GRADUATION PLAN
Master of Architecture, Urbanism & Building Sciences

A - Personal information

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c) Argumentation of choice of the studio:

I chose the Global Housing studio for several reasons. I had a first experience of working in the Global South when doing the Ghana Design as Politics Studio in MSc2. There, I understood the importance and challenges of developing countries, where inequalities and lack of basic amenities are major. That is why I decided to work again in such an environment, and tackle these issues, but in a new environment for me: Mumbai. Participating in the Global Housing studio for graduation is linked to the kind of architect I want to become; having a positive social impact, and raising awareness about issues that developing countries are currently facing. To me, addressing these issues as an architect is very relevant, as I believe that they can promote elements for a safe and adequate development for people in the Global South.
C - Graduation Project

Keys for women empowerment in Nalasopara

C.1 _ Goal

India is ranked 127/189 in the gender equality index, whereas the Netherlands is number 3\(^1\). This number is only touching a fragment of the issues regarding the wide gender disparities in India. The case study of the studio in Nalasopara, a city located 45 kilometres north from Mumbai, in the Vasai-Virar region, does not derogate from this national and global issue.

The gender disparity encompasses many societal issues. First, in the Indian society, women are the property of their husband and his family; they are considered as a burden that has to be taken care of. In general, they receive a different treatment than the rest of the society, and are subjected to domestic violence, rape, molestation, and much more. In fact, the National Family and Health Survey reported that in 2015-16, in urban Maharashtra, 16.4% of ever-married women experienced domestic violence. The situation is worst in rural Maharashtra, as 26.2% of women experienced this violence. However the situation improved, as the ratio was of 30.7% in 2005-06 in Maharashtra\(^2\). Their freedom and behaviours are framed and restricted by societal constructs and ideologies such as religion. Indeed, the recent ‘Shah Bano’\(^3\) and ‘Sabrimala’\(^4\) cases demonstrate how religion restricts women’s actions, their access to public space and rights for expression and equality. Besides religion, ethnicities and social beliefs have also an impact on the place of women in the Indian society. A major outcome of is gender selection: early after birth, some girls are murdered in order to relieve the family’s burden. In 2011, India counted 67 ‘missing girls’ per 1000 boys (aged 0 to 6)\(^5\). Women are also oppressed by the society, as early marriages are still common; 17.8% of women under 18 were married, and 9.9% of women between 15-19 years old were mother or pregnant, in 2015, in Mumbai suburban area\(^6\).

At an economic level, women are also under-recognized, as their labour force participation was only at 24% in the whole country in 2017. There are also more women unemployed than men: 4.2% of the women labour force was unemployed in 2016, against 3.3 of men. Indeed, the significance of women’s efforts and contribution to the country are not evaluated in economic terms, like for instance household chores. Furthermore, women are more susceptible to unemployment, as 81.4% of women have a vulnerable job, against 76% in the case of men. Among women workers, only 66% have a paid employment\(^7\). Women’s participation in the labour force is also undermined by their health which is on average lower than the men’s, due to mistreatments, high fertility rates that lower their nutritional status, or even unsafe abortions. Heise’s research on women violence stipulates that “[violence against women] is detrimental to economic development because it deprives women of the ability to participate fully in the economy by depleting both their emotional and physical strength”\(^8\).

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\(^1\) Human development reports from the United Nations development program ‘India’, 2018


\(^3\) Express Web Desk, ‘What is the Shah Bano case?’ (Indian Express.com, New Delhi, August 23, 2011)

\(^4\) Express Web Desk, ‘What is the Sabrimala case?’ (Indian Express.com, New Delhi, October 17, 2018)

\(^5\) Ministry of Home Affairs, Government of India, Office of the Register General and Census Commissioner, India ‘Census of India 2011’

\(^6\) Government of India, Ministry of Health and Family Welfare ‘National Family Health Survey – 4 · Mumbai suburban · Maharashtra’ (2015-2016)

\(^7\) The World Bank Group, ‘Data, Gender, India’ (2018)

\(^8\) Velkoff, Victoria, A, Adlakha Arjun ‘Women’s health in India’, (International Programs Centre, 1998)
Moreover, Nalasopara is not equipped with adequate sanitary facilities, thus forming an unhealthy and threatening living environment. In fact, access to proper sanitation is a major issue in India in general; according to the Human Development Reports, the mortality rate related to unsafe water sanitation and hygiene facilities was of 18.6% in India in 2016, against 0.2% in the Netherlands. In 2015 in India, 23.62% of the urban population had limited access to sanitation, while open defecation was still present in 7.41% of the cases. In Mumbai suburban specifically, only 26.7% of the households used improved sanitation facilities in 2015, and in urban Maharashtra, 23% of women (between 15 and 24 years old) were not using hygienic protection methods during their menstruations. The United Nations established the goal that by 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.

