encroachments. My first sighting of the Buckingham Canal just above the Okium, opposite Kannagi Nagar.

WEEK 2

Monday 10th July

- Morning photography after the rains.
- Conversation with local residents of the neighbourhood I was staying in about flooding, water incursion and planning processes (taped and transcribed).

Tuesday 11th July

- Cauvery Delta Workshop, MIDS.

Wednesday 12th July

- Morning walk to speak to building traders. Not too successful. Will return tonight to speak to one man's son. The following picked up from observation:
- Brick manufacturers: GAK, GBW, MBW, PS, PVB, RVB, SCB, SEB, SGB, SPV, TNP; Cement: JSW Cement, RAMCO Cements Ltd, DSP Cement, Ultratech Cement (Aditya Birla Group), Coromandel Super Power Cement; Manhole Covers: Mars Precast Products (450x450, 600x600).
- Individual traders: Sri Satha Traders: apart from the above, fencing, concrete posts for marking out sites, concrete blocks, Ramco Supergrade Cements, blue corrugated sheets for hoarding, decorative concrete blocks, circular concrete well surrounds, granite slabs. Trader could not speak English but asked me to sit down on a Coromandel Super Power Cement plastic chair. Communicated to me to come back in the evening when his son would be around. Sri Muragan: did not speak English. I began to write down his products, but he indicated to me not to: GAK bricks, blue water sumps, PVC plastic joints, PVC tubing; Sri Bhavan: also a hardware shop, plastic goods, paint, fencing. Scaffolding shop: timber, coir rope, woven coconut palm screens.
- Met the domestic helper from my Airbnb who invited me in to her home, in Bethal Nagar, served me cool drink. Lizards called 'wona,' buffalo called 'madu'.

Thursday 13th July

- Morning doing emails to try to set up further meetings. Went for a brief walk to try to develop way of photographing and was picked up by a policeman. Felt a little threatening. He asked me which country I was from. Had his cell phone handy. Told him and that I was working at IIT Madras. That seemed to reassure him. But he said that I must not walk around on my own as someone might snatch my bag or camera (all in Tamil, but we could understand each other). That it was dangerous. It was a bit strange though, as I was in the neighbourhood I had been in all along and he came directly to speak to me. Had someone told him to check me out? Went back inside for a bit and then carried on. Photographed urban edges and kolams. Thought urban edges could be another key theme, as they are threaded through everywhere.
- My hostess came home early at lunch time. Had a little chat with her. She told me that the Indian Real Estate web sites are OLX, Magic bricks, two more can't remember. I got onto her roof slab and photographed the surroundings from there.
- Then went for a walk to the Krishna Temple just south of here. In itself not interesting, but what was around it was. Was able to get into a housing development on the way back. Took into a show apartment by the security guard who was able to speak English. He told me that this was "executive housing." When I asked him if he would like to live there, he said "No, this is not for my class." This is what I could pick up: Name: Casa Grande Elita on ECR; 10 villa development. One sold for 3.72 Cro; will be finished next month; mews type development (quite common) with 10 villas opening onto an internal street; black granite swimming pool at the centre; lots of earth around for planting; plants generally palm trees of various varieties; 4 beds, 4 baths; main bed on ground floor with shower open to a skylight on the roof, felt as if one were showering outside; two on first floor, opening into

family room; one with different flooring from others; one with balcony over entrance; one on third floor, with roof terrace above; living room as you enter – double volume with central staircase up one side; then into dining room with open plan kitchen (unfitted, as this must be made to order by buyers); 2 balconies and roof terrace framed with concrete overhangs and walls; 2 car parking space, servants room off this; finishes: marble floors throughout; externally are white boxes with brown painted steel gates and sun screens.

- Then spoke to one of the building supplier, (Sri Sather Traders). He told me that it was a family business, that they had been on the site since 1975, when it was just a hut built of coconut leaves. It became a building material shop in 1999. He remembers playing in the road as a child. The family lives upstairs on the property. Products: bricks: from near Red Hills; not manufactured there, but that is where he goes to buy them; precast concrete products from Perumbakkam; cement: made near Trichy; sand: during the last three months it has become difficult to get sand as only 6 quarries are operating. Usually there are 36. When I asked why, he did not want to answer; stone: called it "blue metal." Stone crushers are in Meenambakkam and Keelambakkam. They get the rock from "small mountains" nearby. Clients: he sells to private home builders, not contractors, as they want time to pay. His clients come from up to Neelangerai in the north and Kanatoth (?) in the south.

