



'Better half' of Bangalore

A gender perspective in spatial planning

Msc. Urbanism P2 Report

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1.Introduction

The phenomenon of globalization has triggered many social processes in the world. One such process that Saskia Sassen reflects on in her paper is the critical role that women are playing in the international economic processes. As she illustrates, there have been many positive as well as negative outcomes of this feminization of the labor force (Sassen, 2002). The increasing offshoring of processes has resulted in a rise in the involvement of urban women in the economy in the developing context. In the Indian context where gender inequality has been a burning issue for centuries, I see this transition as a sign of empowerment, a sign of granting independence and security to the urban women.

Apart from the economic and spatial transformation Indian cities are undergoing, this transformation in gendering is also changing the dynamics in the city. The type of skills that these offshored jobs demand in developing countries, specifically India, are encouraging urban women to work and become breadwinners of the family (Table 1.1). This feminization of the labor force is changing the gender relations in the city and the other way around. But according to K.V.L. England, gender relations and roles are central to the allocation of resources, facilities and opportunities in a city, which in turn is essential to the structuring of urban space (England, 1991). Hence, the change in role of women in society and their improved participation in the industry should have an impact on the way the city functions. However, this social transformation is not yet spatially manifesting in the urban form of Indian cities. This forms the basis of my problem field and the scope for further investigation.

Table 2: Sector-wise Workers as a Percentage of Total Workers (UPS)

Sectors	Primary				Secondary				Tertiary			
	1999-2000	2004-05	2009-10	2011-12	1999-2000	2004-05	2009-10	2011-12	1999-2000	2004-05	2009-10	2011-12
Rural male	37.91	33.15	33.11	31.69	6.73	9.99	9.95	11.43	8.56	9.53	9.56	9.93
Rural female	18.67	17.33	14.86	12.47	2.12	2.3	2.06	2.29	1.54	1.59	1.78	1.71
Urban male	1.31	1.26	1.38	1.39	6.67	7.34	8.21	8.77	12.31	12.64	14.16	14.9
Urban female	0.64	0.75	0.58	0.43	1.21	1.47	1.56	1.77	2.32	2.65	2.8	3.2
Total workers	58.53	52.5	49.92	45.99	16.73	21.09	21.78	24.26	24.74	26.41	28.29	29.74

Source: National Sample Survey Office, *Employment and Unemployment Surveys*, various rounds.

Table 1.1

Sector-wise workers as percentage of total workers

Source:

*Employment Trends in India
An Overview of NSSO's 68th Round,*
Abhishek Shaw



2.Motivation

The academic motivation for this project arises from the limited research done on the aspect of gender and urban planning in the context of India. There have been not many studies on the relationship between the gender relations and the spatial structure of the city. Kim. L. England has made relationship explicit for the United States by in her research. She overlays the industrial development of the United States and the corresponding spatial structures to explain the reason for the gender relations in the family (England, 1991). This project would be an attempt to draw a similar overlaid approach to explain the gender relations with respect to the industrial development and spatial growth of the city of Bangalore. Once this is understood, the existing spatial and social processes in the city will become clearer.

My personal motivation stems from the fact that I have been born and brought up in India. Living in India for 25 years of my life, experiencing and witnessing gender inequality was a part of everyday public life. Being fortunate to be given equal opportunity to education and a sense of being equal, the attempt is to contribute in improving the existing situation with the my expertise. I believe that the problem has many factors and that urban space can also attribute to the betterment of the social conditions.



3.Problem field

3.1 Problem definition

Gender, as Julia Nelson explains ‘refers to the associations, stereotypes and social patterns that a culture constructs on the basis of actual or perceived differences between men and women’ (Fainstein and Servon, 2005). Gender as a social institution, is often the most common way human beings organize their lives (Lorber and Farrell, 1991). This social construct is therefore dependent on the context and accordingly can vary. These roles and responsibilities are also constantly changing with time, hence are the relations between genders. This change has many social, cultural, economic and political consequences. Within the framework of this social institution of gendering and inherent qualities of different genders, roles and responsibilities in the family, community and society have been assigned, which then spatially manifests in their presence in the home, work or public space.

To start the discourse on gender in planning city, it is important to first grasp the idea of how women and men use the city. The hegemonic social order and the role of individual human agents governs the production of space, as a result of which women and men occupy and negotiate through urban space differently (Ranade, 2007) For centuries the role of a woman has been more in the private sphere, looking after the household and family. These multiple commitments and socio-cultural norms leaves her in a disadvantaged position, providing an unequal opportunity to access public resources. Therefore, her presence in public space, purpose and travel patterns have been proved to be different from that of men (UN-Habitat, 2014)

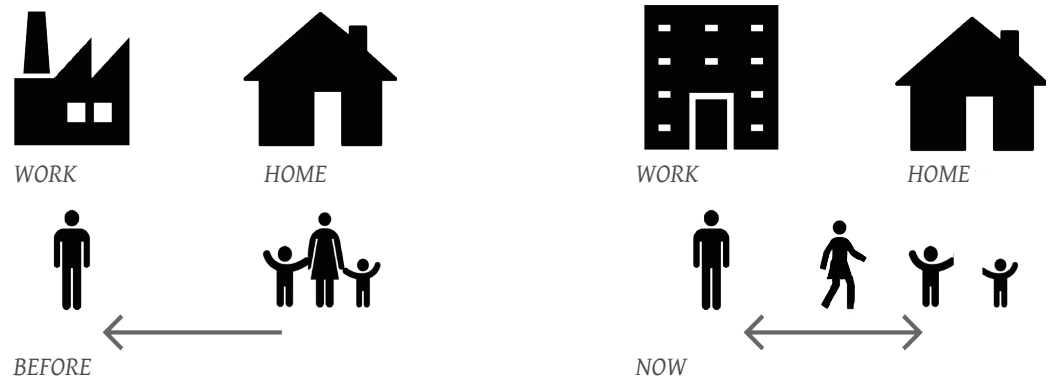
With the phenomenon of globalisation in the developing context, women’s participation in the industry is becoming evident, altering the gender roles and relations. Though this demographic transition could be viewed as a positive outcome in terms of women’s economic position, they are confronted with a large number of socio- spatial challenges. In this transition, their involvement in the industry has not yet lead to their complete retreat from the domestic sphere. The preceding



power structure and hierarchy restricts women to be entitled to the same resources as their male counterparts. The recent census data of Indian cities has substantiated that women travel much shorter distances than men and prefer to work from home rather than travel distances to get to work, in order to save time for other household responsibilities. One other reason for this could also be related to their lack of access to private modes of transport to carry out their multiple tasks. It is quite clear that this multiple role playing and unequal accessibility is limiting for women to attain their full economic potential.

Figure 3.11
Diagrammatic to show the gender relations with respect to work and family

Drawn by author.



Moreover, the rise in crime against women in the public sphere is also a constraint for women in making their decisions to work (Oecd-ilibrary.org, 2016). The literacy rate of urban women is on a rise and so are the job opportunities. But this rate is not directly translating when one analyses the rate of employment of urban women. This mismatch has multiple reasons and the project aims to address the spatial factors that are contributing to it. Urban planning and governance in India has not yet addressed this issue to the extent that is called for.

To understand and examine the spatial effects of this social phenomenon, the city of Bangalore located in Southern India is chosen. The industrial development has largely guided the spatial growth of the city of Bangalore. From when India got independence till the wave of neo-liberalization in the late twentieth century there has been drastic change in the city's urban form and structure. Bangalore has become an integral node in the global circuit and in the process transformed from being once known as the pensioner's paradise after independence to now being labelled as the IT capital of the country.

In order to see this industrial development and its spatial impact through the gender lens, the decision to choose the city of Bangalore are many. Firstly, there has been a visible rise in the female participation rate in the paid workforce. Bangalore's entrance into the global market has opened doors to women to enter the labour market. The type of jobs created has contributed to women from different educational and economic backgrounds to find employment opportunities. The need for unskilled labour in the manufacturing and service industry and the skilled workers in the high technology sector has been beneficial for women with a wide range of skills. But, the spatial challenges faced by the different women vary within and outside the work place. This is mainly because the factors that influence the spatial location of different industries are often different.

To narrow the scope of the study, two industries in Bangalore are chosen, which are part of the global market, namely the garment manufacturing and the IT industry. The choice of studying these two industries is to test if their challenges are similar or different. The reasons for choosing the two industries are as follows.

- Global influence
Both the industries are export oriented and are highly influenced by the global market forces (Pani and Singh, 2012). The history of the city has seen the predecessors of both these industries, namely the textile production and the public sector engineering



industries, play an important role in influencing the reasons for global companies to establish their commercial collaborations in the Bangalore

- Demography

The fact that the typical employees from both these industries come from two diverse educational and socio-economic backgrounds will help highlight the difference in their spatial preferences or compulsions. As Sassen puts it, one symbolizes the feminization of the proletariat and the other the who is part of the global information economy. (Sassen, 2002) They broadly come under the umbrella of the typical blue collar and white collar respectively, one being part of the labour intensive industry and the other a capital intensive industry.

- Economy

Both these industries employ a considerable number of women, but in different proportions. The garment manufacturing industry comprises 85% women and the IT industry approximately 25 (Pani and Singh, 2012). This difference in the makeup of the industry also indicates the male dominated IT industry which when compared will bring out the gender biased planning that the city has undergone. The intent is also to prove the hypothesis that capitalism breed's patriarchy.