In Nalasopara, the important lack of proper sanitation facilities can be observed: there is no distinction between male and female bathrooms, thus barely allowing privacy. These are also not easily accessible to elderly, they smell and kids even joked about the situation, saying that “no one wants to go there”. In addition, there is no running water; the inhabitants have to fetch water from pumps, carry it back home and store it in tanks in front of their houses. Among 45 developing countries, women have to fetch water in 64% of the households. In 12% of the cases, it is the children’s duty. Besides that, in Mumbai suburban, in 2015, only 12.4% of the households had a member covered by a health insurance scheme. At the dwelling level, health is also threatened, due to the use of unsafe cooking methods, still practiced by 13% of the households in the suburban areas of Mumbai.

These practices and the lack of hygienic amenities have an important impact on people’s daily life and health, resulting in a dangerous, unhealthy and unsustainable environment.

Furthermore, access to public facilities is also restricted to women. Education in particular, is gendered. As a girl is considered as a burden for her family (because of dowry payment and her lack of value in taking care of the family), her access to education is often restricted. Between 2010 and 2017, only 39% of women had received secondary education. In 2015, only 43.3% of women had received 10 or more years of education. This results in 82% of women being literate, against 94.5% in the case of men. These disparities impact the human development index, clearly showing inequalities between genders. In 2017, this index was 0.575 for women and 0.683 for men.

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9 Human development reports from the United Nations development program ‘Mortality rate attributed to unsafe water, sanitation and hygiene services (per 100,000 population)’
13 Sustainable Development Goals platform for knowledge ‘Sustainable Development Goals’
16 Johnson, Pamela S., Johnson, Jennifer A. ‘The Oppression of Women in India’ (SAGE Social Science Collections, 2011)
17 The World Bank Group ‘Data, Gender, India’ (2018)
men. In comparison, in the Netherlands, this gap was only of 0.031, with men also having a higher index (0.944)\textsuperscript{19}.

Moreover, public space is also gendered, meaning that women are usually not present in the public sphere, or not exposed to public interactions (for example, bus drivers, waiters, sellers are only male’s employments). In Mumbai, a crowd is in average composed of 28% of women only\textsuperscript{20}. The ‘Gender and Space’ project conducted by PUKAR, a collective of Indian women, reveals that women are only present in the public sphere in a transitional phase. They never stop or hang around in public areas. One of the authors, Shilpa Ranade states that “Access to space is socio-culturally determined by [these] differences”, pointing out that space is gendered because of inequality of access and use between genders: women have to negotiate the space, because none is designed according to their needs and behaviours\textsuperscript{21}.

As previously explained, women are almost absent from the public sphere. They mostly stay in safe and comfort zones; mainly in the baithi chawls, or low rise chawls. As these ground structures are set up facing each other along small lanes, they form enclosed safe spaces. The lanes can therefore be under control of the inhabitants. These spaces, between the houses are multifunctional, dedicated to socialization, cooking, and communal gatherings. These zones are very dynamic and reveal existing opportunities and qualities of the area. The inhabitant’s socio-economic networks, habits and landownership are anchored there. Therefore, I believe these characteristics should be preserved and acculturated, in order to maintain and develop the user’s habits and behaviours.

However, if the problem of gender equality is not resolved, or at least addressed in Nalasopara, it will only deteriorate the socio-economic networks, increase disparities and divide in the Indian society. In addition, women are absent from the decisional process because they lack education, stable income, and because they already have many duties and responsibilities towards their household. This results in a vicious circle, where women are excluded from the essential processes that take place in a community, and therefore cannot propose solutions or even raise awareness on their needs\textsuperscript{22}.

On the other hand, proposing solutions to reduce gender inequalities can foster healthier societal conditions, empower women and girls, but also ensure more stability and structure to the society. Taking better consideration of women needs, and providing them with access to education can allow them to be involved as decision makers. They can encourage society to change and to sustain their aspirations. In this way, women’s role in the society can be recognized, helping them towards self-pride and emancipation. There are many advantages such as the reduction of disparities within societies, a change of mentalities, as well as the growth in awareness of women’s work value and status. Indeed, as Kofi Annan (United Nations Secretary General) said, “There is no tool for development more effective than the empowerment of women”\textsuperscript{23}. By including women in the processes, Community-based organizations (CBOs) and NGOs, such as SPARC and Mahila Milan have unveiled positive outcomes regarding women’s emancipation and involvement, but also a shift in men’s attitude\textsuperscript{24}.

