

1. The project

According to the latest Census, India has approximately 70 percent rural population.¹ The southern states including Maharashtra are major destinations for rural migrants from the less affluent north in India. When looking at Mumbai, the largest city in India, because of the migration, there are 80 percent of the population born outside Mumbai at the beginning of 20th century. These migrants tend to look for better jobs in the cities, and they often bring their families into the city once they settle down. In recent 20 years, people begin to move to the periphery of Mumbai for more affordable housing. Due to lack of provision of dwellings, these rural migrants often live in the tenements, slums, pavements or even their worksites

Meanwhile, construction activities are carried out by both government and private developers to provide housing for the urban poor. However, high-rise and mid-rise towers have been built for slum dwellers, which completely ignores their existing living habits and economical features. The 'modern' life differs from original rural life of migrants, leading to the social isolation as well. Zoom into the site in Nalasopara east, where a large amount of one-story baithi chawls were redeveloped by private developers into five-story mid-rise chawls, following the same footprint. The lack of social space and the isolation among different housing apartments limit the freedom of inhabitants, poor spatial conditions also influence the health of people.

As the title of Global Housing Studio, *Mixing Mumbai: Affordable Housing for Inclusive Development*, indicated, the studio looks into the current situation of affordable housing in Global South and tries to find suitable solutions for an inclusive development in the context of urbanization. My topic focuses on redevelopment of baithi chawls, try to provide multi-story housing complex with a reasonable density, and establish a stronger connection to the ground life, to improve the living conditions of the urban poor, and simulate new possibilities for social-economical interactions in the communities.

2. Research method and approach

The main research methodology for Global Housing Studio is participant observation and visual ethnography. Looking back to the goal of studio, an essential focus is how to provide an alternative way of dwelling in the future for the new urbanites, who currently live in the informal settlements with poor conditions. To answer this question, it is necessary to have an in-depth understanding on the existing urban context and living patterns of people in Mumbai. Participant observation is the first step during in the field trip to look at the complex environment through the eyes of local people; then visual ethnography works as a way of interpretation to the results of observation and interview. Based on the framework of studio and the topic of my graduation project, the research methodology that I chose is 'ethnographic praxeology'². It can be defined as the study on the behavior of human being in the social and cultural system. It 'describes the behavioral and material expressions of culture, including architecture.'³ To deeply understanding the situation of Nalasopara, Mumbai, the issues such as social space, domestic space, income generation and borders should be analyzed according to the behaviors of people in a specific context.

During the actual process of research, the first phase consists of group work for collective knowledge and

¹ MOHUA. Urban Growth : Ministry Of Housing And Urban Affairs, Government Of India. Mohua.Gov.In. 2018, <http://mohua.gov.in/cms/urban-growth.php>. Access Dec.10.2018

² Nicolas Nova. *Beyond Design Ethnography: How Designers Practice Ethnographic Research*, France. SHS Publishing. 2014. 3

³ Wolfgang F. E. Preiser. *Enhancing Building Performance*, Chichester : Wiley-Blackwell, 2012. 303

literature review. By investigating into the history of Mumbai from the aspect of hard and soft data, spatial mapping and housing typologies, an overall image of Mumbai is formed in social, religious and economical context. Moreover, the paper of housing policies and development in Mumbai helps to shape an comprehensive understanding of housing issues in Mumbai.

With all the background knowledge in mind, the second phase starts from the field trip in Mumbai, which is the best opportunity for observation and communication with local people. Through sketches, photography and interview, the behaviors of inhabitants and their living environment are being studied. Besides, the visiting to typical housing projects in Mumbai provides impressive scenarios of how people dwell through the time and what kind of adaptive changes they made. The 'book of patterns' created later is a synthesis of the living habits of the urban poor in spatial language. And it served as an significant reference for further design.

Overall, a multi-dimensional research is a necessary step for designing a housing project in an unfamiliar circumstance. The method of 'ethnographic praxeology' offers an opportunity for detailed observation and recognition for everyday practice of inhabitants.