- Spatial distribution

Finally, the spatial distribution of both these industries are different in Bangalore. The garment industry is concentrated in the west of the city building on the previously located textile production mills. And the IT industry is concentrated in the east of the city building on the engineering and technology related industries (Nair, 2005) . This clear-cut distribution in the city will support the comparison of the characteristic urban morphology and spatial development of the two parts of the city.



ECONOMY

DEMOGRAPHY

SPATIAL ORGANISATION

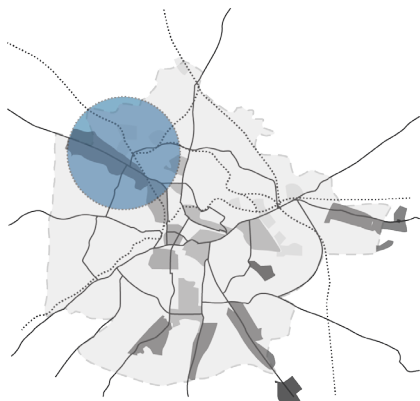
GARMENT INDUSTRY



Blue collar workers



85% women in the industry



Garment industrial agglomeration

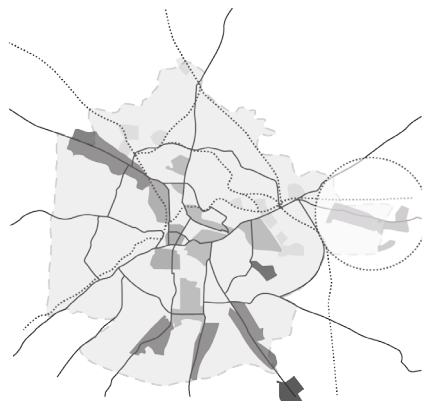
IT INDUSTRY



White collar workers



25% women in the industry



IT industrial agglomeration

Figure 3.12
Reasons for the choice of the two industries
for study.

Drawn by author.



3.2 Problem statement

As a consequence of globalisation, the role of women in the industry in Bangalore has seen a substantial improvement, resulting in the rising need for them to be in the public sphere, in contrast to their dominant presence in the domestic sphere. However, the approach to planning and designing the built environment still remains gender neutral leading to unequal access to economic opportunities. Hence, there is an urgent need for urban planners and designers to rethink the existing urban environment to provide equal access for men and women.

3.3 Hypothesis & Vision

The hypothesis that this project is based on is that spatial quality and organisation can partially address the issues of job accessibility for women. If the built environment is designed in alignment with the specific spatial conditions that women need, it can help in creating a safe and conducive city for women to work. Therefore, the project investigates if spatial interventions can contribute to making the built environment productive for women and improve their well being.

The vision of the project is to provide equal economic opportunity to women in the city of Bangalore by improving their spatial job accessibility. On examining the current spatial conditions of two industrial areas in Bangalore with respect to the specific needs and preferences of women, spatial strategies to improve their access to work will be recommended.



4. Research questions

4.1 Main research question

How can the economic opportunity of women in Bangalore be increased by improving spatial job accessibility considering their specific spatial needs?

4.2 Sub research question

RESEARCH

Gender sensitive urban planning

- What has the role of gender been in urban planning?
- What are the types of spatial tools used to create gender empowerment in the international practise of urban planning?
- What are the mechanisms of gender impact assessment used in urban planning?

Women and Industry (location)

- What are the factors in play in the location of the the industrial agglomerations of garment and IT in Bangalore?
- What are the specific spatial needs and displacement patterns of the employees of these two industries?
- What are the spatial conditions of these industrial areas that affect women's economic opportunity?

Accessibility

- What are the different indicators of accessibility?
- What are the different components that affect the accessibility ?
- How can improved accessibility contribute to women's quality of life?



DESIGN

Spatial interventions

- How can a tool box for evaluating spatial accessibility for women be formulated?
- What is the strategy for the two industries to improve accessibility?
- What are the spatial tools to implement the strategy for the two industrial locations to improve the accessibility of women?
- How can this evaluation toolbox of accessibility and strategy work as a framework to help in the empowerment of women in Bangalore?

Implementation

- How can this spatial framework be implemented with the participation of private and public stakeholders?
- How can a schematic model for implementation be devised for different locations to improve women's accessibility in the city?



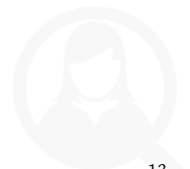
5. Methodology and thesis plan

5.1 Methodology of the thesis project

The first phase of the thesis comprises of the understanding of the problem. The motivation of the project and research question is driven by the current problems, personal experiences and opportunities that lie in the future. To match the initial hypothesis that design and planning is a factor that leads to gender issues in urban space the data analysis, mapping and study of trends are carried out. To substantiate this certain but ambiguous relationship between gender roles in society and the spatial structure of cities, an intense study of literature in the field of urban planning. With this data and a preliminary mapping exercise, the problem statement was arrived at, following which a clear vision in mind, the research questions and design goals for the project were formulated.

The second phase includes mainly the analytical and theoretical framework, which guides the project. Three different layers, namely gender, industry and accessibility were individually studied through literature review before analysing the co-relationship between them. The first study gave a clear understanding of the concept of gender, the changing role of gender and its spatial implications on the design of cities. The second layer of industry addressed the broader role of industrial, rather economic development in the spatial restructuring of cities. This lead to the specific spatial development of industry in the city of Bangalore will be studied through literature review and mapping. On studying the spatial growth of garment and IT industries, the needs and preferences of the women employees of these industries was studied by conducting surveys, discussions and interviews during the field trip. The third layer includes a perspective on accessibility and the indicators of accessibility for the women of the two industries were derived from the surveys.

With the conclusions and overlaying of the three layers from the second phase, the attempt will be to make criteria for evaluation of women spatial accessibility. But before arriving at a toolbox, the criteria of existing toolboxes will be studied and



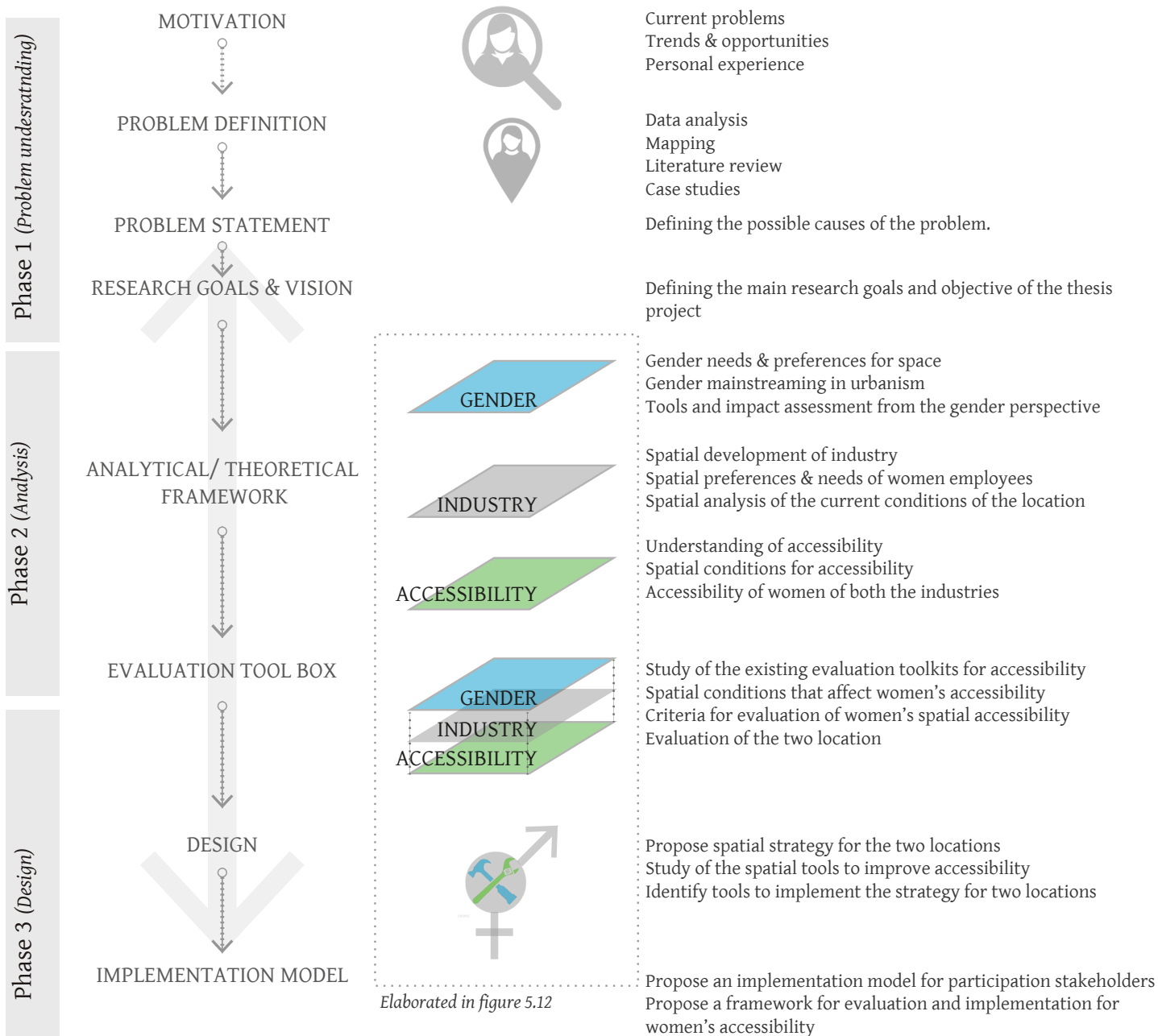


Figure 5.11
Thesis Methodology phase wise

Drawn by author.

critically analysed. This evaluation toolbox will be then tested to evaluate the two industrial areas in the city. With the results of the evaluation toolbox, a strategy will be recommended for both the industrial areas. On studying the different spatial tools that could be used for the implementation of the strategy, two of these tools will be designed and elaborated for the locations.