\textsuperscript{19} Human development reports from the United Nations development program ‘Human Development Index, male’ and ‘Human Development Index, female’

\textsuperscript{20} Ranade Shilpa, ‘The way She Moves, Mapping the everyday production of gender-space’, (Economic and Political Weekly, 2007)

\textsuperscript{21} PUKAR, Khan Sameera, Phadke Shilpa, Ranade Shilpa, ‘Gender and Space Project’ (2005)

\textsuperscript{22} Sehgal, N, ‘Women, Housing and Human settlements’ (Ess Ess Publications, New Delhi, 1995) (p14)

\textsuperscript{23} Annan, Kofi at the round table discussion of the 60\textsuperscript{th} anniversary of ‘Commission on the Status of Women’, (New York City, November 10, 2006)

\textsuperscript{24} Sehgal, N, ‘Women, Housing and Human settlements’ (Ess Ess Publications, New Delhi, 1995) (p14)
The lack of access to proper sanitary facilities, education and public space, together with societal constructs, undermine the role and status of women in India, and Nalasopara in particular. Women are under-estimated, under-represented and are not socio-economically independent. Their living environment is unhealthy and dangerous, not prone to a socio-economic sustainable development.

Therefore, I am questioning to what extent can design empower women and promote their emancipation in Nalasopara? How can policies and community management improve the current living, sanitary, economic and educational conditions of women and of the communities? How, in Nalasopara, can the women perspective and participation help to establish a sustainable and healthy ground for future development?

Currently, gender equality is an important concern in India, and in the world. It is the second target of the Indian governmental expenses25, and is number 5 of the UNSD goals for 2030, together with ‘good health and well-being’, ‘quality education’ and ‘reduced inequalities’26. The question of gender is therefore critical in the current ways of planning. However, a downfall of considering the women perspective could be of emphasizing it too much, at the expense of the men’s. Therefore, my aim is to improve the current situation, in order to propose a more balanced environment. I would like to raise awareness on the importance of design inclusiveness and gender related issues, with regards to the global south in particular. For these reasons, I would also like my response to be reproduceable and applicable in various locations, where gender equality is still an issue.

As of today, Nalasopara has interesting urban and socio-economical elements, such as known market streets, school, maintained temples, socialization spaces, but also sense of ownership and belonging. That is why I will base my design on the existing tissue, by upgrading and developing existing elements, providing quality infrastructure and housing. I would like to operate this revitalization intervention in order to empower women, through the lenses of education, economy, health and housing.

In order to do so, I want to adopt a two-fold approach: firstly, I will address women empowerment through policy making and process, and secondly, through design. The proposed solution will start with a focus on the planning and decision-making process. As previously explained, involving the users in the design process will first result in a sensitive design, in line with the desires of the user groups, which will help cultivate a sense of ownership, while enhancing commitment towards the built environment and the community. The main goal is to integrate women in public life as both actors and decision makers, it will give them more standing in the society. For example, the Mahila Housing SEWA Trust (MHT) supports women. Through their public-private-partnership (PPP) approach in the Abuji Na Chapra slum of Ahmedabad, they reveal that women’s involvement in the process of slum redevelopment is very fruitful and effective. MHT indeed supported these women in accessing property rights, by involving them in the decisional process, educating them about their rights and training them to manage their

25 UNFPA United Nations Population Funds ‘Overview on Gender Equality’
26 United Nations, ‘About the Sustainable Development Goals’
community. As a result, the women community-led scheme was developed according to the inhabitants' needs, providing the required amenities and at the same time property titles (that led to home improvements). The women organisation, supported by MHT thus played an important role as intermediary between the community and the stakeholders.

In addition, this participatory managerial approach should, in my opinion, also be supplemented with a sharing economy and system. Dividing and sharing responsibilities within the community could relieve women from the weight of their many responsibilities. This community support could enable women to be more independent from their household chores and allow them to spend more time outside the house, in order to earn an individual income, for example.

Promoting adequate hygienic sanitary facilities that guarantee privacy and accessibility to all is a priority. The water system should also be improved, in order to ease women's life in particular, and improve health standards by making potable running water available. As rainwater collection systems already exist, built by the inhabitants themselves, they could be kept and the water used for local food production watering.

Then, access to education should also be improved. Educational facilities for children (both girls and boys) already exist in Nalasopara east, however, there are little opportunities for adult education. Developing training and learning centres could reduce adult illiteracy, allow for a better future development, but also grant them better knowledge about their rights especially.

