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## **Thesis title:**

The effect of landuse change in urban riverfront eco-restoration projects on land drawn capabilities. Case study of the Cooum, Chennai, India

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## **Summary**

The ongoing Integrated Cooum River Eco-Restoration Project aims to improve the state of the polluted river, and improve the situation and alleviate the risk of surrounding residents. Yet, it is being criticised for the large amounts of distant resettlement it has caused, and for targeting the urban poor. Much unclarities exist within the public project descriptions, and press articles writing about it. The unclarities include what the components of the projects are, what are their benefits, how are they going to be applied, who is included in the process, which groups would be the disadvantaged, and why would such groups sacrifice most for the described public interest. The unclarities also extend on the relations between water bodies and encroachments in Chennai. An issue that is especially relevant after the severe flood of 2015, announcements and rulings were released for the removal of water bodies' encroachments.

Through a study of one of the project's proposed park areas, the thesis examines the effect of the landuse changes on the capabilities of land resources for the resettled residents, the surrounding residents, the river, and public interest as described in the project. The analysis follows a political ecology entitlements approach that disaggregates rights and entitlements of land resources. Moreover, it analyses agency to socio-ecological structures and how it affects choices made within the project to mostly affect the land capabilities for the urban poor. The study compares with literature on dispossession of the urban poor in several Indian cities, based on development, or disaster induced displacement.

The case study methodology serves to generate useful insights as a part of the existing academic literature and policy analysis of similar processes in other Indian cities. The study uses interviews with affected residents and users, government officials, academics, activists, and experts. Additionally, it includes an analysis on project reports, and other relevant reports and laws.

The project is not completed, which limits the findings that can be concluded. However, the study shows how certain capabilities, related to river services and locational proximity are prioritized by groups and have stronger links to landuse change decisions. It also examines how different use designations lead to different levels of control over land rights. Ans how the bias against the urban poor results from the unclarity around the river / encroachment dialectics and other differences in the agency to changing socio-ecological relations. Another discussed issue is how the parameters for slum definition and rehabilitation action are neither sufficient, nor are cases of slums clear.

## **Keywords**

Riverfront, Displacement, Water, Land Rights, Encroachment

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## Abbreviations

AIADMK	All India Anna Dravida Munnetra Kazhagam
CAG	Citizen consumer and civic Action Group
CMA	Chennai Metropolitan Area
CMDA	Chennai Metropolitan Development Authority
CMWSSB	Chennai MetroWater Supply and Sewage Board
CRRT	Chennai River Restoration Trust
CRZ	Coastal Regulation Zone
DIDR	Development induced displacement and resettlement
DMK	Dravida Munnetra Kazhagam
DPR	Detailed Project Report
GCC	Greater Chennai Corporation
GoTN	Government of Tamil Nadu
HC	High Court
HBU	Highest and Best Use
HLRN	Housing and Land Rights Network
ICRERP	Integrated Cooum River Eco-Restoration Project
IRCDUC	Information and Resource Centre for Deprived Urban Communities
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
kfw	Kreditanstalt für Wiederaufbau
MIDS	The Madras Institute of Development Studies
MoEFCC	Ministry of Environment, Forest and Climate Change
OBC	other backward classes
PAF	Project Affected Families
PWD	Public Works Department
ROW	Right of Way line
SRD	Sabarmati Riverfront Development project
TNPTEEA	The Tamil Nadu Protection of Tanks and Eviction of Encroachment Act
TNSCB	Tamil Nadu Slum Clearance Board
TNUDF	Tamil Nadu Urban Development Fund
TNUIFSL	Tamil Nadu Urban Infrastructure Financial Services Limited

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# Chapter 1: Introduction

## 1.1 Background

The Cooum, a heavily polluted river that runs through Chennai, has been studied for a 1,900 Crores eco-restoration plan in 2014. The Integrated Cooum River Eco-Restoration Project (ICRERP) transforms and restores 14 km of the riverfront from the river mouth inwards (LKS India Pvt Ltd. a, 2014). Simultaneously a 19 km elevated road project that links to the Chennai Harbour and is being constructed along the Cooum. The two projects have been in the process of displacing 16,000 families that have been living on the riverfront (LKS India Pvt Ltd. c, 2014). The projects have put in their first steps and priorities slum-dwellers' resettlement, for which they've been criticised for harm inflicted on the population (HIC and HLRN, Housing and Land Rights Network, 2017). The project has also been criticised for its lack of public participation and inclusion of affected families (The Hindu, 2013).

As state intervention to change the use of land is justified by the public interest (Sampat, 2013). The ICRERP report, prepared by the Chennai River Restoration Trust (CRRT) and the Tamil Nadu Urban Infrastructure Financial Services Limited (TNUIFSL) lists the benefits of the project as: flood protection of riverfront dwellers, improving the flood-carrying capacity of the river, increasing the soil permeability and rainwater harvesting, improving the ecological vitality of the river, creating recreational green spaces for the city's residents, and creating safe pedestrian and cyclist pathways (LKS India Pvt Ltd. a, 2014). The project progress was facilitated following the disastrous effects of the 2015 floods on Chennai, as more attention was given by government and juridical bodies to encroachments on water areas, which comprise a large part of riverside slum areas, as well as public and private constructions (Comptroller and Auditor General of India, 2017, Shekar and Thirumurthy, 2019, Imranullah S., 2017).

However, the project's progress has been slow, and there are much unclarities about the project's components, which were not clearly spelled out in online materials or public sessions, and the governing rules for it, as some of which are not explained (Sureshkumar, 2019, TNN, 2017, Transparent Chennai, 2013). In other Indian cities, many cases are being documented for dispossession of the urban poor through displacement, accompanied with descriptions of facilitating phenomenon as graduated citizenship, differentiated dispossession or flexible governing (Baviskar, 2003, Desai, 2012, Doshi, 2013). On the other hand, in Tamil Nadu, the lack of comprehensive mechanisms for resettlement compromises the rights of displaced communities (Peter, 2017). The Tamil Nadu Slum Clearance Board (TNSCB) is responsible for the resettlement of encroachers evicted as part of ICRERP. Although resettlement aims to decrease flood risk, previous resettlement sites developed by TNSCB were situated in flood-prone areas, and therefore had an impact on intensified flooding and on decreasing the amount of rainwater harvested into the ground (Coelho and Raman, 2010a). The state's use of water bodies as way to acquire land was common in the 1980s as an easy and cheap solution, that can still be traced in current actions. However, in the 1990s that the ecological value of water started to appear in government documents, along with economic value, and projects of water restoration merged both in funding and discourse with slum clearance projects (Coelho and Raman, 2013).

## 1.2 Problem Statement

Landuses are determined by market and legal (and political) constraints that shape what is the highest and best use for generating individual and societal benefit (Smolka and Goytia,

(forthcoming)). Urban land in general as a resource, and especially ecologically sensitive land, has use and location values for individuals, public(s) and nature. Depending on dynamic relations, uses are identified by human or non-human entities (Harvey and Braun, 1996).

However, processes of urban restructuring since the Haussmanization of Paris, till today has had a class dimension, were the restructuring usually hits hardest at the “underprivileged and marginalized from political power” (Harvey, 2008, p.9). While different Land Uses imply certain rationales of shared use and equitable access based on the types of property rights usually provided along (Davy, 2014a), a closer look based on a political ecology entitlement perspective, an application of the capability approach, highlights how these rights are applied. The Capability approach evaluates what people achieve in practice to reach wellbeing, in order to move beyond solely distributive evaluations (Robeyns, 2017). Its application as the entitlement theory depends on the disaggregation of the environment and its relations with society into sets of rights, that stem from resource use, then lead to entitlements that enable different entities to use land capabilities (Leach; Mearns, et al., 1997). Land rights as rules of the commons can be disaggregated into an infinitely devisable bundle of rights, where different constituents hold the rights against other general constituents (Penner, 1995).

Meanwhile, changes in the human-nature interaction that are justified by the public interest, imply fairness in both the procedural political and legally bound processes, as well as and distributive product of the change (Wheeler, 2006). Although it is a vague concept, the public interest helps to prepare measurements of the interests of different groups, and measuring private or parochial interests (Simm, 2011). Fair and politically justified parameters should include evaluations of capability, recognition, participation, and distribution (Schlosberg, 2009). Capabilities here describe how land is used as a resource and endowment to generate well-being represented in socio-ecological values, in the forms of production, risk protection, etc... (Schubert, 2005). Furthermore, the use of land and its endowments affects and is affected by the agency of different entities and groups to the socioecological relations as a part of citizenship (Harvey, 2008, Lister, 2003). Participation helps to describe the negotiation processes, that include compromises and cycles of activeness and passiveness, as well as manipulation within intensified or decreased power relations (Agarwal, 2001, Doshi, 2013). The new land uses then, as in the case of ICRERP, change socio-ecological use and exchange values of land as well as rights for urban communities, in turn reshaping the fairness and equality of land resource use and benefits.

### 1.3 Research Objectives

Understanding the effect of landuse change in the ICRERP on the capability of the citizens of Chennai to draw benefits from land resources.

### 1.4 Provisional Research Question(s)

#### Box 1: Provisional Research Questions

##### Overall research question

“To what extent does the change of riverfront landuse in the ICRERP affect the capability of Chennai’s citizens to land resources?”

##### Sub questions

1. What are the benefits that can be extracted from land resources?
2. What are the changes in land use implemented through the project?
3. How does citizenship interfere with the influence of landuse change on land rights and endowments?
4. How did the landuse changes transform land rights and endowments?
5. How did the rights and endowments changes affect the capabilities to use land resources?

## 1.5 Significance of the Study

Development induced displacement and resettlement (DIDR) is on the rise globally, an explicit link exists between involuntary resettlement and impoverishment of the affected populations, as most resettlement projects lead to impoverishment. Since one of the main drivers of DIDR is water management projects (van Eerd, 2017), it is likely to increase with the environmental changes and increase of uncertainty in flood risk (Zevenbergen; van Herk, et al., 2017). These circumstances are tried to be explained by the growing field of political ecology, that still leaves still several spaces for debate on theories of human-nature interaction (Schubert, 2005) especially with urban land resources. Meanwhile, we live in a period where human rights and property rights especially have gained substantial importance in the construction of a better world (Harvey, 2008). For a better understanding of the role of such rights, especially as a response to the need for water management projects, the capability approach gives further insight on how the rights are practiced. The research would contribute to the understanding of projects of ecological restoration and beautification, disaster and development induced displacement and resettlement, as well as theories of environmental justice, human-nature interaction, and land resources capabilities.

## 1.6 Scope and Limitations

The research would focus on the two groups of users of a restored area (eco-park) along the Cooum river, before and after the implementation of the restoration project. The users before restoration include the evicted slum dwellers, surrounding residents, and the river system, while after it includes additionally, the park visitors, and government bodies. Although the project includes riverfront vegetation, walkways and sewage treatment facilities, parks were chosen as the scope, as a large area component of the project.

The lack of publicly available information on the project components and progress added difficulties to the research design and sampling. The locations and components of new land uses are not posted online, and needed permissions to access, which increased the time needed to identify a case study and the related affected population. The unavailability of updated data on the project progress on the CRRT website, and the little and contradictory information available through press, added to the difficulty of research design for assessing the currently completed project components.

ICRERP is an ongoing project. Although the detailed project report (DPR) and all project phases were planned and approved, only some of those projects were completely implemented. Namely, resettlement, desilting, while later phases include construction of parks, vegetation and walkways as well as diversion of sewage pipes to improve the water quality. The fact that the project is ongoing limits the conclusions that can be made so far. The conclusions will be limited to the implemented parts as well as what can be deducted from approved project plans.

As a non-Indian, the researcher needed more permissions to conduct interviews with residents and government officials than an Indian citizen. The support of Anna University and the Thesis supervisors mostly facilitated it. However, in 2 cases (the Public Works Department - PWD & the Chennai MetroWater Supply and Sewage Board - CMWSSB), it was not possible to go through the needed procedure to facilitate the needed permissions.

When interviewing residents surrounding the riverfront site, it was more challenging to approach residents in wealthier neighborhoods (neighborhoods with detached houses with lawns, or office buildings). Therefore, most of the surrounding residents' interviews are conducted in less affluent neighborhoods.

The tracing of the resettled residents in their resettlement sites was not easy and required more time than expected. Moreover, the researcher's lack of knowledge of Tamil, that was especially needed for interviewing less affluent classes, limited the number of interviews possible within the planned time.

The study doesn't primarily analyse the river's hydrological and meteorological performance. However, it uses secondary data to list what were the options and choices made regarding the water management aspect of ICRERP. Then it analyses them from a political ecology perspective.

Despite the relevance of new governance trends, and the neo-liberalization of infrastructure projects, these factors will only serve as a background to explain the main concepts in the theoretical framework, their extensive study will not be feasible within the scope of this thesis.

# Chapter 2: Theory Review

## 2.1 State of the Art of the Theories/Concepts of the Study

This Chapter begins by an explanation of the capability approach, an open-ended framework, that is used in several disciplines, with the aim of assessing individual well-being and social arrangements. The approach itself does not explain, but rather sets the framework to evaluate, questions of poverty, inequality and well-being (Robeyns, 2005, Robeyns, 2017).

The study is concerned with urban riverfront land use changes, and benefits drawn from them. Therefore, the following parts of the chapter explore the application of the framework to land uses, rights, entitlements, and benefits.

### 2.1.1 The capability approach

The approach has a characteristic focus on what people can do and be in practice, and what obstacles and opportunities shape their freedoms to do or be what they seek, in contrast to an evaluation that is based solely on distributive measures (Robeyns, 2005, Schlosberg, 2009). Robeyns (2017) marks two concepts as central to the approach and that are crucial to be defined: goods and services (means), whose characteristics allow for functionings, the effectively achievable opportunities of those functionings are the capabilities (ends), from which individuals choose. She describes the relation between the two concepts as affected by personal, social and environmental conversion factors.

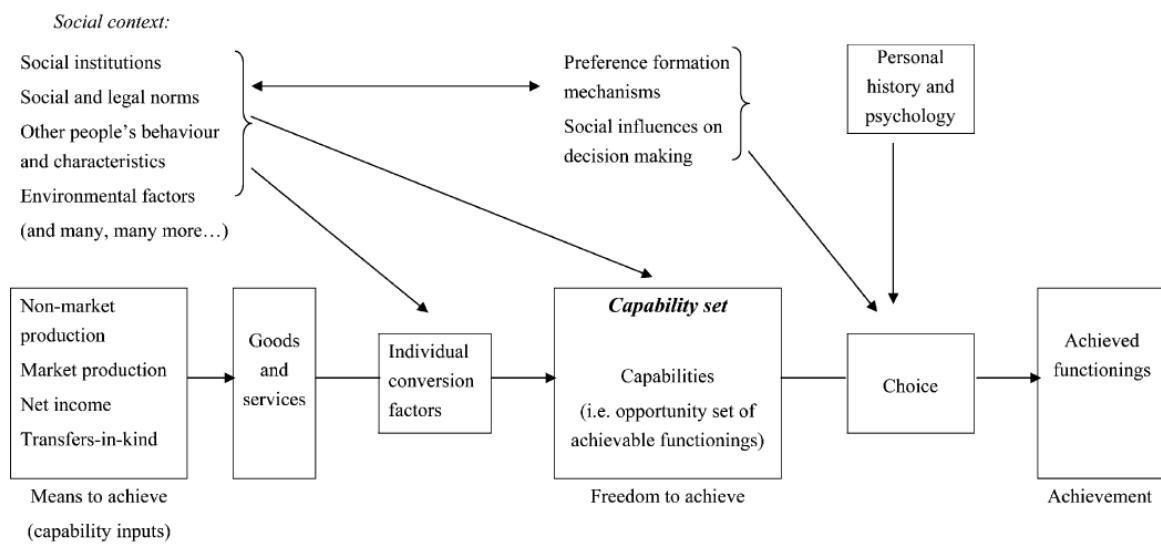


Figure 1: Robeyns' capability framework (Robeyns, 2005)

### Individuals, groups and social structures

The capability approach therefore focuses on individual choices and has been criticised for being too individualistic and isolated, and not giving enough focus to groups, and social structures. Robeyns (2005) discusses that the approach embraces ethical individualism, a claim on individualism's importance for evaluative purposes. But she also mentions, that it is neither bound by explanatory individualism, that everything can be explained through individuals, nor ontological individualism, that social groups can be reduced to individuals and their properties. She argues that the approach can include groups through analysing groups' average capabilities and can include social structures through the social and environmental factors in the Framework.

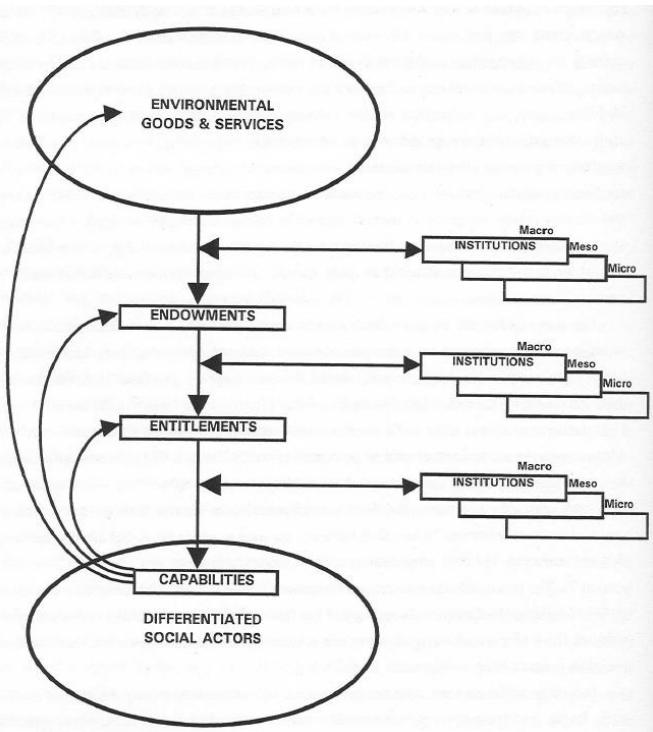
Through this research, social-ecological structures and groups, are included through what can be considered a political ecology theory of capability (environmental entitlements) (Leach; Mearns, et al., 1997, Schubert, 2005), and through citizenship as agency (Lister, 2003).

### Capabilities and entitlements

Robeyns (2017) differentiates between the broad, open-ended capabilities approach, and specific theories that use it. One theory that explores the relation of goods and services to capabilities, is environmental entitlements, as adopted by Leach, Mearns & Scoones (1997).

Environmental entitlements theory investigates the relation between endowments, entitlements and capabilities. Where endowments are the initial rights and ownerships that individuals or groups have (for a good or service), through social legitimacy (Schubert, 2005). While entitlements are how practically the individuals and groups exercise their endowments on the resource, in order to gain their capabilities, to contribute to their wellbeing (Leach; Mearns, et al., 1997). The approach embeds social arrangements in relation to goods and services and serves to show how social institutions shape the relations between social actors and certain components of nature, disaggregating the environment into the sets of endowments and entitlements (Schubert, 2005).

**Figure 2: environmental entitlements framework (Leach; Mearns, et al., 1997)**



Entitlement theory highlights the perception of resources not only as limited unrestricted pool, but as controlled by the rules of common property. The rights for common property are socially given endowments, with which people are capable to get their entitlements from resources, in contrast to Malthusian theory, the approach shows that conflict arises from this system of property rights. The approach views entitlements as dynamic, ever-changing and shaped by both formal and informal negotiations (Schubert, 2005).

The entitlement approach has been used with to non-urban communities and natures. Wisborg (2002) for example, has a focus on rural land as the resource (goods), and tries to expand the endowments to include illegal, non-market or informal forms of endowments. which will be represented here by including graduated informal land tenure (Payne, 2001, Bhan, 2013) and how informal endowments were achieved. The entitlements then would be if and who can exercise these rights, the entitled person (practitioner of rights) may in cases not be the entitled owner, but an authorized or unauthorized or indirect user (Davy, 2014b, Nunan and Devas, 2014).

### Means vs. ends ambiguity

In practice, it is not simple to differentiate means (goods and services), from ends (capabilities), and therefore, the sought well-being. As certain functionings can be considered means in themselves to reach other functionings (Robeyns, 2005). This will be delineated more clearly below when functionings and capabilities are defined as the direct outcome of land rights, and entitlements, to achieve well-being.

An example for urban land resources would take proximity to job as the sought capability, for which the entitlement would be the abilities to access and exclude (exclusive use: for residential purposes), the endowments would be the rights to access and exclude (exclusive use through landuse designation and ownership), for the landuse as the good (resource).

### **2.1.2 Benefits of Land resources**

The capability approach dictates starting analyses through the ends (capabilities), rather than the means, as people differ in their ability to convert means into capabilities. Since ends are what matter to well-being, then means can be considered as the proxies for what capabilities they seek to achieve (Robeyns, 2017). It depends on choices made from among the options available for people to do and be who they want (Robeyns, 2005), the delimitation of what the capabilities (benefits from land resources) are, is decided upon by the relevant actors and actor groups. Tentatively capabilities are defined from literature on land values, then through the ICRERP executive summary (LKS India Pvt Ltd. a, 2014), as well as literature on criticisms to the project, and comparable cases of urban regeneration / beautification, and ecological restoration, especially within India. Following the data collection phase, the analysis of benefits will include the perspective of current and past users of the case study area.

#### Urban land location

Transactions on urban land include both the goods of a certain size and a specific location (Smolka and Goytia, (forthcoming)). While location plays a primary role in land valuation, it is becoming increasingly complicated to note location value influences (Eckert; Gloudemans, et al., 1990). Imagining a city where jobs and commercial activities exist in a central business district, and as economy grows and demand for farther land from the centre increases, also do trip costs, such as commuting, and shopping, etc. Therefore, a more central land would be attractive for the value of avoiding costs of transportation (including time), such as job commuting and accessing services, from low serviced locations. As cities contain multi-nuclei, this gradient of values is not uniform and is distributed away from the city's multi-nuclei (Smolka and Goytia, (forthcoming)).

#### Riverfront land services

In Chennai, waterbodies have been seen as land-in the making, to be developed as a cheap option of public land for needed infrastructure. Until in the 1990s when policies shifted to include the ecological value of water bodies (Coelho and Raman, 2013). Gupta (2010) mentions that Land use hydrological impacts include changes to peak flows, runoffs, water quality, and hydrologic amenities. As floodplains, marchlands or excess water storage areas are built over, runoff is affected by the permeability of land use developments, and the availability of inundation places. What the author means by hydrologic amenities is the impression that the hydrological element leave on a visitor, and will be discussed here under beautification (Leopold, 1968).

#### Beautification

An important force behind the taking of urban land recently and changes of the cityscape, especially in India, follows the beautification aims, which has been explained in the desire to establish a world class city that attracts investment, following India's neo-liberalizing trend in the 1990s (Arabindoo, 2011, Baviskar, 2003, Routray, 2006). A process that Baviskar (Baviskar, 2003) has coined as 'bourgeois environmentalism, where urbanism follows an imagination of a clean, orderly city, with a bourgeois imagination of public spaces, free of encroaching slum dwellers. Combined with middle class led city services, based on accessibility to shopping malls, airports, and resulting in the diminishing of spaces of the urban poor (Routray, 2006). The adopted views are combined with the abundance of evitable slum areas, an easy way for the state to acquire land and are supported by legal claims to reach the

public interest (Baviskar, 2003). The list of landuses that are sought through the transformative projects, includes public spaces, and commercial activities, in addition to highways, railway tracks, as well as parks and water bodies restoration, in most cases affecting the marginalised communities the most. A wave of evictions in Chennai, was supported by the justification to clean nineteen water bodies, to improve their flood retention capacities, even though some of them were declared defunct by the same water bodies that called for their cleaning, and that the resettled dwellers were removed to other floodplains on the city periphery (Coelho and Raman, 2013).

### Resettlement impact and issues

Sustainability justifications are being presented as progressive and objective, therefore apolitical and not calling for debate (Ellis, 2011). CRRT was appointed for an eco-restoration project along the Cooum river. The announcement of eco-restoration and highway projects along the river have resulted in the displacement of thousands of families to the Kannagi Nagar resettlement site. In the new site, the resettled residents suffer from the flood risks, as the site lies in a floodplain, and their livelihood is further weakened by the loss of their proximity to jobs and the bad state of services and utilities in the new site.

Although impacts of resettlement as a change of land resource capabilities change with local conditions, identification of some common associated risks has been done in literature. The risks include “landlessness; joblessness; homelessness; marginalization; food insecurity and a decline in health; increased morbidity; loss of access to common property resources; social disarticulation; and risks to host populations” (Cernea as quoted in van Eerd, 2017, p.26).

### **2.1.3 Landuse**

#### Landuse as permanencies

Davy (2014b) describes Landuses as what land users do. Harvey and Braun (1996) argue about place as a permanence of an occupation of a space for a certain time, indicated by a certain entity. Consequently, a relative temporary stability is created within the entity's external and internal place creating dynamics. The entity that establishes such permanence may be a government body, an ecological system, a social organizing, etc. Such a definition of place focuses on a place's internal dynamic and dialectical processes, through spatial-temporal change that follow socio-ecological relations.

As what landusers do, official or de facto landuses are the manifestations of such permanencies, as indicated by government (masterplan, or landuse reclassification), informal use, or river flow and ecology.

#### Drivers and constraints of landuse

Urban location theory explains the advantage of proximity (to CBD for example in a city) on saved transportation costs that increases land rents, as the willingness to pay for land increases. The competition on bidding for land, represented in the maximum price bid then determines land use patterns. Land is developed by Uses that create the maximum benefit from the location (highest and best use - HBU) (Smolka and Goytia, (forthcoming)). The constraints that create the highest and best use are “the legal, physical, market and infrastructure support and financial feasibility” (Dotzour; Grissom, et al., 1990, p.22). The Legal constraints also represent the political aspect, where the synthesis exists between the societal and individual HBU. The landuse change along the river banks then could be interpreted in different ways: as a societal HBU, given the conditions of public benefit, justice and participation. As a manifestation of individual HBU, through for example saved transportation costs (including time), or real estate values. Or as a bid by the river ecosystem, in terms of gains and avoided losses.

### Public interest dilemmas

The societal component of land rights falls under the set of related concepts of public interest, public benefit, and common good. All are concepts that are hard to identify. The term public interest has not been defined precisely and could hold a wide range of meanings, yet it is useful to aggregate a number of interests and balance against non-public interests (private, personal, parochial and partisan interests for example) (Wheeler, 2006). Nevertheless, Wheeler (2006) describes it as containing both outcome and procedural components. Similarly, the common good is a concept that cannot be defined unitarily given the contemporary plurality that makes prioritizing values a dynamic process (Simm, 2011).

Private property is said to be under the state's eminent domain, where it can "use, alienate and even destroy the property in the case of extreme necessity and for the public utilities" (Sampat, 2013, p.41). The rules of eminent domain explain to what extent the state can take property for the public interest (Azuela, 2008).

### Outcome of Planning

Bhan (2013) discussed the issue of failure of planning, as Indian cities are seen as chaotic, unintended and incompetent. He argues that although a small number of Indian cities are planned (23% of total population), unplanned areas and uses are still outcome of the planning process.

## **2.1.4 Citizenship as agency over socio-ecological structures**

### Citizenship as agency

The capability approach differentiates between wellbeing and agency. It is concerned with well-being of the standard of living. Agency includes commitments as well that are not beneficial to the agent (Robeyns, 2005). Although the main thesis focus is on using land goods for achieving wellbeing, the following is an argument to include citizenship, as human and non-human environment's agency over changing socio-ecological structures.

Literature around citizenship, can be summarized into two directions. One is concerned with citizenship as status, represented in the rights and duties endowed upon individual citizens who are on equal level of citizenship, and stemming from liberal theory. While the other is concerned with citizenship as practice, with the responsibilities that form the virtue of a good citizen and stemming from civic republican and communitarian theory (Lister, 2003).

The status approach revolves around three components first suggested by Marshall (1950). Civil rights include rights that are "necessary for individual freedom –liberty of the person, freedom of speech, thought and faith, the right to own property and to conclude valid contracts, and the right to justice" (Marshall and Bottomore, 1950, p.30). Second, political rights, are the rights to participate in political processes directly or through representatives. Finally, social rights, are the rights to support to maintain a quality of living according to the community's standards, which is considered a condition for the application of the first two rights, through removing the effect of inequalities that hinder the application of the civil and political rights (Lister, 2003). The other approach based on citizenship as practice focuses more on obligations, general obligations, that prioritizes the common good of society, or as the responsibility to work or volunteer to add to society (Lister, 2003).

Lister (2003) converges the two approaches through the concept of agency, which regards subjects as purposive and creative creatures, who make choices that lead to their own development and wellbeing, and consequently changing the world in a dialectic relation with societal structures, therefore directed at both societal and individual aims. From this perspective, rights are the underlying rules for this state of agency (Lister, 2003).

Harvey (2008), on the right to the city, discuss not only the right to access to city services, but also the right over changing the city. Since reshaping the city, is a reshaping of where we live, work and our relations and lifestyles. He describes how cities' reshaping has been led by the goal of absorption of capital surplus, under the claim of public benefit, while exploiting and excluding the urban poor from their rights to the city. Slum dwellers by definition are encroachers in many cities, and are therefore not recognised as citizens and excluded from the right.

### Participation

As the term 'participation' is used widely to describe different situations, it is important to highlight to what extent it allows for citizen-control, who initiates it and who is invited to participate. 'tokenism' describes consultation and informing of already made decisions, which is considered by several organisations like the 'World Bank' as participation. In such cases, it is a way of legitimizing the set decisions, and risks delegitimizing other ways of expressing opinion (Cornwall, 2008). Moreover, there are challenges to invited participation as a consensus based collaborative planning process, which is being used by NGOs and local governments. Brand and Gaffikin (Brand and Gaffikin, 2007) mention among those, the difficulty of building a trust foundation, the implicit power differences, the role of identities, and the unclear ideological motive.

Contrary to approaching participation as formal models, a bargaining approach views it as situations of cooperation-conflict, where two parties gain better grounds through cooperation (Agarwal, 2001). One party may gain more from the cooperation based on the existing power positions. The approach helps understand these power imbalances that lead to inequality through participation. A variety of participatory tools exist outside of the formal models, for example Baviskar (2003) mentions among those used by the poor in Delhi, vote banks, kinship networks, neighbourhood associations, and coalitions with NGOs and support groups.

### Flexible governing, inclusion or exclusion

The 'flexible governing' of the Sabarmati Riverfront Development project (SRD), has been described by Desai (2012), as a process that facilitated the modification of the project's inclusivity goals, and affected the negotiations with affected families. Although the early project plans were clear on how to include the urban poor, the flexible governing approach allowed for achieving beautification and gentrification goals, while shifting the project's approaches to the urban poor according to surrounding pressures.

Flexible governing describes the project having multiple and shifting approaches to compensations, evictions, and resettlement. Uncertainty and vagueness about the project have caused confusion about what the project entails and who would get affected. Information was not given on time, and the survey on affected households was not shared. The numbers of households mentioned in the project survey was contested by NGOs and community organizations. Moreover, the resettlement and rehabilitation policy of SRD was not clear, this led to negotiations and threatening, that caused resettlement deals outside of the SRD plan. These evictions were said to have not been a part of SRD, but served a separate group of bridges' projects, that were in fact important for SRD. Like ICRERP, construction of bridges took place simultaneously with the SRD project. Finally, through the project, landuse and resettlement plans were changing, the locations for on-site resettlement were shifted away from the river, the funding sources for resettlement has been transferred from SRD budget, and relocation was carried out in a piecemeal manner, for groups of citizens at a time, on the grounds that the project construction was halted (Desai, 2012).

Doshi's (2013) work on differentiated dispossession explores how the rights of certain vulnerable groups of population are compromised, as a result of party politics based on a local

identity and painting a picture of an immigrant slum-dweller with an alien identity. The consequences of which is the facilitation of slum clearances in areas of ethnic groups that are labelled as foreigner (Doshi, 2013).

### Environment as technical

Riverfront restoration projects have been long considered within the engineering, or environmental science spheres. A perspective that limits participation, and gives the decision to professionals, depoliticising it (Ellis, 2011). However, due to the increases of uncertainties due to climate change, and the need for flexible decentralised systems, projects have started to deviate from the 'control' paradigm, into a multi-scalar governance approach (Rijke; van Herk, et al., 2012). The room for the river project is an example where the central government depends on two forms of participation, reporting to the parliament, and detailed design through invited participation at the local government level. The central government here provides funding, monitoring, and technical knowledge.

Indeed, an opposition exists within political ecology regarding the technical aspect of ecology. Positivists argue that a natural equilibrium exists away from human interaction, and that its assessment can be reached by natural sciences objectively. While post-positivists argue that generalisations on environmental policies are usually not applicable for a local context and are derived by discourses and actor networks. Hence, a more critical approach is needed at local levels (Schubert, 2005). The CRRT approach in Chennai has been criticized as promoting being positivist, apolitical, and restoring urban nature (in the case of the Adyar Poonga) to a pre-human, pure natural state (Ellis, 2011). This formulation neglects the 'political and economic processes that shape and are shaped by ecological processes' (Ellis, 2011, p.196). and how natural environments are affected by human activity, and how different actors and political powers have roles in its injustice (Robbins, 2011).

### Environment as constituent

Krause (2012), argues for a political ecology perspective that includes non-human environment as an active agent in shaping political struggles. As power to support or harm the lives of others lies not only within humans. The argument goes to mention the case of the Kemijoki river that historically has been characterized by a highly varying water amounts throughout the year. While historically, livelihoods have been adjusted to the river's cycles, it is currently being discussed whether to control the river to fit the surrounding lives that are not time dependent.

Schlossberg (2009), notes the difference between ecological justice, which applies to non-human nature, and environmental justice, which is concerned with justice of environmental goods and harms among humans. He claims that a framework of justice based on the elements of capability, recognition, participation and distribution can apply to both directions. Beyond distributive justice, it is possible to measure the element of capability in nature, in how the distribution translates into individual beings or a system as a whole achieve their well-being. The argument for recognition, and considering nature rights within the state, is based on similarities between humans and nature, in terms of sentience mainly even if activism is partial, activism can be expressed in disruptions to natural systems. Recognition as integrity addresses natural systems' ability to change, be resilient, and self-regulate and direct. Achieving recognition and capabilities leads to participation, where the subordinated has an elevated status and rights, and political expression broader than voting is considered.

#### **2.1.4 Land rights, endowments and entitlements**

First tenure definitions are reviewed, then disaggregated through a bundle of rights view relevant for urban ecological land resources.

## Land tenure and ownership

Land tenure typologies assume implied sets of rights that are most common to land under different definitions, but that differ from one country to the other. Bromley's divides property into: public, private, common, and non-property. In the work of Payne (1997), tenure typologies are first divided into wide groups that are derived based on both formality and type of owning entity. This initial division is: modern private - public - customary - informal - derived and interest. This categorisation is divided further into subcategories, that take into consideration the types of control over land and gradations of legality.

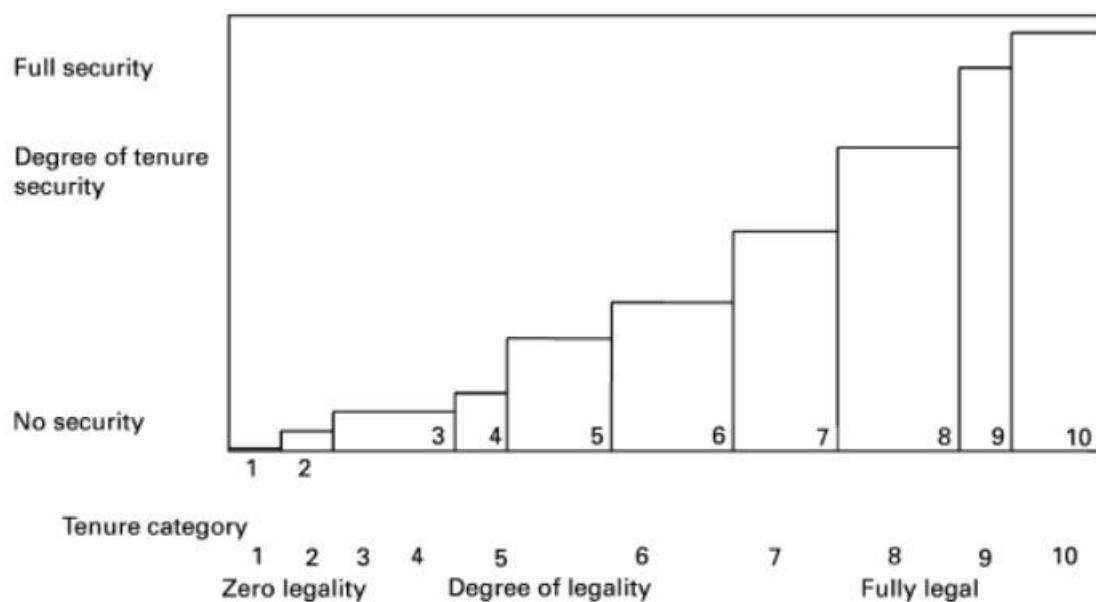
Modern private ownership, implies the right to absolute enjoyment and disposal of property confirming with laws and regulation. It is awarded to entities that are not public or customary. Private tenure can be absolute, and not bound by time (freehold), with no restriction to tenure except the eminent domain. If it is time-bound, and less than absolute (leasehold, rental, ...), it is awarded in return for a rent, with rent conditions differing across countries. Another form is conditional freehold, a mix of freehold and leasehold, where a final freehold status is sought, after fulfilling conditions, such as the payment of the complete costs of a property.

For public tenure, the author differentiates three subcategories: state land, is owned by the state or one of its bodies and can be leased or alienated. While public land, is land used for public purposes, and can be used or acquired by the state. The last type is occupancy certificate lands, where the state grants the right to occupy for existing users, but retain the land's ownership and other rights, for example to develop or alienate.

When it comes to gradations of urban illegality / tenure, Payne uses a hierarchical scale of different positions of legality, that can overlap in some cases (Payne, 2001). While the analysis done by Bhan (2013) uses a multi-criteria approach based on a study of the categories of built environment in India. Payne assumes a hierarchy where legality is directly proportional with the security of tenure.