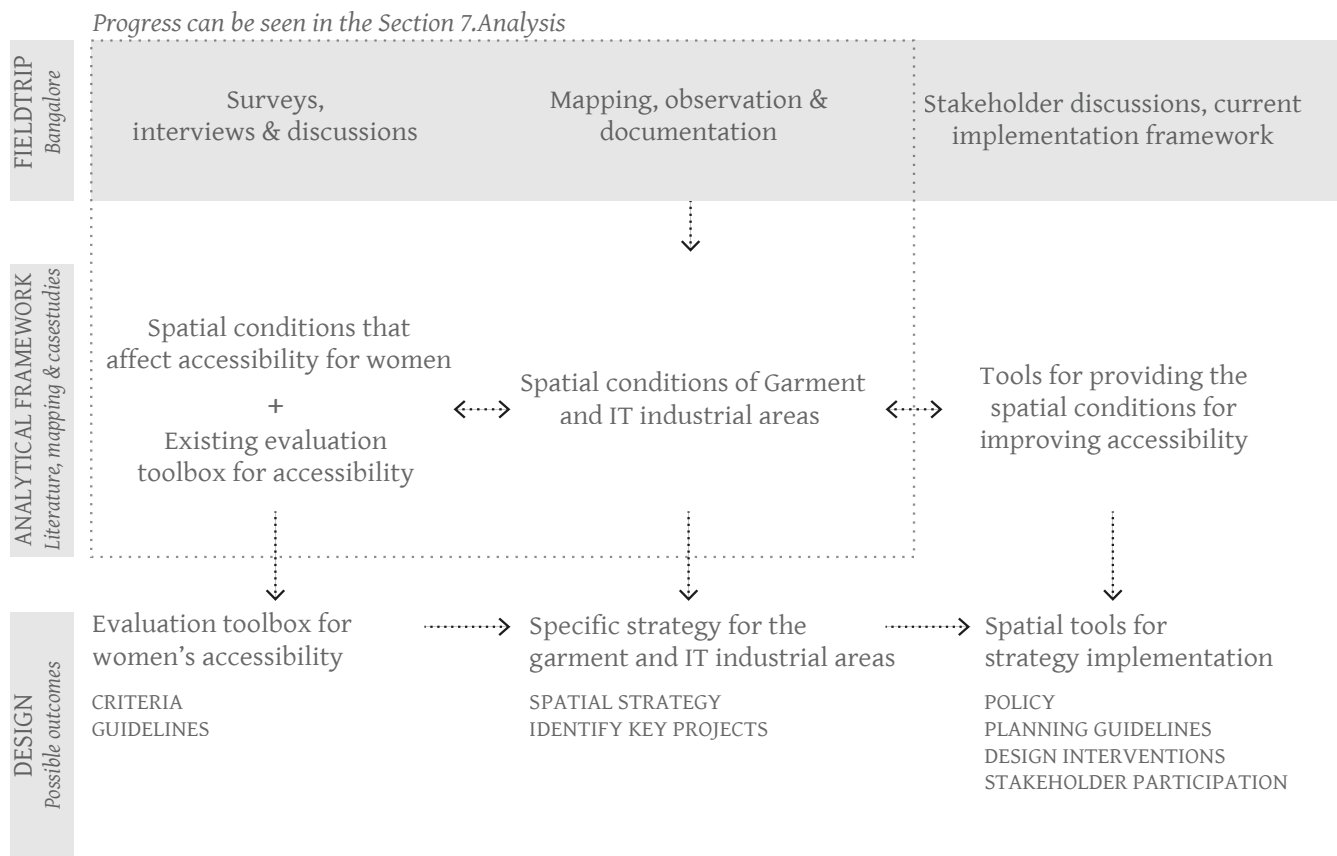


Figure 5.12
Sequence of steps taken to achieve the design outcomes

Drawn by author.

5.2 Connection with the research questions

The research questions have been subdivided into 5 different sections with specific methods.

Gender sensitive urban planning

Through literature review, the relationship between gender and urban planning is clarified. With this understanding, the different spatial attributes of the city which affect men and women are further highlighted in the paper (10.theory of urbanism). The spatial tools from the best practises which are designed to achieve gender equality in space are studied and evaluated through an in depth analysis of case studies. The way these tools are implemented in different context and mechanisms of gender impact assessment of the resulting plans is also examined.

Women and Industry (location)

The industrial development of Bangalore was mapped with help of literature review. The forces and factors that defined the spatial development of the garment and IT industrial agglomerations were studied. On doing this, a series of surveys, interviews and discussions was conducted during the fieldtrip to Bangalore. The agenda of this was to understand the needs, preferences and challenges of the women employees of these industries. Following this, through mapping and observation, the patterns of the way women use and negotiate these spaces were mapped. With the conclusions of the fieldwork and mapping, certain conclusions about the spatial conditions of the industrial zones of the garment and IT were documented.

Accessibility

With an understanding of accessibility, indicators and the conditions through literature reviews was derived. With this as a framework and inputs from the field trip, the criteria for evaluation of women accessibility will be identified. The existing toolboxes for women's safety, accessibility and mapping of women's patterns of using public space will be critically analysed to contribute to the evaluation toolbox for women's spatial accessibility.



Spatial interventions

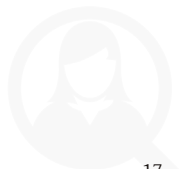
With the conclusions from the analysis of gender, industry and accessibility, the issues and strengths of the two industrial areas will be mapped. Overlaying the conclusions and the results of the evaluation of the two industrial areas on applying the devised evaluation toolbox, a strategy for the two areas will be recommended. The strategy will provide a framework for spatial development of the area to promote better accessibility for women. The strategy will be tested with existing gender impact assessment tools to test its performance.

Implementation

After the final strategies have been designed, the different spatial tools that could be used to implement the strategy will be evaluated. By doing a stakeholder analysis, governance model and the current planning system in Bangalore, the most relevant spatial tools will be designed for the implementation of the strategic framework. The strategy and the tools will be floated around to the stakeholders and their feedback will be used to fine-tune the final design proposal.

5.3 Thesis work schedule

The thesis work schedule is broadly divided into two phases the research and design phase. Within the research phases, there are sub phases in which there will be different methods in order to achieve the goals. The design phase has deliverables that will lead up to the final design outcomes mentioned in figure 5.3.