3. Research and design

The relationship between research and design is interactive. It is not a linear process from research to design, but a reciprocating process throughout the whole period. From the beginning, the observation of a typical pattern on site, kids who tend to fly kites by standing on the window sill, helps me define my starting point: encourage people who living in the upper floor come out by reshaping the circulation and providing more social and working space. Then, information from collective booklets was reorganized to analyze the target group, migrants who moved from rural area to the arrival city. The change of their living environment from bungalow to high-rise apartment reveals current problems they are facing. And it is how I figured out my research question.

Next to the problem statement and research question, the design was carried out at the same time. Based on the spatial mapping on the east site of Nalasopara in terms of traffic, housing typologies and green space, the site was chosen to make use of existing empty land for the first period of development and connect the dead end of tertiary road. The problem of lack of public amenities is exposed as well by analyzing existing site conditions. Therefore, new proposal is suggested to create new roads with community facilities within the current area. Zoom into the scale of neighborhood and building, the goal is to provide more social space both on the ground and in the upper floors. The research focused on the existing patterns of social space and the comparison among three housing typologies, baithi chawl, mid-rise chawl and bhatia chawls. As a result, the idea of courtyard is suggested in both streets and building blocks, where two scales of social space are formed under the consideration of public and private factors. Besides, a case study on the step well, a traditional Indian architecture, gives inspiration for stairs inside the block. The exposed stairs encourages more visual communications, creates a new circulation in the block, and it is connected to large social and work space as well.

In addition, the research is still valuable in the stage of materialization and details. Local building techniques and materials, climate features with the issue of monsoon in Mumbai also influence how the building is constructed and operates.

4. The wider social, professional and scientific framework

In Mumbai, the population of migrants in suburb keeps growing in recent 20 years. The places where those migrants live and work are always informal settlements located in the fringe of city, which is full of misunderstanding and negations. However, in the book *Arrival City*, Doug Saunders mentioned the function of the arrival city as ' the creation and maintenance of a network: a web of human relationships connecting village to arrival city to established city.'⁴ It is not only about economical contributions that people made, but the support for family members and social network they creates regardless of the distance. Thus, redeveloping the existing informal settlements in Nalasopara is one of the chances to provide better living and working conditions for the people who live there, and it will also help to develop the rural area where those people come from.

The transferability of the project is achievable for its flexibility in the composition of building blocks in the urban scheme. Two types of blocks are created, which can form larger courtyard with various options according to different urban contexts. The current urban plan works as an example for further redevelopment. In addition, the realistic issues of affordable housing are considered in design for materialization and construction. Local materials and building technique are chosen, for instance, compressed stabilized earth block is a cheap building material which is available in India. It is convenient to produce on site or in nearby factories by small machines. The floors are constructed by prefabricated concrete beams and hourdi bricks using the same earth, which reduces wood formworks. Besides, Labor work is more encouraged for economical reasons.

5. Ethical issues and dilemma

For Global Housing Studio, to design in a foreign context is a challenging issue in terms of cultural difference. Therefore, research serves as an important lens to look at another world through scientific approaches. An objective attitude is also needed to discover the difference and transfer it into design language. Sometimes we should forget the common sense that we believe for design, such as the living habits of people, the building regulations. It is always easy to start from what we already know, however, it may not be suitable for people who live there. So the role of designers should be convertible. In the process of redevelopment for baith chawls, stakeholders such as dwellers, developers, government and architects are all significant components for an affordable housing scheme. It is difficult to balance the interest of all groups of people, while the ideal design still need to ground in a realistic situation.

Moreover, the problem of density in Mumbai is also difficult to deal with. Housing is supposed to accommodate more people, while still keeps a certain living qualities in terms of daylight, ventilation and hygienic issues, and meets social and economical demands of people. As a result, an comprehensive consideration is necessary to achieve an inclusive housing project.

Last but not the least, when trying to place the design outcome in practice, the adaptive use and changes of the dwellers should also be predicted. For the level of participation in extending and decorating their rooms among the urban poor is higher than other groups. The way they live will influence the housing project not only when the construction is finalized, but through the years. Therefore, the changes of housing in the future should be indicated based on the understanding of existing living situations.

⁴ Doug Saunders. *Arrival city: How The Largest Migration in the history is reshaping the world*. Cornerstone/Cornerstone Ras, 2011. 25