At the bottom of Payne's hierarchy are pavement dwellers, who do not occupy a land plot but streets, usually with no permanent structures. Second above them are tenant squatters, squatter settlers do not have formal recognition of land when they settle, neither do the settlement have a market for land subdivision, the rights and security of tenure of squatter settlements differ by country, tenants in such settlements could be paying for an owner for their occupation of the unit. Third are the owners in squatter settlements that are not regularised, for example through right to occupation certificates. Fourth are tenants in unauthorised subdivisions, the areas where lands have legal ownership, but non-formal markets for subdivision. Fifth are owners in regularized squatter settlements with formal security of tenure. Sixth are owners in unauthorised subdivisions. Seventh are legal owners of land, with unauthorized construction, meaning that there is no building permit for the land. Finally comes the tenant with contract, then leaseholder, then freeholder.

On the other hand, The categories of built environment, are based according to Bhan (2013) on four separate concepts: legal/illegal, formal/informal, planned/unplanned, and legitimacy, that are all results of planning policy, even if in unintended. Planned areas are those built on plots marked in a masterplan, they are in accordance with allocated use (if there is), and with the masterplan's norms of design, infrastructure and amenities. An important characteristic as well is the time, planned areas should be conforming to laws and plans at the time of its construction. Planned areas are legal, legitimate but can have formal or informal uses. Legal areas are those where owners have titles that are or can be registered with local authorities. Informality refers to incompatibility with building regulations, controls and layouts. Finally, legitimacy refers to areas that are protected from arbitrary eviction, i.e. they have security of tenure, de jure or de facto.



#### Tenure categories found in many cities:

- 1 Pavement dweller
- 2 Squatter tenant
- 3 Squatter 'owner' - un-regularised
- 4 Tenant in unauthorised subdivision
- 5 Squatter 'owner' - regularised
- 6 Owner - unauthorised subdivision
- 7 Legal owner - unauthorised construction
- 8 Tenant with contract
- 9 Lease-holder
- 10 Free-holder

**Figure 3: Payne's hierarchy of legalities (Payne, 2001)**

#### Land rights and entitlements

For different lands both common and individual rights exist, in a way that property becomes a social institution that controls social interactions through rights, obligations, and powers (Hallowell, 1942). Although the above-mentioned tenure categories usually indicate certain rights to land, the overlap between private and public property rights often results in changes into the bundles of rights to land. The disaggregation of rights helps target controlled goals of public and private interest; this disaggregation is also the purpose of the entitlement theory.

The disaggregative view of the bundle of rights, deals with property as definitely divisible, that can be disaggregated to or built up, from more or less division of rights (Penner, 1995). Schlager and Ostrom's (1992), study of property rights for common-pool resources, lists several sets of rights. The authors divide the rights into operational and collective action levels rights. On the operational level, are the rights of individual choice regarding the resource. They include: the right to access, to a physically defined property, as well as the right to withdraw, the products of a resource. The collective action level of rights includes: the right to management, which means changing the internal uses, and transforming the resource to make improvements. As well as the right to exclusion, by determining who has the right to access and how it may be transferred, also defined as the right to possess (Johnson, 2007). Finally, penner (1995) mentions the right to alienate, by selling or leasing one or both of the collective

action rights. The right to alienate was disaggregated by Honore as described in Johnson (2007) into the rights of income (rent /lease), and capital (sell). Penner (1995) proposes that an owner is a person or entity that has all the five mentioned rights. Those who have less of the rights are defined as proprietors, claimants and authorized users.

In describing the bundle of rights (to property, or common, i.e. a thing), Hohfeld argues that all rights exist between humans, and that the difference between the right in rem (to a thing) and right in personam, is that rights in rem reside in a single person or group of person, against a large and indefinite class of people, unlike rights in personam which avails against a single person or group of people. (Penner, 1995, Johnson, 2007).

The work on the bundle of rights focused more on rights the obligations. The old view of right to property as an absolute right to a thing, included the only obligation of not doing harm to others by using the property. The bundle of rights view though can be considered to include an indirect approach to obligations, by limiting the given rights to create the rules of the commons. Still, in the list developed by Honore for rights and obligations, includes the prohibition of harmful use (Johnson, 2007). The obligation here is a duty of an owner or user towards society, or other users. To transform it into a form usable within the entitlement theory, the obligation will be defined as the rights of the other, general, indefinite users (larger number) against a specific user.

The rights represent the set of functioning of the resource (land). While the practiced of those rights shall be defined here as the entitlements. The mentioned rights are de jure rights, authorized by formal, legal instrumentalities, that can be contested in court and in administrative settings. However, the agreement between property users may produce de facto “endowments” that are not recognized by the state.

### Landuse relations to land Rights

According to Davy (2014b), every landuse category requires a fingerprint of property rules that match with its purposes. The categories such as “common property” in a broad sense influence and get influenced by the rights practiced. Unlike Payne and Bromley, Davy uses a typology of land property that is not focused on ownership, but on categories of uses, each category is mono-rational, but overlap in every real-world case, as properties are polyrational.

He analyses over two axes for rationales that result into ideal categories. He differentiates restricted landuse rationales from shared ones (private vs common). Then he differentiates based on the elements of relationship between properties: individuality, egalitarianism, hierarchy, and fatalism.

Individuality indicates autonomous user decisions and benefits, manifested as insular use if private (independent and autonomous e.g.: family house occupied by owner) whose property rules would protect private liberty. Individuality common use is defined as opportunistic use (appropriating the commons, e.g.: the use of a public toilet or fountain), whose property rules would allow flexible temporal use, and limit excessive use and congestion. Egalitarianism represents landuse relations where benefit is mutual, kinship if private (e.g.: commercial activities benefiting from agglomeration) whose property rules would promote inclusion and similarity. While egalitarian common use is named collaborative (the collaborative management of common resources, e.g.: common irrigation systems, or community gardens with active community action), whose rules promote collective action.

Hierarchy indicates decision be made through a higher dominating use, to which inferior uses serve, named as corporate use for private (e.g.: warehouses for retail chain), and as structural for common use (e.g.: local streets serving streets of higher hierarchy), both needing property rules that facilitate the control of the higher use. Finally, fatalism exists when benefits of the

use, and user range are not controlled, as private container use (e.g. shared office spaces), or environmental common uses (e.g.: enjoying sunshine or air in parks), which requires rules that make the use available to the users as much as possible, while avoiding the wear and degradation of the use. (Davy, 2014b).

The categorisation helps analyse what effects changes in landuse can have, as well as which land policy decisions can be promoted for promoting a use. They can be applied for human and non-human use.

## 2.2 Conclusion and Conceptual Framework

The entitlement theory provides a political ecology application to the capability approach. The capabilities of the riverfront land resources are based on evaluations by different analysed groups, as a result of riverfront restoration. Capabilities are what people can do and be with the land resource to achieve wellbeing. Capabilities of urban land include location related capabilities, quality of services, in addition to riverfront specific hydrological services, and capital values.

Landuses, are definitions of place, as indicated by certain entities, whether government (planning), ecological or other communities. Such entities not only define what the place can be, but also what it can't be, through different individual and societal landuse constraints.

The relation between them is mediated through the changes in rights, endowments and entitlements related to riverfront land. Such rights are implied in ownership and tenure type and legality, and are disaggregated into a bundle of property rights, or rights to the commons, relevant for areas with ecological values. Rights are eligible to be contested by right-owners with official government or juridical bodies. Endowments, on the other hand extend to include practices accepted by or within certain communities, but not necessarily legally contestable. Finally, entitlements are the actual practice of such rights and endowments.

The relation is also influenced by citizenship, as the agency of different groups to socio-ecological structures related to riverfront land. The concept elaborates on the influence of differences in agencies among the groups, that affects the decisions related to rights and uses.

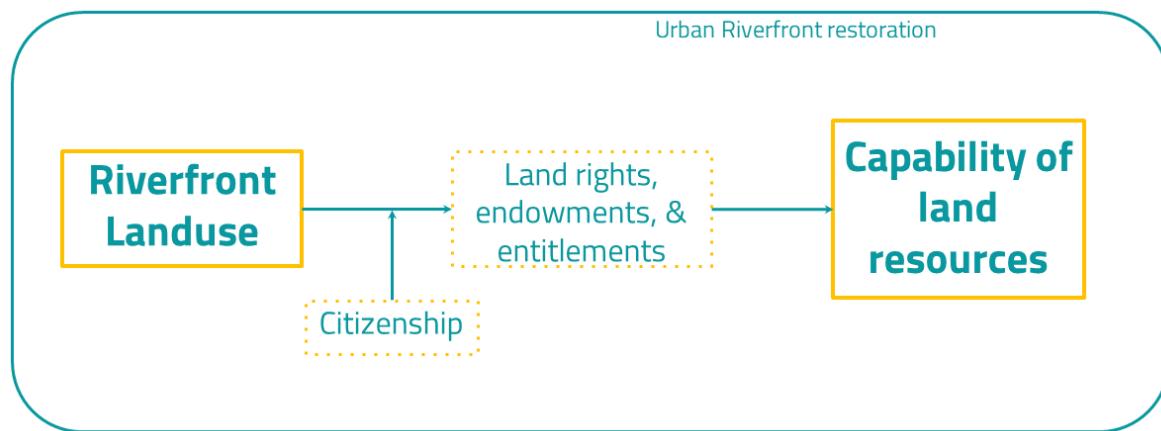


Figure 4: Conceptual Framework

# Chapter 3: Research Design and Methods

## 3.1 Revised Research Question(s)

### Overall research question

“To what extent does the change of riverfront landuse in the ICRERP affect Chennai’s citizens’ capabilities of land resources?”

### Sub questions

1. What are the capabilities that can be drawn from land resources?
2. What are the changes in land use implemented through the project?
3. How does citizenship interfere with the influence of landuse change on land rights, endowments and entitlements?
4. How did landuse changes transform land rights endowments, and entitlements?
5. How did the changes in rights, endowments, and entitlements affect the capabilities of land resources?

Box 2: Revised Research Questions

## 3.2 Research strategy

The research aims to explore the effects of beautification and ecological restoration projects that require resettlement, on the city’s citizens. The research uses a case study approach, in order to formulate a holistic view with a thick description of the conditions related to such projects (Van Thiel, 2014). It departs from several theoretical generalisations that are reflected on the specific case.

On a theoretical level, the study aims to describe and suggest relations between the theoretical bases, more than to test or falsify them. On one hand, a relation between landuse implications on land rights, and how it translates into values for different groups through the processes of entitlement and capability. On the other hand, relations between the theories of political ecology, environmental justice and citizenship when dealing with land resources. These relations are generated through a causal process approach that is open to context and new variables. The research would seek comparability, and full documentation of data gathering so that certain relations within the research, along with similar research, can be used for conclusive evidence for deductive research (Ruzzene, 2015, Van Thiel, 2014).

On a policy level, the case study approach would be sensitive in its description of contextual and empirical factors, that are of relevance for understanding policy outcomes, especially in similar cases (Ruzzene, 2015).

## 3.3 Operationalization: Variables, Indicators

Table 1: Operationalisation

Concept	Variables	Indicators	data type	data source	data collection method
<b>Riverfront Landuse Independent Variable</b>	Landuse	Landuse designation	Primary + Secondary	CMA masterplan + CMDA officials	Content Analysis + Interviews
		De facto landuse	Primary + Secondary	Former Residents + official reports + site visit + CRRT officials advocacy groups	Interviews + Content Analysis + observations
	Constraints	River right of way	Secondary	Official reports + CRRT officials	
		Coastal regulation zone			

		Masterplan			Interviews + Content Analysis
		River floodplain			
<b>Citizenship</b> <i>Intervening Variable</i>	Agency for changing society-nature structures (anthropocentric)	Participation in ICRERP planning directly	Primary + Secondary	ICRERP reports + CRRT officials + TNSCB officials + subject groups + housing rights advocates	Interviews + Content Analysis
		Participation in affecting ICRERP indirectly	Primary + Secondary		Interviews + Content Analysis
		Affecting CRRT / TNSCB policies			
	Agency for changing society-nature structures (ecocentric)	Ability to change river path & discharge	Secondary	Official reports + environmental advocacy groups	Interviews + Content analysis
		Ability to retain water quality			
<b>Land Rights &amp; Endowments</b> <i>Mediating Variable</i>	Ownership Endowments	Private rights typologies	Primary + Secondary	Official reports + CRRT & TNSCB officials + subject groups + advocacy groups	Interviews + Content analysis
		Public land typologies			
		Non-formal typology			
	Rights Endowments	right to access	Primary + Secondary	Official reports + CRRT & TNSCB officials + subject groups + advocacy groups	Interviews + Content analysis
		right to exclude (possess)			
		right to manage			
		right to alienate			
		right against harmful use (to water quality)			
	Entitlements	ability to access	Primary	Subject groups + CRRT officials + advocacy groups	Interviews + questionnaire
		ability to exclude (possess)			
		ability to manage			
		ability to alienate			
		ability against harmful use (to water quality)			
<b>Capability</b> <i>Dependent Variable</i>	Captured Use Values - Locational	Proximity to jobs and markets (residential use)	Primary + Secondary	Subject groups	Interviews + secondary analysis
		Commercial Agglomeration (commercial use)			
		Utilities services			

Captured Use Values - Quality and services	Housing security			
	Commercial activity security			
	Recreational activity	Primary	Subject groups	Interviews
	Beautification			
	River ecology improving			
	Improved Water Quality			
	Groundwater Recharge			
	decreased flood risk for resettled communities	Primary + secondary	Environmental & housing advocacy groups + official reports	Interviews + content analysis
Captured exchange values	Flood retention			
	Real estate increments	Primary + Secondary	Real estate experts + laws + CMDA & CRRT	Interviews + content analyses
Public land Value Capture / TDR				

## 3.4 Data Collection & Sample Size and Selection

### 3.4.1 Case study location choice

The research studies parks within the ecological restoration project, as a manifestation of the restoration goals within a land use change. Within the ICRERP, 24 parks are introduced. 5 park locations were announced to be the first to be implemented (Express news service, 2019a). 3 of the 5 announced parks exist in the neighbouring areas of Thousand lights and Chetpet. Since the two Chetpet parks lie on the same river bank as the simultaneously ongoing elevated road project, landuse change cannot be attributed solely to ICRERP. Therefore, the park at thousand lights on the Cooum's south bank between College road and C in C bridges was chosen as the case study. The Thousand lights park covers the former neighbourhood of Thideer Nagar<sup>1</sup> as well as a part of the Nawab Land area<sup>2</sup>.



Map 1: Chosen Location at Thousand Lights – Parks in green, elevated road in dashed black line, Sources: Historic google earth maps, and ICRERP executive summary (LKS India Pvt Ltd., 2014), produced by author

### 3.4.2 Interviews Sampling

Data collection methods for the research consisted of semi-structured interviews, and secondary data analysis. The interviews were with experts and residents / users. Interview transcriptions are annexed to the Thesis except for government officials who didn't agree to officially publishing the interviews.

#### Resident / user Interviews

The subject groups of residents and users, were: resettled residents, surrounding residents and owners, and current users of surrounding parks. The main resident groups are the Thousand lights residents, while other areas where interviews were conducted provide comparison, and information on the whole project, and socio-ecological relations, but not necessarily to the case study area. Within the Thousand lights site, the residents of Thideer Nagar were resettled to a

<sup>1</sup> Thideer Nagar: is the name given to a squatter settlement in the area, the area name is the one mentioned in the Aadhaar card addresses of the resettled residents.

<sup>2</sup> Nawab Land: is the name used in this research to describe a regularized formerly squatter neighborhood next to the Thideer Nagar settlement. Though tenure is legalized, parts of Nawab Land are classified as slums.

resettlement site in Perumbakkam, while the Nawab Land residents were not affected by the project. Surrounding areas that were also explored included Chetpet, whose affected families were resettled either to the Kannagi Nagar or Perumbakkam resettlement sites, as well as the workshop area of Pudupet, whose workshops were allotted places in Auto Nagar.

	From Thideer Nagar (thousand lights) to Perumbakkam	From Chetpet to Kannagi Nagar	From Chetpet to Perumbakkam	From Chetpet to Perumbakkam and back	Total
Resettled Residents	7	3	4	1	15
	Surrounding in Thousand lights - Nawab Land	Surrounding in Thousand lights - Other	Surrounding in Chetpet	Surrounding in Pudupet	
Surrounding Residents including park users	7	1	4	7	19
<b>Total</b>					<b>34</b>

Table 2: Interview sampling for residents and users

### Expert Interviews: Government

The expert interviews were with government officials, researchers, academics and activists as well as real estate companies. Relevant government bodies were identified by the researcher based on having an influential role in the project decisions (purposive sampling), then approaching officials in those institutions was through one of three means. The first was through connections of the Department of Media Sciences of the Anna University in Chennai, a partner of IHS in several projects in Chennai, which also gave support to this research. The second was through the connections of this thesis supervisors (both snowball sampling). While the third was through direct visits to the governmental departments.

Institution	Position	Connection
CRRT	environmental scientist	Connection of Anna University's professor Mr. Velayatham
CRRT	Water Resources Specialist	a visit to Adyar Park
CMDA	Former chief Planner	Dr. Banashree Banerjee, Thesis co-supervisor
TNSCB	Community Development Officer	Connection of Anna University's professor Mr. Velayatham
GCC	Engineer, Parks department	Visit to GCC
PWD	-	-
CMWSSB	-	-

Table 3: Government Interviews

The original list included: CRRT – CMDA – GCC – TNSCB – PWD – CMWSSB. Interviews with PWD and CMWSSB were not possible, two interviews of different positions were conducted with CRRT, and one interview each for CMDA, TNSCB and GCC. CRRT is the umbrella organization managing the restoration project, as well as the initiator and current manager of the Adyar eco-park / nature reserve. With CRRT, one interview was focused on

ICRERP, and the other on the Adyar park management, as the Adyar park is CRRT's predecessor project to ICRERP.

The Chennai Metropolitan Development Authority (CMDA) is responsible for the production of the Chennai Metropolitan area (CMA) masterplan released in 2008 whose land use assignments, ICRERP is supposed to follow (LKS India Pvt Ltd., 2014). It is also responsible to produce TDR certificates, or any land tax schemes. Moreover, CMDA sets the building regulations for the city including resettlement sites. The Greater Chennai Corporation (GCC) is the body responsible for the implementation and management of parks within the project. Finally, TNSCB was interviewed as it is responsible for the resettlement and rehabilitation of the Project Affected Families (PAF) (LKS India Pvt Ltd. a, 2014).

Though a visit was paid to PWD's Public Information Officer, he requested official letters from an Indian Institution to allow for the interview, which was not feasible, within the feasible time. No connections were possible with CMWSSB. For the two unachieved interviews, the research tries to complement through secondary data.

#### Expert Interviews: Researchers, Academics and Activists

Interviews were also conducted with activists and experts in resettlement and environmental issues.

Type of expert	Institution	Person	Position	Connection
Housing research & advocacy	MIDS	Dr. Karen Coelho	Chairperson	Snowball, Dr. Maartje Van Eerd, Thesis co-supervisor
Environmental advocacy		Mr. T K Ramkumar	Member of the Madras HC Monitoring Committee on Adyar Creek Development	Snowball, Dr. Karen Coelho
Architecture professor	Hindustan university, architecture department	Prof. Karthikeyan	Professor	Snowball, Dr. Banashree Banerjee, Thesis co-supervisor
Civil Engineer	Anna university Transportation department	K.Gunasekaran	Professor	Purposive
Resettlement advocacy	IRCDUC	Ms. Vanessa peter		Snowball, Dr. Karen Coelho
Environmental and social advocacy	Vettiver Koottamaippu	Mr. Nityanand Jayaraman		Snowball, Dr. Maartje Van Eerd, Thesis co-supervisor

Table 4: non-governmental experts' interviews

Dr. Karen Coelho wrote several articles on Chennai's resettlement and water and infrastructure projects. While Mr. Ramkumar was among a group that placed a court case against the government's pollution of the Adyar creek, and was later a part of the monitoring committee appointed by the Madras High Court (HC). The group placing the case was led by the Citizen Consumer and Civic Action Group (CAG).

Ms. Vanessa co-authored community-based reports on the effects of resettlement in Chennai generally and Perumbakkam specifically. Mr. Nityanand is a writer and researcher based in Chennai investigating and reporting on corporate abuses of environment and human rights. Mr. Karthikeyan coordinated a course project for undergraduate architecture students on the Cooum

river restoration. Finally, Dr. Gunesakaran, prepared a pre-feasibility study for the Elevated road project being implemented along the Cooum.

#### Expert Interviews: Real estate companies

Found through online search, 3 real estate agencies were interviewed near the Cooum river case study area. In addition to one interviewed company which was located near the Adyar park project (purposive). Another one interviewed was reached through a connection of the Anna university student and interpreter in this research Madhan Kumar.

#### **3.4.2 Secondary data collection**

Secondary data included reports, laws, and – and the river front development plan.

- Report of the Comptroller and Auditor newspaper articles. All documents include qualitative data, while the reports include quantitative data on some of the indicators. These documents included:

- Three volumes of the final ICRERP report, that was prepared by LKS consultants and submitted to TNUIFSL based on the request of CRRT: the executive summary (available on the CRRT website) – the social assessment report General of India, on the Performance Audit of Flood Management and Response in Chennai and its Suburban Areas.

-The report “A Baseline Study of the Impacts of Resettlement in Gudapakkam and Perumbakkam” prepared by Dr. Karen Coelho, chair of the Madras Institute for development Studies (MIDS), Ms. Vanessa Peter as part of the Information and Resource Centre for Deprived Urban Communities (IRCDUC), and A.D. Nundiyny (Uravugal Social Welfare Trust). Sponsored by TNSCB, and The Indian Council of Social Science Research.

- The Report “From Deluge to Displacement: The Impact of Post-flood Evictions and Resettlement in Chennai,” prepared by the IRCDUC, and the Housing and Land Rights Network (HLRN), New Delhi, 2017

- Summary of an ICRERP participatory session by “Transparent Chennai”.

- 3 Laws: “The Tamil Nadu Protection of Tanks and Eviction of Encroachment Act, 2007”, “The Tamil Nadu Slum Areas (Improvement and Clearance) Act, 1971”, and “The Tamil Nadu Land Encroachment Act, 1905”

- CMA Masterplan maps, released by CMDA in 2008.

- 17 newspaper articles.

- Google earth historic imagery.

## 3.5 Validity and Reliability

### 3.5.1 Reliability

While almost all interviews with experts were conducted in English, interviews with residents and users were mostly in Tamil, which the researcher does not speak or understand. The researcher depended on the instant translation of 3 interpreters, each for a number of the interviews. The interpreters were post-graduate students from Anna University's school of media science. Therefore, the use of certain terminologies in their translation of the interviews may be in many cases related to their intellectual or political background, or misinterpreted based on the researcher's understanding of these terminologies in a non-Indian context. The interview transcriptions will include a mention of the interpreter, and how each interviewee was approached. Moreover, the resident / user interviews are triangulated with non-governmental interviews and reports, and government interviews and reports. Nevertheless, the conversation flow between the researcher and non-expert interviewees would have been more enhanced if the researcher was more familiar with the Indian context and the Tamil Language.

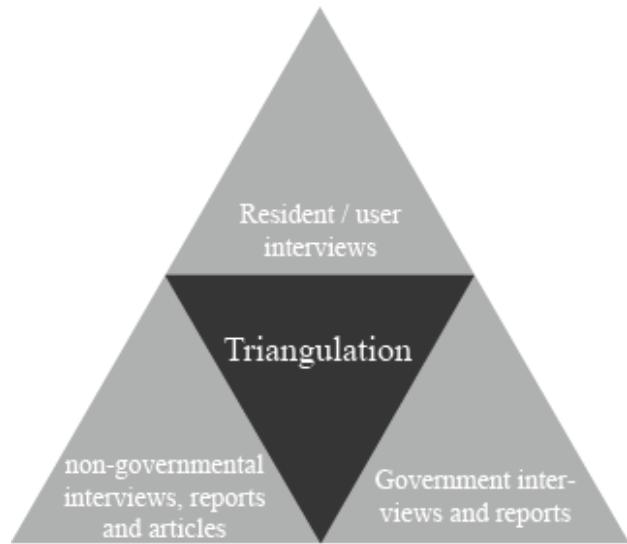


Figure 5: triangulation

### 3.5.2 External Validity

The recent existing literature on similar cases of urban redevelopment, restoration and beautification in other Indian cities is discussed in the literature review, and is regarded within the analysis. Both Doshi (2013) and Desai (2012), discuss the relevant concepts of “accumulation by differentiated dispossession” and “flexible governing” respectively, in addition to their review of other relevant cases and authors.

The operationalization depends on comprehensive definitions of land benefits, tenure and rights from literature that is applicable to many contexts.

### 3.5.3 Internal Validity

Prior to collecting the data, the researcher conducted a phase of pilot investigations on the Cooum river front, to understand the characteristics of different riverfront areas, as well as the progress of the ICRERP, to prepare a representative study.

Coding the data reviews and adds to the ways the concepts are manifested in literature, especially in listing the benefits drawn from land resources which works as the theoretical foundation for the research.

## 3.6 Data Analysis Techniques

The available data (interview transcripts, reports, laws and articles), was coded using Atlas.ti. The documents on the software were divided into 4 groups for interviews (government officials – other experts – resettled residents – surrounding residents) and 4 for other documents (Government reports – non-governmental reports – laws and government orders – press articles). Then the codes were created within 5 code groups (Capabilities – landuse changes – landuse constraints – citizenship – land rights, endowments, and entitlements), within each

code group, the codes were created to describe indicators, one or more codes per indicator to describe different ideas within.

Coding was performed in an inductive manner, where codes for relevant concepts were added while writing, such as the concept of “definition of encroachments” within the citizenship variable. Also, a definition of the existing indicators was developed further through coding, to judge which situations and quotations are best explained by which indicator, as the two similar indicators on “job proximity” and “commercial profit and agglomeration”.

After coding, the query tool was used to review the quotations related to each code, by each respondent or document group, then the description and analysis was written for each. In the cases where codes were found describing similar ideas, the “or” set operator was used, to validate that quotations overlapped.

The way the description and analysis were presented in Chapter 4 shifted between a division based on indicators then respondents, or respondents then indicators. For capabilities, a subjective approach is suitable, unlike ownership.

## Chapter 4: Research Findings

The chapter will be divided along the research variables ordered similar to the research questions, then subdivided according to relevant indicators or agent groups.

### 4.1 Capabilities of land resources

The land at question from which capabilities is studied, is the riverfront land planned for a park at Thousand lights. As capabilities are considered subjective and dependent on the agents' priorities and choices. The capabilities within the case here are defined according to the different agents. The ones engaging with the project here are: the former residents within the project boundaries (resettled residents), the Cooum river, public interests as defined in the ICRERP, the surrounding residents, and new project users, who are not possible to measure, as the project is not completed yet, but whose circumstances are outlined.

#### 4.1.1 Resettled residents

With the resettled residents, the comparison includes the capabilities of the resettlement site land, to study how their land-related capabilities may strengthen or weaken (bring more or less well-being), or some of the capabilities disappear or arise.

The project affects around 13,000 families (LKS India Pvt Ltd. a, 2014), with resettlement as the only action taken so far to deal with the PAFs. Through interviews, the ICRERP final report and other non-governmental reports, several land capabilities were mentioned and discussed.

#### Flood risk reduction for resettled communities

River side dwellers on the Cooum, were among the worst impacted by the severe floods in Chennai in 2015. Following the flood, the Chief Minister of Tamil Nadu, announced that the impacted families were to allotted units in resettlement sites in Perumbakkam and Kannagi Nagar (Peter, 2017). Although the ICRERP report reached this conclusion before the floods (LKS India Pvt Ltd. a, 2014), many river-front evictions took place after the floods mainly announced under the goal of post-flood rehabilitation (Peter, 2017, HIC and HLRN, Housing and Land Rights Network, 2017). A process that the IRCDUC & HLRN report (Peter, 2017) describes as disaster-induced displacement. The report compares the 2015 displacement to displacement that followed the 2004 tsunami. The Madras HC ruling that ordered the relocation of Cooum river side families (including 603 families at Thideer Nagar), mentioned the flood risk affecting the families (Imranullah S., 2017).

Though before fieldwork, the researcher has used the indicator (flood risk reduction) as the same for different affected groups, coding was done in a way that differentiates between flood risk reduction for resettled residents, and surrounding residents and the city. As options offered for the two groups vary.

Based on interviews with the resettled residents, while living along the river, they were affected by the flooding, although how much it was a problem varies in description, from making it difficult for them, to not being a big issue. During high flood times, schools and churches housed harmed residents, or they went to a higher area for a few days, then returned. Many times, when asked about flooding, the respondents would mention their improved flooding state, then follow it with mentioning other advantageous points of living near the river, showing how they thought of them in connection.

The interviewed former Thideer Nagar families said that they were told that they are resettled because they are living in a flood-prone area, unlike families from Chetpet who were also told another reason for their resettlement was the construction of the elevated harbour road. Since the former Thideer Nagar residents were only moved in 2017, (they mentioned November or

December), when they were asked whether the Perumbakkam resettlement site provides more safety from flooding, respondents replied that there have been no big floods like those from 2015, so it is hard to judge. Chetpet residents who were resettled much earlier to another resettlement site (Kannagi Nagar), (around 10 years ago), mention problems of stagnated water following rain, that could not be drained easily from the low-lying area, as well as power-cut problems.

The ICRERP plan, in the social assessment report (LKS India Pvt Ltd. c, 2014) explains the project's approach to slum areas (all landuse change within the proposed park area has been of a slum area). The report says that such areas were analysed for their flood risk, encroachment on the right of way line and the suitability to the river front. It also mentions among the project benefits that it increases the safety of people living and working near the river (LKS India Pvt Ltd. a, 2014). The detail of how the projects improves the safety describes three options for the affected families in slums, in-situ development, in-situ reconstruction, and resettlement & rehabilitation. The on-site options make sure that after the project, housing units are not in flooding risk, with the in-site reconstruction on a distance of 10 meters from the 200m flood line. These on-site options require clearances, especially from the Coastal Regulation Zone (CRZ) notification. This, along with the fact that resettlement units were ready and available in the TNSCB resettlement sites, are described as the reasons that TNSCB preferred the resettlement and rehabilitation option, also citing the risk for the river-front dwellers and the need for "immediate remedy" (LKS India Pvt Ltd. c, 2014, p.60).

Interviews with resettled residents mentioned the 2015 flood as a strong event, that was connected to their resettlement, even if it was preceded with other floods. However, respondents from surrounding residents also recall previous flood incidents that led to resettlement.

### Job Proximity

Unlike flood protection, this capability is one of the generic urban land location values, proximity to jobs and social infrastructure, expressed in saved transportation costs (including time). These two codes are specific to resettled families as the project doesn't plan new users that would live or work in the riverside area.

The (Coelho; Peter, et al., 2018) study that examined all the population of Perumbakkam, shows that although 94% of the population were employed before resettlement, 12% of this percentage lost their jobs after resettlement, with women much higher in percentage. The modes of transport for the vast majority changed from walking (around 60% before to 1% after), and short periods to other modes and higher periods as well as higher costs (44% of the population used to pay under Rs.10, to 41% paying over Rs. 80). Even though the Perumbakkam area is near the IT corridor, 35% claimed that there's a lack of nearby jobs, suggesting that the available nearby jobs is not considered as a capability for them. The (Peter, 2017) report that specifically studied the post-flood displaced population also shows that 75% of the population commute more than 21 km, 67% take more than 2 hours, and the majority spends 50 to 100 Rs.



Photograph 1: Example of an ad in Chennai promoting the land value of job and services proximity, by author

Many of the Thideer Nagar resettled respondents describe the difficulties that relocation brought to finding jobs. The unsuitability of surrounding opportunities, and the need to travel for long distances and periods are mentioned. Due to the lack of social mixing in the surroundings, women who used to do domestic work find difficulty getting jobs in the new sites. On the other hand, a construction site worker whose work depended on travelling to far site, mentions no changes in his job routine. Not only the availability of opportunities is relevant but also the quality, as some mention that even after finding new jobs, salaries gained are much less, including a respondent who took on tailoring as part of the TNSCB rehabilitation package.

Those who are self-employed are harder to separate whether their capability derive from proximity to profitable places, or from the agglomeration and commercial profit derived from the land location. Especially that some shift from fixed shops, to mobile street vending and vice versa.

Within the Thideer Nagar residents, drivers tend to travel and work in the city center, some who depended on selling street items are not able to find market nearby. A respondent with disability who used to depend on street selling, specifically mentioned the difficulty in travelling, decreasing even more his capability to use the new site to work. The disaster displacement report (Peter, 2017), also recommends that resettlement happen into mixed areas, with more distribution, so as to not isolate the poor resettled communities.

#### Commercial profit and agglomeration

Among those who were self-employed, from the Thideer Nagar families, are those who used to set up small shops for tea or small meals, as part of their houses in the previous site. While there have been street stalls selling various items in the street in the Perumbakkam site, some residents complained that they were not able to do the same, because of tension and fights between groups coming from different neighborhoods.

In Chetpet, a group who had returned from the resettlement site, who was selling handicrafts items on the side of a large street, claimed that they have been selling the same items in that location before resettlement, then returned to sell, and tried to keep living in Perumbakkam and commute daily, but mentioned the long distance, and their inability to safely store the items in Chetpet, therefore they started living there to guard their merchandise. In Pudupet, a more commercial area famous for motor vehicle repair shops, removed river-side shops were given a location in an area called Auto Nagar, respondents considered it a bad area for their business as it is disconnected from the other surrounding repair activities, that together attract customers. In both areas, the elevated road project and ICRERP overlap.

#### Proximity of social infrastructure

As for social infrastructure, as hospitals, schools, and other services. The post-flood displacement report (Peter, 2017) describes that 99% of respondents reported access to public health facilities before relocation, and that this percentage flipped to 91% using private facilities, due to the lack of public ones in the area. For education, 16% of children were reported to be out of school / integrated child care centres. The Perumbakkam baseline study describes the school journeys (for all resettlement site residents, not necessarily from ICRERP): 62% of students travel over 15km compared to 5% before resettlement. For healthcare, most residents in Perumbakkam travelled less than 5km for minor illnesses, but more than half travelled more than 20km. During interviews, respondents elaborated that nearby school and hospital fees around Perumbakkam were much more expensive than it was before relocation. So, they either suffer with high costs or travel long distances.

## Utilities

Respondents described that post resettlement, they have water and sewage connections, and toilet facilities inside their houses. Previously they used water and sewage tanks. For electricity some respondents mentioned paying bills, and some said that they didn't use to pay bills before as connections were illegal. Finally, there were complaints that the state street lighting, contributed to the lack of safety, and the threats of personal harm.

## Social connections

Resettled residents described the process of settling on the riverfront, over time, people gathering through connections with distant relatives and friends of friends, and building ties. The sudden change of concentrating communities from different areas in Perumbakkam results in inter-community clashes. One respondent describes it as follows:

*"In any area they used to have one rowdy, he will be there, but if 10 areas are put together then they have 10 rowdies, so between the 10 rowdies there are clashes, who is the top, most superior."*

Box 3: Quote on social tensions (Alahwal, 2019b)

### **4.1.2 Public interest per ICRERP**

The project goals and benefits are targeted in the project plan for the citizens of Chennai. The following capabilities are extracted from the project plan, and later analysed for the process of determining the public interest and who and what constitutes the citizens regarding riverfront restoration.

#### Increased river flood capacity

Among the project goals is improving the river flood carrying capacity, which would simultaneously protect Chennai's residents and respond to the river's peak water events. Due to the lack of space within the urban areas surrounding the Cooum, the adopted approach to Flood inundation is river channel improvement, which includes widening and deepening to the riverbed, as opposed to adding flood retention basins (LKS India Pvt Ltd. a, 2014).

The details of the flood inundation plan were not reachable, therefore whether the park has a role for the river's flood capacity is not explained. According to the project plans, no significant increase of the non-monsoon water course is using the former Thideer Nagar site (see map 9 in section 4.2.1).

On the site, bund-like debris and earth fill are installed, also ground level outside of the non-monsoon water course (in a section of the park location) is decreased. However, these two measures are not mentioned in the executive summary's inundation plan, or list of sub-projects nor are their specifications or capacity, which can mean that they are temporary measures or a by-product of the desilting and demolition processes. In the press, bunds were described by a PWD official to help stop encroachments (Express news service, 2019a, Express news service, 2019b).

#### Improved Water Quality

The ICRERP takes several actions for improving the river water quality, the research will focus on those related to the use of the riverfront land. Improved water quality is considered a priority for the project's further steps of eco-restoration (LKS India Pvt Ltd. b, 2014). The project plans the total plugging of raw sewage outfalls into the river, through intercepting and diverting flows and installing 6 in-situ sewage treatment plants (STPs) (LKS India Pvt Ltd. a, 2014). No plants are planned in the park location; therefore, it is not related to landuse change, and the nearby STP in Chetpet is not constructed on the location of the former squatter settlement area. For the laying of interception and diversion sewage pipes, the 3 approaches to slum occupied land

were assessed. No development would keep the current situation, in-situ reconstruction would hinder the sewage network development, and resettlement would enable it, as well as a mixed approach (LKS India Pvt Ltd. c, 2014).

Critics point to the non-slum river-polluters whose pollution is not solved by the network installed in the slum relocation areas, including amounts from the official city sewage network, and sewage in city stormwater drainage (Transparent Chennai, 2013, Mariappan, 2011, TNN, 2017, Alahwal, 2019a). This coupled with the diversion of water feeding the river for water supply purposes (Gopalakrishnan, 2017), led to most of the river's flow in the dry season being sewage (Bunch, 2008). So far, the pollution situation is not improved (Sureshkumar, 2019), and the project is not finished.

### Prevention of Squatting

The riverside Langs Garden park in Pudupet, was established between 2009 and 2011. Before being demolished for ICRERP in 2019 (Express news service, 2019b). Surrounding residents recite an interesting history of the park. According to few respondents, the location where the park was, used to be squatted on by different groups, who were evicted several times since the 1970s till 2008. According to one respondent, evictions also happened because of flooding. After one of the evictions, a wall (fence) was constructed but it didn't stop new squatters. It wasn't until the construction of the park that squatting stopped, to the extent that several of the respondents claimed that park construction consciously serves the purpose of preventing future squatting.

Indeed, prevention of squatting is planned within the project. A PWD official stated that the construction of riverside bunds is important to prevent encroachments (Express news service, 2019a). According to the riverfront development plan, parks, walkways, and new river vegetation areas will be fenced to prevent encroachments and solid waste dumping (LKS India Pvt Ltd. b, 2014), although only fencing without uses has not been efficient in the Langs garden case. In the Thideer Nagar site, bunds have been installed, and surrounding residents expected of a wall to be built.