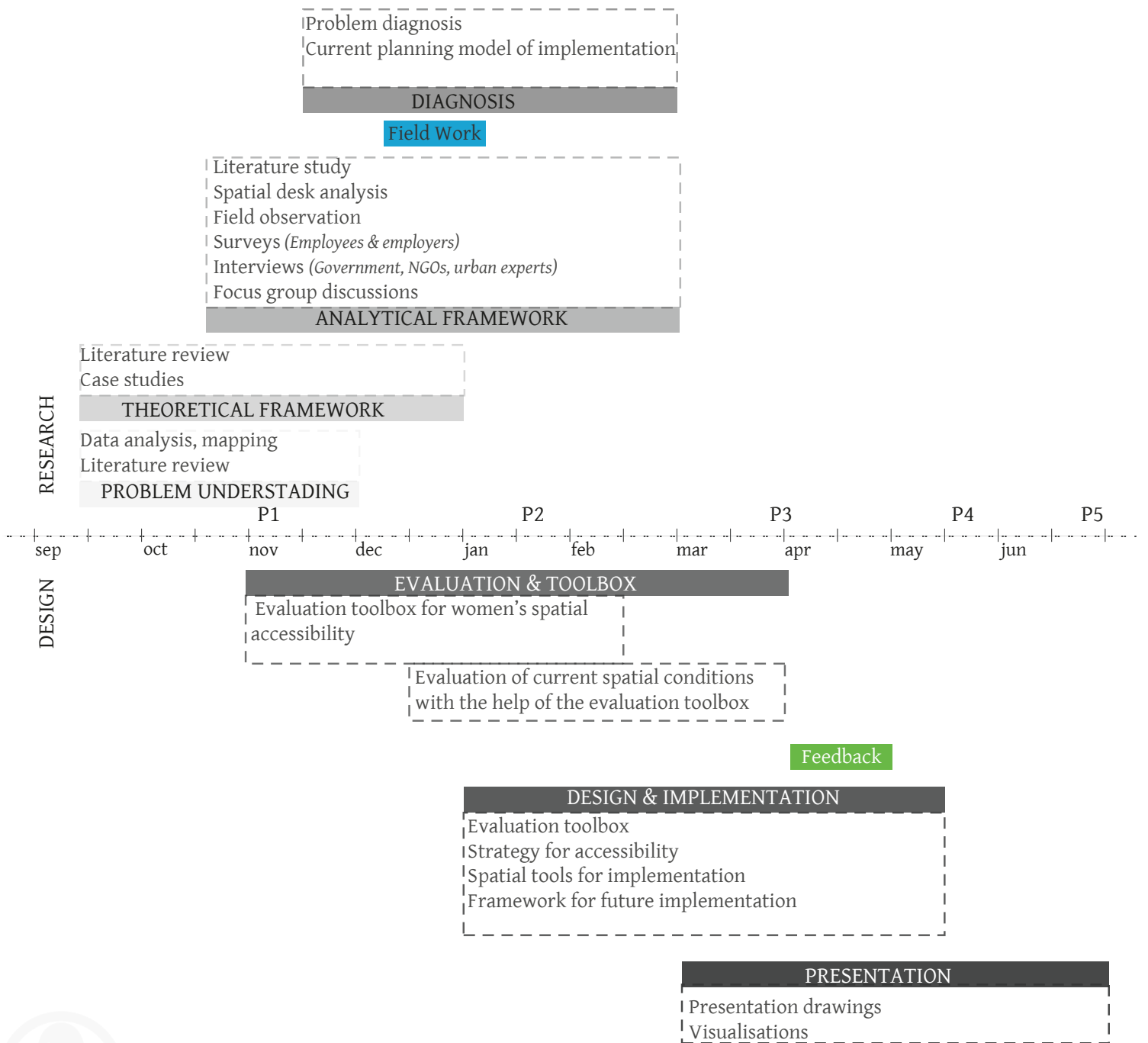


Figure 5.3
Thesis work schedule

Drawn by author.

6. Theoretical framework

Gender in urbanism

As Dolores Hayden mentions in her paper ‘What would a non sexist city look like?’, that principles in architecture and urban planning are derived from the ‘woman’s place is in the home’ (Hayden, 1980). As she mentions, it has not been mentioned in any text explicitly, but the fact of the matter is that gender has always been a consideration in the way cities are developed. Her ideas on housing, urban design and human work has been instrumental in shaping the project. She brings out women’s needs to be involved in the paid workforce to have a better economic position, and their challenges to do so. She also elaborates the different ways and efforts that have been taken to promote this transition.

Further, the gender planning reader by Fainstein and Severon, where different aspects of the city are seen through the gender lens has guided the project. In this reader, they highlight the binary way of thinking of home in opposition to work, production to reproduction and personal to political (Fainstein and Servon, 2005). They argue that these perceived differences in activities combines with the geographical separation of work and home within the planning system. Their main argument is while designing the workplace or in other words the private domain, there has been little reflection on the variety of needs and wants to cater to the diverse demographic. They state a clear need to connect the home, community and workplace which is a result of planners working within their defined silos of transportation planning, housing, economic development and land use. Further, other scholars explore the sub disciplines in detail to illustrate the spatial tools to achieve gender equality (Fainstein and Servon, 2005).

Gender in Industry

Daphne Spain in her book Gendered spaces, she traces the status of women in non-industrial and industrial societies. Her argument is that as the role of women reduced in production, their status degraded. She explains that women’s role in production has been instrumental in the social construction of space (Spain, 1992). She explores the industrial society of the United States and explains the spatial arrangements are



associated with the women's status.

Another scholar from the United Kingdom, Dorseen Massey, also theorises about this relationship of the industry in designating a status or a role to women. Women have been at the receiving end of many changes in the industrial development (Massey, 1994). In her book, *gender, place and space*, she traces the changing role of women with the change in the type of industry. There has been a definite relationship between industry and women and their spatial implications.

Accessibility

The term accessibility is a concept, which is defined differently in the fields of transport planning, urban planning and geography. The term in urban planning is does not only refer to mobility but encompasses a larger spatial scope. According to K.T. Guers & B.T. Wee, there should ideally be a close relationship between transport and land-use strategies. His study states that accessibility measures are seen as indicators for the impact of land use and transport development and affects policy plans on the functioning of the city (Geurs and van Wee, 2004). He goes on to identify four components of accessibility which are namely, land use, transportation, temporal and individual.

But in this thesis accessibility for women will be the focus of the discourse. Hence, different works of scholars will be referred to identify the factors that affect accessibility. The idea that accessibility is different for men and women has been proved earlier, In the Indian context, the aspect of safety is essential in defining the accessibility at night. One of the scholars work that is now translated into an online technology will be referred to. Kalpana Vishwanath has devised nine categories that are parameters to measure safety of public space, out of which eight are physical parameters and one is subjective. These parameters are based on intense research especially in the Indian context. This study and application will contribute to the evaluation toolbox for evaluating women's accessibility (Viswanath and Basu, 2015).



7. Analysis

7.1 Women (surveys, results & conclusions)

As mentioned in the Methodology, the progress of the analysis will be presented in this section. The analytical process will be demonstrated only for one text location, the Garment industry, Peenya, Bangalore. Following the P2, the same process will be carried out for the IT Industry in Whitefield, Bangalore.

The first step in order to understand the way women access work, their patterns of accessibility and their challenges during this accessibility, a survey was formulated. This survey was inspired by the work of Collectiu.Punt 6, an organisation which looks at the city from a gender perspective, primarily in the everyday lives of women. From their book Working women, urban assessment guide from a gender perspective, a survey (Figure 7.1) was designed for the women in the industry. This survey was handed out to around 50 women either from the Garment or IT industry or women who are working in the two test locations chosen (Table 7.1).

Industry wise	
Garment industryI	T Industry
11	11
Location wise	
Peenya	Whitefiled
15	7
TOTAL	
26	18

Table 7.1
Women surveyed

Drawn by author.



Handout for the Graduation thesis project at the TU Delft, Netherlands

DATE:

About the handout: - This handout is primarily to find the role of the design of cities in the decision making process of women to choose work. This survey helps understand the daily lives of working women and the spatial challenges they face in the city. This information would help urban planners; designers and transport planners consider needs, interests and preferences of women in the design of cities. The confidentiality of your responses will be strictly maintained and the data will be used for a thesis project at TU Delft, Netherlands.

I. GENERAL INFORMATION *Kindly fill in your personal details below.*

Reference no :

Email id :

Contact details:

Please write [0] in the correct box.

Sex M F
 Relationship Married Single Others
 Organization :
 Education :
 Home location :

Age Below 18yrs 18-25yrs 26-35yrs 36-50yrs above 50yrs
 Children 0 1 2 or more
 Work location :
 Income/month 0-4000 4000-8000 8000-20000 Above 20000

II. DAILY ITENARARY *Kindly fill in the details of your typical working day and the trips you make to carry out all your activities*

1.What time? Approximate routine schedule	2.What things? List of tasks you complete	3.With whom? Children, by yourself, friends, etc.	4.How? Walking, car, public transport, etc.	5.Where? Street, public space, market ,etc

Please turn over to continue...

III. EVALUATION OF ACTIVITIES AND SPACES

Kindly evaluate from your typical working day, the favorable and unfavorable aspects of the city. The aspects that deal with the location of your workplace with respect to your residence and other activities you need to carry out, the way you get to work and the physical environment you experience to do so.

Favorable: Aspects that benefit your daily routine	Unfavorable: Aspects that don't benefit your daily routine

Handout inspired by Col lectiu Punt 6. (<http://punt6.org/>)

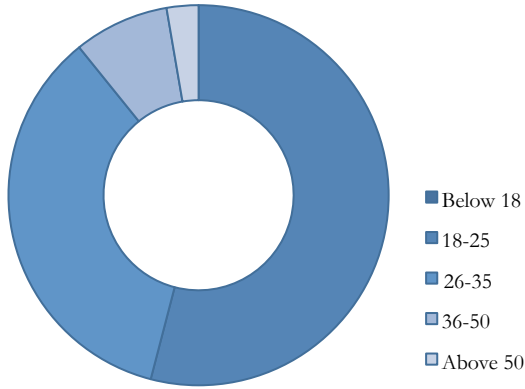
Thank you for your patience and attention! Have a good day!

Figure 7.1

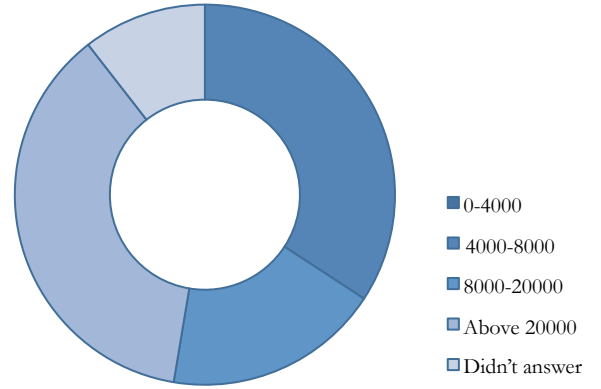
Survey

Drawn by author. Inspired by Punt 6

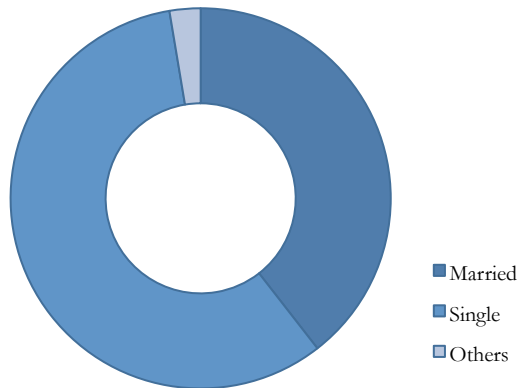
AGE



INCOME



MARITAL STATUS



CHILDREN

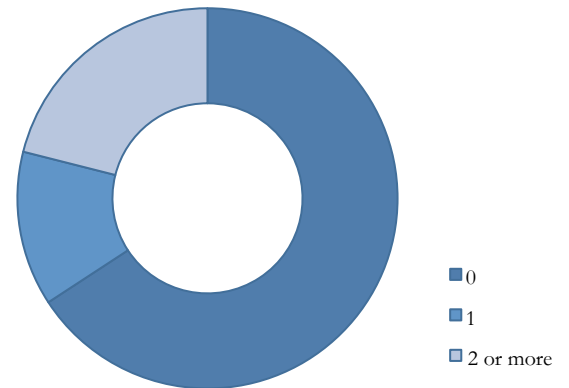


Figure 7.2
Social profile of women surveyed

Drawn by author.