WEEK 3

Friday 21st July

- Day long visit to Perumbakkam with architect 3. On the way, she tells me that the first encroachment on perumbok land was Olympia Tech Park. Combination of political and real estate interests come together in encroachment on fallow land. Glass

facaded buildings only started to be built in Chennai in the 1990's. She spoke of civil society being mobilised around environmental issues in short bursts, like after the floods in 2015, but that it then dies down. And that it is a social media led thing. Short lived and impulse driven. Met a rag picker in a dumping site in Perumbakkam where we first stopped. He told us that there were not many rag pickers there any more as the dumping had been stopped by the police. There used to be more vegetation, so it was concealed, but since they cut the vegetation down, it had become illegal to dump. They were now taking it to Nookalalai Sudukadu (Noohill graveyard). In the dump yard, we saw trash being burned, a person defecating, someone else disappearing into the growth and a wild boar. Incredibly dusty as the road not tarred and vehicles stir up the dust constantly. Noted level changes between road and agricultural land (2m) and plinths of housing (.5m).

- Went down road adjacent Piano Apartments – generators with diesel cans on road; road has storm water drainage, trees planted. Came to open lot at end with piles of sand of different types, small collection of stones at centre which Abinaya thought was probably a drinking spot.
- Then stopped for some time at the road detour where something being built across the storm water channel from the Perumbakkam Lake to the marsh. A worker told her that they were building something for the storm water to pass through, and that he had been told to tell people that. Architect 3 noticed lots of government vehicles around and that he is a Tamil speaker, so this is likely to be a government contract. On the other side of the road, we follow the channel till it enters a large culvert under Urban Tree Oxygen housing. The water looks relatively uncontaminated and a cow walks across it, indicating that it is about 3ft deep.

- We go on a little way and photograph a well in an agricultural field and then find another adjacent worker housing that has been rigged up with a water extraction contraption. Architect 3 speaks to one man sitting there who says that they use it for personal hygiene. He speaks only Hindi. This is the Radiance Mercury workers housing adjacent their concrete mixing yard. Further on we photograph palm trees and agricultural fields with another well. These wells indicate that this was agricultural land not long ago.
- Then we visit Urban Tree Oxygen and Radiance Mercury. We go into Urban Tree Oxygen – advertised as a “green development” and speak to the man in the sales office. A model of the development shows that each block has a different name (like rain, echo, etc.). I photograph it. We ask him what the blue strip in the model is. He says that it is a canal. “Every project has its canal, this is ours he says. It runs under the road.” When we push him he indicates that it goes to a lake, but points to the wrong direction for the lake, so clearly has no clue about the geography of the area. But this is not uncommon. My new airbnb host tells me that there is only one river in Chennai, the Coomb. When I say but are there not two rivers, he says no, it is all the same river, the Coomb, which has become synonymous with stink. When we ask the Urban Tree Oxygen salesman why the children’s play area is over a road from the development, he cannot answer. We drive around the development, which is incredibly cramped – all lifted on pilotis with car and two wheeler parking on the ground level; some mothers and small children hanging out in the parking areas. On the way out, I find a hole in a concrete wall through which I can see the channel of water as it exist from the Oxygen development – It is about 6m down from the road, on the same level as the workers housing is located, behind a 3 m concrete wall. We drive past huge shed of building materials to the Radiance Mercury club house. Also have a model

that I photograph. The salesman is far more switched on. We walk around the show flat, which is furnished. Layout not bad. 500 units in the development, 200 completed. Range in size from 500 sq ft (1 bed) to 1,200 sq ft (2 beds). Construction started 14 months ago. Take brochures away from both developments. After that we follow the channel past plots laid out inside a wall. Now it has become less than one m wide and a sewer. Stinks. Walk towards the dumping site adjacent the huge 20 story housing block near global hospital.

- On the way back architect 3 tells me that Map Box drew the pink 2015 flood map. They are based in Bangalore. Suggests we contact independent researcher 2 who drew the historic map slider of Chennai, now taken down from the web.

