GLOBAL HOUSING GRADUATION STUDIO 2021-22
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PROTOTYPING INFORMALITY:
MASS HOUSING AS URBAN VILLAGES IN NAVI MUMBAI

Cover Image.
Satellite image of Nerul node, Navi Mumbai.
Retrieved from: Google Earth.

CONTENTS

INFORMAL SETTLEMENTS IN NAVI MUMBAI

Mumbai has experienced rapid urbanisation in the 20th century maintaining its southern city centre and expanding northwards. In 1947, British planners published a study depicting the creation of a satellite city east of Mumbai and beyond the Thane Creek (Shaw, 1999). In 1964, Charles Correa, Shirish Patel and Pravina Mehta recommended the formation of this independent satellite city called Navi Mumbai. It was imagined that the new city could diffuse the problem of high population density in Mumbai, host governmental offices as a nucleus of employment, and offer decent living and housing for all the classes of society; a socialist vision that captured the post-Independence aspirations of the country. The project was finally initiated in 1971 by the Maharashtra administration and the founding of the City Industrial Development Corporation (CIDCO), responsible for acquiring 344 square kilometres of land and integrating 96 existing villages (Correa, 2000). The city was planned along 14 nodes and for 2 million inhabitants. It currently hosts a population of 1.1 million concentrated in 7 nodes while around 40% lives in informal settlements. A complementary statistic that illustrates the reality of the city indicates that 75% of the population are literates. By the 1990's reports of mushrooming squatter settlements started to surface (Shaw, 1999). Thus, contrary to the imagined egalitarian vision of Navi Mumbai, 3 types of distinct settlements are found in the city: the township/ node, the village and the slum (Vedula, 2007).

Navi Mumbai is somewhat antagonistic to Mumbai, a global competitor city that developed similar spatial patterns of inequality (Vedula, 2007). Another contradiction with the original intent of the architects is shown by the fact that 60% of the population migrated to Navi Mumbai from outside the Greater Mumbai area instead of Mumbai. Formal settlements in the nodes generally cater to the middle and upper classes while in the richer nodes, the target groups are Non-Resident Indians (NRIs) and other international investors. Mass housing for the lower classes does exist but in general these schemes end up in the hands of the privileged in India (Urban, 2012a), including in Navi Mumbai (Shaw, 1999). The reality is that the poorest of the city live in informal settlements, in a *peripheral urbanisation* outside of the planned environments (Caldeira, 2017). Informal urbanism manifests complex spatial patterns developed independently of official structures and regulations (Leuder, 2018; Roy, 2009), activated by the demand for labour supply and a parallel informal economy (Skinner & Watson, 2018; Shaw, 2003). The poorest residents of Navi Mumbai live in the original villages of Navi Mumbai which have experienced extensive informal growth and in more recent informal settlements.
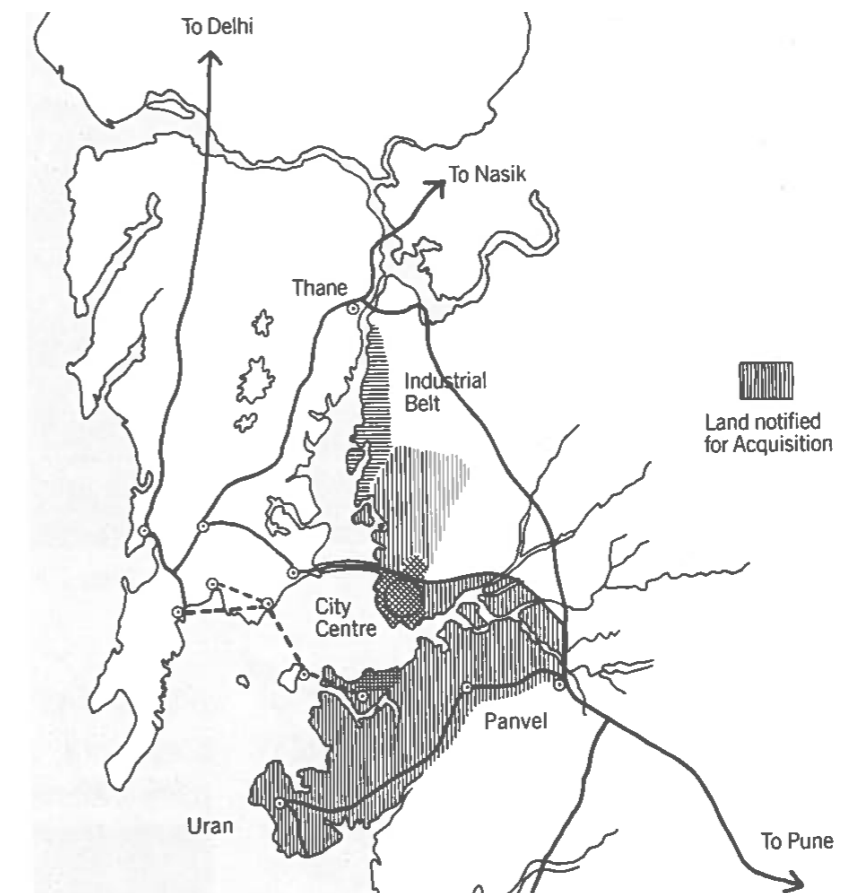