Conclusions of the survey

For women in general, and the Garment industry

- The choice of industry depends on the place of residence and other activities and less on income or interests.
'When I moved to Bangalore, we first found a house to stay and according to where I lived I looked for an office which is close to home.'
-Garment industry employee
- Recreation more important to unmarried women.
'From whitefield, it is very hard to reach/ access other parts of the city which have more recreational activities'
-Employee in Whitefield (single women, 18-25)
Household and care-giving responsibilities more important to married women.
'Bus stop for the school bus is right outside the apartment...Groceries are available right outside the apartment...'
-IT industry employee(married ,2 children)
- Commute to work is always with people, almost never alone.
10 out of 11 women walk with friends or are accompanied by family members to work
-From the survey
- Commute to work is mostly on foot or two wheeler.
9 out of 11 women walk to work and the rest are dropped by two wheeler by a member of the family
-From the survey
- Many women don't go to the house directly, trip chaining
6 out of 11 women go to the market to shop on thir way back from work
-From the survey
- Commute is a form of social activity in the industrial area
'None of the women workers go out for lunch or for a coffee/ tea, during work hours...they eat at the company canteen...'
-HR of the garment industry
- No recreation near the industry, always closer to the place of residence
'We meet our friends who stay close to the house after work hours for recreation'
-Garment employee, group discussion

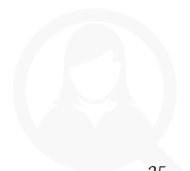


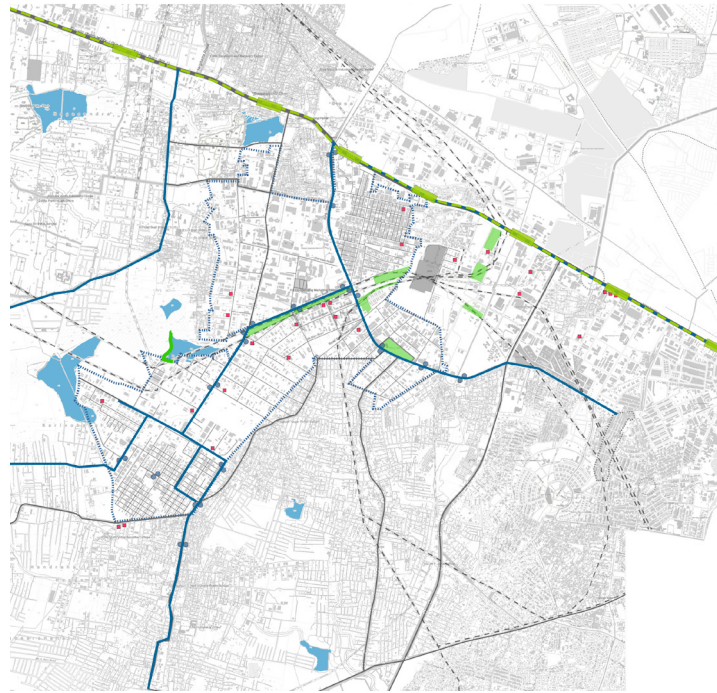
7.2 Spatial analysis of the industrial area

The spatial analysis of the industry consisted of an understanding from two different perspectives, physical and social.

The physical perspective included the historical development of the industry and the reason for the location of the Garment and IT Industry(appendix 11.3). Then an in depth analysis of the location was carried to understand the location of the garment industries in Peenya, the physical infrastructure which includes the road infrastructure, power lines, transport corridors, public space and the water bodies.

The social perspective included a social profiling of the women working in this industrial location and a mapping of their displacement patterns. This mapping was carried out with the help of the surveys, interviews and observation. First the residential areas from where these women travelled from were mapped. It was understood that these women have certain routes that they prefer to take in order to carry out other functions. This trip chaining activity was observed and substantiated by the surveys.

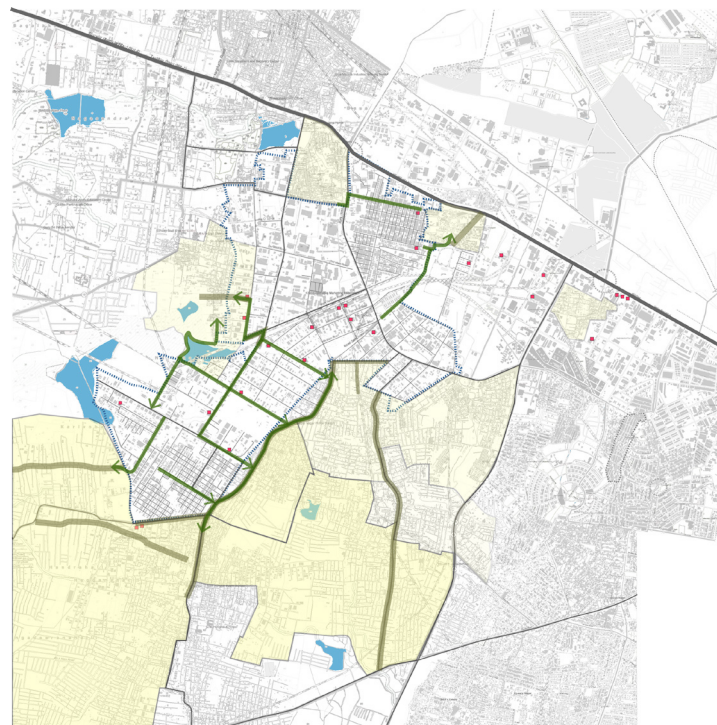




- Industrial area boundary
- Primary network
- Secondary network
- Tertiary network
- - - Power line
- Garment industry
- Bus route
- Bus stop
- - - Metro line
- Metro stop
- Green cover

Figure 7.21
Physical and natural infrastructure of Peenya

Draw by author



- Routes
- Activities
- Residential area

Figure 7.22
Analysis of the women employees of the garment industry

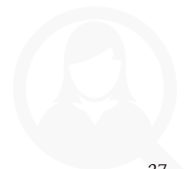
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7.3 Stakeholder participation

There were interviews and discussions with the stakeholders of the industry, which included the owners of the industry, the human resource representative, the association members of the industrial association and an NGO

Conclusions of the interviews

- Governance model of Peenya failing when it comes to implementation.
'local government doesn't pay heed to our requirements because we don't vote for them'
-Member of Peenya industrial association
 - Bottom-up initiatives that are implemented for women in the industry.
'Through PIA, we have built a working women's hostel for 100 girls and a crèche for children of employees'
'PIA has invested in 3 motorcycles for police patrolling, for security during the night..they have also invested in 550 street lights'
-Members of Peenya industrial association
- 'Our management has improved the roads that were flooding during the rainy season, now we can take the short cut even during the rainy season'
-Employee of the garment industry



7.4 Conclusions

The conclusions of the analysis are as follows:

Physical boundaries between the industrial and the surrounding area

The edges of the industrial area are a hindrance in the accessibility of the industry. The clear demarcation because of the segregated land use acts like a barrier in the relationship with the surrounding areas. The industrial area also has geographical boundaries like the lakes on the western edge. The physical infrastructure like the power lines also acts as an obstacle to get from one area to the other. The spatial structure of the industry and the residential area are distinctly different and the porosity between the two areas is insufficient.

Industrial side effects

The presence of heavy-duty vehicles and industrial wastes has increased the dust and pollution in the area. This is another reason for women to be uncomfortable to walk or stay outdoors. The economic and social interests are in conflict.