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Saturday 22 July

- I go on trip to Ennore Creek with the activist writer. In the bus on the way, speak with the woman I am sitting next to. She is a middle class woman who lives in Valachery. When I tell her about our project, she begins talking about her flood experience. On 2 December 2015 at 2 am, the water started to come into her house. Her husband was in Germany, her elder daughter at boarding school. She was alone with her 7 yr old and mother and cats. The water was rising, her whole neighbourhood unit decided to evacuate. She had 30 mins to pick up her wallet and pack a few things. Put food and water out for their cats on the first floor. Her daughter panicking wanted a toy that was already gone. Waded through the water, daughter was picked up in a boat. To the main road, no water there. They were all taken to Mylapore, where things were dry and booked into a hotel as a group. She just had some food there. No cell phone connection, but she had managed to get hold of her father who lives inland via a land line. He sent a lorry to fetch them. They left town for 3-4 days, then returned. Water had receded, but there was sludge and silt

everywhere. Much had to be thrown out, what she could salvage she did. Has not furnished the ground floor of her house fully again since. Fearful of what will happen this year. Told me that they are aware that this was entirely man made flood. Roads mainly to blame as they do not allow the water to flow. Told me that most of the maids in their area come from the neighbourhood Beth is studying. Because the water held back in Valachery, their homes were less badly affected.

- First stop of trip – fisher village truncated by a road, part of one of the coastal industrial corridors. They have held their ground causing a bottle neck on highway. There used to be 13 – 14 villages on this stretch. This one called Nalla Thanni Odai Kuppam, meaning fresh water village. Sea used to be 700m further out, but coastline changes because of the port development – sand at Marina Beach, here sand sea has intruded. Ground water salinity now extends 14-15 kms inland. Huge stone breakwaters on beach, quarried from inland. Much money to be made from this. Every monsoon season, they have to be replaced. NJ says that polluting industries and poor people always put in the same place.
- Second stop to show us the old decommissioned coal power plant, from a place where one can see two more. A fourth now being built on what was the “green belt.” The activist writer says that they have court order against this, but it is still pending and meanwhile the coal plant is being built. We look at a large printed aerial photograph of Ennore Creek together, at where the fly ash dumps are and try to understand the hydrology of the creek; two rivers enter it, the outlets / inlets to the sea.
- The third stop at the creek itself, where two rivers meet. we look across to an operating power plant. Very shallow, only a few ft deep, used to be 14 – 18 ft deep; discuss how the creek fisherfolk have been affected by this. Fish no longer healthy to be eaten, yet they have to. Used to be able to just steam it, now have to cook it

with packets of spices or it smells. Stop on the bridge and walk across to the opening to the Buckingham Canal, where the CRC won a small victory to have its opening dredged. On paper it is dredged, but in reality it is not NJ tells me. On paper, the creek does not exist any longer, it is all industrial land.

- We go on and stop at a fly ash filled part of the creek, which he says is another of their victories. 300 acres of the creek had been lost to fly ash through leaking pipes. They have won a victory, through mobilising public opinion and the court, to have it removed. Being moved further into the creek. Go and look at another site where trucks are removing fly ash.
- Then drive to the coast through another fishing village where we have our lunch (Thazankuppam, followed by Netukuppam and Ennorekuppam) then back to Elliot Beach. See Washermanpet, Fort St George on the way back for the first time. The stench from the Coomb is overwhelming. See line of trucks to the port (some stand there for days, drivers live, cook in their trucks); oil pipeline being laid on the surface next to the road.
- As we drive back over the Adyar River, I ask my seating companion about the development on the creek at the river's mouth – MRC Nagar, seven star hotel inside; named after very old wealthy family, the Chettiars, old trading family, also into banking and petroleum, universities. Traditional home at Karaikudi, worth visiting to see the architecture – stay at The Bangla. Also buy crafts from MRM Foundation (hand crafted by their artisans).
- The activist writer concludes the tour by saying – this is the back end of our electricity, invisible to most Chennaites. They do not know this exists. Power plants not private sector, but TN state and centre “collaboration to disrupt the river.” Wind farms are big in TN – during this windy season (ardu), they account for 50% of the electricity needs. The coal plants only about 54 % capacity;

yet they are building new ones because there is money to be made from steel and concrete.

Sunday 23rd July

- Went for a run and a walk and stayed at home and prepared talk for 25 July.

WEEK 4

Monday 24th July

- Had a great meeting with retired professor 1. It over-ran so I could not meet with academic 7. Was attacked by a very aggressive monkey at the coffee shop. Then met with environmental activist 1. Avalanche of information, three others present who said very little.

Tuesday 25th July

- Awful experience giving a talk on the project at the Chennai Architecture Foundation. Complete disconnect with the audience, who were very harsh in their questioning. I basically only had the students work to talk about, and that was considered rather silly and superficial by those who live here. These are the kinds of questions that I am going to learn how to field: How are you going to have impact without sustained presence in a city? Why are you only coming back in three years' time? Are you talking to anyone in city government and if so who? What will your outputs be and who is your target audience? Obsession with social science type research: what are your indicators? Why have you chosen your sites? What are they representative of? How are you studying the monsoon, what kind of data are you using? Are you prepared to partner with other institutions? What technology platforms are you using?