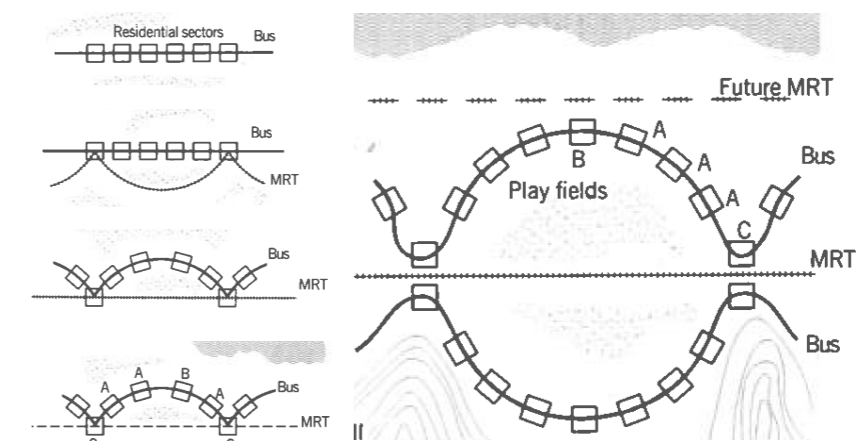*Fig.1. Land acquisition map for expansion of Navi Mumbai*

Fig.2. Housing clusters and transport connections for Navi Mumbai

TYPES OF INFORMAL SETTLEMENTS

Original villages; 29 of the original villages situated within Navi Mumbai borders experienced gradual urbanisation and absorbed rural migrants, the majority of whom come from within the Maharashtra state (Shaw, 1999). The bulk of the development of the villages can be classified as informal, although there have been approved constructions as well. Some villages located near the West coast and at crossroads had shown signs of urbanisation prior to the Navi Mumbai project. Urbanisation of these villages translates to a transition from agricultural to non-agricultural work. In hindsight, it is remarkable that the masterminds behind Navi Mumbai did not incorporate these villages in the planning of the city.

Permanent shanty settlements attached to the original villages; Available open spaces near the original villages mentioned above were squatted by rural migrants who constructed informal shanty settlements. These sites were ideal for the squatters since water and electricity supply originating in the original villages could be appropriated (Raju et al, 1996). In their majority rural migrants residing in permanent shanty settlements come from outside the Maharashtra region. Both the original villages and the permanent shanty settlements expanded incrementally in the last decades, sometimes shoulder to shoulder with planned developments to define their territories.