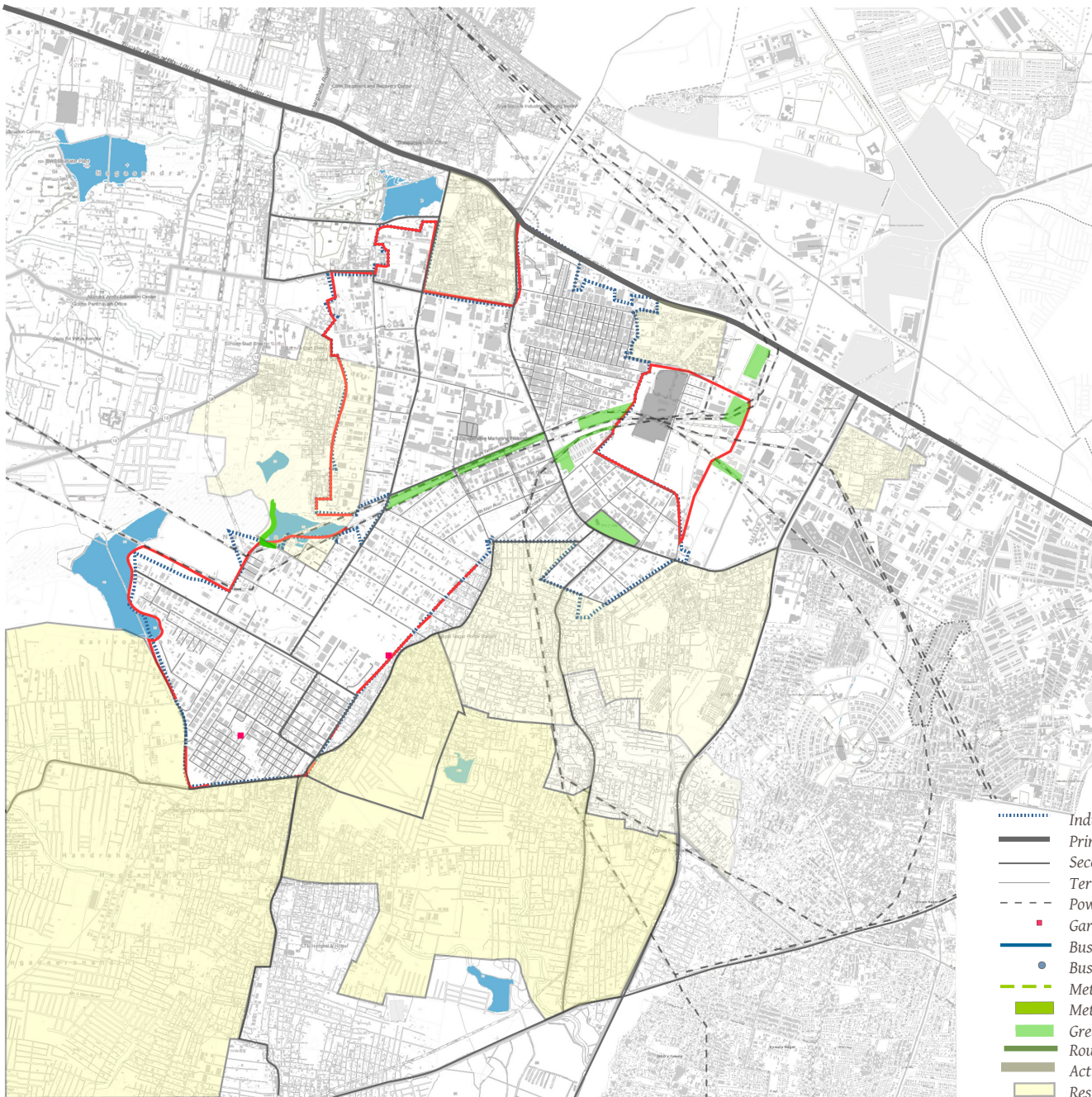
Gendered space















The dominant presence of men in public space is a major reason for women to not feel comfortable in using the public space. Most of the recreational activity in the area is centred around the needs of men and the public space for women is not used.

No coherent vision for the area

The government and bottom up initiatives for the area have no larger vision. The efforts of all the parties are fragmented.





-  Industrial area boundary
-  Primary network
-  Secondary network
-  Tertiary network
-  Power line
-  Garment industry
-  Bus route
-  Bus stop
-  Metro line
-  Metro stop
-  Green cover
-  Routes
-  Activities
-  Residential area



9.1. Scientific relevance

Though gender related issues are being discussed in India in the academic spheres, the implication of spatial form of the city has is being studied with respect to women's safety. The gendering of space has been discussed from the way women use and negotiate space. However, the spatial impact of women in industry has not been addressed. The improvement of spatial quality for the empowerment is yet to be brought to the forefront. With this project, I hope to highlight the importance of a gender approach to spatial development in the city. The intent of the project is to start a discourse in spatial planning and design from a gender perspective.

9.2. Societal relavance

As an urbanist, I strongly believe that the built environment can influence the perception of safety. Though, gender based crimes in India have an underlying social and cultural reason and is a very complex problem to only tackle spatially. Spatial factors can influence the decision making process of women and partly contribute to their freedom. According to the European academic research, women's empowerment can be defined as a process in which women gain greater share of control over resources such as material, human and intellectual. Therefore, through holistic planning and altering the physical environment we live in, women's accessibility to these resources can be enhanced.

The 16th December, 2012 gang rape in the capital city of Delhi shook up not only India but also the world. The incident resulted in mass protests across major cities in India. Since then, there have been many sexual crimes reported. Some reports prove that gender based violence in India is on a rise since 1989(B. R. Sharma 2004). To address this issue, the government and private stakeholders are taking steps towards making cities safer. But most of the initiatives are based on policies to protect women who have been victims but less has been done to relook at the design of existing cities.



9.3 Ethical relevance

The issue of spatial injustice of different groups will be addressed through this project. The democracy of India results in political factors ruling the decisions of the city, which drive a certain kind of development. These decisions don't always take into consideration the needs of all classes, genders and minorities of society. Two specific groups that face this injustice will be my focus.

The first being the differences between men and women, and the need to look at both the genders differently in the process of urban planning. There is a rising necessity for urban governance of India cities to take the social issues against women into account to plan for the future. The second issue, which is more relevant in the developing context, is the economic disparity in urban areas. This economic mismatch is also influencing the way cities are growing; the quality of life of people is being ignored.





10. Theory of Urbanism

Looking through the gender lens A critical analysis of spatial configuration of cities

Abstract

The paper will explore the discourse on considering gender in urban planning. As the urban historian Dolores Hayden puts it, the place of a woman at home has been the most important principle in architectural design and urban planning (Hayden, 1980). In this regard, there have been studies on the relationship between the gender relations and the spatial structure of the city. With the ever-changing role that women have played in productive and reproductive roles their position and purpose in the different domains have seen transformation (Fainstein and Servon, 2005). The paper will explore the spatial implications and consequences of these changing gender roles in the past and present on cities. It will exemplify the spatial constraints that women confront due to the spatial configuration of the city. The need for women to participate in shaping the urban environment is becoming urgent. The paper will explain through examples, the power of women to facilitate change in the city. Learning from the past and present, recommendations will be made for a new approach by looking at it through the gender lens.

Keywords : Gender, Work, Urban planning, participation of women

Structure of paper

- o Introduction
- o Understanding gender
- o Gender, work and urban planning
- o Participation of women in urban planning
- o Conclusion
- o Recommendation for future research



Introduction

‘Gender relations and gender roles are central to the allocation of resources, facilities and opportunities in a city, which in turn is essential to the structuring of the urban space.’ (England, 1991). It has been proved that gender relations have always played either a direct or an indirect role in the way all our cities are designed. As Dolores Hayden, with the example of American cities states that the place of a woman at home has been an implicit principle in the land use, but has not been stated explicitly in any text books (Hayden, 1980). But the fact is that these roles and relations of men and women have been constantly subject to change due to various external factors. The question then is if urban planners and designers are considering this as an important aspect while planning our cities. The design of urban living environments and infrastructure should take on radically different priorities with this perspective (Jaeckel & Geldermalsen, 2006) .

In different contexts, the roles of gender vary due to socio-cultural considerations. The principles of spatial planning and policy also need to adapt with this variance. But, in countries where these roles and relations for men and women are still different, the design of cities is should not be looked at as gender neutral. This socio-cultural consideration is not yet spatially manifesting in the urban configuration of cities. The spatial impact of this neglect leads to the unequal access of urban resources to either men or women. This forms the basis of my curiosity and the scope for further investigation. But before this relationship between spatial configuration of cities and the gender relations is studied, it is essential to have a clear understanding of gender.

Understanding gender roles

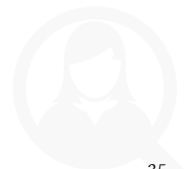
Gender, being a part and parcel of civilized society is seldom examined or and questioned. Most often gender is confused with sex, but the fact is that the roots of both these concepts are different. As Julia Nelson clarifies that sex is biological whereas gender is a social construct. She explains that gender ‘refers to the associations, stereotypes and social patterns that a culture constructs on the basis of actual or



perceived differences between men and women'(Fainstein and Servon, 2005). A category of sex becomes a gender status through different gender markers that each society imposes like naming, dress, etc. 'This process of gendering is legitimated by religion, law, science and the society's set of values' (Lorber and Farrell, 1991).

Gender as a social institution, is often the most common way human beings organize their lives (Lorber and Farrell, 1991). This social construct is therefore dependent on the context and accordingly can vary. Within the framework of this social institution of gendering and inherent qualities of different genders, roles and responsibilities in the family, community and society have been assigned. These approved roles not only created stereotypes for men and women but were also drivers of social, political and economic processes. As Fainstein and Servon state, these gender roles in the past have been a result of a binary way of thinking. This formidable dichotomy was often regulated by public policy by relegating women to the private realm of the home and men to the public worlds of the workplace and community. Though, through the surge of the first and second feminist movements, the previously established role of women were challenged, there still exists a gender-specific division of labor in many societies. (Fainstein and Servon, 2005).