Wednesday 26th July

- Great interview with retired professor 2 in the morning (taped and transcribed). In the afternoon I do a short phone interview with a resident of of Bolleni Homes who has restored Arasankazhani Lake in Perumbakkam. He moved into Bolleni Homes in 2012; a businessman involved in the waste water industry. Got friends and like-minded people who were interested in sustainability. Lake was full of silt and debris. Spoke about getting lake restoration ngo volunteers to visit the lake, they budgeted, pooled their money, some contributing 40,000 or 50,000 rupees. 2013 – First phase; removed debris unblocked inlet. Had to get local government permission, went from office to office. District Collector's Office, PWD (the custodian of the Lake). In 2013 rains, the lake filled to 1/5 full. 2014 Completely full; 2015 Second Phase; excavators involved, with lake restoration ngo funding; constructed bund, planted saplings. Should be grown in three years' time. In 2015 floods, the tank acted as a balancing tank. No flooding during the first two rains, though in the third, the lower areas of their development were flooded as the lake was full. I asked him whether the lake was interconnected with other lakes. He said not any longer. Spoke about the wisdom of "our forebearers" in an area with no perennial rivers and flat topography, created these interconnected water bodies. That all lost now because of encroachments and construction. The lake is still used by farmers for agriculture a little. Still have more work to do on the far side (I think he said it was encroached, but not sure).

Thursday 27th July

- Great site visit to Annandammal Nagar with a student from Anna University who had worked with our students in 2016. Our first contact was with a man, a long term resident, who said that the water level there was up to head height in the floods. The

government helped them with water. The graveyard we were looking at was a Christian one, the Hindu one is over the road. We walked a little further, standing looking at a small temple near an overhead rain water tank. Met woman on the street. She told us that it was a Panchayat Tank, Perumbakkam Panchayatt. Spoke with Ganesh for a while and then invited us in to their temple precinct. She called the President of the local welfare association. He was a civil engineer, a resident for 9 years. He called his son, who brought keys to the temple around so that we could sit down and talk. The temple was new, built after the floods, only 8 – 9 months old. Adjacent an overhead water tank, on panchayat land. Intend to develop the land around it into a playground. Flooding in their area was 2 – 3 ft, worst flooding in the area was around the Global Hospital. He thinks that the flood was a once in a lifetime event, so not too worried. Spoke about the proposal to build a MRTS station close by, moved from where it was originally proposed for, which they will oppose, they also want the government liquor outlet removed (the steel structure closer to the marsh). Ground water is salty here. Use it for flushing their toilets and for washing clothes. The Panchayat provides water about twice a day at the moment, through piped supply. They buy tanker water, stored in a sump under their dwellings. Have a small reverse osmosis plant in their home. Pay 900 rupees for 12,000 litres. A family of 4-6 would need this once a month. They buy from a private operator. He called the president of a neighbouring residents association, who joined us. The secretary went and got us snacks and made us tea. The residents association has 120 paid up members from Kaiash Nagar, Perumal Nagar, Moogambigal Nagar, Shanti Nagar and Sairam Nagar. The local welfare association has 34 members, from Sri Krishna Nagar, Anandammal Nagar, Bank Colony, Valar Garden and Vigneshwara Nagar. All they want from government is basic amenities – sewerage, drainage, tarred roads, electricity.

No storm water drainage in place at all. There is a large drain from Medavakkam that runs past them on the main road that drains into the marsh, but they are not connected to it. Pipes we can see outside are the Panchayat drinking water pipes. How they deal with drainage: Sewerage – to a septic tank, pumped out by a private company. Waste water – to a soak pit to the septic tank, some just to open ground. When there is a piece of undeveloped land, people discharge waste water, and sometimes sewage to that (as we have seen). Within the CMDA, when the CMDA approves land for development, it has to provide services, but this is left to the Panchayat to do. A new corporation being proposed at Tambarim.

- They then explained how local government works: They fall into Perumbakkam, Wards 1 and 2. Panchayat is part of the St Thomas Mount Panchayat Union. 2,000 wards in a panchayat, represented by 20 – 25 councillors. 5,000 wards in a Panchayat union, another 20 – 25 councillors; 15,000 wards in a district. They fall in the Kanchipuram district. They deal with special officers at the district level, IAS officers are directors of the administration, panchayats have secretaries. There have been no elections of the past year. They asked if I could help them from the UK with funding for their projects. Very frustrated with the government. I asked about the strange shapes in the marsh on the map – they said that they were forest department constructions for birds. There is a Forest Office in the SEZ we could go and ask about this.
Found on line that night: :
<http://scroll.in/article/844944/can-indias-poorly-planned-cities-with-their-faulty-storm-water-drains-withstand-extreme-weather>

Friday 28th July

- Christina arrived, I took her to get sim card and briefed her on the project.