Non-permanent shanty settlements attached to permanent shanty settlements or temporary construction sites; Shanty settlements developed in the form of non-permanent shelters attached to construction sites or other permanent shanties and original villages (Shaw, 2003). High numbers of construction workers are required in the construction industry since there is no prefabrication in India (Urban, 2012a). When constructions are completed the non-permanent shanty settlements are sometimes reclaimed by workers servicing the buildings such as guards and cleaners. The predominantly rural male construction workers are seasonally employed outside of the monsoon period (November to May) and hence their stay in the city is temporary (Shaw, 2003). Often construction workers are employed in the industry through third parties and are brought in the city in groups. The same construction workers move back to their rural villages and transition to farming during the monsoon season. Crop cultivation cannot sustain them and their families throughout the year, nor is it economically viable to sell their land and move permanently to the city. Limited labour for construction is also provided from the original villages, however, 50% of villagers work in other villages and 20% in the planned nodes (Shaw, 2003).
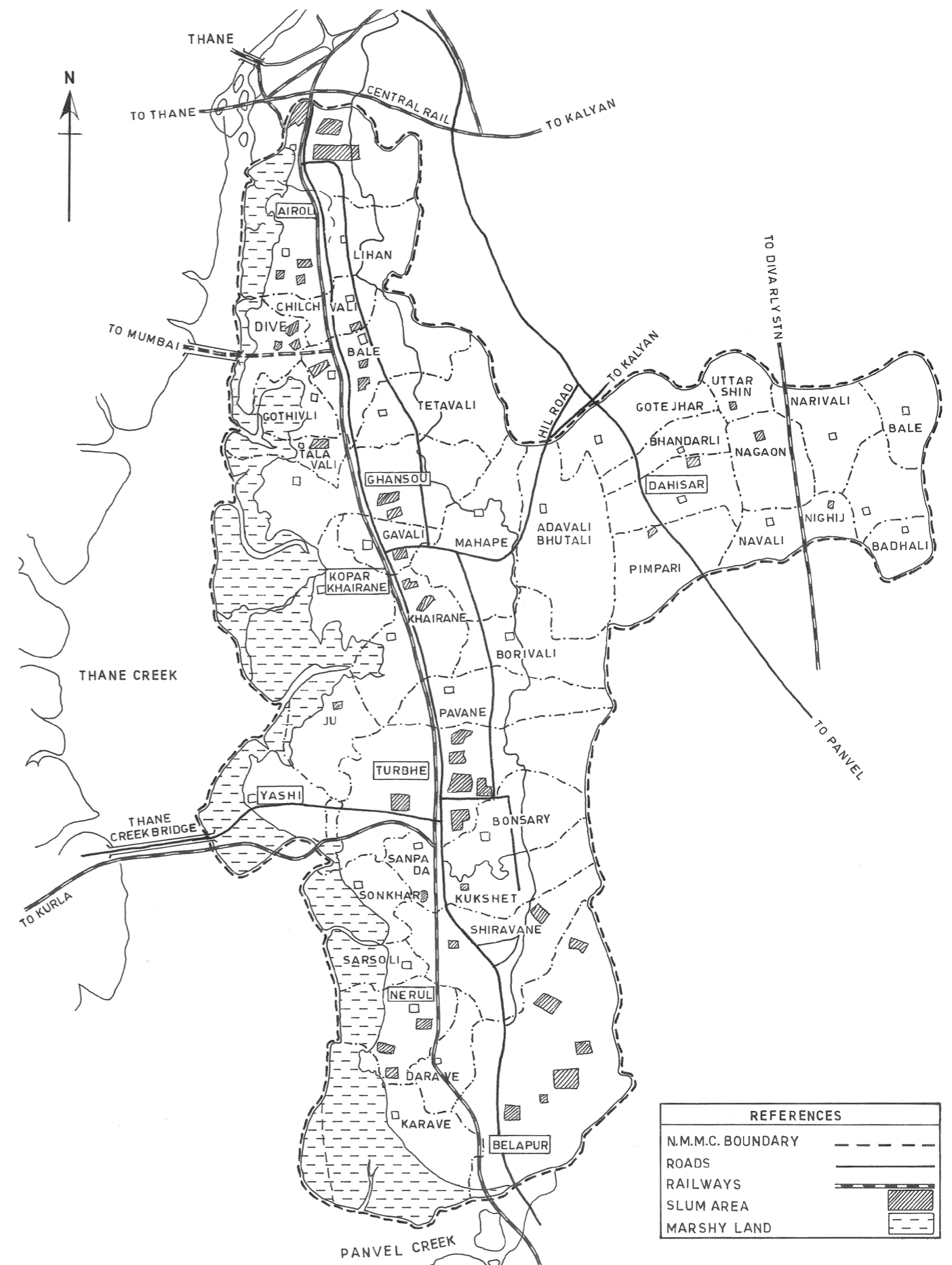

Fig.3. Informal Settlements in Navi Mumbai

Problem/

THE PROBLEM WITH FORMAL HOUSING TYPOLOGIES

Gated communities aimed at investors and the upper class are built in Navi Mumbai and arranged in a series of detached high-amenity privileged areas. Many apartments stand uninhabited and their owners/ investors wait for property values to increase. This *enclave urbanism* follows a history of social segregation in India (Sharma, 2010) and accelerates inequalities that are already in place (Mehrotra, 2020). On the other extreme of the formal spectrum, mass housing schemes are inspired as the absolute solution for the middle and lower classes. These schemes are based on outdated early modernist planning, present standardised solutions, lack of imagination and typically deny any user-involvement (Shah, 2021; Enchanove & Srivastava, 2014). They are often mono-functional housing blocks placed in remote locations or disconnected from services and places of work (Burdett, 2018). As mentioned in the introduction, even in more successful housing schemes intended for the lower classes, it is common that houses are sold to the more privileged and the initial tenants move back into informal settlements (Urban, 2012a). Maintenance is frequently problematic, rendering living conditions difficult since the focus is on immediate efficiency, or quick fixes, typical of neoliberal economics (Mota, 2021).