The designated roles in the past have been subject to change due to many external factors, events and circumstances. And in most cases recorded in history, women are at the receiving end of this shift in roles and have been compelled to adapt on demand. One of the examples of this was during World War II when women had to replace men at work and had to immediately retreat to the private domain once the men returned after the war (Fainstein and Servon, 2005). This clarifies the power structures that existed in society and were further established by many efforts to secure the role of men and monopolize the better paid jobs. Some of these efforts were deliberate while some were incidental. Dolores Hayden states the paradoxical problem of the dependence of the status of women at home on their economic position and how this could be achieved only by altering their responsibilities domestically to be part of



the paid labor force (Hayden, 1980). The conscious confinement of the woman to the domestic sphere and the economic position becoming the measure of power were some of the reasons they were compelled to become part of the paid workforce. Therefore, the participation of women in the paid workforce has been one of the ways in which women have consolidated their position to attain an equal status.

This workforce participation can be attributed to many factors, some of them being cultural, social, economic and spatial. In this paper, the focus will be only on the spatial factors that contribute to their economic participation. One such condition that has been studied world over is the spatial accessibility of employment. Spatial accessibility of women and men has been proved to be different due to their roles, relations and the inherent power structures. The spatial accessibility is dependent on many spatial attributes, arrangements and distribution of programs in the city. It also depends on the mode of access, availability and economic affordability of the transportation system. The spatial factors that do affect the woman's right to the city and her ability to be an equal participant in the city are present across all scales. The next section will clarify this relationship between gender, work and urban planning.

Gender, work and urban planning

The spatial structure of cities has always had either a explicit or implicit influence on gender roles in the city. Urban planning involves creating places and spaces for employment opportunities (UN-Habitat, 2012)

. It not only identifies land use, but ideally also integrates transport and housing facilities But an important factor that should be considered in urban planning are the different needs of women due to the gendered roles and relations that are prevalent in different contexts. The lack of consideration of the gender-specific division of labor, can limit women's access to employment.

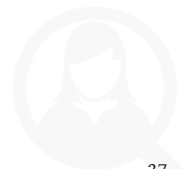
This study will make explicit the relationship between the urban form of cities and women's role. In the developing context, women are more vulnerable because their



reasons to remain outside the workforce are more likely to be due to socio-cultural expectations, lack of education or their dominant role in the domestic sphere (UN-Habitat, 2012) The gender gap in pay and working conditions also has some implications. Through studies in the past and present, the affects of different kinds of spatial configuration of cities on women's ability to spatially access work have been made clear.

Daphne Spain in her book *Gendered space*, traces the status of women in non-industrial and industrial societies. She argues that women's role in production governs their status in society (Spain, 1992). According to this argument, where the role of women in production in non-industrial societies where hunting, agriculture or fishing is predominant, the status of women is almost equal to their male counterparts. But after industrialization, where men's role in the industry became dominant, women's status degraded. She explains that women's role in production has been instrumental in the social construction of space. She explores the industrial society of the United States and explains the spatial arrangements that are associated with the women's status (Spain, 1992). The gendering of space is a result of this spatial arrangement where there is a clear separation between work and home.

This geographical separation between division between home and work during the early industrial revolution had a large impact on the built form of cities. There were efforts made in the early 20th century to rethink the role of women in society, but town planners dismissed the utopian ideas. Urban visionaries like Ebenezer Howard's garden cities, Le Corbusier's *City for three million* and Frank Lloyd Wright's *Broad acre city* looked at new ways of living which included cooperative housekeeping, kitchen less houses and communal nurseries (UN-Habitat, 2012). These concepts intended to redefine the role of women in the private sphere and encourage their participation in the paid workforce. The rejection of all these visions resulted in a more conservative and acceptable patriarchal convention in the design of cities in alignment with the traditionally defined roles of men and women (UN-Habitat, 2012).



As Dolores Hayden mentions in her paper ‘What would a non sexist city look like?’ that principles in architecture and urban planning are derived from the ‘woman’s place is in the home’ (Hayden, 1980). As she mentions, it has not been mentioned in any text explicitly, but the fact of the matter is that gender has always been a consideration in the way cities are developed. She brings out women’s needs to be involved in the paid workforce to have a better economic position, and their challenges to do so. Her ideas on housing, urban design and human work have explained this clear correlation. For example, she explains the work by Swedish architects Alva Myrdal, Sven Ivar Lind and Sven Markeliu of their ‘service houses’ or ‘collective houses’ that provide childcare services for employed women. She also goes on to mention how the government’s efforts did not challenge the exclusion of men in domestic work but instead promoted women to work through design interventions (Hayden, 1980). Similarly, she elaborates the different ways and efforts that have been taken to promote this gender transition.

The emergence of urban thinkers in the mid twentieth century studied and started to question the design of cities from the gender perspective, which directly or indirectly influenced the urban planning. Most of these thinkers were female researchers, which played a large role in addressing women’s needs in planning (UN-Habitat, 2012). Jane Jacobs work touched upon aspects like safety and spatial quality which encouraged the presence of women in the public sphere. She criticized the mono-functional zoning of the city and soulless stretches of open space. She was one of the first to bring out the importance of ‘eyes on the street’ by promoting mixed density areas. Though her efforts were not focused on women, they had a sounding impact on shaping the city of Manhattan to promote equal right to the city for all.

In the late twentieth century, the work of Kim V England was essential in understanding the affects of suburbanization in the role of women in society. The spatial and functional separation of work and home through suburbanization of residential development hindered women’s mobility and therefore their access to employment (England, 1991). She also went on to express how the contradiction

between the form of cities and women's consciousness and gender roles resulted in the change of neighborhood preferences. She then draws a comparison between married and single women and their preference of residential locations based on the different roles they have to play.

Fainstein & Sevron's work also elaborate the disconnection between the silos of planning, transportation, economic development and land use. (Fainstein and Servon, 2005). They suggest that there is little work done to make connections between the home, community and workplace. The binary way of thinking has divided the work and the home, and most importantly doesn't consider the other unpaid work that women do. This zoning of residential and industrial zones according to them was emblematic of the large-scale capitalism (Fainstein and Servon, 2005). The gender planning reader elaborates the different efforts in housing, transportation, and economic and land use development. In the reader, concepts like transit oriented development; cooperative housing movements that are gaining popularity are explored because they affect the work/life balance.

Participation of women

In urban planning, the approach has been homogenous and there have been some patriarchal assumptions about the role of women while designing cities (UN-Habitat, 2012). This can also be largely attributed to the fact that there were very few women involved in the field. The results of the research that has been done for almost half a century are now being realized through different initiatives in cities due to the inclusion of women. These initiatives can be seen around the world and are being implemented through spatial design, planning policies, technology etc. Though the principles of looking at gender and space are still evolving, there have been a few bottom-up initiatives to experiment with this idea. One of the reasons for these initiatives to be conceived is the active role of women in thinking for the city. The paper will illustrate two examples, which were efforts initiated by women with the intent of considering women's need in everyday living.



The first one is by a women's organization in Spain called Collectiu Punt 6, which comprises of architects, urban planners, sociologists and activists. One of their first projects was to recommend the gender equality policies to the local government. They have devised a network of six different variables to study the built environment. The variables consist of 4 physical, namely public spaces, mobility, services and facilities and housing and the other 2 ensure safety and participation of women. With this framework of variables, they prepare policies and programs which are gender sensitive. They have also prepared an analytical toolbox for urban diagnosis from the gender perspective. This toolbox has about 100 questions and focuses on the everyday life of women. With this toolbox and 6-point variable, they have prepared workshops and programs and assist the government to implement gender sensitive policies.

The second example is that of a technology created to ensure the safety of women in the urban environment. This is an online application called safetipin created in Delhi, India. This was also created as a toolbox to audit the safety of any place in the city. This toolbox consists of eight physical parameters of the place, which influence the safety of the place. The last parameter of the toolbox is a subjective one (Viswanath and Basu, 2015). The intent of this application was to involve the women to take charge of their city. Through crowd sourcing data from the safety audits conducted by men and women in the city, the information about the urban environment is collected (Viswanath and Basu, 2015)

. The police, transport authorities and other governmental agencies to improve the spatial quality of the city in order to ensure a safe environment for all have used this data.

Though these initiatives are trying to bring in the aspect of gender in the construction of our urban environment, they still have not completely tackled the issues of gender inequality in cities. In order to do so, there needs to be a larger vision for incorporating gender in the improving accessibility of resources and facilities to provide equal opportunity for both genders to flourish. The organization of cities needs to be



reexamined and the spatial tools need to span through different scales of space.

Conclusion

In order to consider gender in urban planning, the changing roles of gender need to be considered. As proved before, many different aspects of the city affect gender differently. Those different aspects need to be designed with an integrated approach in order to facilitate better quality of living for men as well as women. As Fainstien and Sevron state, while planning a city the sub disciplines need to work in conjunction with each other to achieve the desired goal(Fainstein and Servon, 2005).. There is a strong relationship between the sub disciplines and affects of one will have an impact on the others. To start with the relationship between home, work and the community need to be redefined in the city according the construct of gender in different contexts.

Recommendation for future research

There have been a lot of studies in the improvement of the spatial conditions of housing developments. But, if there is an upward trend of women being employed and taking a back seat in the domestic roles and responsibilities, then the planners and designers need to rethink the spatial organizations of business districts or industrial zones in the city. There is scope for investigating these economic zones in the city from the gender perspective. If women's presence in the economy is improving, then the infrastructure and public facilities need to be rethought of.