- All met with academic 2 at Anna University. She showed us the survey of India map they have. Each year, they have to write confirming that they still have it and have not lost it or given it away. She went through her research on 4 villages above the Cherumbakkam Tank. Common land (perombok) the main instrument in the treatment of water flow. Many categories of this. She used Weiss Bettina (2000) and primary research, consulting with district collectors. Ryatwari – the name for land owners in Tamil Nadu. Called other things elsewhere. Porombok made part of government by the British. Before that it belonged to a village, to the people in that village and was administered by them. After that, common land administered by collectors – officials appointed by the British. Her research is looking at what happened to this land after the 5th 5 year Industrial plan (80's), taken up in TN in the mid 1990's industrial plan. Gramma Nathan is the name for perombok settlement land. We suggested that she present it next year at our symposium (which she did).
- We then met with academic 5 whose centre is in an amazing building - layered facades, light, rain water harvesting, hydrology lab. Was set up in 1979 (Anna University set up in 1794). She suggested we also met with the a social scientist at the Centre of Ocean Management, which is part of the National Centre for Sustainable Coastal Management who works on participatory water management. Mentioned others we should meet with there too.
- Suggested the we visit the eco park along the Adyar administered by the Chennai River Restoration Trust (state body). Kept saying that as they are a state university, they cannot be critical.
- That evening I met with a council official in a fruit juice shop in Besant Nagar. He said that what we read on the web site about the Chennai Smart City program is not what is actually happening. With respect to water bodies, they plan to restore 32 water bodies; working with EFI on five. Some data available from the

PWD, but using crowd sourcing. Working on setting up a Command and Control Centre of layers of data. Plan to put it out to tender in a month and have it up and running in two to three. This should be publicly accessible, a public platform. Interested in making data accessible to people. They are behind in their schedule as it took a long time to appoint him; Smart City is a five- year project. His major goals are integration and co-ordination between departments and agencies. Sees his work as the work that the CMDA should have done, but has failed to do. When I asked him if the project was technology led, he answered that no, it is livability led. They have 79 indicators for a livable city that they will be using to design and evaluate their projects. Spoke about the importance of re-imagining things, because people have no idea about how things could be different. His former employer, City Connect is carrying on – the Greenways Train Station a good project of theirs to look at. ITDP did the street design handbook. rajcherubal@gmail.com

Saturday 29th July

- Project meeting with Beth and Christina.

Sunday 30th July

- Visit to the Dakshina Chitra museum with Christina.

WEEK 5

Monday 31st July

- Interview with retired IAS officer 2 (recorded) who worked in Jayalitha's office and was involved in the rainwater harvesting initiative. Set up Rain Centres, with the Chennai Rain Centre is only one remaining now. Her government has encroached into areas where previously people were self sufficient. IIT has drawings of rain water harvesting system. She spoke about

Chennai as a flat city. Much of it is below sea level. The sea is pushing in and water being pushed out. No amount of engineering can stop this. Plans to move city – 1) to Trichy 40 years ago, to land near to the Cauvery Delta for water. MG Ramhindra was the PM. This was shelved. Chennai was originally just a trading post, not meant to be a capital city. 2) Jayalalitha's idea was to move it south to Elosha (?) where the water table is high; idea of a twin city.

- She spoke out against reverse osmosis plants – became fashionable when a film star was used to sell these. Because of the cost of energy to operate these, solar technology proposed.
- Government powers – water lies at state level. 1994 73rd amendment devolved this to a local authority level, but most states have not complied. Water however does not follow political boundaries. This is why she advocates for self sufficiency: lower water use, collect on site, free from reliance on outside sources. Ground water falls under the Central Ground Water Board, PWD Ground Water Cell, Metro Water Cell. The Public Health Agency has a huge role in the governance of water and sewage. Public Health law is still very effective. If one can make the misuse of water and sanitation a public health issue, then one is likely to have impact. How / where do these agencies converge? In the CMDA and in Disaster Management. The Relief Commissioner sits at a state level. Watersheds managed jointly by the PWD and the local bodies. Masterplans are weakly enforced. Individual departments can violate it for political expediency. More awareness has grown since the floods, but the political executive takes decision and does not have the patience to deal with masterplans. There is a Vision 2023 for the whole state. Under Jyalitha's second term this was the first that went beyond 5 yrs. Thinking in the longer term for the first time. Some movement in the right direction. Decentralised systems working with local communities and individual households are not popular