The gated communities and the questionable mass housing schemes form a *neoliberal landscape* where housing is essentially a commodity rather than a human right (Shah, 2021). Price of land and density are used as urbanisation tools to inflate housing prices regardless of the dispersion and segregation of different social groups (Clos, 2018; Harper, 2019). Gameren and Varma (2016) indicate that fast paced urban development and increasing segregation have a direct relationship with each other. Under this logic, the high-rise is always projected as the solution and apartment blocks of maximum heights are copy-pasted without any regards to topography or approximation to public transport hubs (Mehrotra, 1994). There is a pragmatic threat of marginalisation of the poor in the outskirts of the city, away from any community ties possibly developed within informal settlements. The real estate market takes advantage of the distressed rural migrants moving to the city to project an unlimited demand for housing and fuel speculation (Mehrotra, 1997). Without a doubt, current mass housing schemes as coordinated by CIDCO will not substitute the more affordable and operational informal settlements.

Effects on informal settlements

The aspired model for change in regard to informal settlements is relocation of dwellers in mass housing schemes. Sections of informal settlements are demolished and evacuated, more notably in the richer nodes of the city as market rental prices are threatened by the proximity to the informal settlements (Song & Zenou, 2012). Authorities exploit sanitation and aesthetic issues

to raze buildings and occasionally rehouse informal dwellers in mass housing schemes (Huang, 2016). The author of this essay predicts intensification of these processes with the increasing urbanisation of Navi Mumbai as experienced in Mumbai, a process of accumulation of capital by dispossession and displacement (Harvey, 2008). Appropriate help can be offered to informal settlements in the form of upgrades, restorations, provision of piped water, sewers, healthcare and collection of waste (Shah, 2021; Satterthwaite, 2018), a type of aid also referred to as sites and services provision (Urban, 2012a). These methods avoid framing the housing problem in terms of shortage which in turn legitimises formal economic interests and construction (Bhan, 2019). On the other hand, mass housing is a tool that can be employed to facilitate a more sustainable and healthy urbanisation for the city that considers the urban poor as labourers and humans, disregarding unsustainable quick profit-making and real estate speculation.
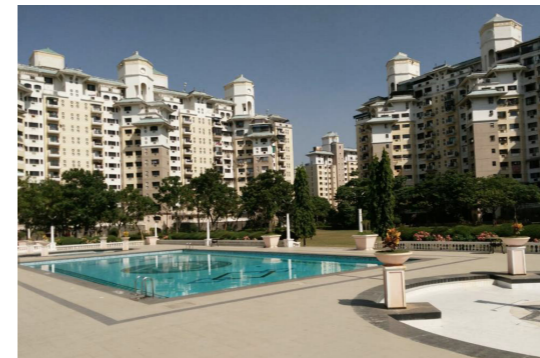

Fig.4. The NRI complex in Nerul

Fig.5. CIDCO mass housing scheme

Fig.6. Demolition of informal construction

PROTOTYPING INFORMALITY: How can urban villages be designed and prototyped after informal settlements in order to be introduced in Navi Mumbai as mass housing schemes and contribute to an organic growth of the city?

Power can be found in and extracted from informal urbanisation (Rocco & Ballegooijen, 2019).

The notion of prototyping the informal is borrowed from academic literature negotiating the future of urban villages in Shenzhen and other cities of Mainland China (Huang, 2016). Prototyping the informal also draws parallels with Gautam Bhan's (2019) idea of theorising squatting as a mode of state practice in terms of policies, programmes and plans. Finally, the term urban village specifically corresponds to the local context of Navi Mumbai and avoids dissemination of the stigmatising word 'slum' (Rao, 2019).