The same purpose of preventing squatting has been mentioned in a feasibility study of the harbor elevated road project running along the river (Coelho and Raman, 2010b).

### Beautification

The riverfront development plan has the design goals of achieving connectivity and enhancing the river's natural charm (LKS India Pvt Ltd. a, 2014), but without a clear definition of what constitutes the naturalized riverfront, especially with the elevated harbor road project ongoing along the river bank simultaneously. The elevated road is not mentioned in the ICRERP summary or riverfront development plan.

The three directions for riverfront development, were either completely urbanized, completely "naturalized", or mixed. The mixed approach means that there would be a continuous riverfront, that could be alternating between the two sides (LKS India Pvt Ltd. c, 2014). The riverfront has been divided into four categories of actions; Riverfront improvement (of acceptable situation with more vegetation), riverfront development (where a proper riverfront needs to be developed), urban renewal (where urban form needs to be changed so that the city looks to the river instead of giving its back to it) and urban regeneration (where landuse needs to be changed because of the river's ecological and flood performance) (LKS India Pvt Ltd. b, 2014). According to the ICRERP plan, the justification of big changes to the urban form mainly follows river functions, and beautification follows within the new form decisions.

Within the park site at Thousand lights, "pleasant environment" is provided for citizens through lawns and viewpoints (LKS India Pvt Ltd. b, 2014). Since, the project is not finalized, it has

been difficult for interview respondents to give their opinion on the value of beautification. However, according to Transparent Chennai's summary of the ICRERP public hearing session (2013), a few of the attendees welcomed the idea of a beautiful riverfront like Singapore and London. Some surrounding interview respondents (outside the slum-designated area) welcomed the idea of development that will make the area nice, but without a clear idea of what is happening in the project or how it will look like. Some of the resettled residents mentioned how they are labelled ugly or dirty, and therefore removed of the city center, but they are still somewhere else in the city and still are getting "dirtier", posing the question of beautification of and for whom.

### Recreational activities

Among the project benefits described was that Chennai citizens can enjoy nature through walking and cycling in walking and cycling tracks, the planned parks also include children playgrounds and food court areas (LKS India Pvt Ltd. a, 2014). The crowdedness of open spaces like the Marina beach, indicates the need for public spaces in the city. The case study park at Thousand lights includes playground and food court areas, but no cycle tracks or walkways (LKS India Pvt Ltd. b, 2014).

It is not possible to know who the visitors of the park will be. Through interviews with park users and surrounding residents of the narrow riverside parks in Pudupet, mainly visitors were people living or working nearby or visiting the area for another purpose. In the larger Chetpet park, the researcher observed school students' visits. Some of the resettled respondents expressed discomfort that their place of "livelihood" was turned to recreation.

Before the development of the project proposal, and before the severe 2015 floods, in 2010, The GCC Mayor stated that:

*"The river margin lands from where the huts are evicted will be developed, as parks and boating facility will be set up."*

**Box 4: Quote on recreational activities by Mayor (Peter, 2017, p. 29)**

### Commercial profit and agglomeration

The ICRERP riverfront development plan (LKS India Pvt Ltd. b, 2014) allocates spaces for food courts, as well as access to the river for navigation (boat facilities). However, since the ICRERP parks are not yet built, it is not possible to tell who benefits from the introduced commercial activities within the park, what is its profit and how it is levied, since the management of those is not set in the plan. A nearby example is the Chetpet lake eco-park commercial activities (food area), and boating platform. However, unlike the Chetpet park, riverside parks are much narrower in width, that they were described by a CRRT official as not having enough space for big size commercial activities as in the Chetpet lake park.

### Groundwater Recharge

The project contributes to increasing groundwater recharge, through the removal of sludge and desilting from the riverbed (Alahwal, 2019f). Additionally, groundwater recharge is improved the creation of permeable soil layers in the planned parks and vegetation areas (LKS India Pvt Ltd. a, 2014). It is not clarified with regards to the park design, especially that most of the park area is defined as walkways.

## **4.1.3 Surrounding residents**

### Flood risk reduction

The surrounding areas to Thideer Nagar has also been affected by the flood, residents in the Nawab Land area also experienced flooding "till the second floor" (Alahwal, 2019g) in houses nearer to the river. Even though no relocation or in-situ reconstruction has been implemented

to ensure their safety, bunds have been installed on the area's edge within the planned park location (photograph 2), even though they were not part of the inundation plan. In the Chetpet area, some residents in tents claimed to have returned after eviction and install their tents over the bunds, mentioning that the higher ground level over the bunds is safer.



**Photograph 2: Bunds in front of the Nawab Land area in Thousand lights, by author**

### Real estate gains

The riverfront area values are affected by many factors. Based on interviews, most people in Thideer Nagar built their own houses and lived there, with only small shops as other non-residential uses. However, the neighbouring, more formal Nawab Land area has an especially noticeable large number of hotels, that respondents mentioned were houses that got sold in recent years to outsiders, who repurposed them to start hotel businesses. Respondents tie this change to the construction of the nearby Apollo hospital. Being in the favourable location, as well as being formal, therefore included in the formal market, created the profit for owners in Nawab land. Other formal riverside areas in Thousand lights are not interrupted by the project, and right next to the former Thideer Nagar site, a new 3,700 square meter project is being constructed.

How ICRERP would affect real estate values was asked to several real estate companies that operate near the riverfront. There's been a general statement that real estate prices have been stagnant in Chennai recently. Moreover, more activity takes place in the growing peripheral city regions than the center, as very few can afford the center. However, there were expectations, that if the project manages to achieve its goals of cleaning and gets completed, it would increase prices because of improved hygiene and decreased flood risk. Skepticism to the project arise as previous attempts to clean the river didn't achieve this goal. One agency mentioned that more people are willing to buy property now in the riverfront Nungambakkam area, after the project's start, even though prices have not changed. The project doesn't include a land value capture scheme to collect special gains from ICRERP.

#### **4.1.4 River system**

Capabilities mentioned here are based on the river agency, to participation and capability and should be related to riverfront land. Agency of participation is discussed in detail in citizenship,

### Improved Water Quality

As mentioned before, the amount of river water flowing in the river is very low compared to the amount of sewage. As most non-monsoon river water is diverted before the city into reservoirs to be used for the city's drinking needs. During interviews, experts stated their concern on how this current state will help achieve the water quality goals (Alahwal, 2019a, Alahwal, 2019d).

### Increased river flood capacity

The agency of the river is represented in flooding events (although the citizenship chapter discusses the human and non-human components of flood). The result of such action can be the allocation of land to be used for water storage during flooding event, which is not within ICRERP's strategy.

### Ecology enhancement

The project includes plantation of native non-edible plant species along the river in widths that vary from 2 to 18 meters based on the available amount of land. It is also dependent on the success of improving the water quality, and river flow. Both Adyar and Chetpet eco-parks depend on rainwater harvesting as their water source, in addition to backwater (mixed river and sea water) in the Adyar park, therefore the challenge of using river water for irrigation is higher, and so far, not achieved.

#### **4.1.5 Other non-discussed capabilities**

Some of the coded capabilities were dismissed in the writing phase. The decrease of water borne diseases was mentioned as a benefit in the ICRERP executive summary, but through the interviews it wasn't given much attention by respondents. The security of uses (residential or commercial) was coded as a capability, then instead, it was explained as the security of tenure and practice of rights as an overarching factor over other capabilities. River transportation was mentioned by resident interviews as an activity that used to take place in the past when the river was clean, but is not mentioned in the project reports, instead, only boating facilities are mentioned, and a target of transportation is not explicit. The use of river water for cleaning and cooking used to happen by the residents in the past, but the river water quality plans, do not intend to reach the stage of safe human consumption.

## 4.2 Landuse changes implemented through the project

The case study area is the site of the planned riverside park in the Thousand Lights area. This chapter starts by tracking the designated and de facto changes to Landuse, then it reviews the landuse constraints. Maps presented here use google earth historical maps, the CMA masterplan landuse maps website (CMDA, Chennai Metropolitan Development Authority, 2008), and the ICRERP riverfront development plan (LKS India Pvt Ltd. b, 2014). The overlapping of maps is done by overlapping raster images, and not geo-referenced maps, therefore there might be small shifts between the maps.



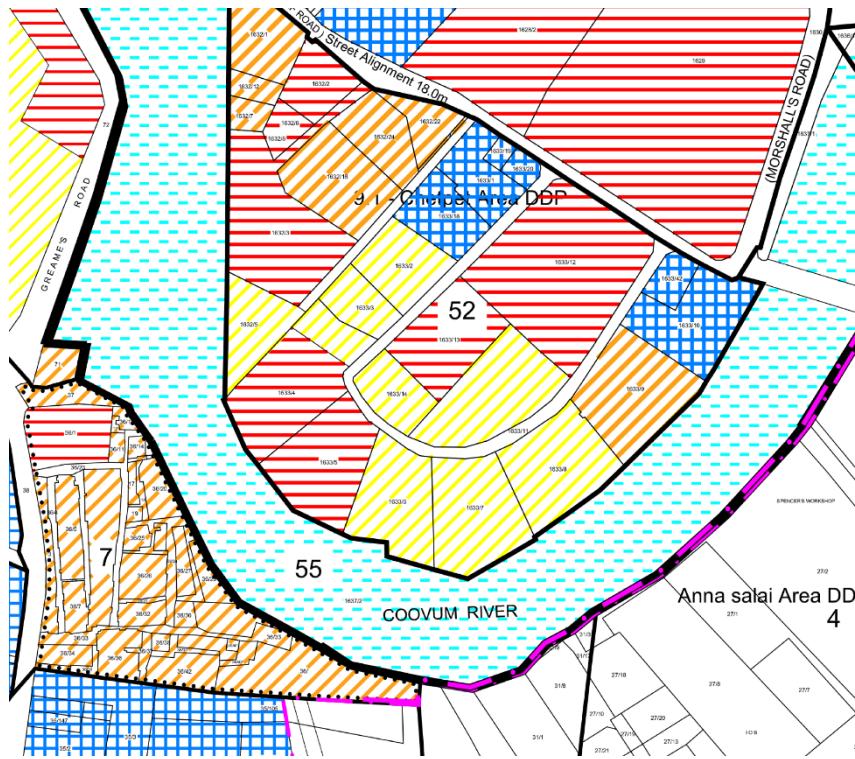
**Map 2: Case study Location after resettlement (4/2019), with park area marked in green, and Thideer Nagar area marked in red. Sources: Historical google earth maps and ICRERP riverfront development plan (LKS India Pvt Ltd., 2014)**

### 4.2.1 Landuse Changes

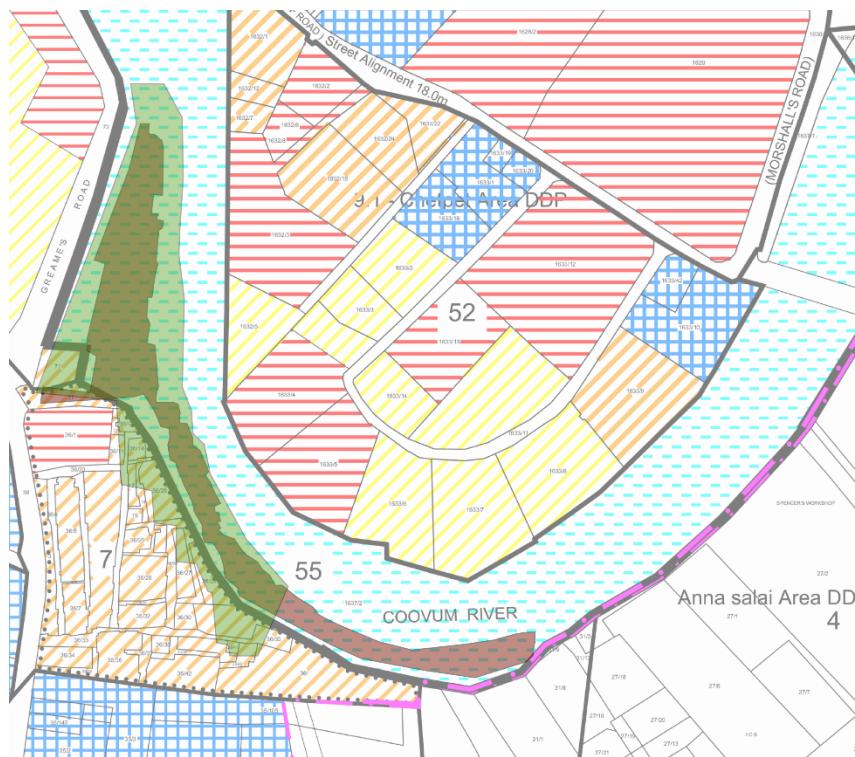
Through analysing designated and de facto uses before and after the project.

#### Designated Landuse before the project

The CMA second masterplan was released in 2008. The below maps show what allotted Landuses exist within the park project area. Most of it is designated as river (dashed cyan), and a smaller part is designated as mixed residential (striped orange).



**Map 3: Case study Location in masterplan, key: dashed cyan = river - striped orange = mixed residential, source: Second masterplan Land use maps (CMDA, Chennai Metropolitan Development Authority, 2008)**



**Map 4: Case study Location in masterplan, Key: dashed cyan = river - striped orange = mixed residential – green = park area – Dark red = Thideer Nagar, Sources: Historic google earth maps, Second masterplan Land use maps.**

#### De facto Landuse before the project

Based on non-monsoon water courses, and a map from just before resettlement (July 2017), the park area mostly contains the Thideer Nagar squatter settlement, and a small part of it overlaps with the Nawab Land area, it also contains part of empty land that is used only as a riverbed or bank.

The resettled residents of Thideer Nagar describe it as one storey residential houses with metal sheet roofs, in addition to stalls for tea and small meals, that were a part of those houses. The Nawab Land area, on the other hand, has more varying concrete building heights, up to g+5, with various commercial activities in ground floors, and a significant presence of hotels.

The below map shows the average non-monsoon river water in pre-resettlement historic maps available on google earth. Most of the available maps are not in northeast monsoon, and river flood period (October to December), and it is not representative of special events, as the 2015 flood, when according to surrounding residents' interviews, the river water reached the main road, covering almost all of Thideer Nagar and Nawab Land.



**Map 5: Actual Landuse before the project (7/2015), Key: green = park area – Dark red = Thideer Nagar – Salmon Orange = Nawab Land – Blue = non-monsoon river water course, Sources: Historic google earth maps, and ICRERP riverfront development plan**

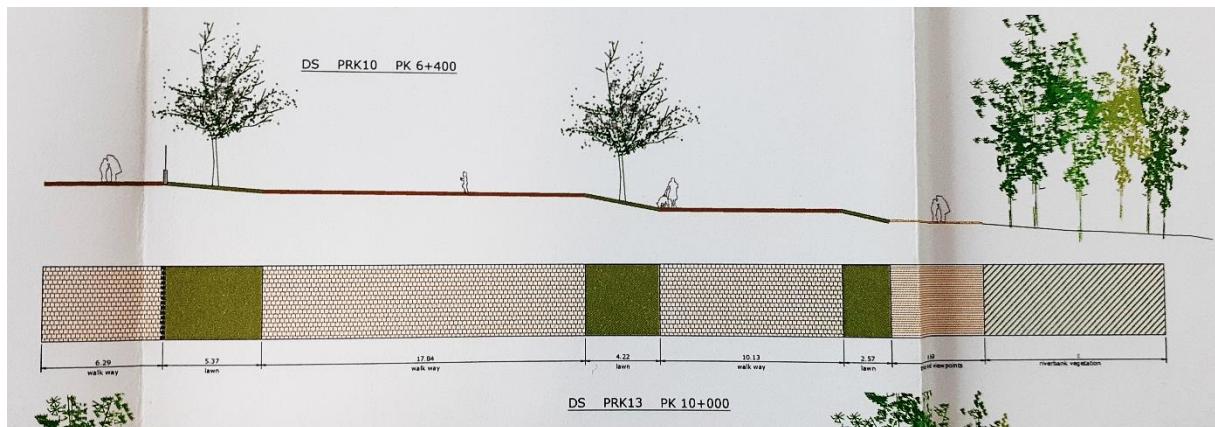


**Map 6: Flood time image from the 8th of December 2015, Sources: Historic google earth maps**

#### Designated landuse after the project:

Different types of landuses are labelled as parks in Chennai, the riverside park, at Langs garden Road in Pudupet, contained green landscape, seating. The riverside one at the Marshalls Road near the C in C bridge, additionally contained a playground. The Adyar eco-park, is a nature reserve with limited public access, while the Chetpet lake park, contains next to green areas, food courts and boating facilities as commercial activities.

As part of ICRERP, the riverfront has been redefined through 24 parks, in addition to walkways and cycleways. The planned park at Thousand Lights, contains green areas, steps and platforms, and playground and food court areas. Through the park runs a series of stairs and ramps, to the riverside of the stairs (east) are bushes (riverfront vegetation), and on the other (west) side of the stairs are the other activities.



**Figure 6: Section through the park, left to right: fence, lawn, walkway, lawn, walkway, lawn, stepped/ramped viewpoints, riverfront vegetation. Source: Riverfront development plan (LKS India Pvt Ltd., 2014).**



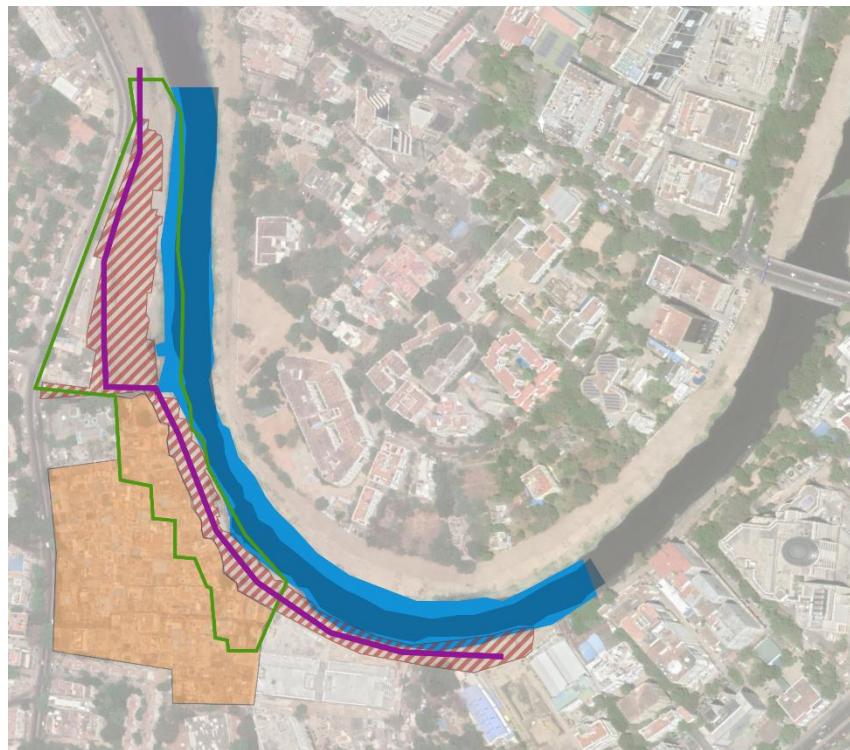
**Map 7:** Park plan, north direction is to the left, the blue dashed line represents the limits, while the orange area with black stripes represent steps and ramps. Plain yellow areas represent playgrounds, and yellow areas with a black grid are the food court areas. Source: Riverfront development plan (LKS India Pvt Ltd. b, 2014).



**Map 8:** Park plan, green = whole park limits, yellow = stairs and ramps area that separate the riverfront vegetation part from the rest of the park. Sources: Riverfront development plan (LKS India Pvt Ltd., 2014), google earth historic imagery.

### Current De Facto Landuse

As of the time of the research, ICRERP has not been finished. However, the non-monsoon river water course has been widened, and the Thideer Nagar area evicted. Bunds have been installed on the outer side of the evicted area.



**Map 9: Actual current landuse, Dark blue = old river water course, light blue = new river water course, green border = park limits, salmon orange = Nawab land area, Purple line = bund installation, red stripes = former Thideer Nagar area. Sources: Riverfront development plan (LKS India Pvt Ltd. b, 2014), google earth historic imagery.**

#### 4.2.2 Landuse Constraints

Changes to riverfront land use are constrained by regulations, both those specific to rivers or water bodies, and those generic to the city. For the purpose of this research, these constraints will be analysed, for their underlying environmental or social goals within this sub-chapter on landuse constraints, as well as how they are established or changed within the next citizenship sub-chapter. The focus will be on regulations bounding landuse, and not all regulations affecting the project's social and ecological aspects. The ICRERP project report cites complying with the regulations of CRZ, the Right of Way line (ROW), as well as the CMA masterplan proposed landuses. Furthermore, the river flood activity's role will be examined, as the effect of flood risk is said to be taken in consideration in the assessment of project affected areas. As well as the limitations imposed on areas declared as slums, and encroachments.

##### ROW – river Right of Way line

The ICRERP executive summary, mentions that 58 slums are affected because they lie within the river right of way line. It is usually mentioned along with the masterplan, CRZ and delimitation of slums, as criteria for actions taken against slums and to achieve urban development. ROW is also mentioned along with CRZ in relation to encroachments (LKS India Pvt Ltd. a, 2014). ROW is provided by PWD (LKS India Pvt Ltd. b, 2014), which have control over a number of water bodies (Government of Tamil Nadu, 2007).

The only definition available for ROW, in the three reviewed ICRERP documents, is in the riverfront development plan (LKS India Pvt Ltd. b, 2014, p. 16) as follows:

*“the river bank area that should be free of any obstacle for the river natural fluctuations, including ordinary and extraordinary excess water. In the Right of Way line definition, PWD lease allotment plots limit provided by PWD have been integrated as the ROW line.”*

**Box 5: ROW definition** (LKS India Pvt Ltd. b, 2014)

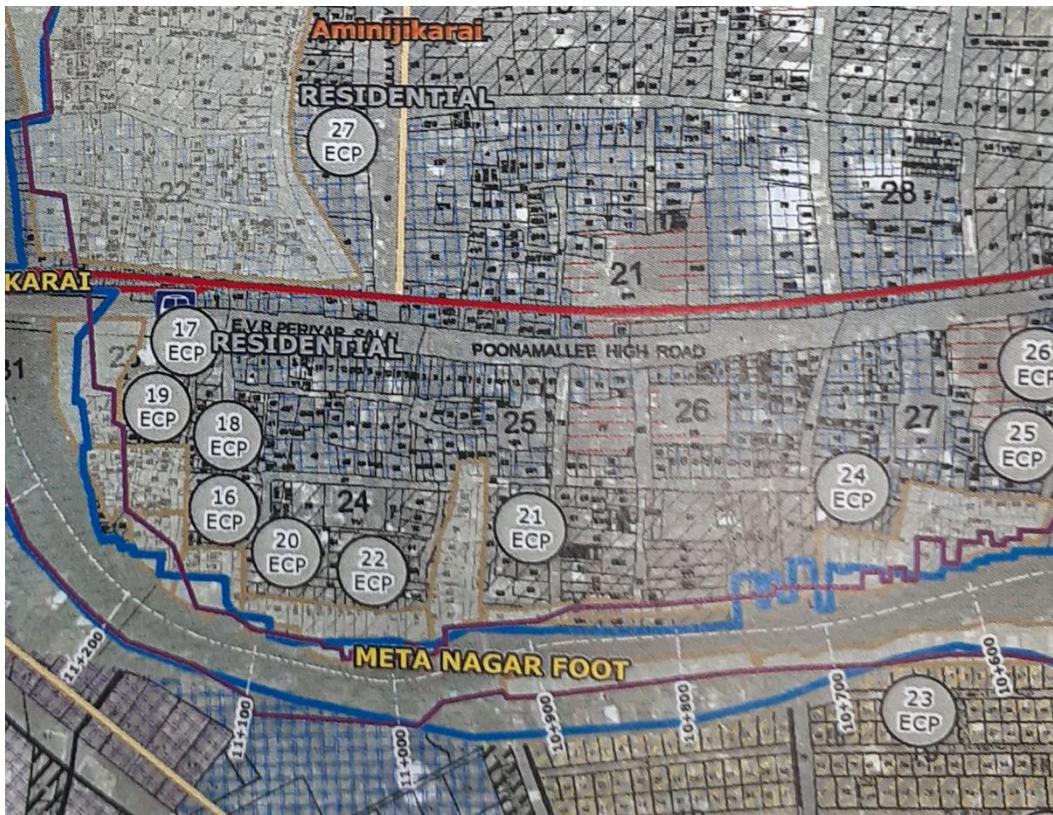
The first ambiguity about the ROW is its definition, although the definition assumes natural properties of the river, the boundary delimitation of water bodies as per The Tamil Nadu Protection of Tanks and Eviction of Encroachment Act (TNPTTEA) (2007), is done by the revenue department, responsible for the registration and ownerships of land, it is not clear that there is a role for river ecology within ROW. Second, there's no explanation of what kind of construction or land uses are permitted within the ROW, except that encroachments should be cleared. The assumption that clearance achieves natural riverscape uses that excludes all human activity is neither valid nor sought by the ICRERP plan, not valid as the river flow, course, and discharge are affected by human activity, and not sought as the plan aims to connect people to the river and includes many activities within the ROW. Third, it is not clear what are the processes of alienation connected to the land within ROW, the definition mentions that PWD leases plots within it, but how and if lands have been sold is not discussed. Which leads to the final point, of when the ROW has been established, and whether there is a cut-off date. Since the revenue boundaries are socially constructed, even officially recognized land ownerships and constructions next to the river, were part of the natural riverscape at some point, before it was agreed on to be sold and owned privately, their position and topography affects the river's natural fluctuations. Therefore, some of the squatter settlements that have been established for a period of time eligible for adverse possession, are considered within ROW for their inability to register and regularize more than the river course.

On the ground there's more confusion on the ROW, an interview with a CRRT official, confirmed that its demarcation depends on the revenue department. The demarcation is included in the riverfront development plan report of the project, which is not available publicly on the CRRT website. In an investigation in 2017 by the Times of India, where the reporter approached a realtor as a buyer interested in a river site, the reporter was told that no one knows where the river starts and where it ends. According to the article, a PWD official has said that demarcation is ongoing and will be finished soon (TNN, 2017). In the riverfront development plan maps (LKS India Pvt Ltd. b, 2014), the line includes sharp edges and small enclaves (Map 10), that resemble human constructed borders more than water flow. Mr. Nityanand Jayaraman, a writer and researcher based in Chennai investigating and reporting on corporate abuses of environment and human rights, and part of an anti-corporate collective called Vettiver Koottamaippu (Alahwal, 2019e), commented saying that:

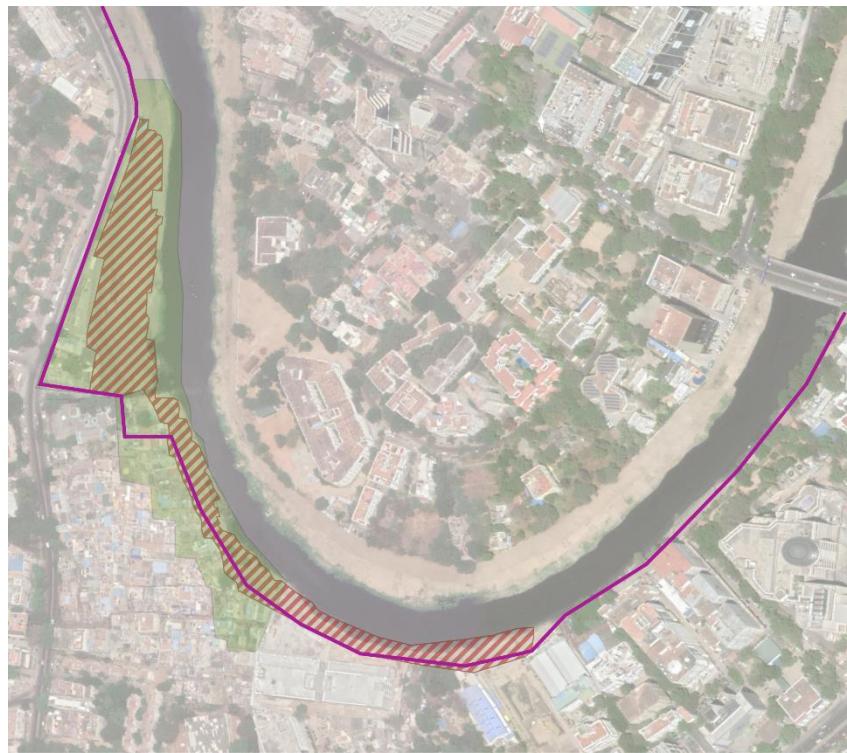
*“regarding the right of way line, it is a mystery of how and when it has been recorded, because recently about two months ago, a community that have been given titles to the land on the banks of the Cooum, about 30 years ago, that title was revoked stating that they lie inside the right of way line.” He adds “there is a process that has begun for the eco-restoration of the Ennore creek [...], there you see that the word right of way is not used”.*

**Box 6: Quote on ROW by Nityanand Jayaraman** (Alahwal, 2019e)

According to Nityanand, ambiguity does not only legitimize regularization of recent river-side constructions, but also delegitimizes regularized vulnerable communities. Its ambiguity also is in the way it is not a standard action for all projects.



**Map 10: ROW line with Irregularities and enclaves in the Aminjikarai area (purple). Source: Riverfront development plan (LKS India Pvt Ltd., 2014)**



**Map 11: ROW line in the park area (purple), green = park, red stripes = former Thideer Nagar area. Sources: Riverfront development plan (LKS India Pvt Ltd., 2014), historical google earth imagery.**

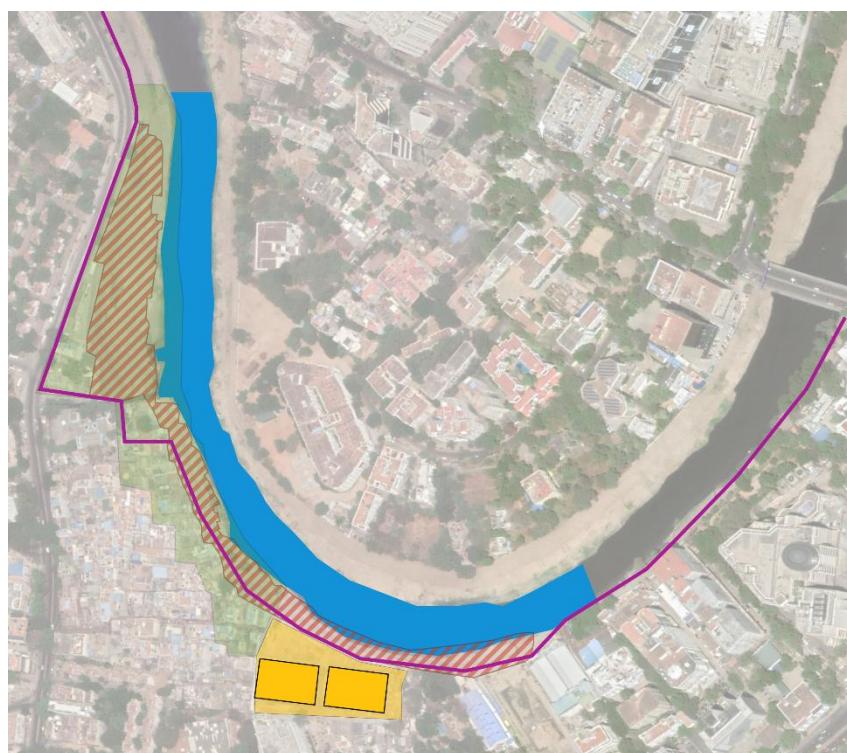
#### CRZ – Coastal Regulation Zone

The riverfront development plan (LKS India Pvt Ltd. b, 2014), explains CRZ according to the 1991 notification, as a regulation of activities in coastal zones, 500m from coastal High Tide

Line, and 100m along rivers. CRZs are divided into four categories, where the Cooum river banks fall under CRZ-II, for a length of 9km from the river mouth to the Choolaimedu railway bridge (The Thousand Lights area is 5km far from the river mouth).

This category deals with already built up areas that have drainage, roads, and other infrastructural facilities. Regulations within the CRZ-II zone state that buildings shall not be permitted on the seaward side of an existing road, while existing buildings and their reconstructions are subject to local FSI/FAR and land use regulations (LKS India Pvt Ltd. b, 2014).

The ICRERP needed CRZ clearances for the construction of STPs, walkways and cycleways, as well as resettlement units in case the in-situ reconstruction option for riverfront slum areas was chosen. Such amendment would take around one year for approval, from application to the Tamil Nadu State Coastal Zone Management Authority, to the government of TN, public consultation, and the national Ministry of Environment, Forest and Climate Change (MoEFCC), then finally accepted by parliament and ministers (LKS India Pvt Ltd. b, 2014). In 2016, ICRERP was given CRZ clearance (CRZ clearance for the "Integrated Cooum River Eco-restoration", 2016), and currently STPs are being constructed along the river, as observed by the researcher in the Chetpet area. Moreover, recent developments exist on the Cooum banks and Adyar river mouth, including next to the former Thideer Nagar site, where an ongoing construction of a 3,700 square meter building has been ongoing at the time of the research at a 10m distance from the river ROW, and around 20m from the current (April 2019) water course.



**Map 12: Buildings in CRZ near Park site, Dark yellow = buildings under construction, light yellow = land plot for buildings, Purple = ROW line in the park area, green = park, red stripes = former Thideer Nagar area. Sources: Riverfront development plan (LKS India Pvt Ltd. b, 2014), historical google earth imagery.**



**Photograph 3: STP construction in Chetpet on the Cooum river side within CRZ zone. Taken by researcher in July 2019.**



**Photograph 4: Top: MRC Nagar near Adyar river mouth, December 2015. Bottom: Construction of towers in MRC Nagar area, December 2017, within CRZ. Source: Google earth historical imagery.**

### Masterplan

The CMA master plan, prepared by the Chennai Metropolitan Development Authority (CMDA), has been finalised in 2008 after being approved by the state government and after being publicized for public comments and suggestions. Its landuse maps for different regions are currently available on the CMDA website (CMDA, Chennai Metropolitan Development Authority, 2008). For the park location, the allocated uses were mixed residential and river bed, no notice in the project reports was given for a need for reclassification for the park.

### Floodplain

The executive summary explains that slum areas have been assessed for its flood risk level (2-10-100-200 year return period) (LKS India Pvt Ltd. a, 2014), but such analysis was not overlapped with slum area maps in the social assessment report or the riverfront development plan. Within the proposal for in-situ resettlement, a platform level was set for the new constructions' ground level to avoid the 100 year flood return effects (LKS India Pvt Ltd. c, 2014). The river channel has been narrowed because of urban development, from a shallow and wide course to narrow and deep one, (LKS India Pvt Ltd. a, 2014) affecting flood areas.

## 4.3 Citizenship as agency over socio-ecological structures

### 4.3.1 Direct Public Participation in the ICRERP project

The ICRERP social assessment report, mentions that one participatory session has been conducted to the general public, one to NGOs and academics, and one for relevant government bodies (LKS India Pvt Ltd. c, 2014). “Transparent Chennai” has written a summary of the participatory session conducted in 2013, and their views on it. They reported that regarding the session preparation, attendees criticized that not adequate advertising has been done, and that the location of the session was too far from the affected areas, and as a result, there were not many of the affected residents attending, as well as a small attendance by NGOs who talked on their behalf. When it comes to the actual process during the session, the summary mentions that there were not representatives of all government entities, that were needed to reply to inquiries, and that attendees were not given enough time to reflect on the presented material to give feedback. For many questions, the consultants didn’t have answers and promised to revert with details. Finally, for the content of the presented material, the article mentions that there were not enough details on the budget, and percentages of slum areas in flood risk, and percentages that would be rehabilitated in-site or resettled (Transparent Chennai, 2013). Another article by the Hindu mentions that various participating NGOs asked for the plans to be available publicly as well (The Hindu, 2013), although CRRT mentioned to the Hindu that the report will be available on the TNUIFSL website (The Hindu, 2013), only the executive summary is available now online on CRRT’s website.

The executive summary lacks much information on the details of flood affected areas, conducted surveys, flood plans, riverfront development plans, and the used criteria. Those details are not accessible to affected communities nor to researchers and experts such as Dr. Karen Coelho, chairperson of the MIDS, Mr. Mr. Nityanand Jayaraman, and Mr. T. K. Ramkumar as mentioned in their interviews. Without releasing the DPRs in a suitable time, it is not possible to prepare and react (Alahwal, 2019d, Alahwal, 2019a, Alahwal, 2019e). The interviewed resettled residents weren’t at the session, and were informed of their resettlement to Perumbakkam, mostly for their safety from flooding, but with no details on the project’s goals. Rumors spread on whether the location will be used for an extension of the nearby Apollo hospital, or for the elevated road being constructed on the opposite river bank.

### 4.3.2 limiting the political in Environmental issues, and its effect on public interest and decision making for socio-ecological relations

As described above, little information is available on the project openly to civil society and the public. The project has been approved by government bodies, by CRRT in 2014 and also approved in the budget of the government of Tamil Nadu (GoTN) of 2014-2015 (G.O (Ms) No.9, 2016), therefore it should be available upon request under the conditions of the Right to Information act (2005).

However, during the development of the project report, the consultant, client and funding body were not government bodies. Based on the vision of the GoTN, and instruction to appoint consultants, CRRT has asked TNUIFSL for technical assistance to prepare the plan. Then, TNUIFSL appointed LKS India Pvt. Ltd. consultants based on the procurement guides of the Kreditanstalt für Wiederaufbau (KfW) bank (LKS India Pvt Ltd. a, 2014). The study is funded under (SMIF-TN-II: Sustainable Municipal Infrastructure Financing in Tamil Nadu program) (LKS India Pvt Ltd. c, 2014), a fund with the objective of providing technical assistance (TNUIFSL, 2013). SMIF-TN-II is part of the Tamil Nadu Urban Development Fund (TNUDF) (TNUIFSL, 2019). TNUIFSL is a public limited company, which was established as the management company for TNUDF. The GoTN owns a minority share (49%) of TNUIFSL,

even when TNUDF was composed of a majority government funding on its establishment. In creating TNUIFSL/TNUDF, the GoTN sought to create an institution:

*"that could manage resource mobilization and allocation without the burden of governmental guarantees and which was insulated to a substantial degree from the pressures of everyday politics and the demands of bureaucracy."*

**Box 7: goal for the creation of TNUDF / TNUIFSL (Krishnan, 2007, p.246).**

SMIF-TN was criticized by Transparent Chennai for being unclear, and sharing less data than public schemes as the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) and UIDAI (Transparent Chennai, 2013). Since the ICRERP project plan has been prepared as a technical report, under the conditions and goals of TNUIFSL, information during its preparation was harder to be accessed publicly and by civil society.