Finally, as proved in many cases, home ownership is a catalyst of sense of belonging, pride and respect. It also encourages appropriation, improvement and maintenance of the built environment. Similarly, granting micro-loans to women through community groups ensures its repayment but also gives more flexibility to the recipients, as their needs evolve. The Indian Working Women's Forum showed that this approach enabled housing improvements and a safe capital investment for the owners.

To conclude, I believe that combining a policy-based approach with a design solution, addressing women's constraints and needs in Nalasopara could improve their currently deplorable socio-economic conditions and give them more recognition within the society.

This would be done through the formation of a women community-based organisation, supporting the inhabitants, granting them with training, education, financial support and help. This organisation would act as a mediator between the community households and the stakeholders of the development project (developer, supporting NGOs, State). Then, co-living would be a solution to ease women's lives in sharing responsibilities, services and goods, within the community. Proper sanitation facilities, the improvement of the water system and of ventilation could reduce health and hygiene related problems in Nalasopara. Finally, access to education for children, but also adults had to be promoted, while enabling access to ownership and encouraging women economic activities. As a result, I believe that this approach could foster a healthy and sustainable ground for future development of women and their communities. Revitalizing and improving the city of Nalasopara through design interventions focused on women, will encourage their empowerment, but also their sense of belonging and commitment towards their environment.

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27 Mahila Housing Swea Trust (MHT) - ‘Women as Developers’ (Vikasini), Slum Redevelopment Scheme of Abuji N a Chapra, Ahmedabad.

28 Sehgal, N, ‘Women, Housing and Human settlements’ (Ess Ess Publications, New Delhi, 1995), (p 83)

29 Sehgal, N, ‘Women, Housing and Human settlements’ (Ess Ess Publications, New Delhi, 1995), (p 34-36)
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Ranade Shilpa, ‘The way She Moves, Mapping the everyday production of gender-space’ , (Economic and Political Weekly, 2007)

Sehgal, N, ‘Women, Housing and Human settlements’ (Ess Ess Publications, New Delhi, 1995)

Sustainable Development Goals platform for knowledge ‘Sustainable Development Goals’ https://sustainabledvelopment.un.org/sdgs


Velkoff, Victoria, A. Adlakha Arjun ‘Women’s health in India’, (International Programs Centre, 1998)


### C.2 Process

**a) Method description;**

In order to develop my graduation project, I first started with visual ethnography as a method to analyse and understand the current situation in Nalasopara, by mapping out, drawing and surveying the city, with a focus on women. Ethnography helped me to understand the behaviours and constraints of the inhabitants, thus identifying their needs and aspirations, socially and spatially. In order to enrich this ethnographic approach, I will supplement it with theoretical research and analysis of cases that turned out successfully, in terms of policy, organisation and design. Studying these will help me understanding how policies and management can make a certain design approach successful, in my case: how women can actually be active in the decision-making and planning process. Analysing theory will be a solid ground on which to base both the management and the design aspects of my project. Besides that, I will work on the design through physical modelling, using these as a working tool. It will enable me to experiment, test and improve the design, also by learning from my mistakes. In my opinion, this experimental approach will add a creative and architectural dimension to my project, taking into consideration the visual relationship of the built form with the project site and context.

**b) Literature and general practical preference;**

- **Charles Correa - Tara Group Housing, Delhi, 1975-78**
  This project showcases different open spaces with various degrees of privacy, thus allowing the existence of community and individuality.

- **Doshi, B.V, - Aranya Community Housing, Indore, India, 1989**
  This is a site-and-services scheme mixing different income groups and allowing for architectural variety. The payment scheme is adapted to each household, allowing every income group to have access to housing.

- **Examples of Baugruppen model**
  Participatory housing that very often results in affordable and sustainable solutions. This is enabled thanks to community management and involvement, often suppressing the need for developers.

- **Kundoo, Anupama, ‘Urban Eco-community’, Auroville, India**
  Architectural example of co-living, promoting a varied community made of different household and dwelling types, supplemented with shared facilities and program (communal kitchen, workshop space, bathrooms...)
  [https://urbannext.net/anupamakundoo/urban-eco-community/](https://urbannext.net/anupamakundoo/urban-eco-community/)

- **Mahila Housing Swea Trust (MHT) – Involved ‘Women as Developers’ (Vikasinis), in the Slum Redevelopment Scheme of Abuji Na Chapra, Ahmedabad.**
  This Public-private-partnership approach (PPP) involved women Community Based Organisations (CBO). The slum redevelopment was thus decided and established together with the women organisation, which was trained, educated and supported by MHT.
Mahila Housing Sewa Trust, ‘Women as Vikasins’
https://www.mahilahousingtrust.org/woman-girls-lead/vikasini-leaders/

Carr, Carlin, ‘Slum-free cities? How the women of Ahmedabad led a housing revolution’ (The Guardian, April 14, 2016)
https://www.theguardian.com/cities/2016/apr/14/slum-women-ahmedabad-india-housing-revolution

■ M.H.A.D.A ‘Charkop sites and-services’, India
Example of affordable housing for low-income groups. In my opinion, it resulted in strong appropriation from the inhabitants, sense of community and architectural diversity.