The research question considers the design of mass housing as urban villages modelled after the informal settlements in Navi Mumbai. Urban villages can anticipate, absorb and develop alongside future rural-urban migration and growth of the city, equipped with fundamental infrastructure from the outset. The potential behind this concept lies with the affordability of the dwellings for the urban poor and their proven functionality. Urban villages allow space and time for rural migrants to adjust to city conditions by learning new non-agricultural skills. Meanwhile, original or established villagers transition from crop cultivation to minor entrepreneurial activities such as renting rooms and running shops; the urban village is a learning ground (Wang et al, 2009). Rural migrants can possibly identify themselves better within these low-rise environments and feel somewhat part of a community (Abreu, 2016). Indeed, the rural-urban division is blurred. In terms of sustainability, urban villages are low carbon emitters, reusing materials is standard practice and small-scale production is generally less harmful towards the environment (Skinner & Watson, 2018). In addition to that, urban villages contribute heterogeneously to the ecology of urban networks by reducing reliance on public transport and by utilising close proximity to work (Huang, 2016). In terms of architectural typology, homes and public space double-up as workplaces (Skinner & Watson, 2018). Architect Yang Sang refers to the urban villages in Shenzhen as the biggest contributors for the growth of the city (Abreu, 2016). Huang (2016) points to the importance of high-density informal settlements in sustaining the economy of a city and one can imagine the significance of informal settlements in Navi Mumbai for its growth.

Designed urban villages require a paradigm shift where the problem of housing the urban poor is seen as a *fragile metabolism* (Burdett et al, 2018). By prototyping the informal, it is envisioned that early design considerations can be outlined to reduce commonplace problems of informal settlements such as fire hazard threats, a general lack of infrastructure and the spread of contagious diseases. Designed urban villages can replicate the transformation of rural villages from traditional to urban with local businesses and manufacturing (Wang et al, 2009). These planned settlements can also account for transient rural and seasonal workers. At later stages, the urban villages can become *erstwhile villages* and assimilate into the city (Kumar, 2015). The anticipated transformations of the villages should be regarded as incremental by imitating informal developments and their reactionary nature towards the formal city.
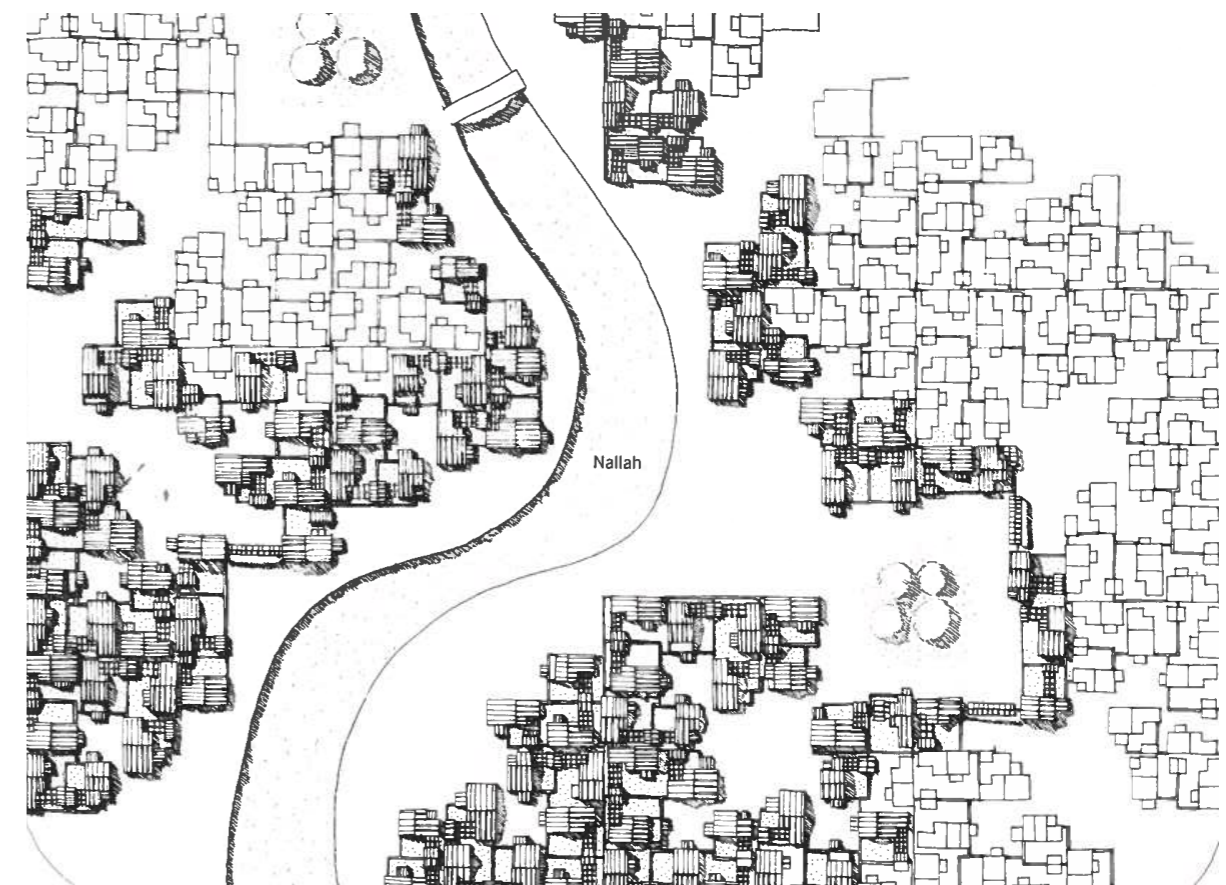