As the executive summary describes, water management includes several interests and conflicts, water is not a single resource but a combination of various functions and values (LKS India Pvt Ltd. a, 2014). The report acknowledges the complexity of factors and uses, and uses an ecological social framework developed by TNUIFSL, and has a framework for social entitlements to list asset losses (LKS India Pvt Ltd. c, 2014). Therefore, the principles of the study plan do not neglect social aspects, and environmental issues are not considered solely non-human. However, there was no direct participation of affected communities or civil society monitoring on the options developed and choices made. This has led to ambiguity to some concepts within and around the project that seemingly have a non-social logic, and that are not elaborated enough in the available laws and regulations, as discussed with the issue of encroachments.

#### **4.3.3 Encroachments definition**

Defining encroachments is the other side of defining the river, the statement by the realtor in the Times of India article (TNN, 2017) that no one knows where the river ends and the river bank starts, also means it is not known what are encroachments.

The law (Government of Tamil Nadu, 2007), whose goal is to provide measures for the checking and eviction of encroachments in tanks under the control of PWD, describes the process of surveying water bodies as follows:

*"The Government may direct that a survey be made, with reference to the records available with the Revenue Department, of tanks in every district for the purpose of determining their limits in respect of area and that proper charts and registers be prepared setting forth the channel and all boundaries and marks and all other matters necessary for the purpose of identifying such limits"*

**Box 9: Surveying encroachments (Government of Tamil Nadu, 2007)**

The definition is explicitly concerned with the revenue department records of land ownership. However such limits are subject to reclassification, lakes that were declared defunct were used for TNSCB projects (Coelho and Raman, 2013), urban development along the river changed the water course (LKS India Pvt Ltd. a, 2014), and it is documented the corporation of Chennai, has reclassified land use of a lake into other public uses such as a police station and an STP, a process that was deemed illegal in one ruling, in case no compensation for the effect has been done for the water bodies (Shekar and Thirumurthy, 2019), in which case the new public uses and constructions could be labelled encroachments. Moreover, in a statement to the Times of India, a corporation official mentioned that some people who encroached on the river have acquired pattas (official record of rights of land), meaning that revenue department records were changed from river to private owners (TNN, 2017), it is not mentioned what reference

year records that are used to re-survey and delimitate the river boundaries. This is confirmed in the report done by the Comptroller and Auditor General of India, which documented cases where water bodies / river courses were reclassified by the revenue department into residential areas and granted to private individuals, and was approved by CMDA (Comptroller and Auditor General of India, 2017).

In press articles, and in a petition, the large resettlement of riverfront slums stirred questions on other constructions that are near the river, as encroachments (HIC and HLRN, Housing and Land Rights Network, 2017, TNN, 2017, The Hindu, 2013, Sabrang India staff, 2017). As there is no clear information on current and historical river boundaries, closeness to the water course raises the question of encroaching. In their interviews, Mr. Ramkumar, and Mr. Jayaraman questioned constructions on the riverfront that were not considered encroachments, and recommended a definition of encroachments connected to the river's meteorological and hydrological characteristics (Alahwal, 2019a, Alahwal, 2019e)

The ICRERP executive summary mentions at one instance that encroachments on ROW and CRZ have been analysed (LKS India Pvt Ltd. a, 2014). However, areas within CRZ are not necessarily encroaches to water tanks under PWD control (as far the (2007) TNPTEEA is concerned) or under the control of any other government body (as far the 1905 land encroachment act is concerned) (Government of Tamil Nadu, 1905). Non-compliance with CRZ is therefore, informal, but not necessarily an encroachment compared to other informalities.

#### 4.3.4 Slums and resettlement

Both Thideer Nagar, and the portion of Nawab Land included in the park plan are marked as slums in the riverfront development plan (LKS India Pvt Ltd. b, 2014). According to The Tamil Nadu Slum Areas (Improvement and Clearance) Act, 1971, Slum areas are defined as:

*"Any area is or maybe a source of danger to the health, safety, or convenience of the public of that area of that neighbourhood, by the reason of the area being low-lying insanitary, squalid, or overcrowded or otherwise.*

*Or the buildings in any area, used or intended to be used for human habitation are: in any respect unfit for human habitation, or by the reason of dilapidation, overcrowding, faulty arrangement, and design of such buildings, narrowness, or faulty arrangement of streets, lack of ventilation, light or sanitation facilities, or any combination of those factors, determinantal to health, safety or morals."*

**Box 10: Definition of slums** (Tamil Nadu Slum Areas (Improvement and Clearance) Act, 11 of 1971, 1971)

Adding that a building can be deemed not suitable for habitation depending on the condition of one or more of the following aspects: repair, stability, freedom from damp, natural light and air, water supply, drainage and sanitary conveniences, and facilities for storage, preparation and cooking of food (Tamil Nadu Slum Areas (Improvement and Clearance) Act, 11 of 1971, 1971).

The definition lacks measurable indicators other than objective assessment. It is also independent of legality or formality. Yet the definition is relevant, as being in flood risk and poor health was cited as a reason for eviction of Cooum riverfront settlements in an HC order (Imranullah S., 2017).

The 1972 slum areas act describes the process for two cases of demolition, the process for demolition of a building unfit for habitation requires a period following notice to the owner and everyone holding interest in the building to showcase why the decision should not be made. While the process of slum clearance, requires that the government before the issuance of slum

clearance, should call on owners of lands and buildings to showcase why the decision should not be made, where an owner is anyone entitled to receive rent (Tamil Nadu Slum Areas (Improvement and Clearance) Act, 11 of 1971, 1971). However, the TNPTEEA does not require a defence or reply period by occupants after the giving the notice (Government of Tamil Nadu, 2007). This is related to terminologies used in documents and policy notes of the GoTN for classifying slums, where the classification ‘objectionable areas’ is used for areas near rivers, coastal and low-lying areas and road margins, although the classification is not based on law, objectionable areas are not given the declaration or improvement processes (Peter, 2017). Nevertheless, communities are not aware of whether they are declared in a notified or non-notified slum area, or a slum clearance area (Peter, 2017), or an encroachment area because of its ambiguity. One case is observed by the researcher in Aminjikarai where a slum area that is not within the ROW line is evicted as part of the riverfront evictions.

Peter (2017) reviews international human rights and right to adequate housing, forced eviction, development-based displacement, and protection of persons in natural disasters, as well as the constitutional right to life. According to the review due processes of participation and adequacy of resettlement sites were not followed. Including the UN guidelines on development induced displacement, which require a period of notice, a chance of objection, consultation and alternatives for affected communities prior to resettlement (Kothari, 2007). Similar to the study’s findings, most respondents from Thideer Nagar have not visited Perumbakkam before resettlement or were consulted on location, they were not aware of what type of scheme they are offered, some mentioned that they were told they were going to get free housing, and were surprised to find out they have to pay monthly fees.

### **4.3.5 River agency**

The river agency, through the support and harming of the lives of others, manifests in flooding events, and the ability to retain water quality standards set by the central pollution control board (LKS India Pvt Ltd. a, 2014). However, both actions are affected by the control of water flow and diversion for city water use. Based on a report on Dam safety procedures issued 1986 by the central commission, a flooding is considered man-made if the outflow of a dam exceeds the inflow flood, which was described to be the case in the 2015 floods, in the Adyar river (Comptroller and Auditor General of India, 2017).

### **4.3.6 Indirect Agency through court or elections**

Some of the Thideer Nagar respondents reported filing a case against relocation, as well as protesting to the decision. However, after resettlement they stopped following the case. They described the use of police force during eviction. When asked about parties’ positions, several respondents described that among the Dravida Munnetra Kazhagam (DMK) and All India Anna Dravida Munnetra Kazhagam (AIADMK) parties, one was for and one against the relocation of riverfront residents, eventually both agreed on the relocation. When asking if voting was affected by their positions, a respondent replied that it wasn’t. One interviewed community in Chetpet that has opposed their resettlement to Kannagi Nagar because of small unit sizes, could object through court and get units of larger sizes in Perumbakkam.

### **4.3.7 Relation to caste**

The findings study of the impact of post flood eviction show that 60% of the flood affected families are Dalits and 40% are other backward classes (OBC) (Peter, 2017).

## 4.4 land endowments and entitlements

### 4.4.1 Riverfront land

#### Legal and formal tenure

The Cooum river is among the water bodies that are under the control and management of PWD, subject to the TNPTTEA (2007). Water bodies and adjacent lands have been seen in Chennai sometimes as land in the making or as ecologically valuable sites in need for protection or reclamation (Coelho and Raman, 2013). Depending on the action taken to waterbodies it can be considered either as state lands, that can be alienated, or public land that are used for public purposes.

The perception of water bodies land as cheap government land, or state land, can be traced in dealing with the Cooum river. The elevated road project, is closely aligned along the river course, at some areas with foundations in the non-monsoon water course. Such alignment saves huge funds needed for purchasing land in the city for the project (Alahwal, 2019c). In case the project required to expropriate some of the surrounding legal plots, it would have to add to the budget the compensation for centrally located land plots. The resettlement of unregularized squatters from government land does not include compensation for land, only resettlement and rehabilitation which is covered through the funds available to TNSCB under JNNURM.

Most of the study area riverfront land is included within the river ROW line, which makes it public land, allocated for the river ecological and hydrological services, such as water retention, groundwater recharge. If the park is constructed then the public land will additionally serve other public services as recreation and beautification.

For, the smaller part of the park allotted land, outside the ROW, and within the Nawab area, local interviews claim that the area used to be owned by the Nawab family, it is not deduced whether it was a private or customary ownership, but also according to the interviews, its ownership was transferred to the government, some saying taken by the government and some saying given by the Nawab family. Other neighbouring land plots include residential and office buildings.

#### Illegality and Informality

Both Thideer Nagar and Nawab Land started as squatter settlements. However, Thideer Nagar area within the ROW, has not been given an occupancy agreement. Respondents in the Perumbakkam resettlement site mentioned that their Aadhar cards included as an address, their house number, then "Thideer Nagar, Greams road, Thousand Lights". However, they didn't have documents related to their houses or land. Some respondents said they paid electricity bills, but some said they used to have illegal connections to surrounding houses. They mentioned not paying taxes, but one respondent mentioned that 10 houses who used to pay taxes were not evicted, and another mentioned that they were advised by a politician to pay taxes to get more facilities. According to interviews most people had their own house and did not have to pay rent, while a small amount were tenants. The Perumbakkam baseline study mentions that 89% of residents in the site used to own their houses in their previous locations. Ownership here is documented as perceived by residents, and as opposed to rental and leasing, but legality is not discussed.

The Nawab land residents, although don't have a patta (record of rights to land), mentioned that they have a form of agreement and documents allowing their residence in the area, following the transfer of ownership from the Nawab family to the government. The use of the Nawab Land area in the CMA masterplan is mixed residential, which reflects the current use.

### Rights, endowments, and entitlements

Water bodies are under the control of PWD. However, water bodies can be alienated or managed for changing its use. The GoTN, may in the public interest, alienate parts of the water tank, without interfering with the water capacity, and quality (Government of Tamil Nadu, 2007). In some cases, the GoTN does reclassification of water bodies boundaries and change the use, an action that the Madras HC deemed illegal in case the effect is not compensated (Shekar and Thirumurthy, 2019). Still TNSCB settlements were built on land previously classified as lakes, even with recorded negative hydrological effects (Coelho and Raman, 2013).

The right to change landuses, and site development is also bound with CRZ regulations. The MoEFCC is responsible for approving applications to changes within CRZs (LKS India Pvt Ltd. a, 2014). Decision making processes for changes to use and development within ROW would follow CMDA reclassifications. There are no specific regulations or clearances for the river lands. Monitoring over such reclassifications have been through the HC.

Upon the project's completion, the GCC parks department would operate the park, with rights to exclude humans, and manage, deciding opening hours and maintaining uses, ecological and recreational. Although there is no fence surrounding the park allotted site, PWD installed bunds, and the project intends to install fences, to prevent unauthorized human access to parks, and to prevent all access to fenced vegetation areas. The park should allow only the right to access to human users within opening hours, however users' ability and entitlement to access would be affected by proximity, as users describe in interviews their decisions for visiting parks.

The river was given the right to access and exclude within areas defined as within the ROW line. The rights are redefined with landuse reclassifications, and are subject to park constructions. Constructions are set, and ground levels are only permitted to change by the river in the allotted riverside vegetation area. The river's right to exclude, outside of the non-monsoon course, is practiced only during flooding times. As a result, the right to exclude has been shifted either permanently (by official landuse reclassification that change topography or add protection), or temporarily in non-monsoon periods, by illegal squatter settlements. The project's method to stop illegal squatter settlements, is to officially assign and practice the right to exclude in non-monsoon times, through park uses. At the moment, non-monsoon course is widened to increase area for access and exclusion. Then, as the riverside area's height is lowered and cleared, river water boundaries are flexible to change, having the rights to access and exclude in the case of flooding. Upon the completion of park project, space is allocated to the river, followed by a stepped platform, whose slope determines the areas used by the river per flood level. Nevertheless, the practice of the right is dependent on water flow determined by upstream anicuts and water diversion for drinking usage.

Thideer Nagar residents had unrecognized endowments to access and exclude to their plots in the riverside to form residential and commercial uses, and in some cases alienate for rent. As for management, based on relations of extended families and friends, new squatters would gain spaces. The Nawab Land area residents had recognized rights to access and exclude, and unrecognized endowments to alienate. While owners of other surrounding private plots (as the neighbouring construction site) have rights to access, exclude, and alienate, and to manage within CRZ regulations. Government taking of land entitlements of Thideer Nagar is dependent on the TNPTEEA of 2007, while for the Nawab Land, it is dependent on the 1971 slum rehabilitation act.

Other, general users have rights against harmful use (the pollution of river water by riverside users). However, since CMWSSB and other polluters are able to discharge raw sewage to the

river (Mariappan, 2011), the right is not practiced. Upon the completion of the project, and the diversion of sewage outlets, the goal is to reach achieving that right.

#### **4.4.3 Resettlement site**

##### Legal and formal tenure

TNSCB provides several schemes for resettlement, for disaster-affected families of the 2015 floods, it provided free houses, while for slums, it provides the hire purchase and the rental housing schemes. The hire purchase one entails a payment of an instalment of 250 rupees for a period of time, then upon the completion of the payment of the price of the subsidised unit, the tenants are supposed to get sale deeds of the unit. While the rental scheme keeps TNSCB as the owner, who rents out the unit to slum families. The Perumbakkam baseline study mentions that most interviewed families are not aware of the scheme they are included in, and that they do not have contracts or agreements to their payments and scheme to sale deed, instead they have allotment cards (Coelho; Peter, et al., 2018)

The allotted units for PAFs of ICRERP are given under the JNNURM, in which the beneficiary pays an instalment as a 10% contribution to the unit building costs (LKS India Pvt Ltd. c, 2014), a hire purchase scheme. However, respondents were not aware of the conditions of their tenure, some claimed they were told they will get free housing and were surprised to find out they have to pay, they were not aware of how long they have to pay to complete the purchase. Although many of the respondents mentioned that the only documents, they have for the unit is an allotment card and no contract, one respondent showed a hire purchase contract for their unit.

##### Illegality and Informality

Within the Thideer Nagar blocks units, the researcher encountered one case of a non-allotted tenant. The illegal practice of renting allotted units before acquiring a sale deed, was mentioned to be rare by other respondents.

##### Rights and entitlements

The temporary hire and purchase scheme give awarded families rights to access and exclude. The right to alienate, is meant to be awarded upon the completion of payment, and awarding of sale deed. The unclarity of the sale deed process to users contribute to their ability to gain it.

Resettled families did not participate in the distribution of themselves along the resettlement sites. According to respondents, the Thideer Nagar families were resettled to the blocks 1 to 15, close to each other. In some case, residents from other areas were scattered among the blocks (Coelho; Peter, et al., 2018). The baseline study in Perumbakkam also links the threatening atmosphere in the site to the concentration of residents from different sites, and scattering along the blocks, among other reasons (Coelho; Peter, et al., 2018).

Street vending is not practically prohibited in the streets of Perumbakkam, small shacks and moving cars are used (endowment to access and manage). However, not all residents are able to practice the entitlement, as fights break over spaces. A respondent mentioned she was not able to sell in the street because of troubles from other street users. The right to manage commercial activity on the site is subject to informal rules.

# Chapter 5: Conclusions and recommendations

## 5.1 Research Sub-questions

### 5.1.1 What are the capabilities that can be drawn from land resources?

The design of aggregating individual evaluations to groups is critical to the study goal. Although, the groups are divisible further, as capabilities differ within (for example for vulnerable sub-groups as people with disabilities), the outcome focuses on the common lines among each large group.

#### Capability Priorities

Although ICRERP has a diverse group of goals, some capabilities are more central and critical to decisions related to landuse. Capabilities related to hydrology, especially flooding, are more important to achieve the project goal. Resettled communities' interviews as well, showed priorities among capabilities, a trade-off is done by users to balance and evaluate capabilities drawn from different land plots.

#### Locational proximity to city uses and functions

Post-resettlement, the PAFs' capability to use land for reaching employment was affected, in most cases negatively, due to having to travel longer periods, paying more in transportation, earning less, or losing employment. Although Perumbakkam can be considered near to the IT corridor, a job providing city nucleus, the available jobs did not contribute to the PAFs' land capabilities. The job proximity capability largely depends on whether the individual works in a fixed location, moving between different sites, or constantly moving.

Profits from commercial activities are affected whether the activity targets customers from or outside of the community. Access to social infrastructure as health and education in surrounding sites has mostly been negatively affected.

#### Riverfront services

Protecting river side residents from floods and increasing the river's flood capacity is among the project's main goals. The Thideer Nagar families, mentioned protection from flood risk as the reason they were told for their resettlement. Flood risk gained importance following the 2015 floods, as announcements and rulings were made for evicting riverfront encroachments. As for the river flood capacity, it can be explained with regards to both the non-monsoon river course, and surrounding plains used for flood inundation. The change in landuse is not related to obstruction in the non-monsoon river course, while the flood inundation plan depends on channel improvement as opposed to flood basins. There was no mention of flood inundation's relation to the new park designs. Currently, bunds are installed on river banks, that were not described in ICRERP. Water quality improvement, is dependent on sewage outfall diversion, which is independent of landuse change in Thousand Lights, although slum clearance was mentioned to ease construction work. Finally, Groundwater recharge depends on sludge clearance from the river bed, and installing permeable soil layers on the park locations.

#### Other capabilities

Regarding other PAFs' land capabilities, resettlement sites include utilities' services as sewage and water networks and sanitary facilities, in contrast to the use of water and sewage tanks in previous locations. Second, depending on the distribution process of allotted units in resettlement sites, social cohesion of the community gets affected. Other capabilities that derive from the new park uses include, the prevention of squatting due to increased control of the area. Beautification, described as the river's natural charm, is not explained or based on a participatory process, nevertheless, it is not a main driver of landuse change as it is applied with either strategies of resettlement or in-site rehabilitation. As for recreational activities

(parks and boating facilities), It is hard to anticipate the beneficiaries before the project's conclusion, but through interviews, with resettled and surrounding residents including park users, it was noted that mostly they visited nearby parks if they were in proximity for living or visiting other purposes. Finally, Real estate gains would depend on the signs of project success to improve water quality, and cleaning river banks.

### **5.1.2 What are the changes in land use implemented through the project?**

For the larger part of the park site, which includes Thideer Nagar, and other river / riverbank areas, the designated use was changed from river to recreational and commercial. While the actual use was changed from mixed residential, and river, to river. For the smaller part of the park site, which includes parts of the Nawab Land area, the designated landuse was changed from mixed residential to recreational and commercial, while the actual landuse remained mixed residential.

The discussed landuse constraints are ROW, CRZ, the CMA second Masterplan, and the river floodplain. ROW was mentioned in ICRERP, but is not defined in a law or regulation. Although ROW has implications to water flow, it is dependent on ownership. ROW definition is not publicly available, nor is the criteria for its development, its current boundaries, historical boundaries, or allowed uses. CRZ applies along a 9km section of the Cooum river, and its regulations were announced in an official notification. Clearances for CRZ are given by the MoEFCC, and was given for ICRERP, as well as other riverside and coastal constructions.

The masterplan was prepared and published by CMDA in 2008, and its maps are available online on the CMDA website. The Floodplain is not represented by a formal regulation, but it is mentioned as a criterion within ICRERP, represented in flood risk and flood year returns, mentioned for affecting the options of development plans.

### **5.1.3 How does citizenship interfere with the influence of landuse change on land rights, endowments and entitlements??**

ICRERP had one public consultation session that had low attendance of PAFs, the session was criticized for not reaching for the PAFs, not showing enough information, not answering many of the posed questions, and not giving time for feedback. The session can be described as tokenism. The details of the project (detailed project reports) remain not published publicly after 5 years of approval. The choices made through the project for changing landuse and resettlement versus in-site rehabilitation were not a part of a public debate. The project preparation was part of non-governmentally managed grant for technical assistance within a framework that aims to limit political influence.

Encroachments are land ownership violations. However, the river boundaries as well as encroachments delimitation are not clear, and their surveying was part of ICRERP. The current delimiting is not publicly released nor are the historical limits. The river boundaries have been modified, and river landuses have been reclassified in the past with city developments. Although the definition of encroachments depends on ownership, press and experts use the term 'encroachments' for non-ownership-based descriptions such as proximity to water and relation to flooding, as well as other CRZ illegalities. With the unclarity of the river boundaries, the differences in definition between slum types, and encroachment areas, the border, and the due processes for each of the types are not clear.

The legal definition of slums does not have objective parameters, and no comprehensive dynamic is defined by law. By law the period and persons required for reacting, differ between Buildings deemed inhabitable and areas declared as slums, while encroachment eviction does not include period for objection.

During the study of river agency, manifested in the support and harm inflicted by the river on others, human factors affecting water flow and quality should be taken into account. Parts of the 2015 floods have been labelled as man-made. Finally, agency of PAFs, from protest, and court could in some cases push of a bargain, such as improved resettlement conditions.

Unlike the process of ‘accumulation by differentiated dispossession’ studied by Doshi (2013), none of the affected community members were included in a participatory process. The difference in dispossession is based on legality of tenure, or on the perception of legality in some cases. The labelling of encroachments, facilitates the eviction of families, especially after the disastrous effects of the 2015 floods. The situation holds some similarities to the ‘flexible governing’ studied by Desai (2012), where the lack of clarity on socio-ecological processes and rights, and lack of regulation for slum rehabilitation and resettlement, as well as information about the project, regarding affected populations by flooding, and by resettlement plans, all facilitate eviction.

#### **5.1.4 How did the landuse changes transform land rights, endowments and entitlements?**

##### Riverfront Land

Riverfront land, and lands surrounding and within water bodies in general, are public lands as long as they are appreciated for their hydrological values (with a strong structural use component following agreements on the river basin flood mitigation), or other public purposes. But are state lands, when they are intended for alienation or change in landuse classification, as have occurred along the city’s growth legally or illegally. The large part of the park site in Thousand Lights was considered public lands, for river purposes before the project. After the change to park uses, it is considered public land as well for the recreational purposes. The smaller occupancy certificate state land (semi-private Nawab Land section), becomes public land.

For Lands defined as water tanks, PWD has the right to exclude. And CMDA can only alienate the land or manage it for other uses if water flows are not affected. Unlike CRZ, lands in ROW do not need to meet regulations or clearances specific to the river ecology, CMDA’s right to manage has been monitored by the Madras HC. Changing the designated landuse from river and mixed residential to recreational / commercial uses, moves the right to exclude humans, from PWD to the GCC parks department. The practice of the right to access by humans to the parks could be assessed after the project completion. For the sake of including the river as a constituent, the rights to exclude and access for and against humans are separated from, those for and against the river.

The informal endowments for Thideer Nagar residents were removed, and the recognized rights to access and exclude for Nawab Land residents remained. Bhan (2013)’s classification is relevant as legality and the perception of it was the determining factor. However, the type of illegality (squatting on river or other land) differed in the outcome for families, and a thorough investigation of legality was not followed (through checking the effect of legal reclassified former river lands on the river flow). The eviction followed the security of tenure graduation by Payne (2001), as the weakest (unregularized squatters), were evicted. Even though, a socio-ecological approach would include other rationales independent of the security of tenure.

The river’s practice of exclusion rights has been limited and. Currently, the river non-monsoon course is increased, independent of landuse change (outside of former slum borders), and area available for flooding increased, during the temporary project construction phase. Protection of the river’s rights requires a definition of rights in rem, that includes non-human actors.

All Cooum riverfront land serve an opportunistic use of their common component. This calls for controlling excessive appropriation of land, through too much commercial activities in parks, or private buildings' obstruction.

#### Resettlement site

The Perumbakkam resettlement units are a hire purchase scheme (rights to access and exclude), in contrast to other rental and free housing schemes. However, at the time of the resettlement, many of the PAFs mention they were told it was a free housing scheme, some mentioned they still do not have any contracts for the allotted unit. Upon the completion of the purchase instalments, PAFs should have the right to alienate the unit. In interviews, residents claim that the illegal practice of sub-renting resettlement units is limited.

As for rights to manage, the PAFs were not included in the distribution of units among communities of different neighborhoods, a process that still results in tensions and weakening of social connections. Also, as a part of the right to manage, street vending is not prohibited, but subject to tensions between individuals and communities.

#### **5.1.5 How did the rights, endowments, and entitlements changes affect the capabilities of land resources?**

By losing the informal rights to exclusive use of the riverfront land (indefinite access and exclusion), and being in the process of gaining them formally in the Perumbakkam resettlement sites, the PAFs locational capabilities of land were drastically harmed, enhanced for utilities, and not assessable for the effect on flooding.

The relation of the river's rights to access and manage to improved flood capacity are not explicitly explained or related to the park project in the DPRs, they are dependent on a definition of river agency, based on hydrological study.

Not much change in capabilities is noted for surrounding residents and users.

#### **5.2 Main research question: To what extent does the change of riverfront landuse in the ICRERP affect the capability of Chennai's citizens to draw benefits from land resources?**

The changes to riverfront landuse are constrained by socially and ecologically negotiated rules (ROW – CRZ – Masterplan – Floodplain), and available choices are made through the ICRERP. Such choices to change are influenced by different interest groups' agency, especially by the lack of clarity and transparency of regulations (encroachments – slums - resettlement) and procedure (participation). Consequently, affecting to whom and how rights and entitlements are distributed. In the end being biased against vulnerable populations. and achieving incomplete capability goals for the river.

#### **5.3 Recommendations**

Easing public access to current and historical river revenue boundaries, as well as hydrological and meteorological studies, would clarify the concepts of river encroachments, and ROW, and enrich the public discussion on river rights, flood protection and public benefit. Making this information publicly available along with notified slum areas delimitation, would enhance the urban poor's agency to their resettlement as well as socio-ecological relations. Additionally, Easing the public accessibility to detailed project reports of ICRERP and similar riverfront development projects during and after their conceptualization, would enhance discussions on the adopted criteria and their validity.

Concretising resettlement rights for populations affected by development or disaster would create more protection. Through, establishing definitions and categories of slums based on

objective parameters, and developing mechanisms for resettlement process and quality of units and site location and services to suit resettled families' needs and specific capabilities.

Although non-monsoon uses such as the park, would create more control over river classified lands, transparency and continuous flood evaluation would help decrease the risk that current or future reclassification would harm the river system.

Investigating legality through a historical socioecological perspective would depart from biased action against the urban poor. Delimiting different encroachment areas along the Cooum and other water bodies would include historical river boundaries. Similar to CRZ, establishing regulations, or clearances for lands near rivers, within and out of ROW, would contribute to river restoration on levels beyond socially constructed ownership, and control the right to manage uses granted to CMDA.

Adding a capability view to urban location theory, shows how city nuclei can suit different interested groups' capabilities. When dealing with groups, the design of relevant interest groups is key to what capabilities are identified and measured.

## **5.4 Further research**

As not all documents were not available for analysis for this study, an analysis of the ICRERP flood inundation and groundwater recharge plans should complement the findings. Further studies on ICRERP's effect on other areas along the Cooum would enrich the understanding of river restoration. Other areas have other characteristics, for example, areas evicted outside of the ROW line, and commercial and workshop areas. As well as the effect of the elevated highway project. A further evaluation following the completion of ICRERP, would explain the capabilities not achieved yet within the project steps.

In order to develop a bundle of rights view that includes human and non-human environment, further research is needed to measure river agency. Then including agency indicators in a legal framework would protect the river's rights negotiated within a political context.

To develop the entitlement theory to include obligations as well as rights, investigation should be done into including the practice of obligations, whether through a parallel concept to entitlements, or whether obligations can be turned into rights of the general indefinite users.

A more comprehensive definition of encroachments can merge social, historical, hydrological, meteorological, and political factors. An evaluation of the CRZ clearances' effect on coastal zones protection, would also enrich the discussion on ROW.

## Bibliography/References

Agarwal, B., 2001. Participatory exclusions, community forestry, and gender: An analysis for South Asia and a conceptual framework. *World Development*, 29 (10), pp. 1623-1648 [Accessed 4/13/2019 8:48:26 AM].

Alahwal, A., 2019a. Interview T K Ramkumar.

Alahwal, A., 2019b. Interview, 1000 lights at perrumbakkam #4.

Alahwal, A., 2019c. Interview, K.Gunasekaran. (professor of transport engineering, at the Anna university Chennai).

Alahwal, A., 2019d. Interview, Karen Coelho. Institute of Housing and urban development studies: .

Alahwal, A., 2019e. Interview, Nityanand Jayaraman. Institute of Housing and Urban Development Studies: .

Alahwal, A., 2019f. Interview, P.Santhosh Kumar, WRS at CRRT. Institute of Housing and urban Development studies: .

Alahwal, A., 2019g. Interview, Surrounding in 1000 Lights - Nawab Land #2. Masters of Urban Management and Development, IHS: .

Arabindoo, P., 2011. 'City of sand': stately re-imagination of Marina Beach in Chennai. *International Journal of Urban and Regional Research*, 35 (2), pp. 379-401 [Accessed 3/29/2019 12:12:48 PM].

Azuela, A., 2008. the use of eminent domain in são paulo, bogotá, and mexico City. *Novum Jus: Revista Especializada En Sociología Jurídica Y Política*, 2 (1), pp. 69-100 [Accessed 4/2/2019 11:10:24 AM].

Baviskar, A., 2003. Between violence and desire: space, power, and identity in the making of metropolitan Delhi.

Bhan, G., 2013. Planned illegalities: Housing and the'failure'of planning in Delhi: 1947-2010. *Economic and Political Weekly*, pp. 58-70 [Accessed 10/12/2019 10:01:19 AM].

Brand, R. and Gaffikin, F. 2007. Collaborative planning in an uncollaborative world. *Planning Theory*, 6 (3), pp. 282-313 [Accessed 11/23/2018 11:30:44 AM].

Bunch, M., 2008. Human activity and the ecosystem approach: the contribution of soft systems methodology to management and rehabilitation of the Cooum River in Chennai, India. In: D. Waltner-Toews, J. J. Kay and N. E. Lister eds., 2008. **The Ecosystem Approach: Complexity, Uncertainty, and Managing for Sustainability**.

CMDA, Chennai Metropolitan Development Authority, 2008. Second Master Plan Land Use Maps. Available at: <http://cmdalayout.com/landusemaps/landusemaps.aspx> [Accessed 09-10-2019].

Coelho, K., Peter, V. and Nundiyny, A. D., 2018. A Baseline Study of the Impacts of Resettlement in Gudapakkam and Perumbakkam. Madras Institute of Development Studies; Information and Resource Center for Deprived Urban Communities; Uravugal Social Welfare Trust.

Coelho, K. and Raman, N. V. 2010a. Salvaging and scapegoating: slum evictions on Chennai's waterways. *Economic and Political Weekly*, pp. 19-23 [Accessed 3/27/2019 7:30:27 PM].

Coelho, K. and Raman, N. V. 2010b. Salvaging and scapegoating: slum evictions on Chennai's waterways. *Economic and Political Weekly*, pp. 19-23 [Accessed 3/27/2019 6:08:50 PM].

Coelho, K. and Raman, N. V. 2013. From the Frying Pan to the Floodplain. From the Frying Pan to the Floodplain. 2013. Ecologies of urbanism in India: metropolitan civility and sustainability. Hong Kong University Press. [Accessed 3/29/2019 2:11:09 PM].

Comptroller and Auditor General of India, 2017. Report of the Comptroller and Auditor General of India on Performance Audit of Flood Management and Response in Chennai and its Suburban Areas. 4), .

Cornwall, A., 2008. Unpacking 'Participation': models, meanings and practices. *Community Development Journal*, 43 (3), pp. 269-283 [Accessed 11/24/2018 7:51:42 AM].

Davy, B., 2014a. Polyrational property: rules for the many uses of land. *International Journal of the Commons*, 8 (2), pp. 472-492 [Accessed 6/3/2019 10:37:43 PM].

Davy, B., 2014b. Polyrational property: rules for the many uses of land. *International Journal of the Commons*, 8 (2), pp. 472-492 [Accessed 4/3/2019 12:53:39 PM].

Desai, R., 2012. Governing the urban poor: Riverfront development, slum resettlement and the politics of inclusion in Ahmedabad. *Economic and Political Weekly*, pp. 49-56 [Accessed 8/29/2019 8:28:28 AM].

Doshi, S., 2013. The politics of the evicted: redevelopment, subjectivity, and difference in Mumbai's slum frontier. *Antipode*, 45 (4), pp. 844-865 .

Dotzour, M., Grissom, T., Liu, C. and Pearson, T. 1990. Highest and best use: the evolving paradigm. *Journal of Real Estate Research*, 5 (1), pp. 17-32 [Accessed 5/22/2019 10:34:29 PM].

Eckert, J. K., Gloudemans, R. J. and Almy, R. R., 1990. Property appraisal and assessment administration. Intl Assn of Assessing Off.

Ellis, R., 2011. Who's participation? Who's sustainability? A critical analysis of initiatives for urban sustainability in India. *Scottish Geographical Journal*, 127 (3), pp. 193-208 [Accessed 3/27/2019 6:05:42 PM].

Express news service, 2019a. Chennai: Cooum to get bunds in 7-km stretch by December. The Indian Express, Available at:

<http://www.newindianexpress.com/cities/chennai/2019/mar/24/cooum-to-get-bunds-in-7-km-stretch-by-dec-1955008.html> .

Express news service, 2019b. For Cooum: Langs garden park built, removed. The New Indian Express, Available at: <http://www.newindianexpress.com/states/tamil-nadu/2019/may/09/for-cooum-park-built-removed-1974421.html> .

Gopalakrishnan, S., 2017. Muck tale: How Cooum lost its holy status. *India Water Portal*, Available at: <https://www.indiawaterportal.org/articles/muck-tale-how-cooum-lost-its-holy-status> .

Government of Tamil Nadu, 1905. The Tamil Nadu Land Encroachment Act, Act 3 of 1905.

Tamil Nadu Slum Areas (Improvement and Clearance) Act, 11 of 1971. 1971.

Government of Tamil Nadu, 2007. The Tamil Nadu Protection of Tanks and Eviction of Encroachment Act, Act 8 of 2007.

G.O (Ms) No.9. 2016.

Gupta, A. K. and Nair, S. S. 2010. Flood risk and context of land-uses: Chennai city case. *Journal of Geography and Regional Planning*, 3 (12), pp. 365-372 [Accessed 9/11/2019 5:47:48 PM].

Hallowell, A. I., 1942. The nature and function of property as a social institution. *J.Legal & Pol.Soc.*, 1 pp. 115 [Accessed 4/3/2019 5:09:35 PM].

Harvey, D., 2008. The right to the city. [Accessed 4/18/2019 2:51:22 PM].

Harvey, D., 2008. The right to the city. [Accessed 4/9/2019 5:27:29 AM; 4/9/2019 5:27:29 AM].

Harvey, D. and Braun, B., 1996. Justice, nature and the geography of difference. Blackwell Oxford. [Accessed 4/9/2019 11:02:07 AM].

HIC, H. I. C. and HLRN, Housing and Land Rights Network, 2017. Over 400 families evicted in Chennai under the guise of 'restoration of water bodies' and disaster management'. Available at: <https://www.hic-gs.org/news.php?pid=7188> [Accessed 29-09-2019].

Imranullah S., M., 2017. HC orders eviction of all families from Cooum banks. The Hindu, Available at: <https://www.thehindu.com/news/cities/chennai/hc-orders-eviction-of-all-families-from-cooum-banks/article21041301.ece> [Accessed 09-29-2019].

Johnson, D. R., 2007. Reflections on the Bundle of Rights. *Vt.L.Rev.*, 32 pp. 247 .

Kothari, M., 2007. *Basic Principles and Guidelines on Development-Based Evictions and Displacement Annex 1 of the Report of the Special Rapporteur on Adequate Housing as a Component of the Right to an Adequate Standard of Living A*, .

Krause, F., 2012. Managing floods, managing people: A political ecology of watercourse regulation on the Kemijoki. *Nordia Geographical Publications*, 41 (5), pp. 57-68 [Accessed 9/12/2019 9:43:17 AM].

Krishnan, L., 2007. Tamil Nadu Urban Development Fund: Public–Private Partnership in an Infrastructure Finance Intermediary. *Financing Cities: Fiscal Responsibility and Urban Infrastructure in Brazil, China, India, Poland and South Africa*, pp. 238 [Accessed 8/18/2019 6:37:04 PM].

Leach, M., Mearns, R. and Scoones, I., 1997. Environmental entitlements: a framework for understanding the institutional dynamics of environmental change. Institute of Development Studies. [Accessed 6/3/2019 11:55:42 PM].

Leopold, L. B., 1968. Hydrology for urban land planning: A guidebook on the hydrologic effects of urban land use. US Department of the Interior, Geological Survey.

Lister, R., 2003. What is Citizenship? What is Citizenship? 2003. *Citizenship: Feminist Perspectives*. Springer. pp. 13-42. [Accessed 6/6/2019 7:03:55 AM].

LKS India Pvt Ltd. a, 2014. INTEGRATED COOUM RIVER ECO-RESTORATION PLAN - FINAL REPORT - EXECUTIVE SUMMARY. (Prepared for TNUIFSL based on a request by CRRT ; Available at: <http://www.chennairivers.gov.in/PDF/ExecutiveSummary-ICRERP.pdf> [Accessed 8/9/2019].