politically as they are not big visible high impact projects. Water bodies should have their own governing bodies that can override other agencies. There are watershed management associations at regional level. The difference between the regions and the state – the state comes in and overrides by dictat. In this way, watersheds become politicized. State Planning Commission inaugurated farmer producer societies under the company law board. Registered as corporate bodies, not co-operatives. Have jurisdiction over small geographical areas. Better resource management in that area. Taking responsibility for themselves. Millet growing one of these. Andra Pradesh has a lot of these.

Tuesday 1st August

- AM Interview with a meteorologist at the Chennai Regional Met Office (recorded and transcribed). He referred to articles on the Great Survey of India base line in the Hindu:
<http://www.thehindu.com/thehindu/2003/07/03/stories/2003070309370300.htm>
<http://bengaluru.citizenmatters.in/5271-mapping-india-5271>
https://www.revolvy.com/topic/Great%20Trigonometric%20Survey&item_type=topic
http://self.gutenberg.org/articles/eng/Great_Trigonometric_Survey
<https://www.geospatialworld.net/article/the-great-trigonometrical-survey-of-india/>
- PM: Interview with architects 7, recorded and transcribed.

Wednesday 2nd August

- Courtesy visit to academic 1 at Anna University SAP, spent time in the architecture library.
- Also visited academic at MEASI and met the former head of the CMDA I had been trying to contact. They want an input from me for their staff to help them to do their research.

Thursday 3rd August

- Christina and I got up early to photograph the sea. Amazing experience. In the early morning, the milk deliveries are out; women sweeping and washing thresholds and painting kolums; birdsong, crow squaks, dogs wandering about; some early morning risers walking or sitting around; building workers starting to light fires. We photographed the fishing boats being launched. Car free walkers at Elliots beach.
- Another Anna University library day, this time in the Water resources library.

Friday 4th August

- AM Met an urban activist at a consumer rights organisation. Did not switch on mic properly, so notes from conversation here: Works with city government and public agencies to bring a more data driven approach to government. Leads the Chennai Data Portal Project – collaborates with local government to create and use data for decision making. They seek to create information and knowledge about inequities to inform local government decision making. This has now been effectively closed down by the Smart City project. The council official I had spoken with a few days before requested their public toilet data, to “make it accessible on an app.” Since giving it to him, it has disappeared, not been used or made public. Told me the history of Transparent Chennai. Started in 2010, a project in a business school in the Centre for Development Finance. Between 2011 – 2013 noticed that official stats did not take into account or visualise the poor. Requested information through RFI requests and visiting offices. The stats did not add up. Started mapping slums, solid waste, pedestrian infrastructure and public transport. Then the city had 3 admin zones, now 10 – 15. Made their findings public through blogging, picked up by the media. Worked with corporation

officials and volunteers; 2013 - worked on open data portal – water, sanitation and health; worked with junior engineers in the corporation and councillors. In 2013 there was a change in the head of the PWD department who invited them to collaborate, they became advisors to him.

- The urban activist spoke about maps – the drainage map for the city is an autocad map, no scale, no georefs; she has only seen a paper copy. Village maps are difficult to georeference. The second masterplan – uses cad maps, not georeferenced. She has been trying to digitise them using a GIS tool. Maps important as they are the basis of legal contestations and have power in the high court.
- The head of the PWD department they were advisors to wanted to introduce rain water harvesting structures (to recharge aquifer); they advised on using natural catchment areas, but the officials wanted to place them on the side of the road every 50m. How would these be maintained? Conflict between what they advised the head of the department and what the officials wanted to do. They had also done maps of how each department in the corporation was structured and worked. Not popular to have outsiders evaluating corporation officials. In Nov 2014, the head was transferred for too much transparency over road contracts. It had been a special moment in the corporation with him there. He is now in Delhi as Secretary to the Railways minister.
- Chennai Data Portal working Group had three members from the corporation, and three from transparent Chennai and academia. In 2014 14 members of Transparent Chennai joined CAG (which till then only had 4 members). Two projects on the go in the city at the moment – Smart City and Resilient Cities, Rockefeller Foundation (RO is Krishnan Mohan). Earlier (2013-15) the Mega City Development Project – storm water drains part of this. World Bank feasibility report on drainage.