■ Polykatoikia – Example of the Greek multifunctional dwelling of the 1930s; a consideration of space as producer of activity. These fragmentation of urban elements within the city form a collective coherence throughout various scales.

Issaia Platon, Maria Aureli, Vittorio Pier, ‘From Domino to Polykatoikia’, (Domusweb.it, October 31, 2012, Athens).
https://www.domusweb.it/en/architecture/2012/10/31/from-domino-to-em-polykatoikia-em-.html

Issaia Platon, ‘On Conflict, Generic and the Informal: the Greek Case’ (The City as a Project, January 27, 2016)

■ SPARC – Participatory Slum Upgrading Project, Pune, India
In-situ rehabilitation scheme, providing a housing structure for the slum dwellers, supplemented with a governmental grant, allowing for incremental housing improvements. This scheme fosters the legalisation of housing.
http://thewhereblog.blogspot.com/2009/05/participatory-design-in-poor.html

C.3 Relevance

Tackling the issue of gender equality is relevant worldwide. It is still present in developed countries, as wage and employment inequalities mainly. In developing countries and the Global South, gender inequalities are very strong, often related to traditions, where women are oppressed and undermined. In fact, gender equality is considered as major concern by the United Nations, as it is goal number 5 of the Sustainable Development Agenda for 2030. What is more, the fight for female rights is still ongoing today, supported with many national and international feminist movements, gender equality organizations, coupled with demonstrations and protest for female rights... The most recent ones, in India are the Sabrimala and Shah Bano cases, depicting protests against refusal of access to religious spaces to women, revealing how the society is constraining women’s behaviours and rights in India.

However, addressing the issue of women’s role can easily become too women centred, and I believe that it deviates from the notion of gender equality. To me, this notion is about inclusiveness, and exactly not about valorising a gender or target group at the expense of another. This would mean reversing the current situation and creating one that is not equalitarian either. In my opinion, a
comprehensive and good design approach has to re-equilibrate the unbalance, in being inclusive: by addressing all genders and status equally.

To me, promoting women empowerment is a way to raise awareness on their oppressed status and under-recognized roles in the society. In this way, I would like to sensitize people, architects and planners on the current situation of women, and to encourage for more inclusive design and planning approaches.

On the other hand, I believe that my graduation project can lay sustainable conditions for the future. First, revitalising parts of Nalasopara and basing the project on existing systems and networks, will ensure a stable social and ethical ground. Including women in the decisional process will reward them with recognition and respect from the community and stakeholders. Promoting safe and adequate living and sanitary conditions will guarantee more dignity and freedom (especially to women, in terms of sanitary infrastructure). Access to ownership can foster positive development and maintenance of the built environment in the future. Then, educational and training facilities will grant the inhabitants with stronger skills, deeper knowledge about their rights, decreasing their vulnerability towards authorities. Finally, working opportunities and support will allow for independence and respect, allowing for a productive future development.
C.4 _ Time planning

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<tr>
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<th>Task</th>
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<td>Reflection on P2 presentation’s feedback</td>
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<tr>
<td>4</td>
<td>Finalizing preliminary design</td>
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<tr>
<td>5</td>
<td>Further development of the architectural design and the policy approach. From the small scale to the community, and then to the urban scale. Working with models</td>
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<td>9</td>
<td>P3</td>
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<tr>
<td>10</td>
<td>Further development of the design</td>
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<tr>
<td>11</td>
<td>Detailing of the design: focus on building technology</td>
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<tr>
<td>12</td>
<td>Working with models</td>
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<tr>
<td>16</td>
<td>Finalizing the design (urban and building scale, and detailing)</td>
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<tr>
<td>18</td>
<td>Production of documents and materials for the P4 presentation</td>
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<tr>
<td>20</td>
<td>Draft P4</td>
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<tr>
<td>23</td>
<td>Processing P4 presentation’s feedback, producing final models and drawings, making P5 presentation</td>
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