LKS India Pvt Ltd. b, 2014. Integrated Cooum River Eco-Restoration Plan - River Front Development Plan. (Prepared for TNUIFSL based on a request by CRRT ; .

LKS India Pvt Ltd. c, 2014. Social Assesment Report. (Prepared for TNUIFSL based on a request by CRRT ; .

Mariappan, J., 2011. To plug sewage outfalls, Metrowater commissions study. Times of India, Available at: <https://timesofindia.indiatimes.com/city/chennai/To-plug-sewage-outfalls-Metrowater-commissions-study/articleshowprint/8561481.cms> .

Marshall, T. H. and Bottomore, T., 1950. *Citizenship and social class*. Cambridge.

CRZ clearance for the "Integrated Couum River Eco-restoration". 2016.

MINISTRY OF LAW AND JUSTICE, Government of India, 2005. THE RIGHT TO INFORMATION ACT, No. 22 of 2005. Available at: <https://rti.gov.in/rti-act.pdf> .

Nunan, F. and Devas, N. 2014. Accessing land and services: exclusion or entitlement? Accessing land and services: exclusion or entitlement? 2014. *Urban Governance Voice and Poverty in the Developing World*. Routledge. pp. 179-200.

Payne, G., 1997. Urban land tenure and property rights in developing countries. *A Review*, [Accessed 6/3/2019 11:45:24 PM].

Payne, G., 2001. Urban land tenure policy options: Titles or rights? *Habitat International*, 25 (3), pp. 415-429 .

Payne, G., 2001. Urban land tenure policy options: Titles or rights? *Habitat International*, 25 (3), pp. 415-429 [Accessed 6/3/2019 11:45:45 PM].

Penner, J. E., 1995. The bundle of rights picture of property. *UcLa L.Rev.*, 43 pp. 711 .

Peter, V., 2017. From Deluge to Displacement: The Impact of Post-flood Evictions and Resettlement in Chennai. New Delhi: Information and Resource Centre for the Deprived Urban Communities, and Housing and Land Rights Network. Available at: [https://www.hlrn.org.in/documents/Deluge\\_to\\_Displacement\\_Chennai.pdf](https://www.hlrn.org.in/documents/Deluge_to_Displacement_Chennai.pdf) .

Rijke, J., van Herk, S., Zevenbergen, C. and Ashley, R. 2012. Room for the River: delivering integrated river basin management in the Netherlands. *International Journal of River Basin Management*, 10 (4), pp. 369-382 [Accessed 3/13/2019 3:56:50 AM].

Robbins, P., 2011. Political ecology: A critical introduction. John Wiley & Sons.

Robeyns, I., 2005. The capability approach: a theoretical survey. *Journal of Human Development*, 6 (1), pp. 93-117 [Accessed 9/8/2019 12:02:51 PM].

Robeyns, I., 2017. Wellbeing, freedom and social justice: The capability approach re-examined. Open Book Publishers.

Routray, S. K., ed., 2006. Two kinds of activism: Reflections on citizenship in globalizing Delhi, Anonymous [International Young Scholars' Seminar Papers on eSS].

Ruzzene, A., 2015. Using case studies in the social sciences: Methods, inferences, purposes. *Erasmus Journal for Philosophy and Economics*, 8 (1), pp. 123-126 .

Sabrang India staff, 2017. Stop Forced Evictions & Rights Violations in Chennai: CM Petitioned. Sabrang, .

Sampat, P., 2013. Limits to absolute power: Eminent domain and the right to land in India. *Economic and Political Weekly*, pp. 40-52 [Accessed 4/3/2019 9:22:45 AM].

Schlager, E. and Ostrom, E. 1992. Property-rights regimes and natural resources: a conceptual analysis. *Land Economics*, pp. 249-262 .

Schlosberg, D., 2009. Defining environmental justice: theories, movements, and nature. Oxford University Press. [Accessed 4/13/2019 10:20:20 AM].

Schubert, J., 2005. Political ecology in development research. *An Introductory Overview and Annotated Bibliography*. Bern: NCCR North-South, [Accessed 5/19/2019 11:06:15 AM].

Shekar, A. and Thirumurthy, P., 2019. Tamil Nadu government- largest encroacher of water bodies in the state? The News Minute, Available at: <https://www.thenewsminute.com/article/tamil-nadu-government-largest-encroacher-water-bodies-state-105808> .

Simm, K., 2011. The concepts of common good and public interest: from Plato to biobanking. *Cambridge Quarterly of Healthcare Ethics*, 20 (4), pp. 554-562 [Accessed 4/2/2019 8:49:24 AM].

Smolka, M. and Goytia, C. (forthcoming). Urban Land Markets. *Encyclopaedia of Urban and Regional Studies*, pp. 1-10 .

Sureshkumar, 2019. Failure to restore Chennai's waterways: Madras high court stays Rs 100crore penalty imposed by NGT on Tamil Nadu govt. Times of India, 09-04-2019. Available at: <https://timesofindia.indiatimes.com/city/chennai/failure-to-restore-chennais-waterways-madras-high-court-stays-rs-100crore-penalty-imposed-by-ngt-on-tamil-nadu-govt/articleshow/68793458.cms> .

The Hindu, 2013. Draft master plan for Cooum restoration to be ready by Sept. Available at: <https://www.thehindu.com/news/cities/chennai/draft-master-plan-for-cooum-restoration-to-be-ready-by-sept/article4811453.ece> .

The Hindu, 2013. Restore Cooum, but relocation must be close by, say residents. The Hindu, Available at: <https://www.thehindu.com/news/cities/chennai/restore-cooum-but-relocation-must-be-close-by-say-residents/article4811452.ece> .

TNN, 2017. After 3,000cr, Cooum concretised waterway. Times of India, Available at: <https://timesofindia.indiatimes.com/city/chennai/after-3000cr-cooum-concretised-waterway/articleshow/59012473.cms> .

TNUIFSL, 2013. KfW - GRANT FUND II. Available at: <http://www.tnuifsl.com/gf2kfw.asp> [Accessed 2019].

TNUIFSL, 2019. TAMIL NADU URBAN DEVELOPMENT FUND. [Accessed 2019].

Transparent Chennai, 2013. Mucking out the Cooum - Summary of ICRERP hearing session.

van Eerd, M., 2017. 'Pushed to the bush'? Changes in resettlement approaches in India. *Urban Governance in the Realm of Complexity*, pp. 25 [Accessed 5/22/2019 7:36:31 PM].

Van Thiel, S., 2014. Research methods in public administration and public management: an introduction. Routledge. [Accessed 5/30/2019 1:21:17 PM].

Wheeler, C., 2006. The public interest: we know it's important, but do we know what it means. *Australian Institute of Administrative Law Forum*, 48 pp. 12-25 Available at: <http://www.austlii.edu.au/au/journals/AIAAdminLawF/2006/2.html> [Accessed 21-10-2016].

Wisborg, P., 2002. Re-Constructing Rights to Land. *From Discourse To*, [Accessed 6/1/2019 12:03:35 PM].

Zevenbergen, C., van Herk, S. and Rijke, J. 2017. Future-Proofing Flood Risk Management: Setting the Stage for an Integrative, Adaptive, and Synergistic Approach. *Public Works Management & Policy*, 22 (1), pp. 49-54 [Accessed 3/13/2019 3:57:46 AM].



## Annex 1: Research Instruments

### A1.1 Research instruments: Interview guides:

#### A.1.1.1 Interview guide for resettled residents:

"Hello, thank you for giving me the time for an interview, it shouldn't take more than 40 minutes. My name is Tarek, and I'm a master's student, studying in The Netherlands / Holland. This interview is part of my research for gaining a master's degree. The aim of my research topic is studying the effects of the ICRERP on the use and the benefits of land resources.

Your name would not be mentioned in the study. However, following your permission, a transcript of the interview would be annexed to the research. If you agree, then I'd like to get your consent to start and record the interview."

#### 1- Questions on Landuse

1a- What existed in the restored area before the project?

residential      commercial      educational      health      industry      gov. institution

Where does the area start from and where does it end?

1b- Do you know what exists in the riverfront area now?

1c- Did you expect large-sale changes of the landuse, what were they and when?

1d- Do you expect that the landuse will change again in the future?

What was the basis for choosing the extent to which remove buildings from the site? Do you have an example?

#### 2- Questions on the benefits of the riverfront site

2a- as a living resident: How did the resettlement affect your ability to commute to work or for work purposes?

"How was the proximity to the river / water body as an advantage or a disadvantage to your living there?

If you had a choice to your living location, would you have chosen a location further or still closer to water?"

"2b- Have you conducted commercial or industrial activity in the site?

If yes, how was it affected by the change in distances after resettlement?"

2c- Was the riverfront site better served by utilities (electricity - water- etc.)? In which way?

2d- Was the riverfront better served by social infrastructure (hospitals-schools-etc.)? How

2e- How much longer has your commute become?

2f- Did it fulfill your need for living or was it temporary?

2g- Have you established a settled, or non-temporary any commercial activities, as shops, workshops, or industry?

Have you suffered from environmental pollution at the riverfront site (ex: water-borne diseases)? Is your living conditions now less exposed to pollution?

What was the street material in the area before the project?

Are you feeling less susceptible to flood risk?

"2I- How much did you buy the property for?

How much were surrounding people selling for? "

"2j- How much were rents?

Were landlords usually owning several properties or one?"

"Do you have an Aadhar Card?

Which neighbourhood was the address in it at time of resettlement?

Which neighbourhood is the address now?

Among your former neighbours at the riverfront site, did some have their ID card address at a different location?

Were they given resettlement rights? proper notice time, compensation, and proper housing?"

**3a- As a resident of Chennai, are you legally allowed to own property in the city?**

**What are the obstacles?**

"3b- Do you have a contract of the resettlement unit?

Did you have a contract of the property where you were living in the former site?

If not when did you move there and what was the motive behind your choice?

If there were social infrastructure uses who managed them?

who claims the riverfront site now?

The below questions should be answered for both the resettlement unit, the former residential unit, as well as social infrastructure if applicable."

If private contract Is it freehold or leasehold or collective ownership?

formality Did you buy the riverfront land or house? bought from whom? Did you register the riverfront land or house with the city?

if public do you know which government body claims it?

if customary Is it tribal ownership or other customary (former nobility)?

if other Is it a cooperative or another form of collective ownership?

**4a- The following are actions related to control over land,**

the questions aim that the respondent is asked to describe for each if: 1) they had the right in principle for the river site pre and post project and the resettlement site, 2) if they practiced it for the river site pre and post project and the resettlement site, 3) if they had the right in any other site or are there obstacles that prevent them from obtaining them in general

4b- Are you allowed to and are you able to enter the riverfront area after the project? if you are, for what purpose do you visit? If there were removed social infrastructure: Were you allowed and were you able to enter them when they existed? Which and for which purpose?

2h- are you using the park for recreation?

(if not answered in ownership) 4d- when did you start using the area for living, for selling, or for industry?

4e- For the resettlement unit, are you allowed and can you decide who lives in your property (family members for example)? Were you allowed or could you do it in the riverfront area?

4f- were you allowed and were you able to resources (wood-soil-water-..) from the riverfront land? Are you allowed or able now?

4g- are you allowed and are you able to change in the resettlement area building or to change its use (open a shop or a workshop for example)?, were you allowed or able in the old site for your property and for common services?

4I- were you allowed to and were you able to sell or rent the riverfront land before the project, what about the property in the resettlement site?

4h- do you feel more safe from expropriation now compared to the former site

### 5-Participation

5a- When were you informed of the resettlement or the project?

if informed early, were you invited to participate? in which phase: initiation, development, or detailed design?

If you participated in any of the early phases, did you feel that some individuals dominated the discussion or did you feel fairly represented?

was there enough representation of groups of residents or do some complain their voice didn't reach and that they weren't invited?

### 6- Indirect Agency

6a- Have you or one of the community tried to complain the eviction through government channels or through court? If yes what was the result, if no why?

6b- In general do you consider complaining through court for conflicts?

7a- How do you perceive your rights as a citizen: to vote? do you trust you can impact through elections?

Were there promises by politicians or government officials regarding the project? Was it based on a bargain on your vote or other form of interaction? Were the promises fulfilled?

Were there promises by politicians or government officials regarding TNSCB & CRRT policies? Was it based on a bargain on your vote or other form of interaction? Were the promises fulfilled?

### 8- This part is about the interviewee's perception of citizenship and rights

8a- How do you perceive your rights as a citizen: to suitable housing? Do you have a right that is not fulfilled regarding that topic?

8d- How do you perceive your rights as a citizen: to infrastructure and services? Do you have a right that is not fulfilled regarding that topic?

"“I’m done with my questions, Do you have any further questions?....

Thanks again for your time, and I will send you a copy of the master’s thesis after its completion.

#### **A.1.1.2 Interview guide for surrounding residents**

Surrounding users and/or owners

"“Hello, thank you for giving me the time for an interview, it shouldn’t take more than 40 minutes. My name is Tarek, and I’m a master’s student, studying Urban management and development, at the IHS institute in Rotterdam, the Netherlands. This interview is part of my research for gaining a master’s degree. The aim of my research topic is studying the effects of the ICRERP on the use and the benefits of land resources.

Your name would not be mentioned in the study. However, following your permission, a transcript of the interview would be annexed to the research. If you agree, then I'd like to get your consent to start and record the interview.””

### 1- Landuse

1a- What existed in the restored area before the project?

residential      commercial      educational      health      industry      gov. institution

Where does the area start from and where does it end?

Does anyone use the area? For what?

Did you know about changes to the landuse before the project?

In case of empty land site: Do you know what will be built in the area?

What was the basis for choosing the extent to which remove buildings from the site? Do you have an example?

### 2- Questions on the benefits of the riverfront site

Do you see the riverfront as an advantage to the area here, where you're living?

Was there a strong or dominant commercial activity in the area restored?

"Do you feel an improvement in the air and water qualities as a result of the project?

Does it affect your well-being?"

Are you feeling less susceptible to flood risk?

If they own the property: Has your property's value increased after the project?

Did you or your landowner have to pay betterment charges or taxes for or after the project's implementation?

### 4- "Are you the owner of your house / land?

If not, is the owner a private, public, customary, or a communal entity?"

If private contract      Is it freehold or leasehold or collective ownership?

formality      Is the contract registered with the municipality?

if public      do you know which government body claims it?

if customary      Is it tribal ownership or other customary (former nobelty)?

if other Is it a cooperative or another form if collective ownership?

"After the project: Do you have problems entering the site? Would you like to run activities here that are you not allowed to now?

Before the project: Did you have problems entering the area here? Were you wanting to run activities that you were not allowed to?"

How often do you visit per week?

4f- were you allowed and were you able to resources (wood-soil-water-..) from the riverfront land? Are you allowed or able now?

Do you have a say in the management or development of the area?

### 6- Direct Participation

Were you invited to an official discussion about planning this park or the ICRERP project?

if informed early, were you invited to participate? in which phase: initiation, development, or detailed design?

If you participated in any of the early phases, did you feel that some individuals dominated the discussion or did you feel fairly represented?

was there enough representation of groups of residents of the city, or do some complain their voice didn't reach and that they weren't invited?

In many Indian cities, individuals or citizen welfare associations file 'public interest' claims to court to ask for green spaces or city beautification. Are you aware of or have you participated in any of those?

In general do you consider solving conflicts or seeking citizen services through court

#### 7- Indirect Agency

7a- How do you perceive your rights as a citizen: to vote? do you trust you can impact through elections?

Were there promises by politicians or government officials regarding the project? Was it based on a bargain on your vote or other form of iteration? Were the promises fulfilled?

Were there promises by politicians or government officials regarding TNSCB & CRRT policies? Was it based on a bargain on your vote or other form of iteration? Were the promises fulfilled?

8d- How do you perceive your rights as a citizen: to infrastructure and services, and green spaces? Do you have a right that is not fulfilled regarding that topic?

"“I’m done with my questions, Do you have any further questions?....

Thanks again for your time, and I will send you a copy of the master’s thesis after its completion."

#### **A.1.1.3 Interview guide for housing and environmental experts**

"Hello, thank you for giving me the time for an interview. We are all master’s students, studying Urban management and development, at the IHS institute in Rotterdam, the Netherlands. This interview is part of our research for gaining a master’s degree.

Following your permission, a transcript of the interview would be annexed to the research. If you agree, then I’d like to get your consent to start and record the interview."

1. The ICRERP was stopped and now being commenced, but some projects were approved in 2013 and it is not available online what are the details, is it only cycle ways and walkways as in the sample designs as well as the elevated road, or more like parks and private developments?

2. how does urban development follows real estate increments and investments in the case of the adyar poonga and the cooum river?

How can you see it, in TDRs or real estate value increase? Does the govt. apply land value capture, taxes? Also the Cooum project goes a long way across the river, even in poor areas.

3. What was the basis for choosing the extent to which remove buildings from the site? Is it the right of way? Do you know if exceptions in the right of way have been made?

4. What is the ownership of the riverfront land and the Adyar Poonga land (PWD): both within the ROW line and outside?

What was the degree of informality?

Formality: Squatter (regularized) – Tenant – Illegal subdivision – Unauthorised construction – unauthorized subdivision – unauthorized purchase

If public: Which public body?

Was there regularization of resettled citizens? Did they normally have adhaar addresses to the site?

5. The use of a public park implies more public access than private squatting areas. But you mentioned that the aduyar poonga entrance is limited in time, are there other limitations on who to enter, do you think the cooum will be more public?

6. Was CRRT freely allowed to take decisions on restricting entry and changing functions of the park without gov. permission?

Are they going to manage the Cooum river front?

7. Is PWD allowed to sell or lease the land? Was there PPPs for build and manage for example?

#### Participation

1. CRRT is running an ongoing participation process currently for the ICRERP, following the resettlement. Were there also previous sessions with the poonga?

Who are invited? How does it go, how collaborative is it? Why do people join?

How would you describe the participation process?

A pretence: representatives are not elected and have no power?

Passive: people are being told what is decided already?

Consultation: people are consulted based on analysis controlled by external agents? based on material incentives of a limited period

Functional: aims to ease community approval, but interacting with the community happens after major decisions have been made?

Interactive: people participate in the formation, analysis and development of the project  
Self-mobilization: initiated by the people independent of external initiation

2. There were political sensitivities and conflict that stalled the project. that it wasn't possible to evict people suddenly from the riverfront. How was this solved? and was there other problems?

Is voting by residents affecting the politics and policies of TNSCB / CRRT?

3. There were rulings from the high court of Madras to start with the evictions, do you know of rulings against the project, or if citizen groups have started legal claims?

Are rulings based on human benefits or nature ecosystem benefits, is there the concept of nature rights?

#### Effect on resettled residents:

Was the proximity to the river / water body an advantage also or only or a disadvantage (risk and pollution) to their living there?

The riverfront areas had residential and workshop areas, but also other removed uses

The legal notice period and consultation before resettlement wasn't followed, as a break of the rules of resettlement. Is the flooding, being in a risk zone an exception?

Are there other breaches, suitable housing, commute, is it illegal?

#### Environmental advantages:

Has the river been given the ability to self-agency within the project developed areas (flexibility in adjusting its path, recovering its flora and fauna, or controlling discharge)? Do you see it happening in the future? Why or why not?

You mentioned how resettled residents are still in flood risk, but is the rest of the city better protected?

It also mentions improved water quality, rainwater harvesting and flood water retention as advantages.

#### Further requests for contacts / resources

Do you know how to access documents for the ICRERP approved projects?

Are there map surveys of the riverfront areas before the project? How to access?

Who do you know have researched the topic as well and can be helpful? I know about the Citizen customer and civic action group. someone from transparent Chennai?

“I’m done with my questions, Do you have any further questions?....

Thanks again for your time, and I will send you a copy of the master’s thesis after its completion.

#### **A.1.1.4 Interview guides for government officials**

##### Government interview guide #1

*“Hello, thank you for giving me the time for an interview, it won’t take more than 30 minutes. My name is Tarek, and I’m a master’s student at the “Institute of Housing and urban development studies” located in Rotterdam, The Netherlands / Holland. This interview is part of my research for gaining my master’s degree. The aim of my research topic is studying the effects of the ICRERP on the use of land resources in the riverfront area. Your name would not be mentioned in the study. However, following your permission, a transcript of the interview would be annexed to the research. If you agree, then I’d like to get your consent to start and record the interview.”*

##### Project Design

Regarding the ICRERP project, I only saw in the project summary samples of walkways. What does it allocate for landuses? Parks, and cycleways & walkways, are there also PPPs for private developments?

Are the project design areas next to the river fenced or is entry open to all (open parks and cycleways and walkways or closed parks and cafes like chetput)? If not directly open, how is the entry process, by reservation like adyaar poonga or normal ticket, and how much is it?

How would you describe the function more, recreation, or preservation like Poonga, or city beautification?

Will the elevated road have a toll? are transport lines planned there? also toll? Was the entry to the langs garden open to all?

##### Ownership & endowments after

What is the ownership of the riverfront land (PWD): both within the ROW line and outside?

What was the degree of informality?

If private contract: Was it freehold or leasehold or collective ownership?

Formality: Squatter (regularized) – Tenant – Illegal subdivision – Unauthorised construction – unauthorized subdivision – unauthorized purchase

If public: Which public body?

Other: Is it tribal ownership or other customary (former nobelty)? - Is it a cooperative or another form of collective ownership?

PWD, CRRT, CMDA: I'm also looking for information about the constraints related to the river course, the river right of way, the High and Low tide lines, and floodrisk maps. Can I also get access to those?

Are there PPPs for building, managing or both for some of the riverfront areas? How long is it? Which areas?

Is the managing body, private or public, or river allowed to sell, or lease the land, is it part of the project?

Who is responsible for managing the area after the project? Are they able to change the design of structures and functions?

Does the city apply land value capture or betterment charges following or before the project? If not, how does increased real estate value benefit the city? How much does property tax contribute to the city's budget?

In the project design was water seen as an advantage sometimes or only a threat?

Are the riverfront resources protected, meaning the trees, plants, or is the managing entity able to extract them, use them?

### Participation

Was there a community engagement or public participation process for the project?

How would you describe the participation process? self-mobilization - interactive- functional - consultation - passive - pretence

Was the project already decided and they were informed, or they agreed on the details, or general strategy

A pretense: representatives are not elected and have no power?

Passive: people are being told what is decided already?

Consultation: people are consulted based on analysis controlled by external agents? based on material incentives of a limited period

Functional: aims to ease community approval, but interacting with the community happens after major decisions have been made?

interactive: people participate in the formation, analysis and development of the project

self-mobilization: initiated by the people independent of external initiation

What is the strategy to avoid that some voices have some powers within participatory sessions?

How were the representatives selected? Based on areas and gender and class etc.?

Can you explain politics have had and has on the project's initiation and stalling? Why is it in the Agenda of DMK and not AIADMK? Was it part of election promises?

Are CMDA policies affected by election promises?

How stable is the plan? As I understand the project was stalled because of political conflict?

Does it mean that it can be altered in the future?

Was the judicial system, or government complaint system involved in conflicts arising from the project?

### Situation before

CRRT, CMDA, PWD: I'm looking for information about the landuses in the riverfront area(s) before the project, both the official designated landuse and actual de facto Landuse, can you provide me with such maps?

How long do you think the resettled slum dwellers have been using the area? Where there previous attempts to resettle them over the years?

Were the residents allowed to sell land or property? Did they do it nevertheless?

Was entry to the riverfront areas where slums were possible?

In the areas with commercial activities, have they also been resettled to commercial areas?

#### River ecology

Does the project decrease floodrisk, critics mention that resettlement sites are also in floodplains?

Is there another way of protection applied, especially that's some formal public and private buildings are next to the river?

Will the river be given the ability to self-agency within the project developed areas (flexibility in adjusting its path, recovering its flora and fauna, or controlling discharge)?

In the Adyar park, river water is not used

How effective is the Cooumin affecting its ecosystem, river path, discharge, etc.?

Does the river ecosystem have legal rights? Were there public interest litigations

"I'm done with my questions, regarding that point we agreed to discuss after the interview ....

Do you have any further questions?....

Thanks again for your time, and I will send you a copy of the master's thesis after its completion

#### Government interview guide #2, special questions to TNSCB

Basis for giving units; adhaar card address, ration card?

No contract, but agreement for 22 years? What to do when they sell or rent illegally

Squatters only? Unauthorised construction

What is the ownership of the riverfront land (PWD): both within the ROW line and outside?

What was the degree of informality?

If private contract: Was it freehold or leasehold or collective ownership?

Formality: Squatter (regularized) – Tenant – Illegal subdivision – Unauthorised construction – unauthorized subdivision – unauthorized purchase

If public: Which public body?

Other: Is it tribal ownership or other customary (former nobility)? - Is it a cooperative or another form of collective ownership?

Removing other formal encroachment, that are in CRZ zone or in row line?

Critics mention that the distance is far away from the city, how was the option for near river resettlement assessed.

PWD, CRRT, CMDA: I'm also looking for information about the constraints related to the river course, the river right of way, the High and Low tide lines, and floodrisk maps. Can I also get access to those?

CRRT, CMDA, PWD: I'm looking for information about the landuses in the riverfront area(s) before the project, both the official designated landuse and actual de facto Landuse, can you provide me with such maps?

How long do you think the resettled slum dwellers have been using the area? Where there were previous attempts to resettle them over the years?

Were the residents allowed to sell land or property? Did they do it nevertheless?

Was entry to the riverfront areas where slums were possible?

In the areas with commercial activities, have they also been resettled to commercial areas?

## Annex 2: Interview Transcripts

### A2.1 Resident / user Interviews

#### A2.1.1 Resettled residents From Thousand Lights to Perumbakkam

##### Thousand Lights at Perumbakkam #1

Interviewee: woman and man, siblings, 50s, resettled nearly 1.5 years ago (December), approached inside resettlement site blocks in front of their unit door.

Interpreter: Madhan US Kumar

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Actually, they have been resettled because, 2018, it was probably December month.

How long before they informed?

One month before, they have also been gone to the commissioner office, and said we don't want to leave this place, well just leave here itself, and stay. and one week after saying to the commissioner office, one week later, they have been instructed by the government to leave this place, so they have been moved,

and have there been another form of complaint? court?

She don't know but others maybe have done

we have been told the court advised to remove the riverbank people in all over the cooum, because they have been affected by the floods and other climatic situations, so they are advised to go, move away, even the court have been saying it?

and it's true that they were affected by the flood?

Yes, it's improved, because at the flood times, because we used to get a lot of flood, and during the Raja cyclone, during that time, the house was filled with water, so it was a difficult situation they had.

This has been affected by the flood, they have accepted that but why you say we have to move a big distance. Even the flood is maybe for sometimes, but as far as other climatic times, it used to be very comfortable for them, to access the bus facilities, to access the work facilities, so they were having the mindset and then having the strength to accept this kind of situations, but they never have thought to move away and leave that place.

They were saying that they will be happy with the government have been taking away during the flood time, but the government have done it after the flood, and after we were back tour normal situations, they have evicted us., because the flood has come nearly before three months before the eviction, so during eviction time they were living normal, they were not affected by any kind of flood, if the government have been advisable to move us during the flood time, it may be useful to us, but hey they have after coming to normal situation, why have they moved us.

Actually during the DMK period, they have been instructed to have a housing board in that place itself, near the riverfront, but at that time also they refused, because other housing board structures, the place will be very reduced, than their actual living before, they have not accepted that, so near the poorest ... they have constructed some housing board, some people have moved there, but others have been given shed homes. They have constructed, same place itself, near the riverfront itself, but it was not leaf palms, it was better.

and here they have encountered the flooding?

Because they don't have proper rain, so they are not thinking about that, and can't judge about that.

When the government constructed the sheds, did they give documents?

8:40 They didn't give any type of documents, but a person from DMK advised these people to pay some taxes, if they paid some taxes, they may get some toilet facilities, but people have been in a risky situation and didn't accept that this may be harmful to us, she's planning to get other money, so people refused that

And here do they get a rental contract?

They have been given an allotment sheet only, not even...

10:00 If she was living there, she might do some household work, but the living here you can't do anything..

Here there's no work?

Too long for them

But the housing board is making activities like tailoring?

No, there are no utilities

11:05 These two are from the same place, siblings, but they were allotted different plots, so she won't have any work, she has 6000 only she's earning monthly, and for him he's waiting for his wife to work, she's working.

She was saying about the, she has been telling the family situation, about the family his having only one son, and he's not working and she has poor literacy. Here she has to go too long for works and all, she's not able to

After a while they can get a sale deed for the allotted house? Like a contract?

It's possible, they have been four months, they have been saying that they have been evicted. but during eviction time they said it was free, but suddenly they have said they are going to spend some money each month for living here, during there they were not doing any kind of rental activities, but here they have wrongly infirmed them, miscommunicated that they were having them

Have they seen the place here before resettlement?

Previously itself, actually, they have been, came in a group previously and saw this place and no government will take them, they came only with their self-interest, before coming here, they came here with some sort of arrangement with transport, 20 30 people and they saw that, at that time it was not finished the construction.

And did they go to the commissioner before or after that?

After that only, after that they got an idea about that place, and they were saying that they also demanded they wanted homes near Vysarpadi. Because in the area also they have constructed homes, so they requested them because they were in inner Chennai.

Nearly 6km only from the river place, so it's very easy for them to get evicted to this place, but the government said that this place all have been allotted.

Here in the kitchen there are no water taps?

It's in the bathroom and toilet, water is there only,

Is it ok?

They have been used to it,

After this more people said they're ok to move to this place. Because they have washed away from old Chennai and they were evicted here, if they were saying that we want to leave this place they will evict us farther away from this place also, so none of the people have really questioned it.

They have also removed to previous place, they have been done lifted sand, and riverfront and also, they were a primary school there, government school, nursery school, they have lifted and moved that also.

So, there were houses, schools, shops, hospitals?

They were previously asked to have hospital; they have one hospital here that is actually. And the corporation have done another hospital near the .. hospital board, so it's very hard for them to approach the hospital.

A very important hospital is near the central station, it's actually government hospital. Previously we were near that hospital, so the situation we are managing, it is an extremely long distance.

And over there they were living next to each other? Family and friends together?

They have been very next to their homes, families, and friends, they'll be next to them, and here they close the doors... but there they were free and next to neighbours and have fun

But why here they close the doors?

She doesn't know the exact reason, but most of the people also close their doors.

Here they put them next to each other or put in different places?

Most of them are in the same blocks,

When they

It's been nearly 50 years, but previously itself they were saying about how the house was occupied, previously it was empty ground with lots of trees and grasses, and homeless people they used to target this place and clean the places and started living there

Why did they choose that place especially?

He has, many generations, have been there, also they have been in a group, when they didn't have much population back then, they used to do homes, and they said now we have people living there in Chennai for many years, not particularly families, but now we are going there will be most of the other districts and other states will be moving here, but we are the native people and we will be thrown away

When they said they went there as a group, is it a family or village or what type of community?

Another thing he was saying, we have been living here to get some particular bond of friendship and you used to come here, like that friends of friends or relatives of relatives would come, like that gradually some will come some will go.

They know what will happen to the cooum front area?

They have made the river broad, and they have lifted the level high from the low water bed, and she was saying that there will be some kind of Apollo hospital. She said if it was Apollo hospital it will be more transparent and not hidden.....

meaning that Apollo hospital will come, if they're buying, it may be transparent to the

general public, in the sense it may be seen directly, there may be posters or some sort of media. Now there is not, so she was saying her point

In the adaar card they had the address for the riverfront?

The same address, greams road, thideer nagar, Chennai 6. Now they have changed the address to this place,

Were there some people selling or renting the houses?

Here Maybe very few, few of them.

he said some people would go and come in the previous place?

Yeah, they have been for rent also, they were renting, even for rental people they got allotted.

They're having adhaar card and ration card, they got allotted homes.

In nawab land, there were a lot of hotels because people sell their house, is it the same here?

She didn't hear of that, only homes. If they have shops, it was like tiffin (breakfast) shops, small stall shops

Anything else they want to say?

Only the job is the issue only.

### Thousand Lights at Perumbakkam #2

Interviewee: 2 women, one in her 40s and the other in her 20s, approached inside resettlement site blocks in front of their unit door.

Interpreter: Madhan US Kumar

They were resettled 2017 from Thideer Nagar, over there they only had a problem with the flood. And the water supply and other things were not a problem at all.

What other things?

Job facilities, shop facilities, it was easy previously,

They've been going 30 km from here, daily, regularly, they don't stay there, 30 km for work, domestic work.

How long before resettlement were they informed?

3 months before.

Did they accept the decision?

They did protest, and didn't want to move.

Any result?

The government didn't hear us at all, they said better you move from here

Did they go to court?

They have filed a case, after they came here [to perrumbakkam], they didn't follow the cases

Why?

We have been evicted, it's over, why keep following it again

Was it only houses at the riverfront or also small shops?

They used to have their homes, and in the homes they maybe created a small tea shop, stall  
She's been living there for 50 to 60 years, here they cannot make a shop or anything, there  
might be a miscommunication with people or fights, there's maybe some sort of power  
influence and domination between weaker and stronger sections, economically, or political  
influence. So they dominate. Somehow, they've been managing now, but work is the biggest  
problem.

It was better there, only simple problems, like disputes over water issues.

Were people resettled to the same agglomeration around each other here?

All are here, they've been distributed over 15 blocks, 1 to 15.

Are there flooding problems here?

The 2015 flood was the biggest, the government says every year we have a flood, that's not the  
case,

So, living there with the flood was a problem?

Not a big issue.

Did they have problems of water-borne diseases, malaria, etc.?

In the thousand lights area it was not that bad, wasn't that much of a big problem.

Do you get a rental contract?

There they didn't pay rent, and the government said here they won't pay either, but no they are  
paying

They get a document?

An allotment card, it's a temporary one

Do they get a sale deed in the future?

They have to pay the rent nearly for twenty years, the house after that will be their own.

Did they visit the site before resettlement?

NO

Not a representative of the community?

NO

Was the address in Thideer nagar stated in their Aadhar Card?

There, they had that address; Greams Road, Thideer Nagar, Chennai 6 + Door Number

Why did they originally choose that place?

The center of Chennai is the thousand lights, now they've extended, but it is a center place in  
whole of chennai

But why near the river not in the nawab land or other rental places?

The other places may have some sort of government influence, and they were comfortable  
living there [riverfront], so they didn't think about that situation, no problems

How did they know about the place, how did it start?

They moved with the families, and extended families, muslim, hindi, telugu people were there

Do they know what will happen in the area?

They heard about a Car parking

But The official plan is a park.

She didn't hear about it, she saw some construction work but she doesn't know about anything else.

Any things you want to say?

She and her sister did a bachelor degree and another one did a masters but both can't find a job, it's a big distance, from Chennai, so they are not getting any kind of job, and jobs in this locality are only households.

She's also saying that there at the riverfront slum it was mainly scheduled castes people, so these SC people were captured at a single hand and thrown outside of the city, only them, and now Chennai is becoming without Dalits, and it's caste priority.

The project goal is beautification, is she seeing the city becoming more beautiful?

She's saying that we are the beauty of Chennai, we are being thrown out of Chennai, what kind of beauty are they going to attain

### Thousand Lights at Perumbakkam #3

Interviewee: woman in her 50s, approached inside resettlement site blocks in front of their unit door.

Interpreter: Madhan US Kumar

If they work over there for two hours only they would have gotten 6000, but here they've been living for almost two years and not getting enough income

In 2017 they came here

When were they informed of the resettlement?

She is now 50, and they've been telling them for a long time you will be evicted but only after the flood have they been removed, and she's saying that some of the people have been evicted already from there before. To Guindy.

Did they accept the resettlement?

They are ok with the homes, and the water supply, but the main thing is job opportunities and salaries, they are not getting that. Also, we haven't paid the rental amount till now, because we don't have any income

What do you suggest as a solution?

Even their group of people are working there, so it's complicated for them. Make some opportunities nearby because of the distance problem.

The government can make business here.

But TNSCB is doing the tailoring sessions and soon

They have joined, but the timing is not working for them, the timing of the facilities

Over there was it shops with the houses or only houses?

They have been living there, both shops and homes, she also had a shop there, preparing some food items, she was selling that.

There they used to pay a small amount of money for schools because of their economic situation but here they have to pay a big amount of money.

For a LKG, a starting grade they pay 2k, they are not able to pay the matriculation fees here so they send her children to school over there

Do they know what will happen to the riverfront site now?

She doesn't know exactly, but she's saying that one by one [part by part] they have done that, the eviction process. First, they stopped giving us water, then current, then cleaning the .... From drainage, like that. For her, she didn't move from her building, so the police threw her away, and in front of her, they destroyed her home.

Did they visit Perumbakkam before moving?

After being evicted from their home there they came here, they've been informed many times previously.

Did they get a rental contract here?

They have rental but they are not paying because they don't have jobs and her husband goes there for a job.

Were they paying rent in the riverfront area?

They didn't have rental there, they only paid the current [electricity] bill. Here the current bill is 2k rupees, they don't know why, because they have only one fridge.

Is the family and neighbours living near each other?

Blocks from 1 to 5

What do they think about the beautification goal of the project?

Nothing has changed so far

#### Thousand Lights at Perumbakkam #4

Interviewee: man, 50s, with a leg disability, approached next to his resettlement unit entrance inside an apartment building

Interpreter: Madhan US Kumar

All people of Thideer Nagar have faced flooding problems. There they used to have a house, it as not a problem, home is not the problem. Job opportunities are the biggest problem here. Women and men used to work there, for women, domestic work, but here they can't get.

He had a two-wheeler accident since 5 years ago and he can't do physical action since then. So he's been living on support of others.

How long before were they informed about the resettlement?

5 months before, but most of the people objected and did strikes [protested] and they made barricade on the road and then they were evicted. They went to the main road and made some demands.

They protested together and shouted in front of the government. And they didn't need any kind of resettlement or alteration, let's live here, this was their slogan.

Due to his physical weakness, people have been helping him but here people are not. After people came here they became more pressured, job pressures, financial pressures so they don't do it anymore.

At the protests were politicians supporting them?

No, no one. Here neither.

Even if they had any kind of political support, they only saw their own problems no people's problems

They didn't want to follow up through court?

Nothing will happen through court. You and I know they don't give favors to people, they decide on things and don't go to other options like talking.

Were people from the same area resettled next to each other here?