- SPV's rather than MOU's are problematic – a way of outsourcing thinking, decision making powers. Erosion of the democratic space of cities, powers of the local authority have shrunk. Funded private individuals rather than public decision making. Not a transparent process. I then asked her what she does now – a lot of fundraising for CAG; at present have two projects related to solid waste - data driven decision making – one funded by the GAUA network, the other through the Netherlands Embassy in Delhi. Southern Railways are in charge of the MRTS Stations. John Taylor ex MIT now in Dhaka for UNDP. Maps – data – communities at the heart of what she is doing.
- PM Changed hotels and then to the flower market with Christina. Amazing building. Well planned in a square, with subtle level changes. Mostly men doing the trading and flower arranging. Wanted lots of selfie with Christina (not me!). We then walked to the MRTS. Difficult to buy tickets. The ride incredible though, could be in London or New York apart from the Ladies and Differently Abled carriages. Great views of the city from there.

Saturday 5th August

- Early morning jog in the boat club area. The Houghton of Chennai. A stream of mostly men, though women too, walking and gossiping and doing business – greeting each other “Hello guys, or Hello gentlemen). Electrical conduit being laid in the ground. Birds, dogwalkers, housemaids sweeping, thresholds, washing them and painting kolums. Many security guards, CCTV cameras and aggressive fences in places.
- Visit to St Thomas Mount. Amazing, monsoon rain moving over. Very spectacular. Invented the vertical pan photograph as a way of linking earth and sky.

WEEK 6

Monday 7th August

- AM Visit to Perumbakkam Lake with a lake guardian. Met him at his house. Invited in and had breakfast of dosas with family – wife, daughter, parents, who live with them. Neem trees planted outside both doors on ground level. His property cost 2,000 rs per sq ft 5 years ago, it would now be 4,000. Property prices went up after he bought, but have now stabilised. He had very little idea about geography when I showed him satellite photos. Knew that the marsh drained into the Buckingham Canal, but not where it was. I think also struggled to read a map. But fascinated by the historic time line satellite photos. For interview see transcription.
- He then took me for a walk to the lake bund, showed me where it had been breached by the panchayat authorities to release the flood water on Dec 01 2015, and where it had run. Told me that it was repaired using branches, sandbags and then earth. They have planted it with trees (neem) to stabilise it, which they buy or get donated from a nursery. Told me that lakes slope from west to east generally, water let out towards the east. We then drove around the lake to the west side where there is an informal settlement and where garbage is now being disposed into the lake. This is the settlement that the authorities did not want to flood, or it would have caused them a ‘headache,’ which was why the bund was breached where it was. Settlement is now protesting against the garbage dumping, but are told that they are illegal encroachers anyway, so they have no rights.
- Found out the following about this festival period from the lake guardian and the driver who took me there on 6th August. The face painted everywhere is called ‘puchandi,’ meaning monster. He wards off evil spirits and bad luck (other monsters are frightened of him). Current festival period called Aadi and about cleansing before the monsoon to protect against germs and

disease. Cleansing inside and outside and strengthening (road surfacing part of this). People clean their homes and place turmeric at their doorsteps. Punjab festivals. Nevarathiri festival at the end of August lasts 9 days. Eat protein rich food to prepare for the monsoon (give you strength). Cab driver – on Sundays eat Amman food – ragi and dry fish in a gravy. This knowledge is not taught or written down, it is passed down from one generation to the next. This is when fire-walking takes place too.

- PM Visit to Mylapore to see architect 5’s wall mural project. Talked with her about the MEASI idea to do research. She asked me for help with writing. Ride in the MRTS to see the stations. Mandaveli has a beautiful space that might work for an exhibition. Took some great shots of women sweeping at Valechery. Told I would be fined if caught using my camera.

Tuesday 8th August

- AM Visited the urban activist again to talk about MRTS project. All she needs at the moment is a concept note. Went for coffee afterwards and then packed for the train. Train ride to KanyaKumari. Not very impressed. Christina and I had our own coupe with bedding, but hardly an enjoyable experience. Dark after an hour, and then just bed. Woke early around 5.00. Beautiful coming into KK, but nothing spectacular about the train ride at all.
- Checked into hotel, Met retired IAS officer 1 at hotel for first interview. Not easy as the place was so noisy, but we had a good discussion. Walked around a bit to check out the place where the oceans meet. Very windy. Touristy town, hassled everywhere to buy things. Went back in the evening to photograph the sunset. Not very pleasant at all.