Fig.7. Belapur Housing designed by architect Charles Correa, New Bombay (1983-86)

LEGITIMISATION OF THE INFORMAL

Prototyping informality finds ground in the growing interdisciplinary fascination and concern of researchers to understand slums, while it is rooted in the Indian urban context through the lens of Rahul Mehrotra's concept of the Kinetic City.

Slums revisited

The complexity of slums and their persevering organic incremental growth combined with the failure of slum rehabilitation schemes in the Global South intrigues the imagination. Slums are unique examples of intensive mixed-use districts (Verma, 2013). The infamous Dharavi slum of Mumbai has a fascinating 1 million dwellers and produces an extraordinary amount of $1 billion worth of products every year. Informality does not mean poverty since the urban poor can manage a living (Roy, 2009). With its high-density and low-rise morphology, it is not a surprise that Dharavi is described as a vibrant *urban village* (Varma & Sha, 2019). The flux of slums is reflected in their urban morphology that shifts and adapts through time. The crowded streets, bustling markets, domestic workshops and small-scale sweatshops contradict formal mass housing schemes. Slums demonstrate diversity of people, of various modes of subsistence and aspirations (Enchanove & Srivastava, 2014). Numerous social and commercial interactions connect dwellers and devise unique socioeconomic fabrics, always in negotiation with the city's formal economy and ethos.

The Kinetic City

Mehrotra (2008) describes the spatial manifestation of public everyday social and commercial interactions as *bazaar-like urbanism*, a negotiation between the formal elite and the informal subaltern. He points to the ephemeral qualities of religious festivals and other public gatherings to distinguish between the static built environment and the counter kinetic theatricality of the city. Mehrotra (2017a) constructs the concept of the Kinetic City upon revising Ravi Sundaran's notion of *pirate modernity* and Richard Sennett's concept of *open urbanism* which is incomplete, unorthodox, antagonistic and non-linear. The static and the kinetic coexist and are both valid as seen in the *dabbawala* lunch delivery system which utilizes informal and formal modes of production and transportation (Mehrotra, 2008). The dabbawala system dissolves the binary setup of the ephemeral and stable elements in the city. Flux is the new normal, the built environment must bridge, allow for flows, be malleable and reconfigured according to agents and problems (Mehrotra, 2017a, 2017b). Architects and urbanists must envision protocols that can be adaptive, re-evaluated and re-projected (Mehrotra & Vera, 2018). Prototyping mass housing as urban villages is positioned in between the static and the kinetic, welcoming the informal social and

economic pulses of Navi Mumbai. Urban villages are not master plans and are less ambiguous than CIDCO mass housing schemes. Master plans are static and out of synchronisation with different urbanisation paces (Mehrotra & Al-Asad, 2016). Finally, Mehrotra (2020) calls for a flexible 'grand adjustment' for the city aspirations instead of an absolute grand vision that glorifies high-rises for all typologies and contexts.

Fig.8. Dharavi street market

Fig.9. Ganpathi festival

Methodology/
RESEARCH FOCUS AND LAYOUT

1. Case studies

Case study research must be carried out on housing projects in India that exhibit distinct components of informal settlements:

1.1 Incremental; the growth of the built environment over time, vertically in the form of stacking new rooms/ units and horizontally.

1.2 High-density and low-rise; the specific morphological condition is evidently associated with informal settlements.

1.3 Mixed-use; informal settlements of thousands of dwellers incorporate more functions than housing.

The aforementioned components are preliminarily recognised by the research carried at the time of writing and others might be added retrospectively. It is important to study such housing schemes since they will indicate how urban villages can be designed with informal qualities in mind. Designing using the informal as inspiration connotes a paradox which is expected to surface during the research of these case studies.