All slums were affected, all of the people have been evicted, and due to that, all people at the same place, there have been clashes between two area peoples, and there was a clash and it's creating some kind of violence, rowdyism and other kinds of activities.

In any area they used to have one rowdy, he will be there, but if 10 areas are put together then they have 10 rowdies, so between the 10 rowdies there are clashes, who is the top, most superior.

When did they start living at the riverfront site?

He was born there.

He has two wives, one is here and the other is in Ennore.

Did they see perumbakkam before resettlement?

No, only after eviction they knew this place.

Not even representatives?

No

Do they get a rental contract here?

No, they have been given only 2500 for 10 months, at first it was 5000, then he now has to pay 750 per month.

Over there did they have a patta or contract?

No, they didn't

Does he know what will happen in the riverfront site now?

They said it will be a bridge.

He's saying that they don't need this building at all, if they were given the previous place, they will be very happy.

About Beautification what do you think?

Ok you have to do the Chennai beautification but we are being dirty, you are making us dirty and you are being beautified.

He has been living there, he could go to the city and get some money but over here he cannot move.

### Thousand Lights at Perumbakkam #5

Interviewee: woman in her 60s, approached in front of her resettlement unit entrance

Interpreter: Madhan US Kumar

Last year 11 months

During the celebration of Deepavali, they've been resettled here, 2017.

She has said that, they've been evicted because of the flood times, because every flood they move to the church for the safe place, a place to be safer then go back after the flood, so for your safety we are removing you from here and we are giving you an allotted home, they have allotted home, but the thing is they have given the place but the pregnant ladies can't go to any hospital, any patients can't go to hospitals, they're going to the previous place only they're going there to eye doctors and other places.

For going to the hospital they're having nearly 500 to 1000 rupees, so the poor people are suffering, and there are people who are ok.

How long before they were informed about the resettlement?

They are saying that during her, since her children were small [young], they used to say we're going to evict you, the government has been saying, but now her grandchildren are going to marry, so since that time they were saying that.

Did they object to resettlement or was it ok?

The government came with the bulldozers and destroyed the places and then asking you should go, leave, and you should not be here, either you run away or go to the place you have been allotted. So we didn't have any kind of options or time for arguing with them, or protesting with them.

No opportunity to question the decision.

They have been in the previous place, affected because of the water and toilet facilities and water buying facilities, they didn't have any kind of facilities there, they used to buy the water, but now they're getting, but now there's a problem with the water here, because they get the water only 2 days.

So over there they didn't have pipes?

They had tanks for two homes per tank.

Did they have current?

Two things were a problem, previously they didn't have toilet facilities, they used to have public toilets now they have toilets. Previously they had lorry water, water from the corporation, now they have water through the taps in their homes. But here they don't have two things, hospitals and jobs, for those two things, they have really suffered.

These people have adjusted to sending their children to English medium schools. Here English schools are too costly.

Did they have shops there?

They used to have only tiffin small shops, to help reviving their life, if someone is poor

Did they see Perumbakkam before coming here? Or their representatives?

Only after coming here have they seen it, 5-10 people have been representing these people, 5 to 10 representatives.

They were not sure if the resettlement will happen, maybe they will do, and suddenly it happened.

They were living in huts?

Yes, sheet homes

The address was on the Aadhar card, Greams road, Chennai 6

Did they have patta?

NO

Here do they get a contract?

They don't have any contract, but they have to pay the maintenance fees. 750 per month.

Do they get the sale deed after some years?

After 20 years, living here, that's the statement given.

Is the flooding problem solved here?

After coming here there was no flood

Do they know what will happen there?

They have only raised the sand. Apollo hospital will do a parking

The government says there will be a park, and it serves beautification

They were laughing about that project; about the beautification they were laughing. And saying that they've been living there their whole life. They had a home and they felt safe. And they were in the main city, but now they're paying the rent. People like her and these ladies are suffering more,

Why is not as safe here?

The road lights are not working,

In the previous place they used to walk in the night, even the girls used to walk at the night. To out. But here it's not safe, after even seven.

Were people relocated to the same plot or a different one?

These people are put in the same places, 1 to 5 blocks for the Thideer Nagar people.

### Thousand Lights at Perumbakkam #6

Interviewee: A woman with her baby, 20 years old

Interpreter: Madhan US Kumar

They have said that, during the flood they were facing many problems, so every time government can't come and rescue and help. So, we have asked the court, state for the stay order, for removing them, and then people were moved, this was the information given by the government.

They have been very near to the drainage areas, so during flood times, water used to come to their homes, so it has been difficult for them, so the government made them stay away from that area, and then they used to go back to their homes after the flood was drained, at the time the government didn't help us to clean it. Only the own people used to do that.

Stay order means, she just said the court have given the final case to the poor people. The court said to remove that riverbank near people.

How long before were they informed of the resettlement?

Two months before they were informed. And during that time, they have done some protests and strikes and went to the DMK government and said so, but the DMK government head Stalin, said that I will stand with you not to be evicted, but after all this the government decided to move them away.

It was the opposition party at the time

Did they visit Perumbakkam before coming?

They have not been informed about the rental, maintenance charge, they were informed that it would be for free, but now they are paying 750, and no one said about that.

Do they get a rental contract?

They used to have their own house [at the riverfront], and here they have the allotment.

Some of the homes, for people who have been allotted, they were given here, they gave it away for rental and they went to live there

Did they have patta at the riverfront?

No, and it was a sheet house.

In the Aadhar card they had the address over there and now it has changed. It was Greams road, thousand lights, Thideer Nagar, Chennai 6, and house number.

This is here children, daughter Aadhar card.

Did the neighbours move to the same block?

For the first seven blocks, people were removed here. Mixed among the places from 1 to 7 blocks.

Does she know what will happen in the riverfront now?

Only the houses were evicted, 10 homes have not been evicted because they were near the nawab land, and they are tax payers.

The project says it does beautification?

After giving this type of information she's very angry about the situation, because here it is very hard to live, there are no jobs, she's very hard time here to find a job.

Over there she used to work in a courier office, but now she goes to the near place for the driving job.

### Thousand Lights at Perumbakkam #7

Interviewee: 2 women in their 20s, approached in the resettlement block hallway

Interpreter: Madhan US Kumar

How long before have they been informed?

10 years they've been saying we'll resettle you

And in the 10 years they were saying Perumbakkam?

they didn't say perrumbakkam, they said we will allot homes, but they didn't say where. Their place was in a flooding place, so the government said we'll move you, but they didn't say where to.

Was flooding a problem for them?

In 2015 there was a flood, the public, NGOs many have helped them

And here there is no flood problems?

They don't have any kind of problems. Bu the only problems is the jobs

What were the jobs available for them over there?

She's here living for rent. And over there [the others] had a very easy access to jobs. Her husband used to sell products on a mat on the street. There it was easy, but now it is very difficult for them.

they were paying rent over there?

That's the biggest problem, now they're paying rent, and before they were having there own homes. So, they're paying 750.

And the rent for other non-allotted people?

2500

Over there did they have shed homes?

Sheet homes

No patta?

NO

Here do they have a rental contract?

Here they have documents like the allotted numbers, and they used to get more job opportunities, and here they don't have any

Were they accepting or objecting to the resettlement?

Now they are ok, happy with it, there is no protest. Previously they were also ok with the project, only for the job opportunities it was difficult

So, they didn't have a problem with it?

Only the job

Did they view the area before resettlement?

Only after coming here

Not the representatives?

NO

They have been predicting that they will go to Perrumbakkam, but they did not actually know this place

Do they get sale deeds after staying here for some time?

After paying the rental for 20 years

After 20 years they said that they will give the home documents

Are her earlier neighbours living near her?

They are scattered in between these plots, one to 7

When did they start living on the riverfront?

She was married there before 32 years, since that time she was there, since four or five generations

Do they know what will happen to the riverfront?

They have visited the place, there was only sand

The government said they will plant trees and do beautification.

She doesn't know about that

Any other issues, good things?

Job opportunities are a problem. The good thing is that the toilet is inside.

### **A2.1.2 Surrounding residents in Thousand Lights (Nawab Land)**

All interviews were interpreted by Madhan US Kumar

#### Nawab Land #1

Interviewee: Car garage shop

Previously there were living space only [Thideer Nagar], here it is one shop and next to that is a bar kasmat (wine shop).

People there had their houses or bought it?

They themselves constructed the houses.

Here there is no problem with eviction for the flood?

Up to this level, the water was here, 1m.. from this signal to apollo hospital, the ground level is low, so the water came this high.

no problems for the shop to go somewhere else?

This place wasn't allotted any resettlement place so they filed a case against the government, that's why they're here. This land belongs to an owner, someone who is from the DMK government so that's why they're here. so apart from that, other people are resettled. Till now they didn't get any land or resettlement site from the government, so still he is here.

Do they pay rent?

No, he doesn't know

Do they know about the proposed plans for here?

on the other side there is going to be a bridge or elevated train, not sure. And on this side they are going to extend the riverbank so that's why they shifted the people.

The DMK politician is in parliament?

no

Did surrounding people come to him to seek support?

No, they didn't ask anything, they were in the mindset, if they can get home, they can go. if they were allotted any homes they can go, they were in that mindset only.

## Nawab Land #2

Interviewee: Man and woman in their 50s

House on the border area between Nawab Land and Thideer Nagar

That (pointing at removed houses) is the river side, from here to main road, it is the nawab land, the government land. People living in it.

The riverside people went to Perrumbakkam.

Previously there were only shed homes, after the 2015 flood, they had said that people are getting affected, so we can shift to another place. In this border only they said they were there.

They were saying they were shifted to perrumbakkam, and this area is nawab land

So people from here to thousand lights, they don't have patta, but they chose a government allotted place, the person called nawab, he gave the land to the government, in that land only they built the house,

They were saying that the river was actually very big, width, but due to these people it has become shrunken, so the government decided after the 2015 flood to remove these people

Were they here also affected by the flood?

Actually it was till the second floor here, and till the main road

They didn't have problems, or being told they have to move because of the flood?

This their own living, so they weren't allotted anything, the others were very close to the river.

There were two times before with the flood, and again they built the houses, the third time only the government said to remove the houses.

And here did they build the land or build right away?

From their grandparent's time they were here, you see it was the nawab land.

Their grandparents were military, so for ex-military persons, the government gave the land.

Did they get a patta / paper?

No, no document,

He said that they increased the height, so no public should enter, for that only they increased, again they said no people will come here. He said they're going to build a compound (fence) here.

Do they remember before the slum dwellers how was the place?

It was, before many years, the water was very clean, that's why they were taking pure water, and use it for cooking it was like that, but after these people it was changed. even there was a boat moving here.

Do they see the change now after people left?

There is no change in that, but now it's less populated, it's very silent

How much are houses here per square feet?

They don't know the exact price, it changes from the main road till here, towards there it is higher. So most of them shifted their homes, and made lodges, rental hotels.

How much is the rent?

They don't know

### Nawab Land #3

Interviewee: Two men in their 40's, one woman in her 70's

40 years ago they were here, it was no patta land, so they were shifted to another place, during the 2015 floods, the whole area was flooded by nearly one flood water, so they were told by the government that they need to be shifted, because during heavy rain there was more flood. They were shifted towards Perrumbakkam for a housing board for a monthly rent.

We were talking about who is nawab, and what is the land actually. They are saying that the Nawab is the person who belongs to the Nawab, a group of Muslim families called Nawab. Those nawab before the British period, in this land it was a garden of Muslim nawab people. So the nawab used to be here and visit here, so these nawabs gave this, after the British period, it was empty land, so people started shifting here, but the ownership was to the nawab. So the nawab land was taken by the government, so now there is no problem for them to [stay].

Now they are having no problem to live here. So, it seems to be the nawab land. These people don't have any kind of property agreements or any kind of papers so they have been shifted to that place.

And what is CW?

They mean that CMDA or CRRT own it, they don't know the exact meaning.

They were saying that Nawab filed a case to remove this people. But during the DMK period they said that the people should not be evicted so for the Nawab they gave the compliment for the place.

Who said they should not be evicted?

The former CM jalalitha

Actually she's anglo-indian.

Did the government tell you what is going to happen here? What they will build?

This land belongs to the PWD, as in the government have shifted the people and were taken to Perrumbakkam.

What will happen here now in the area?

They say Apollo hospital is taking over, and they're building a bridge

Did the people there complain about resettlement?

They can't answer, if they answer, the police will come.

### Nawab Land #4

Interviewee: a man in his 30's, a hotel receptionist.

So people are living there in the resettled, did they have patta?

They don't know exactly about that,

he doesn't know about the Nawab land, but I was asking about this place [hotel] previously was home or not. He's here for 6 years, but some of them say it might be like a home or living area, but he's not 100% sure about that.

did the flood affect the place here?

up to first floor it was coming?

Did they have to close?

The next side of that home, that road side, there was no water so they shifted the people from here to there, the other side.

Does he know what will happen in the river front now?

No

### Nawab Land #5

Interviewee: supermarket couple in their 50s.

They were only being in the coastal area, so only they have been evicted. They don't have information about the project.

They don't visit the river?

More than 100 years they were here and usually don't go there

They [small shop] don't have problems with the government to move?

they have documents so they don't go, patta, they are paying all kinds of taxes, water taxes, residential tax, so they have an officially government approved plot.

was this wall only built after 2015?

It's one year old, it was not constructed by the government, it was constructed by a person, they are building a space, so that's why they are constructing, and before it was an empty land.

### Nawab Land #6

Interviewee: Two women in their 60's

After the flood, people went to Perumbakkam, even here it was flooding

If in the future the water comes, they might go. But before they have been very close to the river, that's the problem, and why they have been evicted. But in the future after taking them, if any flood comes, they may also be evicted, they're not sure.

Is it also Nawab land, do they have patta?

they have documents, nawab gave the land to the poor people, that's it that's what they have. do they know about the proposed plans?

constructing a road, maybe a hospital, but sure the bridge

Do they prefer something there like a park for example?

They don't have an idea, maybe houses, don't know, hospital will make us happy, but you need parking and roads so I don't think enough land will be there.

Before, were they using the river water?

As long as she remembers no one was using the river water, she is not sure about the past. because it is dirty water and waste water, they only use lorry water. before it was clean.

So, did they use it when it was clean?

when it was clean, they used it for bathing, she meant no one was using it for drinking, or washing vegetables, bathing is different.

More than 40 years ago, they used it for bathing.

for their houses, did they buy it or rent it or build it?

it was mixed, rented and owned people, both got allotted in perumbakkam.

how much is rent here?

rent here is 1000 to 500 per month, only for 150 square feet.

### Nawab Land #7

Interviewee: A woman in her 50's

They went to Perrumbakkam, and are regularly travelling to here, so they are suffering.

was the flooding also affecting here?

nearly one feet high

Did the government introduce measures to prevent the flooding?

They increased the height of the river, and they are doing a bridge project.

does she know about the proposed plans?

a bridge,

does she think the park is useful?

There is no possibility for a park, because there is no facility to make it as a park, that atmosphere won't be possible for a park, for a bridge is ok, but there is no space for park.

Access for parks is only on Sundays, the school leave days, otherwise everyone is busy.

when the river was clean, did they use it for something?

Her grandparents used it, they used to say that if any coins are thrown inside they can easily find it, because it was transparent and they could see.

At the time did they use to sit there?

before people have been evicted, they used to go and speak with them, as friends not anymore

now it's empty. They went to Perumbakkam. She's also been allotted a home but she didn't go because here she has good facilities and near work. It's two hours far from here and three hours in traffic time.

She has her house here, she pays taxes for it.

How much is the rent here?

these are self-homes, they sold the homes to Hindi-speaking people, when they had economic problems, then those turned the homes to lodges.

for around 600 rupees per night.

when were houses turned to lodges?

After the apollo hospital arrived.

### **A2.1.3 Other resettled residents**

#### Chetpet returned from Perrumbakkam #1

Interviewee: A man in his 20's

Interpreter: Keerthi Hassan

Actually, the officials said about this, the people can only sell crafts here, they are not allowed to live. They have made their handmade products. They go sell over here, and they go back to the house they were allotted otherwise they will punish them. But what they're saying is that, if they keep all the things over here now, it is not safe for us. There is no safety for the things. Someone in the night, there will be not that much of humans walking around this, so there's no safety for the products. They were theft. So, they felt they were not safe. As well as they can't take them to Perrumbakkam, they are a lot they are too heavy. They need some van or some auto, like that. But if they don't have money to pay for that. So, they just start living over here.

So, they were living here, then evicted then came back?

Yeah

Actually, people were not allotted any house, they weren't given any house or allotment for these people. The only thing they have made is handmade.

Before eviction they were also doing the same products?

From the beginning they were doing the handmade stuff only

### Chetpet residents at Kannagi Nagar #1

Interviewee: Woman in her 50's

Interpreter: Lakshmi Kanth Bharathi

They were living in the Chetpet riverfront, 11 years ago.

evicted for the road project? or park?

It's a government project, before the flooding

Was it only a residential area or also workshops?

people only

Did they expect the change, the project?

They are settled in the river border, so they know anytime they will be evicted by the government, then they come.

How long before were they notified?

Before three months, informed three weeks to three months, they said you have been allotted a place in Kannagi Nagar, and they were given a lorry to remove all their belongings

Did they visit KN before?

No

How did their work get affected by resettlement?

Previously in Chetpet they would go to local works in the neighboring area. After resettlement in KN, they would suffer to go to work, they spend 20-30 rupees, go to that place and come back. It took, too much time for transportation. She works there.

Did they have utilities in the old site

They have

Did they buy their house over there?

They built their own house, they went there and secured their place, they were not able to pay rent. They settled there before 10 years.

Was their address in the Aadhar card on the same place?

They have still the old address only. Same identification, a single document saying they were resettled from Chetpet to KN, but there is no identification given by the government.

Any problems with social services, schools, hospitals, etc?

Compared with Chetpet, they had very good schools, and hospitals around Chetpet, but in this area, there was one school, one hospital but it's not functioning. They give you agreement for this house, they give you 254 per month for this house, and they only give 20 years for this house. After the 22 years they don't know if they are removed from this area or they give a renewal to the agreement. They have a contract for 22 years.

Did they have patta in the old location?

No, no legal documents.

Did they get prior announcements for resettlement?

The government used police to force people to go from that site to the resettlement area.

Do they visit that previous site now?

They say, someone had some legal documents, so they went back to the same place, so we only stayed like this. They also talk about, that some people are earning more, they saw another house near chetpet and gave the rent and stayed there. But we don't have rent, we have a small amount of earnings, so we settled here only.

Are they safer here from flooding?

Over there, they would suffer from any natural disaster in Chennai, comparatively...

Are they allowed here to change in the house, do extensions or something?

Actually, they give the rent of the house and change to a shop, they do it, and the government has no problem. Actually, some people have been allotted the house but they didn't take the house because they're in Chetpet. Those people gave the house to someone for shop, commercial and so on. And they will collect the rent from the people.

Are they allowed to change room setting, wall location?

There are some single families but they have two documents, so they were allotted two houses. So they will combine the two houses into single.

Did they face pollution problems from the river, do they feel less pollution here than Chetpet?

Even if there was a lot of pollution, they like that place. There are factories around KN, so it will affect more than Chetpet. Because in Chetpet it's a city so there are less factories. Actually there is a paint manufacture company that exposes lots of pollution, and it leads to some firing, then only the government closes the company. The people suffered from the company pollution.

Do they know what's happening in the riverfront now or not?

They started a project to build a bridge. But now it is stopped. They say we spend lots of money in this area, comparatively to Chetpet. In chetpet we had a small amount of earning, but it was enough for us. But in Kannagi Nagar, It is too much of spent money,

shops or transport or anything, even if they call for auto they ask for too much

Did some people go to court to oppose resettlement?

They have no time to go to appal for court. And they say if we go to court, if we appeal the case we will spend some amount to appeal the case, but we do not have money so how will we face the case. So we will accept the things and come to this place. And there is problem, the people are not coordinating to raise this issue. Some people have accepted to come to this place, some people have refused to come from Chetpet so we did not think about this. People who like will come and who do not will not come here.

Did they also try other types of complain like politicians or government or so?

Actually, they did not file any cases, but eve local politicians will not ask about this issue, they will ask for votes at election time and will go back. No discussion is going.

They say that we have some demands for living in this area. If we continue in KN, the government should continue to surveying in this area. So government should consider, to give some amount for small companies. It is help for us.

The government is building a park, will they visit that park, do they visit parks now?

No, they do not like that

Did they visit the Chetpet Eco-park?

They went once and see it and come back. Actually, there is a nearby hospital. Most of the people go to that hospital, during that time they will see it.

They earn approximately 5000 per month. Their cast is SC/ST, and there is mixing.

#### Chetpet residents at Kannagi Nagar #2

Interviewee: A woman in her 50s, she was living in Chetpet riverfront from a bridge before the railway bridge, they were resettled since 11 years ago.

Interpreter: Lakshmi Kanth Bharathi

Was it only residential area?

residential area only, during the monsoon their residential area got affected, then at that tie they went to a higher area near the Chetpet road. For two / three days.

No shops at all.

What's her job?

Homework, domestic worker, nearby Chetpet area, Harrington road

How long is the commute to there?

They used to go by walking

And after coming here?

Now they have no job, she has one daughter and she supports her. She and her daughter were living in Chetpet, and when the government resettled them, her daughter rented a place nearby there and went for work.

Did buy the house there or rent it? when?

They built and had their own house, before thirty years.

no patta?

Before, when they settled in Chetpet, --there was no electricity or services, only after 10 years these were introduced

and they paid the bills?

yes, 500 - 1000 per month

Here do they have a contract?

They paid 250 rupees, but they do not have documents in the house

Is it possible to be removed from this house also

The proposal is about removing to another place, but they are not sure about it, there is no official announcement

Are they facing flooding problems here too?

there is no water water management, drainage facilities, so they also suffered from the 2015 flood, the water was this high, and no current during that time. If there is a little bit of rain on this area, automatically the electricity gets cut off.

Over there, if there was a monsoon season there was a flood, there is no remedy / action taken. Do they visit the area now?

the government dumped sand in their place and extended the river, and still the work is going on.

If they know building near the river that were not removed

During that time, we and also government buildings next to us, but they evicted us only, they didn't take action against the government buildings, and it is still there, so we do they evict us only

Are they allowed to change to the house plan, walls?

Not allowed

But people do it anyway?

no

During the monsoon season, all the eatable items, basic facilities are too much high, so they are not able to buy the items, even if they want to buy milk, the prices are high during the flood.

How long before the resettlement were they informed?

five months before, and they gave a small paper before.

Did they visit here before?

NO, and when they arrived there used to be no facilities

Where they given a choice on where to go for resettlement?

NO, only KN was allotted. If you see the drainage in the back side, it is the situation in all of KN, it is creating Mallaria also.

and over there near the river, there was no Mallaria?

It was not a problem for us, because it was an open place, and there was a space for drainage moving, but here it is a dump, there is no solution. Even they complained to the corporation officials to remove the drainage, but they didn't come. Actually they pay each 250 per person for drainage / maintenance. In the beginning they were paying 150 / home, now it is 250. It is a big difference, and hard for us to pay.

Who collects the money?

A government office here and they have the allotment number with them.

Before coming from Chetpet, they didn't have to pay maintenance and these amounts, now that they have to, it is affecting their earnings. There is not enough money for survival in this area, because there is no employment opportunities. Then how will we earn and survive. But Chetpet had a lot of jobs.

Most of the people from Chetpet are going to house work. it was very easy in Chetpet. But here there is none. Over there, both sides could earn, ladies cleaning and so, and also gents would work, but here none.

Did some people buy or rent their houses in Chetpet or everyone had their own?

No, everyone had their own

Did they try to complain through court?

\*Laughing\*, after being allotted no one went to court, they were not aware of it

Were there associations of slums or so?

No, there are none

Did they file official complaints to government?

The government representative / councilor, corporation representative member, he represents and collects the problems for the corporation, but they take the problems partially, only people they know. They are elected in general but the last couple of years there was none, and there are elections coming up soon.

will they go?

yes, they say the representative came asking for vote when there is election only, but they would not come if there is a problem

Are they going to visit the new ICRERP park, did they visit the Chetpet park?

There is an upcoming railway project, park but they do not know about it

were they visiting the nearby Chetpet park over there?

They did not go there, they would just see it

why?

they say park is entertainment, but if the government removed our livelihood places, and make it a park, then how do we go like that.

They say upper class people will go to the park and play with the boat, but it is our area, our feelings, native, but the government converted it to a park and they issue tickets for entertainment. Then why do not build a housing board in the same place if they are able to build a park like that.

The project aims at beautification, so do they see it more beautiful now?

They do not care about these things, and they say the government said if we make huts and live in huts, it makes trouble to be able to fire anytime. But here most of the people have built huts from small bricks, it is not easily [flammable]. But the government just do like that.. the government says to clean the city, we are ugly people, why they clean like that.

They said that better the government build houses in the same plot, but it is not dangerous because of the flood.

Every time, some government takes some action plan, previously the government used to take the people and allot them in the same place, but now the government does not do like that. There are two governments [DMK and AIADMK]

Some areas they will get the same place in the same area, but now they do not do the same, There are some areas in Chennai like Vallurkutam, Visyarpadi, it's near the river, the government has officially built apartments there

Any other thing they feel unjustly treated and want to talk about?

It is a government policy decision, previously they used to do it in the same place but in our case not.

### Chetpet residents at Kannagi Nagar #3

Interviewee: A couple in their 50's

Interpreter: Lakshmi Kanth Bharathi

They were living in Chennai riverfront near shoppers stop shop.

When were they resettled?

9 years ago

For which project?

Metroproject

Over there were they living or did they also have a shop or a workshop?

Only house

They built their own house

He works for building construction, she is also going for some home sweeping, cleaning.

Which areas are their work?

5 km difference, 10 km radius, so they will have a lot of work in all over Chennai. Even before when he was in Chetpet he used to do the same thing.

And for housekeeping?

The time for her is 2 hours each way to go work in Chetpet

Over there did they have current and services

They said before there was no infrastructure there, but nowadays they built many facilities in that place.

Did some people pay rent there?

There were no houses for rent, after government allotted this place we came back from the old place. Only after the rain and the flood. During the tsunami, they got affected by the tsunami

And here is it better?

It is comfortable for us, but the problem is that there is no employment, and no transportation facility by the government. These are the major two issues in this area.

Did they have a contract over there?

The houses were allotted for us here, the houses are used for our generation, no other agreement than that. They all live here, parents, daughter, all.

do they go to the resettled area?

It is empty over there, they dumped the sand and increased the height of the land to protect from the upcoming flood.

How long before were they informed of the resettlement?

Three months before, but they gave time for one year

Where they given a choice for resettlement site?

Only one choice

Over there, there is a bridge and a park, were they informed?

They only said there is an upcoming metro project in this area. So we want people go out of this area.

Any issues with schools or hospitals?

No, all facilities are good, only problem is transportation

No need to go to court, this is ok for us.

Did they use to visit the Chetpet eco-park

Yes, they visit the eco-park, when they have some work near the place.

Did they have water-borne diseases there? malaria or so?

No problem

Income is approximately 6000 per month

#### Chetpet at Perumbakkam #1

Interviewee: Christian woman in her 30s

Appasamy street, Harrington road

Interpreter: Madhan US Kumar

They were resettled, because they were affected, the water has been to their houses, rainwater and river water. they were affected, then the government in the DMK period constructed sheet houses for them in 2000. By the government for them in the land itself. They have been there for nearly 30 years. Before that they were in palm leaves houses.

She [another] has also been there for 45 years.

In 2005, they have faced rapid damage in their house, and it was filled with water. So the tata organisation constructed sheets to houses. Because in 2000 half the people were upgraded.

Were they given documents at the time?

Not any kind of patta for registration, but got iron sheets sealed with numbers.

Was it only houses or only shops over there?

There were also shops there, one side would be filled with houses and the other side was shops, from the Chembakkam railway station bridge.

And the reason for their resettlement?

Two reasons, the roadways extension, and park building. They have been given information that you people are suffering in the rainy season, so we have allotted houses for you there, so you better move there.

How long before were they informed?

Even two years before they have been saying but not in a proper way of communication, so during 1 yea to 8 months they were given pressure to move. They have been saying you are going to be allotted this place and people will go there, but not proper information. They have visited the homes, but they were told you were going to be relocated in one of the places, but before 1 year only they said you are going to Perumbakkam.

And what is her job?

She is doing tailoring.

And before she was doing in a data entry job, and she used to get 7 to 8000 for that job, on a shift basis. Here she is doing a tailoring job to get more or less the same. She has to do more hard work though to attain the same level of salary.

Her husband is working in a cab agency. So he is earning per day around 1000 rupees.

How is the state of utilities (current and water) here and there?

Compared to here, there, there would be job opportunities. But they wouldn't have sanitation facilities and get safety issues. Here she is having her own toilet for self-uses, and water facilities are coming regularly. But she's not having many job opportunities or they are too far away.

Is there a difference with hospitals, schools and other social infrastructure?

Now only it is developing. Over there, there was the police, school and hospital facilities, Here only after they came here it started developing

were there water related problems there, like Malaria?

She's saying that there's a problem with people living here. The government have given us these houses, and people living here they don't have this kind of mentality. People living n the 6th or 8th floor, are throwing the waste from the window, and due to that they are facing issues like smells, some people even leave the waste in the lift itself, so bad smells are enclosed within the lift itself. But the corporation is doing good work, they are collecting waste daily in the early morning.

Over there did they build their house or rent it?

They were not in rent, they built their house, first 4 walls and a shed, then after problems they shifted to sheet homes.

And here do they have a contract?

When they were shifted here, the government was giving 5k rupees, then the government said you are not getting any job opportunities, so monthly we will give you 2500. So it continued for 10 months nearly, and now they are paying rent and they registered the house in their name.

Before did they have the address in aadhaar card?

yes

Only if they had the location registered, they would get the allotted home.

So, some people were not allotted?

These people [all of them] have been there for a long period, so they were having all kinds of proofs.

Do they visit the riverfront now?

She doesn't go out much, her lifestyle is like that, she doesn't meet with other people.

Is it safer from floods here?

She's feeling unsafe here, because there are four ways to enter the building. The lift only works till 10 at night, so without lift, some of the workers, arriving late at 10 or 12, so they had some kind of clash with the door opening. The wine shop is also a problem for them.

And about the flooding?

Since they've been there has been no floods. But some people used to say if you people are in ground floor, it may be unsafe for you, water may come inside and the drainage water also may come up.

Is there a possibility of them being moved to another place or they don't expect to move?

It's been one year, so they got some place resettled, and for work they have planned their ideas.

So, we can't go any other place from here

Did they have any court complaints or government complaints?

They had the church, and the pastor filed a case not to move those people, they don't have job opportunities there, and for 3-4 months they have been running the case, and she doesn't have any clear idea about it, she asks her neighbor who says that

IS it still running?

It is a closed case now; it is not filed anymore. Because they have been given homes, so how can they fight with the government like that, the pastor wrote that.

Why did they chose the river area to settle in the first place?

They used to have jobs there but not enough to pay rents, only the riverbank area is the free area in Chennai, so they built their houses there and it was near their jobs. Before her birth even they have been there.

Her caste is SC.

### Chetpet at Perumbakkam #2

Interviewee: Woman in her 30's

Interpreter: Madhan US Kumar

They have been the same street and road and her mother is still living there on the other road side, she is resettled because she was living near the river

Why were they resettled? park?

The thing is she faced two big floods, the first in 2004, tsunami, they have felt the flood till the church.. Then they faced the 2015 flood. Then the government advised them to leave for two reasons. Because of the road and the park. You will get allotted a house, you will not face floods, it is unhealthy for you here.

So, they were resettled in 1, Dec., 2017

Was her work affected?

Hospital and school over there are very near and her children still go to school there. Here the fees are very high. Over there, the fees are less and they got support.

She's a housewife and her husband is a driver.

Her husband is affected a lot, because he was driving in the city 4-wheelers, 3-wheelers. So if he goes from here, it costs around 3k rupees extra, so it is hard for them to live here. There, she felt they had easy access.

Were they affected by the flooding here?

Since they arrived there was no flooding. But people who have been here previously say that this is like a river and the flood will come, but she hasn't experienced it so far.

Here and there were they able to change the house, make a shop and so? She's having a small scale tiffin shop here, in the previous place she didn't have.

She needs the money, so they said let's give food for people and get some money

Here and there did/do they have a contract?

She's saying that previously they didn't have any documents, but they used to have the aadhaar card and ration card on that address, and now it is shifted.

Do they go to the riverfront now?

yeah because her mother place is there

any other reason?

They used to do things in Chennai and see the place, and they say that now there is a wall

Did they use to visit the Chetpet lake park

No difference in the riverfront, only the wall.

And the lake?

She hasn't visited that before. But it looks good.

Do people here rent or sell their houses?

She doesn't have any idea. She is scared, this is a stupid question. We had obstacles there to get here, so from here eviction to funeral only.

Jobs are the biggest problem.

The hospital is too far.

About their household income they said that initially it was 9k and now it increased to 12k. If she has customers she gets an amount of money. Also about the hospital, if any damage happens to the children, we have to go to the district hospital.

Some inspector came to this place, so they asked him to bring a hospital to this place, but not any kind of petition

Any other way she feels unjustly treated?

For family time, she's getting more time, maintaining her children, making food for her children.

They are a scheduled caste.

Chetpet at Perumbakkam #3

Interviewee: Woman in her 40s, SC

Appasamy street, Harrington road

Interpreter: Madhan US Kumar

the government has informed them that, people on Cooum are evicted, for the reason of a bridge

When?

12/2017 she came here

Even her grandparents have been there, same area, for nearly 100 years

They have been in leaf houses until the time of eviction

They have built their houses.

They selected the riverside areas, because it was free, we were in a group, so we decided together to settle there, and slowly other people also started moving there.

Was it only houses or also shops and workshops?

In the riverbank there were no shops, only in the main road.

Did they have problems with the flooding?

They don't have any proper rain here. Over there, even for the small rain, the water used to come inside and they used to suffer a lot, they would go to the road side or church or school to sleep.

Has her work been affected?

Previously over there they have been earning 10k rupees, and now they are getting 2k. She was a housekeeper at that lady with the school. She had an experience for 10 years, now it is lost, and to get there it would take her two hours up and down, so it was difficult to keep the job there. so, now she is going to a home to do household there.

Are there any problems with utilities? Safety?

Her husband used to go to get water, here in the beginning there were many rowdies they have damaged his auto. At night there are many bad things done by the youngsters.

Did they have an address? patta? over there

Yes they had the aadhaar and ration cards but no patta, only the sheet license

And here do they have a contract?

They have made it their home. But they have to pay 750, including 250 rent, and 500 maintenance, to pay the lift person, the pump for groundwater and for house keeping, for the salaries, but the electricity fees are separate.

Is the riverfront area fenced now?

She didn't go back and see these places.

How much time before were they informed of the resettlement?

Every rainy season they used to say we will evacuate you people. But in 2017 they were strict about it and they said you will move.

Any court complaints?

She was saying that they have filed a group case, but now they have opposed the case, it is not strong. They were saying they want to stay in the same place.

Her caste is SC.

Chetpet at Perumbakkam#4

Interviewee: Man in his 50s

Harrington road, 7th avenue, Madras MCC school is opposite

Interpreter: Madhan US Kumar

There is no water problem here, the only problem is work. He is having one son in PG and working in global hospital, previously he was working in the Chetpet hospital then he was transferred to here. And his daughter is finishing PG, both are PG graduates, he's a daily wage worker, he's a painter. So, for any job now he has to travel for a long period so it's hard for him.

In the riverfront there were no utilities problems?

His wife does housekeeping work, till now she goes to chetpet and works there.

There were two sites, the slums, and the elite people, like this it used to split, and people from outside were confused because Appasamy street had both the slum people and the elite people. but none of the rich people have been evicted, only the unwanted slum people.

Did they build their own house over there?

From his father's time they have built their houses there

In that place they used to have the leaf house, and they get electricity from the surrounding buildings and pay them monthly, illegally. And they have been compelled to be in this place. This was the only available space for them in city

The address in Aadhaar was on over there?

All cards had the Chetpet location, with that he can get groceries here because it is not changed

Do they have a contract for their allotment house

Some of the people are selling their allotment homes here, very rare, on the backside not here. If inspection happens, the original allottee has to go.

In the riverfront were there selling of houses too?

No, only for rent, around 2k / month, 1 BHK

Did they state the reason for resettlement? road project? park?

He didn't get any information, they simply said people should leave the river. they were informed 1 week before, and there were no options. They didn't visit the perumbaokkam before either.

Does he visit the riverfront anymore?

No, it's a different place now, they have put 10 feet of a sand barrier

Did he visit the chetpet lake park?

It was only launched recently, so he didn't visit

Was it easy there to change the house structure easily? extensions for the house

They used to do house alterations to stop the water but that's it

Did they do any court or government complaints?

The church has filed a case, for 10 years it was going, and if the case was not good, they would have been evicted to Kannagi Nagar 10 years ago, not here.

## A2.1.4 Other surrounding residents

### Surrounding residents in Chetpet #1

Interviewee: Man, in his 60's

Chetpet riverfront near Munroe bridge

Interpreter: Keerthi Hassan

Some few implementing plans, so they have been evicted for Cooum cleaning as well as the bridge from Maduravoyal to Harbor, and now they are planning to make the park on that side. and now they are planning to put an underground metro station under these buildings. They are planning to dig it 300 ft. below under the ground, dig some tunnels, for a metro train from Madavaram to Koimasakari, it's near Kannagi Nagar. Before the last month, some people came and took a survey of the buildings, whether they are old or new, either they will be sustained, or it will get destroyed, and said they will give the details. They have also promised something for them, but if the work started, we will offer you another place, then come back after the work has been done. But he's not sure if it will happen really or not. He has been living here since 40 years, in the riverside, then he bought this land and built this building in 2007, and started living here. Then the plans for eviction were made at 2009. So rumors were also this place will be removed, then they opposed saying that we have documents, patta, proof for owning this land, so we won't leave this place. So they stayed and only the other [riverfront] places were evicted.

Actually, they were shifted to two places: Kannagi Nagar and Semencheri, two building blocks before Perrumbakkam.

Actually the people behind this bridge, they have protested saying that we are not leaving this place, and the judgement was in their favor, saying don't proceed with your work, we will stay the work, until one and a half years ago they got a stay order saying you should leave this place.

Actually, what happened is that the houses were too small (170 ft.) in kannagi Nagar, they were not OK with that place, so they have protested, they have started the case in the High Court, then the government offered to shift to Perrumbakkam, because there is 325 square feet. So they were OK with that place and they started shifting to that place.

