Reflection

[RE]shaping urban environments in Chennai city

Urban transformation through an integrated densification process to facilitate liveable environments

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Introduction

Chennai, a historical seaside city on the southern coast of India, has undergone extensive urbanisation ever since the postcolonial economic reform of the nineties. Mismanaged urban growth that predominantly prioritises economic development has led to a situation of congestion, lack of public space and forgotten ecological networks in the city. This thesis aims to find potentials in the ever changing and densifying city, to facilitate liveable and vibrant environments for those who inhabit it.

The following sections reflect on the relevance of this thesis and the design process.

01 Methodology and approach to graduation project

> The need for an integrated approach

This thesis argues for an integrated approach that guides the process of densification in the city, in order to shape more liveable public spaces. The two predominant factors that are considered are the ecological systems and the mobility systems in the city, in relation to urbanisation and densification patterns. These were chosen based on the pressing issues that exist in the current planning process and as a way to overlap with the focus areas of the planning officials as well. Therefore, while the context informs the important systems to consider, the theoretical underpinnings helps construct the conceptual framework, which defines the relationships between the respective systems. This further guides the spatial requirements of the integrated strategy. This project takes a trans-scalar approach in order to understand and redefine different systemic processes at the city scale and its spatial impact at the street scale.

> Role of research and design

Research by design is a key component of the project, where the design is not just the final product of the research but is used as an input into the research process. The preliminary research through theoretical underpinnings is used to define the spatial relationships between building density configuration, ecological systems and mobility systems. This is embedded in the concepts of Socio-ecological integration, Transit oriented development and the two-network strategy and liveability specific to public spaces. This is utilised in defining broad strategies and systemic relationships in the city, which are tested, contextualised and spatialized using the results from design interventions at typical locations in different parts of the city. In this manner, the inputs and results from different scales of analysis and design are used to inform one another, defining a methodology of trans-scalar interventions.

02 Project relevance and transferability

> Scientific relevance

This research aims to make explicit the mutual relationship between facilitating liveable environments at a local scale through the densification process and the larger mobility and ecology systems in the city. High building density in Indian cities also means a high population density, owing to low space available per person. (Patel, 2014) This can often lead to congestion and put high pressures on social, mobility and ecological infrastructures, leading to poor liveability. Mobility networks and access to public transport play an important role in mitigating this.

While transit-oriented development (TOD) is now a common pattern of growth found in Western cities, it still needs to be explored and adapted in the Indian context, where vehicular mode of transport is still predominant, especially due to the lack of multi-modal accessibility, last mile connectivity of public transport and insufficient building density. (Singh, 2005). Further, when adapting concepts like TOD in the context of Chennai, it becomes important to explore the development models in the densification process, as land acquisition and development becomes a challenge due to the high degree of private ownership of land in the city. Therefore, this research will test the concept of Transit oriented development in Chennai city and identify the greater challenges and interventions required to make it work in this specific context.

> Societal relevance

In Indian metropolitan cities like Chennai, the planning process focuses on economic development above all and constantly plays catch up to the rapid pace of urbanisation. This has led to a lack of quality in public life for the people. There is a lack of space to facilitate social interactions and a lack of opportunity to sit, walk or just wander in the city. This research aims to create these opportunities through an integrated densification strategy and design proposed across multiple scales. Further, there is a mismatch between people's daily life patterns and public space use and the actual typology of public spaces being built in the city today. This research explores the way public spaces are perceived and used by the people in the city and contextualises the concept of liveable public spaces to Chennai and will therefore have a significant societal relevance.

> Transferability of the project

Several Indian cities have a similar problem of unchecked urbanisation, where the planning process is not implemented in synergy with the ecological systems and mobility systems. Therefore, the proposed methodology, integrated framework and the general design strategies can be applied to other major cities in India. At the more local scale, while the design strategies can be adapted, context specific interventions, specifically those pertaining to the climatic conditions and the current ecological condition have to be redefined.

Further, as seen in the case of Chennai, concepts like liveability in public spaces is very rooted to specific contexts and is an important factor to consider in the planning process. Therefore, a similar process of trans-scalar context analysis and perception studies

through fieldwork can be used to determine a contextualised understanding of liveability and similar perception-based concepts in other cities as well.

03 Project limitations

> Scope and Limitation of Methodology

This project deals with ecological systems purely from a socio-spatial perspective. Therefore, the aspect of biodiversity, resilience to climate change and natural disasters are not within the scope of this project. When considering the concept of socio-ecological integration, the goals for ecological remediation are aligned with those proposed by the city already, without further analysis. Rather, the focus is on how these goals can be achieved by also activating the ecological systems as social spaces to engage with the city. Therefore, the socio-ecological integration aspect is approached through the lens of the human dimension.

This research deals with the analysis of diverse social groups and morphological typologies leading to different requirements and usage of public space within Chennai. However, the city is home to a very large number of diverse cultures, in terms of religion, socio-economic class, occupation, immigrants from other parts of the country and so on. Each of these groups have a very distinct culture that affects the way they use space. However, due to the limitation of time, the analysis of the characteristics of space will be taken forward with a broader classification.