Wednesday 9th August

- Got up early to photograph the sunrise. Hundreds of people doing the same thing. The combination of rituals and selfies a bit much. Not a very pleasant experience. Afterwards I went for a walk on my own and found the fishing village which was far nicer. Car to Nagercoil to meet retired IAS officer 1 again. More focused questions this time. Interview was OK, but hard to keep him focused. Do not know whether we will be able to use it, but quite a lot of interesting information for us. Trip to the airport was beautiful, through palm plantations. Very dry before Nagercoil. The bottom of the ghats visible.

Thursday 10th August

- Meeting at MEASI. Very supportive. Spoke about research and how to go about it; some great feedback. Want to work with us, joint studios etc. Short interview with a retired CMDA chief planner afterwards. Gave me real estate magazine to look at. He was Chief Planner for the CMDA from 1998-2003. Before that worked for the World Bank as a project manager. Worked mainly on slum clearance and housing projects, also transportation, traffic and city improvement projects. Was extensively involved in training of officials, engineers etc. for the world bank. Told me that the PWV and the CMDA are under the authority of different ministries and do not speak to one another. I asked if he could introduce me to some real estate fellows. Said that they were very busy people. But if I would give him some time slots, he would see if he could get someone to talk to me. I asked him whether Chennai would be ready should another flood hit them this year. She said not completely, but that some work had been done – de-silting the rivers, canalising the rivers were the two things he mentioned. Moreover, people are now more aware. When there is stable government, there will be improvements. Said that FDI was slow, if there was more of it, then real estate would improve.

Friday 11th August

- Early morning run. Amazing temple structures being erected for Aadi everywhere, music blaring at 6.00 am. Crossed the Buckingham Canal twice. Will go back tomorrow am to photograph.
- Lunch with retired IAS officer 2 at millet restaurant. She told me that her family were a matrilineal family from Kerala. The men were warriors and rulers, so property and lineage was passed down through the women. A king's son did not follow him, but his sister's son. I asked her how she had got into the administrative service. She told me that her father was an army man, served in the British army in the second world war in Afghanistan. He was very proud of this, had medal from the King. As young woman at college, she was very left; going into the admin service was considered a sell out. Her family asked her to do the exam once and if she did not make it, then she was free to do anything she liked. She passed the exam the first time. Was supported by a group of women friends, one of whom was an architecture student. Still remain friends to this day. She had a professor who told her she was a sell out, but she felt that she could do more inside government than out. Many activists (Nity included) come to her for advice. She says that if you want to bring about change in this place, it has to be led by the common people. Idle class activist can be ignored by politicians but they take common people seriously as they are their votes. So until environment, water bodies become more than middle class concerns, nothing will change. Lovely millet restaurant – Prems Graama Bhojanam.
- Went to a nearby bookshop, bought three books on Chennai, then walked back to the hotel across the Adyar. Many temples being decorated with huge elaborate structures at the moment. Nice pics of the Buckingham Canal. Got back and rain clouds started barrelling in, pouring with rain.

Saturday 12th August

- Early morning run again to photograph / video early morning temple music. Bus to Pondicherry at 14.00. Not very pleasant – curtains drawn. Had to sneak my camera past the curtain to photograph journey so as not to shed sun on person sitting next to me. Did get the salt flats though. Arrival in Pondicherry after 18.00. Walked to hotel a long way.

Sunday 13th August

- Pondicherry. Walked around all day, found the pastry shop, Fab India. Not so impressed. The place is throbbing with tourists, mostly Indian. Seafront promenade in the evening fabulous. Found supermarket, bought grains etc. to take home.

WEEK 7

Monday 14th August

- Pondicherry. A better day. Found the market area. Streets extremely crowded, two wheelers everywhere. Lunch in creperie with Aurelia. Republic Day parade in the evening. Coffee in the coffee shop right at the seafront.

Tuesday 15th August

- Pondicherry. Got up early to photograph sunrise. Long day. Back to Chennai in the evening.

Wednesday 16th August

- Visited the rain water harvesting expert with Anthony Powis. An incredible interview – drawings, demonstrated the rain model, saw rain water harvesting instruments outside.
- Then meeting with Beth and Christina.

Thursday 17th August

- Interview with academic 7 and another with retired IAS officer 2 again. Hard rains again in the evening.

Friday 18th August

- AM Visited the Theosophical Society grounds on the Adyar with Anthony Powis. Saw the cannonball tree, banyan trees, palm tree plantations, huge bat colonies, lovely calm buildings painted a beige colour.
- PM Interview with a property developer (recorded).
- To the airport.