So the same thing like we found in the survey, they can't find a job, if I was in my place I could search any job, but after shifting to Perrumbakkam, I didn't have any job, I'm suffering to earn money, the same thing he has said. They have come from Semmencheri or Perrumbakkam to here, the workers, then they have gone back to their houses.

Was their support for people to go to court, how were they organised?

Here people were not aware of the house, how it looked like, how the eviction site looked like. They have just said ok to go to Kannagi Nagar or Semencheri, then that side people made them aware of not having that much of space. In between those seven years he has seen many problems over there. Because a family of a mother, a father and a daughter, they would be staying in a single room, that girl, was in puberty, then some illegal activities between the girl and the father, so the family has committed suicide. So, they couldn't live in such a [small] room. So, these people have seen all these experiences and things before, so they have protested and said if you give me another place, we will go, otherwise we will not go, we will never leave this place, we will never evict this place, so the government has provided the Perumbakkam site for them, and they have started shifting from here to there.

They didn't have any proper institution, but if this street would consider a persona senior one, they will make some, tell him you are the leader for this people, guide us and we will support, so they selected some persons who have some powerful people's contact. Or those who are powerful, doing opposition with regard to this person.

He is 54, and from his birth he was living there.

Those people, didn't have patta, here they also had a similar process. Before the eviction site, they didn't have problems, but then the government have decided to evict those patta-ed lands also, so they have decided to make some community members, they have formed the association, and started opposing the government, and put the case in the court, and they have argued, and then the government said ok we will leave this place, and then evict some of the non-patta places, and shift to resettlement sites.

Can we meet someone from the committee and ask about the court case?

actually, some lands belong to christian communities, so they have argued that these lands belongs to us, how can you give this land o the public. Then they filed the case, so they don't know if they will be shifted or removed.. now they are not available.

We have only 13 homeowners, who have come together and went to meet teh urban development area minister, and they have asked, we have been living for the last 100 years, we can't move anywhere and also we have the patta, so don't replace us. the minister said ok, let's leave these people, just evict the people on the riverbank side.

### Surrounding residents in Chetpet #2

Interview: Business woman

Interpreter: Gutam Krishna

It is not a slum what do you want to ask here.

I know there's some work going on there

What's your feedback on it?

I support any development taking place of course

It has been going for the last 6-7 months

We haven't had any problems from the government

There has been a fence, all houses have had a back to the river

They've been adding silt, excavating, we had some shakes

Rental prices changes are more related to the market, and it has been stagnant

If there's legislation, everyone should be involved, door-to-door

They can be informed easily: with pamphlets, messages or social media

I just presumed it as election time, because that's usually when they start doing projects like this.

### Surrounding residents in Chetpet #3

Interviewee: Man in his 40's, tribe, tents.

Ramanatha Salai street.

Interpreter: Gutam Krishna

No ration card, tribal people,

There was a minister called Nanda Kumar Sai Ji, so all these people went to him, he's a tribal minister, so all these people went to him.

So these people are community people, and they grew up here, so they went and asked for help from him, so the officials said I'll give access to the commercial things, for selling these things. But he's telling that I don't want to go anywhere, I want to stay here and do the sales here. Here the sales are nice, anywhere else the sales would be down.

The village areas, people won't purchase these things, only in these [city] areas that people would purchase these things. So, we have to live our lifestyle here only. So that's why we need this place here.

Did all tribes people stay here, or some went to Perumbakkam.

He says there is a language for tribal people, and he says that I know the language, and he said that some people used to get a certificate as a tribal even if they are not a true tribal. He's saying that I'm a true tribal, and the government has not given to them.

Do you think that here it is risky because of the rain and the flood?

He's saying that the corporation is the main problem, other than that I have no problems. They don't want to do any help, they don't want to interfere with jobs and all

They're not allowing to live here

But the flood is not a problem?

During the flood time, the water didn't come here, because this place is high. My books are gone in the river, I was studying in High school at that time, and didn't continue.

When you came here 30 years ago, did you build the house or buy?

So they used to get they used to get all these sticks from some places, and they built those huts themselves.

The person who does these crafts, their caste name is Kurumans.

Can you connect us with someone in Perumbakkam?

My friends are all in Perumbakkam, my schoolmates. But I don't know how to reach them, my phone was flooded.

#### Surrounding resident in Chetpet #4

Interviewee: woman in her 30s, tents.

Ramantha salai street.

Interpreter: Gutam Krishna

The river flow and the land was low, so the land was in low height compared to the river. So after some time, after construction started, they raised this. after a week only they installed these huts and all

Did she live here before?

Yes, previously she was living, and the land was near the river

Was she resettled to Perumbakkam?

Those people over there were given places in Kannagi Nagar. These people here who are doing the crafts, were told you will not be given houses, you are staying for a commercial purpose, you are selling things,

before the project, were also doing the commercial activities?

Yeah, during the flood time, she was staying here and refused to leave

And before the flood?

Since 19 years

She says she didn't have the ration cards and all, so that's why they couldn't get the [units] there. Some people got, but those areas, the people didn't get, on the front areas and all people got. So, they were living as residential, that's why she couldn't get.

Her current Aadhaar card is to here?

she has aadhaar card, on this address and all, but she doesn't have a ration card, she's saying if she gets a ration card, the government has to give a house.

All the aadhar card is in address. For the ration card, she used to give money advance for houses, creating a duplicate address, give money for another home, so while there's inspection for getting ration card, the policemen will get that.

So for example, her son is in school, and the school needed to get the ID proof, ration card, so for the ration card you need a permanent address, here it is not a permanent address. So, for the Aadhaar card. And other ID proofs they've been using this address. But for the ration card, they've been paying rent and they got that ID proof from there.

All the school books, and they didn't have any clothes also during the flood, for the students' education, all social workers came over there, they were doing helps. They don't get interior places and all. The celebrities came here during the flood areas, and give reliefs, but for the interior areas of this place, they were not able to get to them, during this time they didn't have any clothes to wear, they lost all the books and all.

She's saying that over there, the police men came and took photographs of the house, and said get out of this place, we are constructing some things here, so you should go. They said that we are ready to go, if you give us some place to go, you have been giving places for all those people over there, why have you not given a place for us. So, she's crying with that.

Where she's living now, it's rented right, not resettled.

She's living here only, she couldn't go anywhere, the rent she said about is only for address proof.

When they came here 19 years ago, how did they get it? squat or buy from someone?

She's saying that around 1988, the CM of TN said that you could put huts in the platform areas, so the poor people can live there. So, on that time, 1988, he gave access to those areas. Huts in the platform areas.. (translator's explanation: all empty areas where they can keep their huts).. So from that time, previous generations have been here, so it's an ancestral place for them.

Can you ask her if people lived on this side only or also the other side?

Only in this [north] side, not the other side, before the [munroe] bridge. and over there to the right [Thideer Nagar].

Those people were also allotted some houses in Perrumbakkam.

### Surrounding residents in Pudupet #1

Interviewee: A man in his 50's.

Interpreter: Madhan US Kumar

About one or two years [ago they were resettled].

After the resettlement there used to be an empty land, no fence or anything like that. Now only one or 1.5 years they put that fence.

Before that, were there other resettlement?

They were resettled to KN, there were only homes

Did they build it themselves?

it was full of sheds, they have built them on their own.

here was there a park?

nearly 3500 people were residents living here, they were shifted to KN, they have been here for more than 60 years he's saying. 40 years.

And before?

It was a wide, clean river, it had boating facilities as well, after that the people have receded.

Previously, 50 years ago, they used to have a smaller population, so drainage water was much less, and the water used to be very pure and clean. So they used to have boat facilities, but now after people have come in 85, it become like this.

Now there will be a bridge and park?

From this pink wall, to nearly half a km, they were planning to make a park.

Did they publish the plans?

No informing officially, when people used to come here to do the works, they used to ask them

And he's saying, why do you think they're building the park here, the thing is, no more people should come and occupy the land, so they're building as a park. The park prevents other people from coming.

And another thing, is the more VIPs, the economically high-class persons, they are buying lands in these places, so for their comfort, or some additional thing for them to increase the land prices. They are building the park.

Do you know in which places they are building?

We can't change any particular person, from year to year the house values change.

In this house or this area, are prices increasing?

Before 15 years, the land price in this place was nearly 500 rupees, but now it increased to 4500 per square feet, government guideline value (GGV). But people used to buy for more (double) the amount.

Market prices have always been around double the GGV

Did any of the resettled people do complains or court cases?

people who were living there, at the night times, they used to have many road accidents, drunk and drive people. Some people till now do not want to move. His land was at that side of the river.

Nearly 30-40 residents till now are staying, even if they were given another allotment.

There is no difference in land rate between before resettlement and now. The state is the same. The government increases the prices gradually, according to economy level of the people, and basic needs of the area.

### Surrounding residents in Pudupet #2

Interviewee: Man in his 30's

Interpreter: Madhan US Kumar

he has an allotted home there, but he's not using it at all.

When was he resettled?

11 years ago. he's saying that he used to use this bike for a daily income, giving income to home. So they were saying that, if I go there, what kind of work, can I have? Then we have to pay maintenance there and current there.

I was asking him, you people have made the Cooum river dirty, and you have spoiled these lands, this is the reason the government shifted you there, isn't it true?

He said that we didn't make that, any kind of bad things, we used to have a better life, but the government volunteered, for the sake of development, they have thrown us outside

They didn't have any problems with flood here?

He's saying that most of the people shifted from here, have discontinued their education. Yeah, the flood came and the big rain, but the government and local people used to allot using schools. they used to give us some kind of food every year, some kind of allotted facility for a period of time. So we have survived, and it is not a big thing to ask.

Was this area only residential or also shops.

All sheds, only residential / homes

His family, the rest of them?

He doesn't have a father in law, and his mother is at home in KN>

People in KN are suffering from poverty, this is his basic statement.

They [surrounding residents] said that in this area, there will be drunken drivers who hit these sheds. He's saying no, that while they had homes, there were no any cars, only bikes came on this side, so we had some kind of safe life. and here we got all facilities nearby, we had all kinds of access. But here, it is very hard to have work. He regularly used to come here from KN, if he gets any money, he would go and give it to his mom, otherwise he will stay here.

How much is transportation, and how much time?

It will be around 50 rupees, one-way trip

If not a rush hour, it will take 1 hour, if it is rush hour, it will take 1.5 to 2 hours

For the hospital visits, they used to come here only, not KN.

Here, did they build their houses or buy it from someone.

There was a CM called MGR, previously, at his period of time, he gave some statement that, if the poor are in any part don't disturb them, let them live their own life. this was a statement given by MGR, so since that time, they have built their whole houses.

He's saying that he used to do more physical work, but in recent times, people from the northern part of India, Hindi speaking people, labors came here, and for them, they need only low wages.

So most of the construction or physical work companies, they prefer those people, and these tamilians, belonging from this land, did not get any kind of opportunities or jobs.

before, when they were living here, were they able to change the house or expand, was it easy? for example, if someone had their son marrying or so?

Just somewhere else. The government aadhaar is the biggest problem for them, because they say they need a locality address to get the aadhaar card, and these people, especially him, do not have an aadhaar card, so if he's going to the hospital, they can't treat him unless he has an aadhaar card

But why can't he get aadhaar on this address.

He doesn't have any particular reason, can't find a reason

Other people here could have the card.

They were resettled 10 years ago, and the aadhaar card was introduced only 2-3 years ago.

So what kind of ID does he have?

Voter ID. They used to have a voter ID and ration card to this address here.

So before the aadhaar card, he didn't have the problems with hospitals.

He used to have the government insurance card. He's feeling very difficult because of the Aadhaar card.

But he can get one in KN.

He tried to, but he applied and it was cancelled

For what reason?

He's saying that before AAdhar card, they used to have a government health scheme, but due to Aadhaar card, they are not easily accessing the medical facilities.

Was health insurance connected to the address?

His own village, native address was there, because it is TN scheme, so all hospitals are accessible.

Like him, many people have got this bad kind of experience, so according to him, th Aadhaar card is harmful, he's asking to cancel it

How early did the government inform of the resettlement

15 days only

Did someone issue a court case or other complain?

No, they didn't do any kind of thing, they started demolishing

Which caste group he belongs to?

SC, scheduled caste.

### Surrounding residents in Pudupet #3

Interviewee: Man in his 50's, works in a car repair shop

Interpreter: Madhan US Kumar

They were from the outside and they had shops here. [pudupet east bank]

And on the other [west] side, there were homes.

Then were they given shops somewhere else?

they gave allotted shops, but no one went. They allotted shops in Chengilpet, near Singapore Mal. There they allotted the shops, but no one went, so like this they stayed here.

But why didn't they go?

They can't do work there, like this, they won't get any kind of customers. here they will have a lot of auto. And other things

They have workshops here, spare parts shops here, then only for the lining purpose why go to the Chengilpet. So, other shops are in the surrounding, so why do you want to go there. That's the reason.

So did they buy these shops or build them themselves?

They allotted shops only for the tax payers, some people paid taxes. And they themselves built the shops.

Even, 30 years ago they have built that.

Did they have pattas for the shops if they paid taxes?

They didn't have any pattas, but they were tax payers, and because they have been here for 30 years, so they automatically become tax payers for the government.

In the new site, do they get contracts?

No, they don't even give a shop, only empty land, 650 square feet land.

When did this happen?

This month, last year

What was the reason?

Building the bridge

But the bridge is on the other side.

From Madurooyal to Chennai Harbor, on both sides.

How long before were they told about the resettlement?

Due to political reasons. One party said we will remove, and the other says we will not remove. For 10 years they were saying that. The thing is during DMK period they said they will remove, but again the AIADMK period came, but in this period they took that away. Even when the AIADMK were against it previously.

Which party did he vote for?

DMK

Even when they said they will remove?

yes

And is there a problem for the other side [of the street]? did they say they will remove that too?

From 15 feet, it should go inside, they are going to demolish some of the buildings.

Were there any cases or complaints against it?

yes, they have filed a case, but it didn't have any kind of power

Who filed a case?

A collective, the trade union, for the workshops.

So he thinks the case will not work?

No

#### Surrounding residents in Pudupet #4

Interviewee: Auto workshop

Interpreter: Keerthi Hassan

Actually, here they didn't have any house

Ah in this area there were no houses?

They didn't have houses. All those owners of the shops, have owner[ships] around this place, Pudupet, Aynawarama, Nungambakkam, Chetpet. They have all those owner[ship]s around these places, but.. they have built some room! for them plus those who are com[ing] from other states, other cities. The people were so poor, they're searching for a job in Chennai. They've come from northern India, Bihar, Gujarat, Rhajasan. Those north people, didn't have work in their city., so they are searching [for] a job, and came to Chennai. They will ask a job now; they will offer some job. So, they need some living place, right? So the owners have built a small room like that, this room, like this much of room, they have built behind the shop

Single people not families?

Yes, Single people, not families. Single people with batches of 2 or 3 people who have come into that room, they have own cooking systems, they have own food accommodations, all this in this.

Actually, the evictions, will be happened, the government have said, first thing was to clean the cooum river, because in this cooum river it is the only water resource for the Chennai people. They have used transportation, they have used trading, the boating will be a float in the cooum river. But in later all this [..], and sewage, those drainage things, have mixed with the cooum, and have spoiled.

3:48 Actually the government has planned for that thing, and one more thing, there will be a flyover bridge, is planned from Madruvayal to Chennai harbor that means fortress

And it will pass by this side or the other side?

in the center they have built a pillar and they just built a bridge over this. Actually exactly.. not exactly they are building a pillar, they have evicted this place, right? They have just equalized this place and the bridge is coming behind this place.

5:51 Actually they have planned to build a bridge, ok? And one more thing is, rooms that have been evicted from this place, right for the labours, they have been put to a particular building. In this sheet corner, last building will be owned by a person, he has built a terrace home, like a terrace, see that in the terrace they have built an oval shape, so they like that they have built a sheet shaped room, and they have dumped it with thousands and thousands of people in a single place..

This has happened or happened already

And it will pass by this side or the other side?

06:36 That will be open place, they have just sheltered it, they have sheltered in the over the head.

And people will be divided inside?

No, they are not dividing, they have slept next to them  
And they're still there now?

Yeah

And he said something about chetpet what is it?

Actually he has said what is the bridge plan will be, started and just hang over in chetpet in Nungambakkam the Harrington road as well as next tp the layala college, there are some places they have just started the flyover work and now they are leaving as it is, now it is a pending work.

And for a while it is not?

No, it is proceeding with the work for building the bridge

another question if it is ok to ask, if he thinks the government will remove the other side, the shops here, this side, his side?

08:10 Actually the government also planned to if they have captured those things right? For the bridge, then this road will get reduced, so for extending this road, the g9overnment has planned to occupy from the road either 10 to 20 feet from these people. So that they at that time also they have get into a tough situation to leave this own place, that time also eviction will happen.

#### Surrounding residents in Pudupet #5

Interviewee: wood workshop, Langs garden

Interpreter: Keerthi Hassan

Actually, what he said is that, in 1975, and before 1975, people are living in these places, after 75 they are some...

Like we have faced flood before 2015, same like that there was a flood in 1975, they were faced by a flood in this place. So, at the time the Chief minister of Tamil Nadu, Mr. MGR, famous actor as well as a chief minster. He has removed people from here to Velachery. So that they have planned, if the left this place empty, people can come back and accommodate the place. So, they planned to put a park over here to prevent people from occupying this place. So, they put this park, and they informed we have put a park over here to prevent people from coming back. So, they built a park, and later on, they have planned to build the Madrowayal to Harbor flyover. Yesterday I have told this flyover comes through this.

So, they have planned to build a bridge from Madruwayal to Chennai Harbor. So, they need some land to build this bridge. So, they have planned, they can build the bridge from across the river.

Actually, some people in 1975 they have planned to come back to this place. But this government wanted to stop that, so they have planned to put the park here. Now they have demolished the park and put the bridge here. See, they have started the work, see there are some pillars here, so that they demolished the park and started the work over

When did they demolish the park?

Before three months, they have demolished it, around March or February.

Were people using the park, for going there?

Actually, the human behaviours will be less, because there are a lot of streets over here, so the government if it allows people to go to the park, they are trying to make their home here. So the park will not accommodate all the time, so there will be less amount of people, only sit, have their food, take something and then they came back, they are not having or spending too much time in the park. The less people only came in here, or else people working here go there, have some food, take some rest and come back, otherwise not .... Person will sit there.

And who was managing the park, close the door and so on? Which government body?

The Corporation of Chennai will take care of these things. But those people will not take over. They just will be lazy, if they can come through, they will open, otherwise they always kept it locked.

Actually, there was a living place, people were accommodated there, later only they were the evictions, and before they were living there.

Before 75, was it residential or also workshops like here?

Here it was residential only.

Actually, in 1983 only, people came only to occupy the place.

Actually before 1975 they have built a wall, which we saw there. But it was not a compound, the wall will be one and a half feet width and 6 feet height. They have built a wall from the beginning to the end. So that they can't be able to get inside. Some people went there to refresh, rest themselves. By doing like that, after sometime people will go there and starting building their own house. Started their own huts, started living, first there will be start like five houses, then they will return then it will be 50, 100, everyone has developed thousands of families here, then only the government have removed people from here.

Actually after 1983, 88 around 88 or 87, we're not sure of the exact year, the other CM of TN, his name Krunanithi, he has evicted the people from here to Velachery but after that also, another group of people came here and built their houses. Set of another group of people.

Because he has evicted from here to Velachery, they were settled there, but then another group of people saw the place.

The place where people were evicted from here was called vandikaran street. Still people were living there only.

Then 2002, no around 2008, they have fully demolished, evicted all this people from here, and they built the park in 2008, now the people were evicted to Kannagi Nagar.

Actually the resettlement site, that was offered to people was Kannagi Nagar, because the CM kalanjar karunathi loved this woman, kannagi.

He is a, he had some interest on this ancient lady whose name is Kannagi, we have a statue in Marina also, that lady, that ancient lady called Kannagi, so he has resettled the people to this place called Kannagi Nagar. Then he has built a park, because he didn't want people to come back and accommodate here. So that they rebuilt a park. Now, it will be demolished for the purpose of building a highway from Madurwayal to Chennai Harbor.

The park was built in 2008? Yes

Actually they have a bus depot, in the beginning of the park, opposite side, exactly opposite poll, south zone, they have the bus depot, local bus depot, omnibus, it will be occupied by the private sector. Now they have recovered it around 2008, and they just built another park over there, still the park is alive there.

They have people accommodated here, but after this road, they are having, the business sector people have accommodated a place,, this car workshop, scrap, those people were accommodated there, now they will be evicted, recovered, and now people will be accommodated in the opposite side.

Having money, the rich people have accommodated business people from this place to the other place. But people who didn't have much money, they have closed their business and gone somewhere, and took off another business.

Actually the people who suffered a lot belonged to the other side, Because they are having a lot of auto sheds, workshops, service centers, they can do the work of painting. The guys who were doing that painting. Same thing they have done for the autos. Those people have suffered a lot, around 1000 or 2,000 people over there.

Did they go to Kannagi Nagar?

Actually they have created a new area near to the pondamalli, there will be an industrial area which will be called autoNagar, some people have shifted to there, but the government have allotted from this people to Auto Nagar, but he's not sure if these people were go there or not, but the government have allotted for those people, but he's not if they have gone there or not. Because now we can check, whether people were shifted from the other side, we can get some information from them

### Park Users

User #1:

Comes to the park regularly, everyday, between 12 and 2, he doesn't know when it was built. Lives in Pudupet, a 10-minute walk from here. The government is closing a part of the park to work on the children play area. More people used to come here, now it is less. Nearly 100 people would be here, people from offices nearby would come, and old people, homeless people.

This park was founded by the DMK administration, The wall was built recently.

User #2:

1<sup>st</sup> time here, doesn't know anything.

User #3:

2<sup>nd</sup> time here, does work nearby.

## **A2.2 Expert Interviews**

### **A2.2.1 Researchers, activists, and private sector**

Colleagues from the master program participating in the interviews as a group:

T: Ahmed Tarek Alahwal

A: Atika Almira

I: Ishita Vedamuthu

S: Sarah Haas

L: Lilian Msasi

D: David Schelckom

### Karen Coelho, Chairperson of MIDS

K: Karen Coelho

T: There were samples of walkways and cycleways as well as the elevated road project, but It's not clear whether there will be fenced parks or private developments or so on?

K: I can't tell you what they planned to do, I don't have the access, they don't share, one of the problems here is that they're not at all transparent, and they will not release the DPRs anytime where there's time for people to really react to them. and will leave it to the last minute. What we do have, the only thing we have is the pre-feasibility study by LKS consultants. SO that's an old, it was the pre-feasibility. I can send it to you.

So, the LKS report, I think it's a Spanish consulting company, they laid out what is feasible to do, so they have recommended certain plans and certain approaches, the government have then taken or rejected various parts of that. So, what they have decided to do is not clear. I would actually suggest to push to get an interview with somebody from CRRT.

T: How do you see infrastructure development following real estate investment?

K: Again actually I don't have the DPRs to say specifically that, but if you see what overall is driving it, like the idea to reclaim the land from people who are living there and then to make... so right now it is not directly a matter of real estate, it is derivatively a matter because what they're trying to do is to create water front development, which means parks, etc. One thing that they're saying about the Cooum is that we are not going to allow buildings on the banks in this plan. But if we really look at... If you go up the Cooum you will see that there are a lot of buildings that are on the banks of the river. In fact some of them if you look at chetpet, that's really real estate developments, there's very very large, on the chetpet bridge. This is near chappa stop, near Harrington road, there are a very large set of buildings, I think it's [...]. And they're right on the banks of the river, so these have been approved and given, as you know, on the banks of the river, so you can see that there has been a lot of sort of real estate developments in those areas, those are all areas that were cleared of slums earlier, but today because of a all of the opposition to all of this, encroachments etc., they've taken a stand, at least, in some of the [...]. They said that they don't intend to allow commercial buildings on the banks of the river. In this thing what they'll try to do is to keep it an open space. What open space means, roads, cyclepaths, walking trails, those kinds of things and parks. So, in the sense it is more of beautification and aestheticization and then some infrastructure development. as you know, the bridge is being built, you've seen pillars and piles. So, there was definitely infrastructure [...] all in the river. That what I wrote in that article which got stalled for many years, and that article is 2008 or 11 and now it is 2019, for four or five years of the project, it got stalled because one government could not allow the other government to take it forward. They took it to court, and said it's going to [...] on the floor of the river. But then when they came back into power, they continued the project. So, one regime put a case against the other regime.

So, we will see an elevated highway on the top of the Cooum, so that's strange. The thing is in general, yes all of this land is seen as real estate, to be used either for high value, developments, or for beautification to make the setting for the class.

T: and in the case of buildings that are next to the river. They are inside of the Right of way line of the river or how does it get approved, if it's in this area?

K: That's a good question, there's a certain distance that has to kept as river land, but in earlier years, etc. the whole idea of patta. the legal title to the land. So, there are various stages to get formal access to land, one of them is sale deed. A sale deed, when you make a sale transaction, many people make it at various levels, right? you can just decide to buy something from me and I can take your money and give you something on stamped paper that some local notary lawyer will sign, and stamped paper gives it more legal standing, and they will sign it, stamp it saying that this transaction happened, and so there's an agreement that I've sold you. So that's

an informal sale, because it hasn't gone through the registration department. Because there's a department of registration in the government which is supposed to register, every sale transaction, once that is registered, it becomes a sale deed, a formal sale deed. That is still, so that's the formal thing. But it is still not completely legal, because to get legal title, which would be a third stage patta, that requires the revenue department to approve the landuse of that. So, then you have to say that department to approve the landuse of that. So, then you have to say that I plan to make a house here, and then they will check are there other people who have other claims to this land, or to the customary use, and is it within a survey number which is construction of a house or a building,... so there comes the issue of permissions and zoning, and approval, and if all goes on well they will give you a patta, which is the legal title. so, if you read this article by Gautam Bhan which talks about planned illegalities, He makes all these distinctions, which says you can be formal but not legal, you can be informal, so there's all these shades of meaning, so a lot of these places which have the legal title, they may have also gotten patta, but they would've got it through illegal means like bribing. So, it's possible that all these people also got patta, but that's because they were able to bribe some local [...] that is the authority which are issuing the pattas, in the past.

T: This case the same doesn't involve the PWD, who claims the ownership of the river.

K: So all of the land of the public lakes and rivers are so called owned and under the jurisdiction of the PWD, who takes care of that, that's the department of government that they belong to.

T: Slum dwellers, would some of them this shade of legality?

K: Slum dwellers don't have, even, many of them, would have these informal sale deeds. when they bought or sold land. Big transactions, even lakhs, etc. with some notary stamp on the paper, but it's not registered because this land belongs to the PWD, it is not the property of some private person, to exchange, you see. So that exchange would have been informal, if you go to the registrar he will say but that's not the property of that person so he cannot sell it to you. But it is sold, de-facto it is. So these informal markets are a very big part of the land market today in those countries, and there is informal buy and sell happening. But they're not formal because they won't be registered.

DMK government went to court, on environmental grounds, saying that they have these figures into the Cooum river, so this is against the water flow of the river, so they went to court for a long time, and then everything, after that was cleared, and nothing to do with the people.

T: When they say the river flow, does the law protect the river or the people who live nearby from overflow?

K: The judgement was in favor of the river

T: regardless of who lives around it

K: the people who are living around, for them, are the criminals who have grabbed that land, squatted on it and destroyed the ecology. because these are the poor people, they are not saying anything about the bug buildings. So, they are saying these people have to be removed.

A: I would like to ask some questions about Kannagi Nagar, as you have written in your paper that it has grown as a buzzing site of economic activity. But even until now women keep asking do you have job offers. How do you see the situation, what is actually the biggest concern for them to access?

K: That would be asking them, right? they'll answer your question.

A: Well, do you have maybe other things to add?

K: not really, I think this question is very detailed response, and I think there has to be more articles about that, so, but like I said I've not done a lot of work in kannagi Nagar after that.

Now that there are new resettlement sites, they are working now in kannagi anagar but not so much. Again, people are now looking at safety issues, etc. but I think that this situation, in general remains, you can update me if it is the same situation if you study the article. So, I can't tell you if things are still the same now, after I did the study which was many years ago.

A: Within your study, do you see that there is any possibility, that we can help the women through ICT, and whether it is possible to empower them?

K: Ok, again a very big question, what do you mean, what are the pathways through which you want to help them with ICT

A: well, at first, I am looking also at the social capital, that they gathered together, maybe through a community radio or some kind of empowerment.

K: I think the first thing to do is to say what is the problem, that you want to address, right? what is the problem?

A: The problem is that it is very difficult for the women to access jobs. And also, I think they are not very aware of their rights and what they can do as a community as well.

K: Did you get that or is that an assumption you made?

A: well, for the second thing, It's an assumption until now, I still need to do more in-depth interviews I guess.

K: Ok, because we can come to these assumptions very easily that people are not aware, probably not aware of legal rights, but actually, honestly they don't have any legal rights. So, I think we are not aware of what the legal rights are, they don't really have much rights. So, I would say that generally this is a general comment I wanted to make. Let's move away from this idea that people don't really know what their life is about and what their rights are and what the situation is, because they're living that situation everyday and they're gonna try everything they can to figure it out. If they have rights, then they probably have some awareness. There are some NGOs working with them, you can find out what the rights are. So, to make an assumption that they don't know what their rights are, is, I would say a class assumption, because we probably don't know what our rights are as well, and we assume that they do not know because they are not literate or whatever, So, I would say move away from that, that will distract you from what are the problems, what can you do with ICT is not make them aware of their rights, what else can you do with it?

A: Connect them with job opportunities...

K: So, what you need to find out first of all is how they access these jobs, did you find out what is the jobs situation there now?

A: most of them currently are still doing the domestic serving and doing the house keeping thing, but still maybe 50% of them are still unemployed currently from the survey that I have conducted so far.

K: Did you find a lot of women who are not employed

A: yeah

K: why?

A: well, most of them, are having problems with their children, she's getting babies, and that's also an issue in a way. And the other thing is that they told us that above 30 they will not be offered any jobs anymore.

K: ok, so you found people are just having babies. Normally, what are the biggest households that you saw, how many babies maximum?

A: maybe two

K: so it's that the generally having babies?

A: yeah

K: you feel two is a too big size, too many babies?

A: No

K: but you just made this point.

A: But I mean like, for them they need time until the children go to school.

K: Right, again I feel we need to get away from, we all have that, two babies is ok, right?

A: aha

K: So, is, it's a, I feel again that the way you're framing it sounds like a stereotype of you know, they don't know, they're reproducing and therefore they can't get jobs. Yes, it's a fact that if you have children it would be harder to go to work. So what would be the solution to that? Do they have any solution?

A: They'll just wait, they say.

K: No, there are childcare centers, have you found any of them

A: Well, I knew that there's this childcare center but I have never been to that place.

K: But are these mothers sending their children?

A: No

K: Ok, you would need to find out why now, so what I understand you say is like, deal with the realities, if you want to find out what you can find out, what you can do for them. To understand what is the situation, right? so this is just a very simple thing, you do those interviews and you figure out with a very open mind. What is the problem? so if they are having children and they found out about these child care center because the government has sent, which is supposed to be from 6 months to whatever age they are taken care of, they are fed, and they are for a number of hours, in order to enable them to go to work, and those exist in Kannagi Nagar, what is the problem with that. See, this would be a more realistic research, if they exist what is the problem, why are women not using them. So it's possible that one there are not enough of them, two the timings don't work, three they don't like the quality of it. You know if you can give me something like that, then you can start to imagine what can ICTs do, you know?

So, I can't help you unless you diagnose the problem.

A: ok, I think I should need, because until now what I am doing is doing the survey.

K: By doing the survey what have you found out? you're doing a survey that's your method.

How many people are you interviewing?

A: 100

K: you've already interviewed 100, but I feel like you're not able to tell me what is the real constraint, why do they not have jobs

A: I think I still need to dig in more through

K: so one of the problems is that you're just doing a survey which is preset, and you're not probing these questions, like is there a qualitative thing or is it just quantitative,  
A: a mixed method actually.

K: So are you able to really delve into these questions more about what, the problematic I raised in my paper, is that you're an area which has thousands of troubles, literally thousands of troubles, for low end workers, right? HOUSEKEEPING JOBS, SALES,.. so, what's the problem. you need to understand that first. So is it a problem that they don't find, that they don't know how to access these jobs. If that's the case then maybe ICT can play a role in that. So I think the first thing is to really get a grasp of what is the problem. What is the problem, then you can come up with a solution, and you haven't figured out what the problem is, so you have the solution but you don't know what problem this solution can help. So, I would say first understand the problem and see how you solve that problem, and then tweak your solution to say, this is what I can offer, I would be interested. I think you have a baseline say from my paper, how do you analyse a dilemma like this then you have loads of work, jobs, but you still have women who say we don't have jobs, and I offer one analysis of that, try to come up with your own analysis through your own interviews to say, disagree with me completely, and say that is not a question of quality of work, they don't want to do work that is difficult because of families, etc. Is that what you are coming up with? so you answer that question, and then say, they just haven't, create a system to find jobs easily, to work off-time, to you know, there's lots of jobs.  
So I think, I look for answers in what I've written, or in general, you're in the field. Come up with your answers, I can only give you a background.

Just start saying what are the issues you are finding out, what exists on the ground, with each interview say but, you're saying that you can't work in the ground if you have children, but there are childcare centres, so why don't you go there? It's a matter of engaging.

S: my topic is about the community resilience of people in Kannagi Nagar, and I ask most of the questions to the people themselves, but wanted to get perhaps a bit meta-view on the topic. So, what was your impression of the strength of the community in Kannagi Nagar, do you feel it was quite close, or?

K: again, No, I think people, lot of micro-neighbourhoods there, within the micro-neighbourhoods people are maybe quite connected, but also remember that in the first-place people were mixed up when they went there, and the second place a lot of people have shifted. The change is very fast, so there are a lot of rentals, and people from outside so neighbours are basically strangers. so, it takes time, with a constantly shifting community, and because they all come from the lowest income groups, there's a lot of suspicion, there's not a lot of immediate trust. Unless you know people from a long time you're suspicious of them, and then, the other issue, is because people are working so hard, long hours, you don't have that much time to engage in community work, as you would have in the city when you were stepping out, doing work and then coming home. You also have time to engage with neighbours, and meetings, and plan things together. Here, I heard a lot of people say, especially men, I come home so late at night, I don't want to step out of my house, I want to stay in my house and spend time with my children, and the other thing is that because of so much of reputation of crime, etc. people don't want to engage with that. They feel like I would rather stay indoors and not seen as a part of this. So, it is quite fragmented, that's the general impression

S: I got the same impression, some are not really not trusting at all, and others a lot, and I still need to find out why. and regarding climate change adaptation, I had the impression they don't understand climate change, they are not aware that it will become more intense. They mostly say if I ask about flooding or water scarcity they say I am not a weather forecast ad I don't

know, would you say that people have the confidence<sup>3</sup> that they can change something themselves, or is it now they are resettled they are in the hands of government or gods and just waiting

K: Latter, I think definitely there has been a sense of powerlessness, and they can't do a lot, and over time they were able to do a lot for themselves. They have brought water, through their protests and demands, they have been able to ensure that they get more regular water supply. SO, they have become a political constituency, which have brought them certain things. But if you ask them to be aware of climate change, etc. I mean we are not, the middle class, and the president of the most powerful country in the world is not aware of climate change. So, I think to talk about awareness of climate change, will be a bit anachronistic, but to say have you observed that the experience of floods is worse, you can work off people's observations not knowledge.

S: That's how I do it, I don't even mention the word climate change, if I ask them are they worried about water scarcity more now, than five years ago

K: have the experience of water scarcity become worse in the last few years? I think as a method in qualitative research, what people can give you, is when they're confident of their answers. They can say we've seen droughts come more frequently, and therefore it's easier for them to talk about them, they have fears about it. That's not evidence for you. So, you need to work with what has been experienced, what has been observed, then you ask them if they feel the trend of those things. I think then also the question of how they are coping, that will tell you about it, have you developed new things to work with it, you know, if things are getting worse, are there new ways in which people dealing with the 2015 flood is a good thing to get a lot of stories, then you can say what happened after, if one of the floods came again this December, would you have any different way to deal, what are the lessons you learned

S: to short questions, I'm asking many of them if there are any grassroots leaders, they mostly mention the councilors but not anyone else who came out of the community who's leading?

K: so how are you sampling your neighbourhoods?

S: I try to cover all kind of parts of Kannagi Nagar

K: any difference about who they mention.

S: Mostly between councilor and nothing, so I have not met anyone who said there's this person.

K: that is surprising to me because I think there are many, there are a few local activists, but now [...]. Also, because politics have taken over there, so anybody, like Steven ho was a long term activist, he is now running as a councilor. mostly in the area where people came from Santhome, Thideer Nagar, the particular 3-storey blocks, they would know his influence. There are a lot of political parties working there, Dalit parties, etc.. He is running for councilor because you need resources to do know anything, then he can say I'll get a hospital, etc. Have anyone mentioned Qaruna, he's the uncle of the local councilor, or ex, now there is no councilor. He is very powerful there.

S: They mentioned the councilor and it was between respecting him or not caring. I specifically ask for non-politicians but grassroots. Translation is also one of the biggest challenges. So, I need to do more qualitative interviews.

K: oh, you will not find anything if you do only quantitative.

S: it fits better to my theoretical framework, qualitative.

K: at least do 3 or 4 focus groups or 15 to 20 qualitative interviews you will get a few answers.

I: I haven't been to the field yet, but because of the pre-imposed resettlement [...] so, I thought I would do how different groups, demographic groups, are vulnerable to flood. So I'm looking into age, employment, household structure, caste, do you think there is anything else that I can add to that. She just mentioned, house and ownership for example?

K: Again, this would [...] from the readings what have you felt?

I: I felt that employment makes huge difference, because the domestic work gives them the whole employers network, and they can [...]

K: Yeah but how are you defining vulnerability

I: I'm looking at social vulnerability so I'm not looking at the place vulnerability. Just looking at how their life, [...] whether their participation is different, whether their household structure, whether different groups of women, because women are in charge of the household, getting water, so whether they experience this differently.

K: So you're not looking at caste?

I: Feedback from them after going is that students don't want to ask about caste, and not comfortable mentioning that, have you done that?