One of the important aspects of the project deals with increasing the use of public transport over private vehicles, through spatial interventions and design strategies. While Chennai has several modes of public transport such as the Metro system, the suburban and MRTS train system and the MTC public bus system, this project predominantly focuses on the metro system, as it is one of the most recently implemented public transit system, with several lines yet to be constructed, allowing for more possibilities with respect to the design proposals. As explained in Ch. 03, the metro currently has not achieved it's intended ridership due to the fact that the entire network isn't complete, lacking spatial conditions around the metro stops and very high ticket costs. This project specifically focuses solutions for 0the spatial issues that cause this problem, while practically, the issue with the ticket cost is an important issue to be resolved as well.

> Current spatial governance process

The current governance structure in Chennai is weak, with rampant corruption and the lack of a transparent process of research, design and implementations. This has led to illegal developments, improper implementation of city projects and more often than not, a lack of proactive action and strategy in the context of city planning. This project proposes several spatial interventions and design strategies that require a high degree of spatial governance and policy implementation., which is currently not the case. Therefore, this project is viewed from the perspective of a design exploration that exhibits possibilities of transforming the city to facilitate a diverse and liveable public realm, using the development processes that are already undertaken by the city. Further, this project also intends to showcase the possibilities of creating a positive public environment for the people of the city, who currently believe that these kinds of

urban transformations are impossible in the city, due to the prolonged lack of effectiveness in spatial governance.

> Problems with data collection

The most recent census data collection in Chennai happened in the year 2011. As a result, a lot of the data available is not up to date. Further, a lack of data availability, specifically in terms building footprints and density throughout the city, building typology and functions, elevation and flooding data resulted in the need for alternate methods of data collection such as on-site mapping, cataloguing and approximation of the results, which may be less precise in comparison.

The lack of precise data for all parts of the city played a role in the process of site selection site for the detailed design. The city was analysed and classified in terms of various factors such as built morphology, network structure and ecological conditions. Then, typical cases representing various situations were picked, ensuring that the chosen sites had the most amount of reliable data available.

04 Ethical dilemmas

Considering scenarios of intensification of building density in the city proposes locations and strategies for building anew, but also locations for restricting and removing urban growth as well as replacing existing structures, specifically in relation to the ecological systems present, The ecologically vulnerable regions of the city are also the locations where the most economically vulnerable groups are present. This research may then result in spatial transformations to these vulnerable settlements that will lead to an upheaval to their lifestyles in the short term, despite them benefitting from these changes in the long term.

05 Relation between graduation topic and studio topic

The diverse range of graduation studios offered, situate themselves at different points of entry and focus in this methodology of research, design and engineering, resulting in the presence of experts in different fields and a rich and varied knowledge base to learn from. The design of the Urban Fabrics studio focuses on a morphological, design-based approach along with the studio methodology of research through design testing and a focus on the human dimension of urban space. Further, this year's studio theme is "density and intensity" with its focus on transformation of existing urban fabrics through build density redistribution and strategic social infrastructure planning. Therefore, this studio and the current theme is very relevant to this thesis, which focuses on urban transformation through densification.

Additionally, this thesis also requires the guidance and expertise from a spatial planning perspective, in order to understand the larger strategies and policies required to facilitate the transformation of the urban fabric. This derives from the field of expertise of the Planning Complex cities studio.

06 Conclusions – Personal growth towards the profession of Urban design

This thesis has been a learning process in terms of a systemic approach towards urban design and planning. The relationships that are revealed with taking a trans-scalar approach helped understand concepts like liveability and built density, which are typically local spatial characteristics as products of systemic planning processes and strategies at the metropolitan scale.

Another important insight from this process is the methods of contextualising design concepts and theoretical notions. Today, a lot of the literature present in the Urban design and planning community generates from North America and Western Europe. As a result, they take on perspectives that and are not always a direct fit to other contexts, such as the Indian one, where cultures, the way of life as well as governance structures, climate and demographics are completely different. Through this thesis, I have learnt methods to contextualise these ideas and understand critically, their transferability to the chosen context.

This thesis has also been an experience in assimilating different inputs of data or information that one receives in the course of a project, be it scientific papers, local news, expert opinions and the opinions of the users of the space, books and publications of other designers works, guidance from the mentors and peers, and putting together a coherent project, making sure to take into account all these different perspectives. Having such a wide variety of views greatly enriches the research and design process and is important to seek them out in while working on professional projects as well. Through the course of this year, I have also tried to explore different methods of drawing, both digital and manual, and understood the strong influence diagrams have on the design process itself, in addition to being a method of representation. Quick ideation and design testing of concepts to keep in touch with spatial implications was emphasised both in the Urban Fabrics studio as well as by my mentors. This process helped translating research and analysis into spatial terms and make quick decisions in the designing process.