2. Digital fieldwork with archival aid

The following types of informal settlements found in Navi Mumbai are to be studied:

2.1 Original villages; a set of conditions can determine which villages, or 'special' villages can be selected depending on the availability of digital material.

2.2 Other shanty settlements; attached to the existing villages, permanent and temporary.

3. Research outcomes

The case studies and the digital fieldwork is to be compared and correlated to indicate possible characteristics for the proposed mass housing as urban villages concept.

3.1 Urban morphology; the composition of buildings and how they are divided by streets.

3.2 Architectural typology and dwelling units; which houses have other secondary functions and what other typologies stand out.

3.3 Public realm; how users animate public space.

4. Limitations

There is embodied knowledge on behalf of the author presented in the methodology chapter which can be questioned upon a hermeneutic interpretation of the research findings (Oehlmann, 2021). Likewise, the methodology presupposes a solid argument in favour of using informal settlements as inspiration which resonates personally with the author (Farthing, 2015). Research findings can stir the argument away and change the course of action.
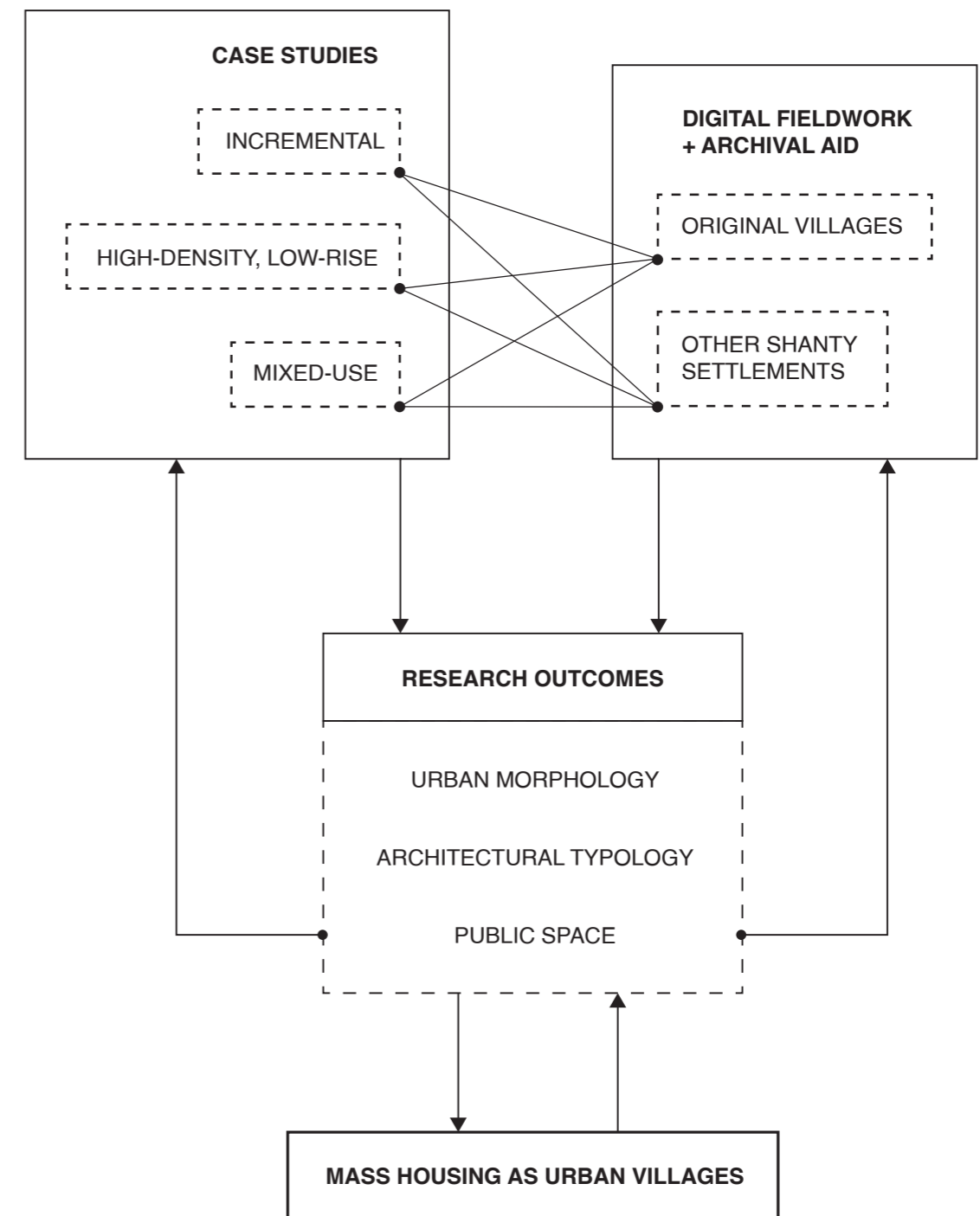