K: yeah, you can just say mbs, it won't be difficult. I think you will find caste makes a difference. I think also if you look at vulnerability slightly differently, well for me it is not clear what you mean by that, whether you just mean they had more income or not, which is what a domestic worker would think, or access to income, but one of the other points, is that disability is

I: I was wondering if I find[...]

K: again if you're trying to do a quantitative study in a neighbourhood with 15k thousand families or one lakh population or more if you count [...], your sample size is going to be negligible, so you're not going to find... unless you proportionally, purposively sample, predefine what you want, then look for those people and find what kind of vulnerability fits.

I: So interact more in the pilots?

K: yeah get some of that. you probably better try to get some sense before, and one person you should ask about this is Vanessa which has done a lot of work on vulnerability mapping. So there are widows who would be vulnerable, because they [...], or they don't have a job and they don't have any support, so they have actually zero, anything. Another huge issue, is illness, even if you are slightly ill, just a problem with blood pressure and something, then you can make because it's [...] to gout. so you're not able to get a job because you illness doesn't allow you to go out in the crowded passenger traffic in the city.

So that would be the other thing, I'm just giving you another example, and then there are, the elderly with no support. Then you have things like disability, elderly and simple household, caste.

I: you think they'll be difference between these micro-neighbourhoods, that you said about. some neighbourhoods might have a more powerful person who probably get the water company to them rather than to other areas, like the water tanks?

K: There is quite a lot of differences among them, and some of the more like this middle-class neighbourhoods, and some are very crime ridden, and some of them are swollen with police service. so you will find some differences. But how does vulnerability play out among those, I am not really sure, I think in your case you should make focus groups, and ask who are the

people in different groups, and then to explain vulnerability to people, operationalize it, no one will understand this word.

I: I've taken it as social relations, household structure

K: those are factors,

I: to flood and droughts

K: not economic vulnerability?

I: I'm seeing if this makes a difference to flood and droughts, extreme water.

K: yeah, so then I think trying to understand the [...]. So, one of the issues you have is that on the ground floor you're vulnerable then what are your back up resources, can you go elsewhere, to people, do you have a network, is there a neighbourhood organisation that makes sure the widows or single mothers are taken care of. well, as you see the family structure. so you'll get this from narratives, how will people cope, what are the challenges they faced, how [...] in different situations, then you know that some are better than other because of what factor.

I: thank you that was helpful

L: For me, I was asking about some research about safety issues, did you get some relation between safety issues and women. Because when I ask women, they are saying they are afraid that men come to them, there's drug abuse, so they mention also about [...]. and unemployment but I couldn't [...] and safety

K: So what are you trying to understand? what do you think the relationship is?

L: I want to look if there is a connection between [...] and safety issues.

K: [...], did you get any [...]

L: I got to know about young men and no work, so they surround the streets and then .

K: so you wonder if the fact that there is unemployment before. that means that's a relation, and it also means that women face abuse at the house.

L: yes

K: they are always [...], usually men are angrier drunk, there is a lot of domestic abuse. which you have probably seen. So a lot of the problems I think come from alcoholism.

L: and drug abuse.

K: that makes public spaces not safe, etc.. Did you get the impression that women feel unsafe walking around the neighbourhood?

L: Yes one of the questions is about if they use public space and parks, and mostly the answer is that they use bus stops and the streets because they fear to go to the parks. because criminal things and fighting happen here.

K: so basically, close to their friends and families.

L: I also ask how they feel more safe in their previous place or here, they say in the previous place, they feel more safe, because of the community are together with each other. and in Kannagi Nagar there is some behavior, new people are there everyday, other are leaving and other are coming.

K: I think that's pretty much, you pretty much talk about, women don't feel safe walking around, coming back late at night, traveling in the public space, and so they keep the girls at

home,because they are [...], they feel danger, [...] because there are a lot of fights and things like that,so basically their mobility is constrained, it's pretty much that.

L: I was thinking to get two focus groups according to the age, like 15 up to 40, and 40 up to [...] but also I focus on the place where people where people are more vulnerable for safety issues, but how to organize?

K: not easy, you have to ask friends, so you have to be there at the time when women are hanging around,sitting on the front stairs, doing something whatever, and if you ask one or two of them, if I come at that time, and don't do it at a public space because more people will come, so go inside someone's house, o restricted space with a few women. Don't rely on setting a time and date.

D: I don't have much questions. I started earlier some work is almost finished. I was focusing on the demand side, using semi-structured interviews with tenants and some landlords. focusing on accessing the rentals, what are the housing [...] how often do they move and why do they move, and from the security point, what is the legal security, with informal [...] but also how the regulations on rent frames their security

K: How did you find the relationship to be

[.....]

T: When you mention that these people don't have rights, do you mean by law or in practice?

K: what kind of rights, which law?

T: suitable housing. to

K: the tamil nadu doesn't have a resettlement policy. so what will they go under. There is the slum clearance act that doesn't give them much rights to resettlement. That's why I said they don't have rights. Is there a contract that they get when they get resettlement? No they only get an allotment paper, that they says if they pay for 20 years then they will get at the end of the 20 years the apartment

T: What do you think of the goals of restoration to improve water wuality and water harvesting and flood safety.

K: I don't have access to the DPR, we know it's difficult because it is not a perennial river, there is no water in the river, what you see is only sewage, so if you remove the sewage. We did a trip to the head of the cooum, we found about that at the point were cooum separates from Kosasthiliyar, at that point all of the water is diverted to the chembarbakkam lake to feed the city with water, so there is no flow to that river, it is removed at the head. So that's the first question, what do you mean by restoring if you have not restored the flow of the river.

LKS said they will create a baby canal in the middle which is going to collect all the water or whatever, if you're going to remove all the sewage, then what flow are you talking about, these are my questions, I don't have answer to it.

#### Mr. Ramkumar, member of the Madras High Court Monitoring Committee on Development of Adayar Creek

Rivers in India are non-perennial, they have high floods in monsoon and low in dry season. The flood bank then is bigger than the course, in Adayar it is 3 times the course. So the determinant of the river land is the flood.

The Cooum is the most obstructed river, you may have a patta but the river doesn't care about your patta, it is in the bed of the river. I'm not talking about the poor slum dwellers only, but also commercial establishments, engineering colleges, government official buildings, improperly built bridge, the bridge obstructs the flooding. When you obstruct the river flooding magnifies.

The issue is not whether to resettle the residents or not, because it is a hazard location, it is about whether to resettle them in the same place or far away.

The course of the river is not only the heart of the city, they built a dam (Kasana Aniket?) where the water is diverted to KosistilyarI?. The Aniket diverts the water, and it finally goes to the Pundi reservoir? Pollycat lake?. The logic is to save the city from flooding and collect water for the city's use. Downstream from the dam, there's a lot of catchment, Koruthur Aniket?, its object is to diverse the water into the channel of chembarambakkam?, to use for water.

But in 2015, Korruthur was breached and it is still not built, All areas downstream are in danger of flooding. This is exasperated by that the river in some areas is wide.

There's public encroachment. Who are the prime encroachers? Tamil Nadu pollution control board is one of them. NGT Madras had its quarters there even, and when I went to say we are on encroached land. Do you make a difference between people who have patta (official) and those who are poor?

What happens is that different [ways to treat people]. Poor people are evicted because of beautification.

CRZ, applies only until where tidal effect occurs, near the CMDA building, beyond that you can't really say it's CRZ. CMDA is within 100m, it is within the high tide line. Actually this is not a valid statement. CRZ is an arbitrary notion, which is under the environmental protection act, to save marine life, which comes to the shore. 100m for tidal rivers, and 500m for the beach. This doesn't mean that marine life can be saved, because of the gradient of the land. It is not scientific, but at least [it's there].

A 100year flood mark, is a different issue. This is the mark used across the world. A 50 year mark is where essential building can be, but they can b evacuated, so you can't build a petty shop establishment, they lose their life-savings, people go [to the riverfront] because it is the cheapest area in the city. I have no clue if the city is using the 100 year mark.

I was involved in the Adyaar Creek, monitoring through the high court. The cooum doesn't have monitoring, the government if environmental [you don't know what they do]. Even resettlement should be done humanely, and should be within 1 km from the river.

How do you define beautification?

Cosmetic, rose flowers. The project is hard [to achieve its goals] unless they treat the issue from the polar river?, peri pakkamerry lake?, Cooum as well, they receive water from the lake, the watershed is getting degraded, from both sides, the Valajabad side?. There is a lot of habitation. As you come from Ambattur, there's a lot of habitation, and villages are throwing pollution. [as well as] industries on the river bed, that discharge ub=ntreated sewage into the river. The city's treatment plant discharges a lot, their install capacity is half than the peak load. Therefore the water you see [in the river] is discharges from the treatment plant. There are also buildings lower [in altitude] than [the treatment plant]; the central railway station, the general hospital.

So without stopping the sewage outfall, the plan envisages securing the banks of the river, then what? The sewage coming is still flowing. The project should start from palar, not chetpet.

They have to look at the hydrology of the Chennai Basin, not only the city, bounded on south and west by Palar. Look on the hydrology of the entire region, but the cleaning campaign will [be sustainable in the sense that they will have to do it again].

We had filed a case against the government, they wanted to drop garbage on the Adyar creek. Six organisations went to court, initially by CAG. 20 years of litigation. The government said they'll restore it [after the court ruling], but we were suspicious, [so a committee was formed to monitor and I was chosen by the High court].

This was before the formation of the National Green Tribunal.

What happens when there's no monitoring, no lead on policy, [it's very alarming]. [they're] hoping to clean the river but it will not. Metrowater contributes 93% of the pollution of the river. They shouldn't get rid of waste water, [they] should give it to industries. Without [treating] this, the river can't be clean, cleaning campaigns have been going since the 1900s. the only thing about CRRT, is that they have the technical environmental competency. But whether or not they will be allowed to implement is another story.

The public engagement is [useless]. How is the public going to be effectively engaged. There's no transparency, [only] pretended transparency, because the law [says you must have participation and transparency]. So the game is how much you can reveal.

There are NGOs involved in the project.

The report [about the 93%] is an old report. By the seven trend international? You can find it with CMWSSB as well as the CMDA. I can take a challenge that the situation hasn't changed.

For a river to be ecologically revived, there has to be an ecological flow, without a flow, the river cannot be revived. Yes, banks can be revived. In the Adyar creek, they wanted [to plant] invasive species. [we discussed, in the end it was ok, there has to compromises].

[even when they do] stabilization, they use green plastic geo-sheets.

The committee technically still exists, but its jurisdiction is limited to the Adyar area. To some extent, the officers are affected by the committee. They'll say we have this problem, we raise the issue with them.

When you don't have checking in balance, it is difficult, who are you to say. Unless there's civil society monitoring.

### Karthikeyan of Hindustan University

K: Karthikeyan

Actually, the way in which we approach the area is very simple, we are trying to make sure that we bring back the river to its original condition. Already the river is polluted, we took the river from the mouth, till the city's boundary. A full stretch. We divided our 10 students into 11 groups, each taking one square km, so more than 10 sq km in total. It was fully taking one km on both sides of the river. Finally, we identified the landuses and what are the current development, in which way has it traveled in those years. How much the pollutants have traveled into the river. How is the river condition today. We also reached out to CRRT to know their plan of river reclamation, what they have done till now, to incorporate those ideas, and come up with our proposals to find out how much the river can be brought back to its original position. What are all the ways in which physically, socially, you can intervene. The idea is that if you only attach yourself to the river, you will be forced to maintain it properly. If you don't see it at all, if it continues to be on your back, then I have no issues whether it's good or bad. But the moment it is in front, you are forced to maintain it properly. Our proposals were planning in a way to make it a front. To create a set of spaces in the riverfront, so that people

go to the river, utilize the bed so it can be brought back to life. It was not similar to Sabarmathi, it is different. There it was fully concreting, an anti-interactive space, but we made it on a much larger scale. How to make the riverbed utilizable. we even proposed a cable car, because our city needs a transportation network, so why not make it above the river so everyday I see the river. When I see it everyday, I will be forced to maintain it properly, it is related to people's current cultural context. Our social context, with that approach we worked on it. We documented all the stretches, collect them together and gave a proposal.

Are you also approaching in the same fashion or differently?

T: more into the governing rules and regulations.

When did you do the project?

K: 2 years ago

T: And have CRRT been done with their work then?

K: They have identified small projects, and did things like cleaning the river, they initiated it. And one of their plans was to create parks

T: Did they provide you with the DPR?

K: We invited the head to give a lecture, he briefed the students on what they are doing in CRRT and how they are proceeding with the river restoration, but he said the [project] data is confidential.

T: So you generated your own data

K: yeah from Anna Nagar to Napier bridge

T: When you say the river is a backyard, it means that it is not accessible

K: It has a road, but the road is dumped with waste, and buildings have their front-yard on the road, and they are not interested in what happens inside. When no one sees it, if someone comes and dumps something no one knows about it.

T: There's the report with CMWSS, saying that 93% of the water comes from the city. You didn't measure pollution sources?

K: No, we are architects and planners, e didn't study that, we were more concerned with the neighborhoods, landuses and social processes.

The study area was a stretch was around 6 to 7 km, both sides, different economic levels. So proposals would be different in different sites. But somethings are common to all proposals, to make sure the soil's permeability is high and the cable car is all along.

So some proposals were specific to the location and some were all along. SO pudupet we proposed a park, because there are no parks, but Anna Nagar already had enough parks.

They are building sewage pumping stations, as there are already many sewage lines going to the river, so we proposed to put the treatment plants there, so it gets treated and then the treated water goes to the river.

T: You proposed parks in some areas, fenced park, right? and what other types of interventions

K: I'll show you the presentation.

We gave the presentation to IHS, on riverfront restoration, with Prof. Banashree coordinating

This is it, the data is from 2017

16:46

We started with documentation, then analysis, then vision, mission and strategies

It used to be a drinking water source in the city, now it is still but before the city.

Urban Design level, data collection methods

Literature review on similar projects then basic survey to understand the area and the planning framework, there is no authority in charge of the river. CRRT is doing the cleaning then they are gone. PWD are not doing it so there has to be such body.

We did traffic surveys, landuse surveys, mental mapping

survey of the primary users, what kind of elements exist.

Proposals are on long term.

Till 1920s boats were going in the river.

Outside of Chennai, it is a decent water source, for 10 km it is used for drinking water.

The flood was one of the reasons that prompted us to take this project, then we know IHS is doing something similar and we decided to do something together.

The moment it reaches the city limits the water level drops. Also, the moment it reaches Maduroyal there are 7 tonnes of solid waste dumped daily. Because it is an industrial area, it has a sizable population, and it is not under the city it is another municipality, and they don't have resources to treat it. And outside of the authority of CMWSSB.

Also, in residential areas there are a lot of sewage lines going in.

The study is 11 groups each around 4 sq km.

They did the landuses of 2017. resettlement had already started.

They map the effect of sound and smells, In cooum river you can find the smell, and this is one reason people don't go to the Cooum.

They roughly calculated the FSI of the buildings.

They mapped the road sections. as well as road accidents and safety.

Mapped the activities happening around, what are the building activities, how encroached is the river front. How compact are the buildings.

Mapping what is the state of vegetation, proposed landuse, heights, ownership.

Among the main issues is the lack of accessibility to the river, there are many encroachments. So How would we do make it accessible.? It is flowing behind commercial establishments, and that is why it is not accessible. The river size used to be bigger. We reference old maps. In many areas the river size is too small.

We were against the elevated road because it spoils the riverfront, but it is approved and you can't stop it. So we proposed a cable car.

we proposed a baby canal for water flow.

Can we have slums redistributed along the river? Higher. How can we make a road on the 3rd level, how to connect the building tops, to make urban spaces available. CRZ applies to 50m on both sides of the river, no structures are allowed

T: How do you define encroachments, CRZ regulations?

K: Exactly

T: You don't have the PWD ROW?

K: No, also CRRT are doing surveys, not only PWD.

They have even hotels on the river, that is a complete violation

They proposed Rapid transit, how to increase water table, how to connect with more pedestrian bridge.

Our proposal is to bring the Cooum back to life, and to use the river, the moment you start to use the river, the river it will be good. the moment I go everyday, I make sure it is not dirty.

CRRT is a need-based entity, special purpose vehicle. You should have a complete control authority so they can take things in a holistic way.

T: When you said that some areas are low-density, are there TDRs in the area?

K: Yes, in the master plan the government identified where are the TDRs. In the 2006 master plan they identified which areas you can collect and which areas you can send.

You can find it in the CMDA office, but not in the website.

The surveys were made by random sampling, based on semi-structured interviews.

We haven't gone into details into finding old maps, used google earth.

Uttaya the historian has published 10 books on Chennai, he's a cartographer, you can find his books in Egmore.

#### Gunesakaran-transportation department

G: Gunesakaran

T: How is the road performance affected by the alignment next to the river, especially with sharp edges? According to the court ruling and foundations locations

G: Actually, not for a long distance it goes along the river. We have geometric standards, what should be the radius for a particular speed, for road alignment, super elevation, widening, the longitudinal gradient, the radius of the curve, everything according to standards. So if the river is somehow straight, we will be laying the road along the river, or else the course will be slightly different. Not exactly matching the river. So for the Madduray town, you can check, you can see the river and the road running parallelly, and similarly in Chennai, the elevated road is planned along the Cooum river. you can see in google earth, that the road alignment is not exactly matching that of the river. Only whenever the geometric standards are matching

T: Specifically around thousand lights, Nungambakkam, till Chetpet railway bridge,

G: the river acts like the boundary, and we want to lay the road near the river, that's why we lay the road near there. Moreover, the river transport was there, through boating, but no we don't have boats. Back then roads were narrow, close to the river for multi-purposes, trucks and people and river bank inspection, but now it is feasible.

T: Does the elevated road also serve multi-purposes, like transportation and so on?

G: They are planning to mainly connect it to the port. For trucks the timings are restricted, and the port is in the center of the city. Going to the port from the southern part during the day time is not permitted. From northern part it is permitted, and for the southern part, only during night time (11 pm to 5 am). So coming from south to the port you have to wait, but with the elevated road you can go directly with no problems. It allows for circulation all day, but it is mostly for trucks. They are also planning to allow cars, because toll can be collected. Only certain users would be permitted. Cars and trucks.

T: Were there other alignment options for the road?

G: For the alignment actually, you don't have much choice. All areas are well-developed, land is costly. It is a water course that belongs to the government, that's why it's easier. Even if we suppose that we can get land in another area, we would pay a huge amount of money, which we don't want to give, because we won't get land like this again.

T: The road foundations sometimes they are in land or sometimes in the river covered by water.

G: That depends on the water course and the alignment, if it is matching, it can go even in the middle of the river. or on the banks, sometimes it can be both.

T: Was the effect of the foundations on the water flow studied?

G: Yeah, actually, to a certain level they have done it. But in another study, my study was actually a pre-feasibility study.

### Nitya Nand-Activist

Mr. Nitya Nand is a writer and researcher based in Chennai investigating and reporting on corporate abuses of environment and human rights

So regarding the right of way line, it is a mystery of how and when it has been recorded, because recently about two months ago, a community that have been given titles to the land on the banks of the Cooum, about 30 years ago, that title was revoked stating that they lie inside the right of way line. if that is indeed the case then it is a bit surprising to know that matter has been ignored at the time that the title was given, they could've been allowed to remain as squatters. Within unspecified title deed. This is a question that comes up.

Second, the city has grown massively, particularly over the last 30 or 40 years. And in this period, it is not just squatter settlements that have come inside, there would also be other structures ,including government structures and elite structures, are these being affected by the right of way line, or does the right of way line circle around elite encroachments, is it meant to be a targeted attack only at the poor, the reason why this question comes up because there is a process that has begun for the eco-restoration of the Ennore creek, which is a different basin, it is in the Kosasthalaiyar basin ,and this is the tail end of the Kosasthalaiyar, there you see that the word right of way is not used and PWD doesn't seem to be... because the ROW if to be used over there, I suspect there will be major elite encroachment that will have to be sacrificed.

So what they've done is that they've arbitrarily drew the line defining the creek for eco-restoration which very carefully avoids not only the existing encroachments but also all the proposed encroachments of these industries. So you have a situation of these two rivers, adyar and cooum, which I consider elite rivers because they pass through the center of the city, and these elite rivers have no room for working class encroachers, and in the north of Chennai you have Kosasthalaiyar which is a working class river, and the working class river is encroached by elite encroachers who will be not removed. So I think that this is something that the administration is essentially propagating what India is very famous for which is caste based discrimination. And this is just another manifestation of that, the poor have no room in the city. So the city is being beautified both by removing dirt and the city's poor.

If the right of way were to be determined, for a river, then it would have to have some connection with say once in a hundred year and where's the high flood line, there has to be some ecological, and meteorological and hydrological basis, and if that is there, it would be a scientific methodology, what you do with the line, whether it has to be a rigid line or not, that could be a political discussion, that is ok, because we all take risks and so we need to find out

how do we manage the risk and how do we mitigate the risk, it could be a political discussion that we say x, y, z settlements have already come up, and so we'll make them more secure even though they fall in the ROW. a, b, c settlements will have to be removed for x y z reasons. That has to be transparent again, and that cannot be on a discriminatory basis. So I'm perfectly ok with having communities move from in there, provided it is being done in a transparent manner, it is being done in consultation with them, and they do not move from one vulnerable waterbody to another

The Adyar creek restoration, there has been a committee appointed to monitor the ecological restoration. Other than a specific committee, is there any institutionalized regulations for ecological restoration?

No, so the ecological restoration is by large being done by an extremely non-accountable entity called the Chennai River Restoration Trust, which is an account that is administered by the Tamil Nadu Urban Infrastructure Services Limited. So this TNUIFSL, administers a fund from the World Bank for the Tamil Nadu sustainable urban development program project, and this has, the main objectives of this is to improve the capacity and provide technical assistance and doing work with urban local bodies. CRRT is one of the borrowers, or sub-borrowers. They have a 600million dollar account, under which money is being, lent to other entities, and like the CRRT for specific projects or for the preparation of detailed project reports. TNUIFSL is 49% government of Tamil Nadu, and 51% owned by three investment agencies, ILNFS financial services, ICICI and Housing and development finance corporation. So, there's a very clear conflict of interest in this, on the one hand you have these guys who are big time investors in the reality market, and ICICI I'm not sure, if also has Abu Dhabi real estate investment authority, is one of the investors in LNFS, I should just check that. And so, you have a very clear conflict of interest, these are the people implementing eco-restoration of my city, I am not involved. He's not involved, the communities are not involved, we don't have a local government since 2015. In the sense, we don't have a mayor, we don't have a city, it is being run by beaurecrats, so they know that on the theoretical level, right to democracy has been in suspension since 2015. In Tamil Nadu.

You said that it's being lent, sublent, it means that the Tamil Nadu government is responsible for paying back?

I'm responsible, he is, through tax

There have been other criticisms of the project, that for example the elevated road affects the flow and flood capacity of the river, Cooum river, the elevated road from the harbor, they put foundations for that plan? Has there been studies in the effect of road?

Well, it doesn't require a study, the encroachers that they are evicting right now are largely working-class encroachments, which pose a threat to themselves, if they're removing them, you're removing them for the safety of the people living in that, that they should not be living in such bad conditions. So out of interest for their safety and their dignity and living conditions, you've moved them away from danger without disturbing their household economy, but those structures, will get washed away in the floods, the road will not, so the road will actually divert the flood water elsewhere and inundate areas,, that is common sense. The only documents that there are is about is the detailed project report of the Cooum, which deals with the flooding issue in a very marginal and unsatisfactory manner, then I think there's an environmental impact assessment, which is about 10 or more years old.

So do you have access to the detailed access to the detailed report because it is not accessible to public?

It is public, in the sense that if you file under the right of information act, you will be able to get it, that's how we got it. I don't where to locate

Ha there been studies on the changes o real estate values near the river?

I wouldn't know, but you could possibly ask some real estate

There was another criticism that there was a report by Metrowater, that most of the pollution, 97%, comes from metrowater, at the same time, the report for the restoration says that encroachments are the reason for pollution, I haven't seen the report, in the exec. summary, says not explicitly, that river is polluted by encroachments?

It is true, if you like the encroachments also pollute, but if you look at the percentage of pollution, it will be like you said, that the city, metrowater, contribute a higher proportion of pollution than informal settlements. Because if you want to pollute you have to have money, only if you have water you can pollute the river. And the rich man uses more water than the poor man, that is very obvious. So you actually need money, a poor person family of four, would probably use 1800 liters of water, a day, so that's amount of water you can generate

In the past years, there has been introduction of the biodiversity act, and the National Green tribunal, and it seems to be targeting the rights of nature in an objective way, do you know if there's a scientific basis of the judgment?

No, generally science is in very scarce application, even the NGT or the so-called scientists. Because one of the pre-requisites of good science, is to have a spine, you need to have courage, it is not enough to only have a degree, so you have people who have degrees but who are afraid to speak the truth, so they manipulate the data or inferences, to suit the needs of their clients. That goes all the way to the ministry of environment where we have an expert appraisal committee that do not use their expertise but use something else to appraise projects. In the NGT again you have judges who are trained in some discipline of science, and are unable to appreciate other disciplines. Another problem with that is that science is defined in a very monochromatic manner. The way a fisherman understands the river or the sea, is considered to be unscientific, so community knowledge is dumped down, and institutional scientists are seen as the only practitioners of sciences. This is a huge problems because often institutional scientists lack the analytical capacity, it will be good to understand complex natural phenomena, which I take, non-institutional scientists, practitioner scientists are better equipped to appreciate. Also because practitioner scientists take real time, real life decisions, based on the data available there, and institutional scientists work with statistics, to arrive at a conclusion. So, I don't need conclusive proof that the river does not have any good number of fish. By practice of fishing, I say that the catch per effort, the amount of effort and the amount of fish that I'm getting is not justified, and I stop fishing over there. While a scientist may come there and do a long scientific study, and then have a control sample, and say the fish population over here is decreasing.

### Vanessa Peter-working with NGO

V: Vanessa Peter

If you look at whatever is happening today in the urban areas, there are several issues, let me put it this way and the first one would be the policy concerns. Second would be the implementation challenges. We can broadly categorize it into these two parts. If we were to look at how research is being realized, let me start with, that one there is no proper consensus on who the deprived community is in an urban space. Because we classify slums as one of the informal settlements. Here informal settlements, when people talk about it, they relate to slums.

And I am totally against the use of the word itself slum. Because it always has this stigma attached when we use the word slum. We would say the habitation for the poor, fairly a decent word. And When you look at it there are different types of communities, they are not homogenous. So, they have those who technically reside in slums, and you have those urban homeless who reside in the streets, under the flyovers

and so on and then you have migrants workers, then Tamil Nadu or India, there is coastal land stretch so we have a lot of fishermen, coastal communities, but not only fishing but also is livelihood activities of the community, there is range of type of migrants even the urban homeless there is heterogeneous nature, a lots of classifications of them: migrants, migrants there is occupation migrants, district migrants it's too many ,but problem is... the solution is simple and like is a big problem is that when we talk about the rural poverty we talk about the holistic approach of housing, livelihood you know micro credit ,education everything is there compared price ,when will talk about urban poverty the only solution think and everybody think about is housing. because we think, of course one of the problems is housing, but not just housing. so, we fail to understand the there is a need to address the issues of urban poor beyond housing, has been one of the problems.

So if we were to say, if we look at communities who were, provided houses says six, seven decades ago you will still find that the social and economic indicators have not changed much. So you will go and put the nice structure which by now is in dilapidated situation. You will have increase school dropouts, increased levels of domestic abuse, alcoholism all social problems are there. and again, housing is not, I mean structure. we do not see the housing as strategy to alleviate poverty, when you talk about housing you need those other elements. socio-economic, I mean social infrastructure facilities so the problem with the current discourse is that we say. housing has to be affordable, affordability takes the upper hand in the discourse, adequacy components are not in the concern. even government says let me give you a concrete structure and then it is over. Because we think let's concretize it, but we are only concretizing a slum rather than upgrading them. one concrete example is how slums are as defined: that objectionable, unobjectionable, habitable, non- habitable, untenable, I do not know where this definition comes from, because they are not sanctioned by the law, okay is only definitions which we have popped out of world bank projects which we. So the classic example is that after [...] years the buildings are in a dilapidated situation. Because if I have a son or a daughter that are getting married, where are they going to go, obviously I will build a hut around. So, Actually, they don't solve the issues, if we go through economic improvement, perhaps they will afford a house. That is way we are advocating for single houses, because you can develop it on an incremental basis.

So we see this housing for the poor as a [...] solution, you concretize it so there is no fire hazard, or it does not look ugly, that is how it is viewed. You should look at the definition of TNSCB in 1971, it says if it was unsafe for the neighbourhoods. Unsafe neighborhoods is more of a public health thing. That some slums are surrounded, congested, and creates unsafety to the neighborhood. Not related to tenure. it's kind of an act of benevolence, like charity, you better be happy with it. We are saying it's the other way around, it's a matter of a right. What we say when we go to communities, is What government is doing for you is like father property, no matter what you do with it, it is your right, you should get it. What you get from private is like the money in your friend's pocket, you may take it but it is not mine. government gives me is not a charity, so there is an imbalance there, an upper hand, a giver hand.

Have you been in Perumbakkam? Did you go inside the house?

See there are no tap facilities in the house, in the original design it wasn't there. so we fought for it. Kannagi Nagar was 160 square feet, we fought for it to increase the size, and to provide tap

water inside the facility, because the burden of bringing water lies with the women. there is one faucet in the house, it is in the toilet not in the kitchen, so we noticed and asked them where is the dignity.

there are 3 set of designs in Perrumbakkam, and it changed because we fought for it, we went and asked for corrections, then third design is relatively better. but people are not lab rats, you cannot be experimenting on it. This doesn't change by itself, it changes because an activist is actually [...] telling hey change.

No one talks about tenure rights, in Kannagi Nagar people were resettled after the tsunami, which means they should get a sale deed by now, they didn't get it. now communities are demanding it. In Perrumbakkam there was a child who fell from a [high] floor and died and we took the official, It takes an activist, it takes the media, it takes an official for the safety measure... which should have been there in the design.

There is no one talking about tenure rights. The community is still demanding. We have exposed some of these things in the media so that it is expeditious. It takes a joint effort to have these things done and this is how the problem of attitude comes.

L: I want to know the housing for free, because you have to pay for the monthly allotment.

Housing for free: there is no policy on that. Sometimes you get free houses, sometimes you pay monthly or any other time, there is no policy or guideline. We have demanded government policy on this but not yet. Policy at the national level does not apply much at the local level. In India what works in another state may not work in another area due to political orientation or cultural set up. These are the problems we are trying to raise. There is no definite guideline, how they determine the payment, lies in the hand of an official, everything is determined there, the biggest issue is the absence of community consultation, at the policy, implementation or evaluation levels.

Slum Board has money for constructing houses but not for community development.

L: But they told us there are some of the representatives from the resettled communities and they represent the others in some of the meetings?

V: I've been one of those. They hate me but they can't do without me, there are times when we have the power to ask for change. In our organization we use research as a tool, evidence based researches which are done with the communities. we do audits, citizens reports, we are just the medium, we give them the mic, but they do the work, they write. We make communities talk, we tell them what are they entitled to, IRCDUC.

There are representatives though and they hate the work I do as much as they can't do without me. We try to resist where issues oppressing society is implemented by government. They (government) know that they have been addressing slums issues in piece meal. We sometimes help with design work. However, we majorly empower communities by giving them a voice or mike so that they talk about their issues openly to the policy makers. And this has made government very uncomfortable with our work.

We apply gender lens to look at housing issues, I resigned from my previous work to focus on this current initiative. We connect people with policy makers. Because governments policies are never translated to be understood by the local people so we translate to people. We developed a small book that says this is your right, this is how to respond during evictions. These are the things we do to the communities.

So make some of these policy issues simple to the communities by allowing the communities to speak. We are part of the academy researchers and work with the media to highlight some of

these issues such as evictions. I realized we need to work as a team to make an impact. The situation has now improved; the minutes are there to show that situation has been made better with time. Though ideally, these things should be done without someone having to force government to act. The problem is that when people are resettled they are placed next to strangers and this destroys social network.

Going to Kannagi at night is well lit even at night though drainage system is not good. Rain and surface run off has been a problem making people to live in undignified manner. It becomes a big problem to everybody, children more so. After resettlement many men deserted their wives. There is not protection on this front of family sticking together. Children drop out of school as family breaks. There is also the stigma of singlehood.

I have exposed a lot of issues that have been endangering the families here. Leaders should ensure that people are provided for without advocacy.

Police stations that are supposed to ensure security also lack equipment like police vehicle. This has hampered security in this area. The legal cost is also beyond the capacity of residents to pay. Children of sexual harassments do not have proper place for treatment, like one time a child who suffered sexual harassment had to be taken to labor hospital. The child had to be taken out of the community at a later date. Mitigation measures for sexual harassment are not good here.

In Kannagi, the people that were resettled are not the same people who are staying here now, may be only 20% are still round this is why there is no community aspect. Gentrification is a concern; there is a mixed development around.

Change of house to design to increase the space has been done to some of the houses and this they do through small loans. Another problem is the high level of vulnerability of these people for example many of these people will find it difficult if there is no one fight for their rights like us.

We have also done safety mapping of the whole area and in some areas, we find children playing outside up to 6pm to me this is assign of safety. The young people are also find it difficult to get a job as they need certificate of no objection and this is frustrating many of them. Some even have committed suicide due to frustration. Any women have also delivered their babies outside because there is no hospital. Women in these slums areas are very resilience. Despite all the problems they still struggle to take their children to school. We should celebrate their resilience. The caste system is also a big problem. Everywhere you go people ask where you are from so that they know your caste.

### Real estate companies

#### 1.Hemdevs real estate in Nungambakkam

Have you seen an effect of the project on real estate values?

The real estate market is slow since the last 3 years. Right now, no you can't, but once the river is clean, there will be a positive effect. Because of beautification and better hygiene.

#### 2.Umesh broker next to Adyaar

The park hasn't changed anything, real estate is stagnant since the demonetization,

#### 3.Linga constructions – T Nagar

CMDA has introduced new regulations, near the riverbank, construction, 100m from the river or 50m.

High rise buildings, have stopped the floods from connecting to the sea (MRC Nagar), they are Hot shots who have connections. While there were encroacher slums.

Politics affect real estate. The real estate market is not connected to the river. The GST (IT corridor), provides more tax payments. Due to government policies, salaries have increased the prices of land. Land prices have tripled from 15 to 45 lakhs. In 2005, IT companies gave more salaries to a few number of people. After BJP, they introduced policies to reduce FDI, foreign direct investment, due to reduction, salaries didn't increase. Small hike. After elections, the training market decreased, people started investing in land, common people are deciding to invest in land. Previously they used to buy more homes, and give rent, if we have more homes, it might be a dangerous situation.

Black market decreased with demonetization. Guideline value, they used to register for that amount. There was a temporary boom, 5 – 20 lakhs, and material prices increased, after the boom stopped, the market didn't return back.

Chennai center is saturated, and there is pollution. So people are approaching the periphery more. In the center there is pollution and high cost of living. People prefer the center because of the amenities, but in the periphery townships, they are adding them now.

#### 4.Knight Frank

The center is saturated, very few can afford it, new townships north and south are more active.

Property near the river, sea or a view is of higher value of course. Improved smell from the eco-restoration project doesn't affect because, you close the window and watch the view.

#### 5.My property boutique in Thousand lights

Because of the project, customers have returned to buy apartments near the river in the Nungambakkam area. Because the smell is less, the risk of flood is less. But prices are stagnant.

## Annex 3: Coding List

Generated by Atlas.ti

Code Groups	Code	Grounded	Comment
Capabilities	Decreased Flood risk - Resettled comm	61	The benefit of decreased flood risk for resettled communities, not related to the whole city, that is discussed in the increased flood capacity
	Job Proximity	51	The benefit of living close to job opportunities quality + availability
	Improved water quality	41	
	Increased river flood capacity	29	
	Beautification	27	
	Recreational value	23	
	Commercial profit & agglomeration	20	Benefit from commercial being close
	Social Infrastructure	19	
	River ecology enhancement	15	
	social connections	15	
	Utilities	14	
	Prevention of Squatting	13	
	personal harm / safety	10	From aggression / mugging
	Groundwater recharge	9	
	decreased water borne diseases	6	
	connection between residents and the river	5	
	home security	5	discussed in ownership
	River transportation	5	all stories are from the past
	Real estate gains	4	
	Cycling and pedestrian safety	3	
	River water use	3	
	Transportation availability	3	The benefit of living near transportation facilities and services
	Adequate living space size	2	
	LVC / TDR	2	
	mixed areas	1	
Citizenship	Resettlement rights	102	Rights to fair resettlement, quality, not bargained benefits. *revise against agency to resettlement conditions*
	Direct ICRERP participation	55	Through invited participation, informing, manipulation, bargaining

	Encroachments definition	38	
	Decision making for changing socio-ecological structures	31	Large scale, institutional level, rules for who gets to make decisions on the relations between society and nature
	Agency to resettlement conditions	24	
	Indirect ICRERP participation	23	Courts, politicians, government complaints, bargaining
	environment as a technical issue	12	Environmental issues presented as technical issues
	Relation to caste	9	
	Merging environment with social	6	Unclarity between project goals, environment or social factors
	Rights against pollution	6	
	River as constituent	6	
	Documents	5	
	River ecological system rights	5	
	Slum delimitation	3	
	TN Slum definition	2	
	agents	1	
	economic status	1	
	resettlement outside of ROW	1	
	Riverfront Land tenure - informal typology	63	
	Resettlement unit tenure	24	Differentiating codes for tenure
	ability to manage	18	
Land Rights, Endowments & Entitlements	Ability to preserve water quality	13	
	cheap (public) land	12	
	Ability to use exclusively	11	
	Right to Manage	11	
	Public land ownership	10	
	Ability to use inexclusively	9	
	Ability to alienate	7	
	Right to use inexclusively	7	
	Regularization	6	
	Customary land	5	
	Right to alienate	5	
	Ability to discharge	4	
	ability to restore ecosystem	4	
	Right to discharge	4	
	Ability to flow / flood	3	
	Adverse possession	3	

	Right to use exclusively	2	
	Ability to access	1	
	Ability to change river course	1	
	Ability to withdraw	1	
	Right to access	1	
Landuse change	Landuse designation	20	
	De facto landuse	14	
Landuse constraints	ROW	20	
	CRZ	17	Coastal Regulation Zone
	Floodplain	15	
	Masterplan	10	

## Annex 4: HIS copyright form

### Annex 4: IHS copyright form

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