Fig.10. Research layout diagram

Proposed research methods/

Comparative Analysis
Typological Research
Digital Fieldwork
Archival Research
Collage Studies (Wehmeyer, 2021)
Hermeneutic Interpretation

EQUITABLE CITY

The research plan challenges the notion of housing as a final product, considers its flux over time, user activities and transient inhabitation. Housing is contemplated as a system that is generated by the city and vice versa. The term mass housing specifically demands an answer to the question of which parts of society it is intended for and it must be designed for the poorest urban dwellers living in informal settlements. The intent is to support a more equitable housing equilibrium for Navi Mumbai. Social segregation is a fact in the city and by designing mass housing based on informal settlements stigmatisation of the 'slum' and the 'slum dweller' is considered. Of course, informal settlements present many advantages which are to be utilised while their drawbacks attempted to be mitigated. Moreover, the project aims to encourage a resilient social fabric where its members are less susceptible to formal capitalist aspirations. The informal settler is considered a citizen with rights to decent and liveable housing recognised from an architectural and urban planning perspective; rights that are critically discussed and proposed through urban villages prototyped after informal settlements.
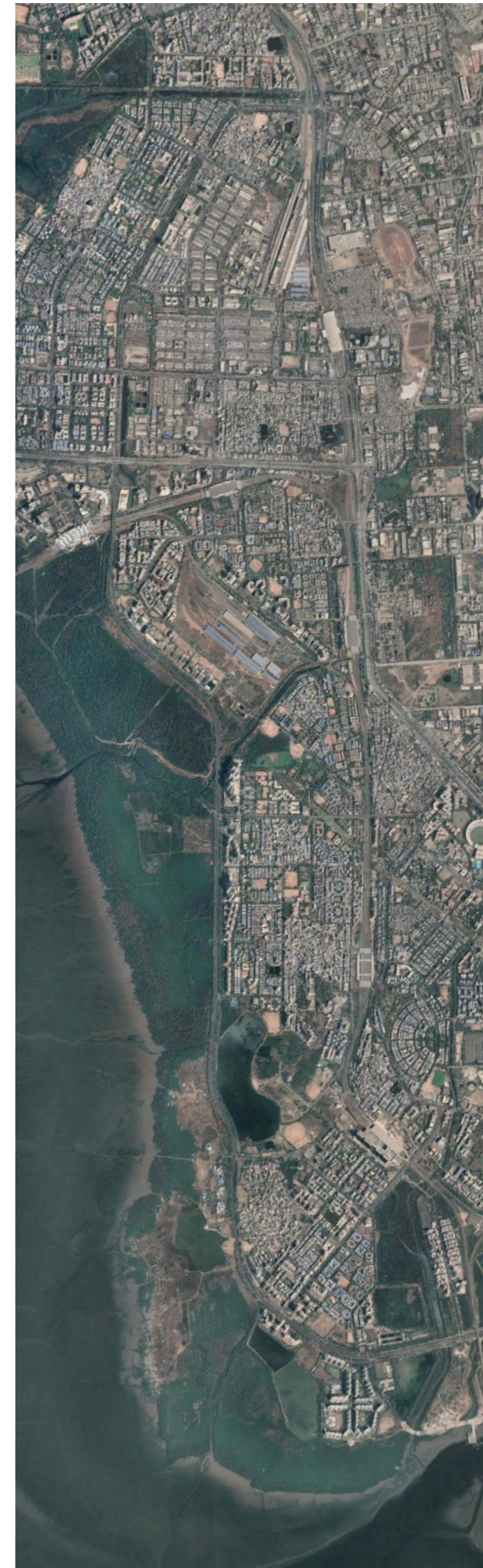

Fig.11. Satellite image of Navi Mumbai

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FIGURES

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Fig.10. *Research layout diagram.* Created by the author.

Fig.11. *Satellite image of Navi Mumbai.* Retrieved from: Google Earth.

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