11. Graduation orientation

The project is in the research group complex cities. The project looks at how the complexities involved in the economic and spatial development of cities in the developing context is affecting the social processes of the city. The test case for the project looks at the metropolitan area of Bangalore, a south Indian city with a population of 8,52 million and land area of 741 sq.km. The project aims to start a discussion on how economically driven development in Bangalore, after globalisation is affecting the quality of life of the citizens and more so women in specific.

In this project, the investigation will be about the role of urban planning in providing equal entitlement and opportunities in the city to men and women. The construction of space has been gendered and not taking into account the aspect of gender. The approach to design and planning in Indian cities is still gender neutral, but the roles of gender in society are undergoing a change, due to globalisation. The project will explore how spatial tools can be used to improve the accessibility to urban facilities and resources in the city.

Workshop

*Organised by Putrikinasih, Wenchi, Wahyu & Nikita
November 20th, 2015, 15:30 - 18:30, Room F*

The second year of the master's of Urbanism at TU Delft is dedicated only to the graduation thesis of students. As a result of which there are about 70 different projects discussing 70 new ideas on 70 different locations produced every year. Learning and understanding these theses projects provides one of the biggest opportunities for learning as a Masters student. As students of the graduation year, we believed it is important to tap into this wealth of knowledge around us to enrich our own projects in a way. With this intent, we set out to organize an event, where our fellow students could showcase their preliminary project proposal, discuss their ideas and learn from each other.



Pecha Kucha, the popular event series, devised by the Japanese in 2003 to meet network and show their work, formed the basic format of our event. This event format allows the presenter to show 20 images for 20 seconds each making the presentation only 7 minutes long. In our case, this 7-minute presentation and 20 slides gave ample time and content for our students to explain briefly their motivation, intentions and the relevance of their projects. Additionally, it also saved time, as there was a fixed allotted time and encouraged students to make their project pitches crisp and precise. Therefore, the format of the presentations chosen fit the intent of this event.

To add to the theme of the 20X20, the event was organized on the 20th of November and invited 20 students to present. A large hall was booked and the posters for the event were publicized two weeks before the event. The students were eager to share their initial proposals and the response to participate was rather positive. The event was planned to start at 15:30 and end at 18:30 with two breaks for discussions, snacks and drinks.

The event was very successful, with students from Urbanism, architecture and real estate tracks as the audience. The 20 students presented their project with much enthusiasm and preparation. There were heated discussions in the breaks and after the event among the students. In line with the intent of this event, there was a lot that students took back from this experience. It facilitated the students to be exposed to creative approaches, methods and goals of the research. All in all, this event succeeded in creating a curiosity and provided a platform for learning and sharing. On this note, we hope to organize another such event later in the year, to see the progress of the projects and some new projects.





Figure 11.2
Pecha Kucha poster

Drawn by workshop organisers.



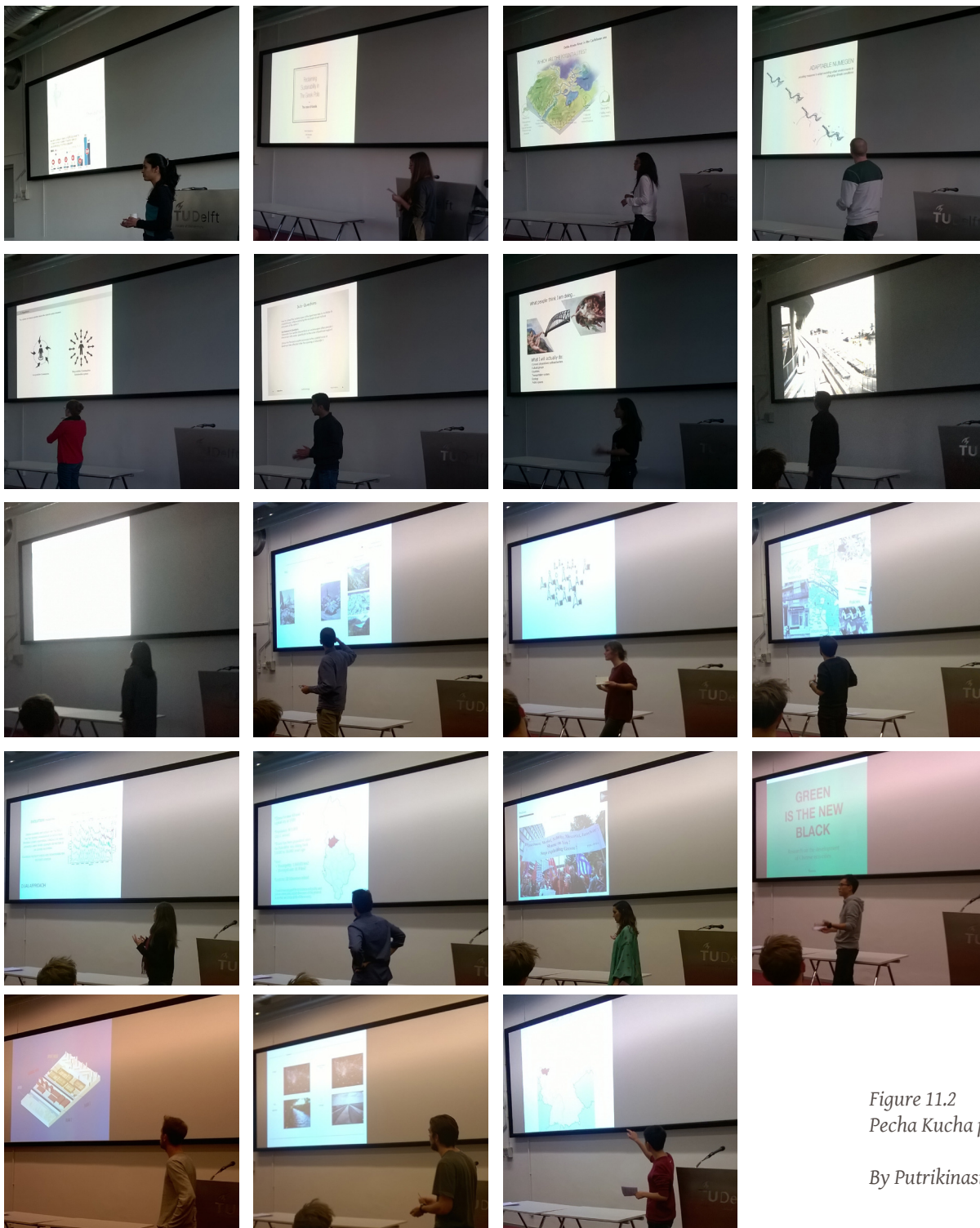
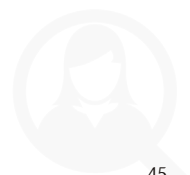


Figure 11.2
Pecha Kucha photos

By Putrikinasih



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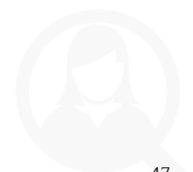
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12. Appendix

12.1 Spatial development of Bangalore

The industrial development of Bangalore in the twentieth century has experienced a leapfrogging effect. From the dominance of textile production before independence (1947) to the large scale industries post independence to the current export oriented industries after 1990s. Every phase of this economic monopoly in Bangalore brought with it, its own demographic dynamic. The analysis will attempt to relate the impact of the spatial growth of the city in the three industrial phases of development to the demographic diversity in the city.

Pre independence

Textile mills and smaller cottage industries till the late 1800s mainly dominated the city of Bangalore. The textile mills were situated mainly in the western part of the city. Among industries that developed during this period were also carpet manufacturing, basket making and pottery making (Srinivas 2004). The industries were mostly home based and highly labour intensive. According to Abbe Dubois, who resided in South India in the late eighteenth and early nineteenth centuries states that it was a rare for a weaver to change his adobe and carry his equipment to different places to work. The home was the place of production and the family was part of the whole process.

With the laying of the railways by the British, Bangalore's woollen, silk and cotton mills were set up in the late twentieth century, the Binny mills in 1884 and the Mysore spinning and manufacturing company in 1894 (R Kalra, 2007). But Garment making industries was started from the British period, with the Bangalore dress making company in 1940 by Vittal Rao. During the British period, there was a need of making dresses to cater to which led to the development of the ready made garment industry (T.S Devaraja 2011). In this period, the difference between public and private sphere started becoming visible. (Figure 12.1)

Tipu Sultan, a Wodeyar ruler of Bangalore, contributed to the industrialisation by introducing modern ways of producing sugar, glass, etc. In 1909, the Indian institute



of science was set up establishing Bangalore's scientific flair very early on. Scientist M. Vishweshwaraya, the chief engineer of Bangalore, was instrumental in developing the industrial landscape of the city. (R Kalra, 2007)The Government Electricity factory in 1934 to make electric transformers and motors was a big boost for the large-scale industries. The Hindustan Aeronautics Limited set up in 1940 paved the path for more modern industries to come. The time around the world war 2 was a time for the expansion of industrial activity to attain self sufficiency (Chittaranjan,2005; Dittrich, 2007).

Post independence

Post independence the government established many public sector undertakings like the Indian telephone industries, Hindustan machine tools & Bharat electronics limited. This was an attempt to a welfare model of development to direct the urbanisation in Indian cities. The first Prime minister of India decided to locate the defence and electronics industries in Bangalore because of its geographical location, away from the coastal borders on either side. Since, India at that point was still under threat from Pakistan and China, this chosen location for the defence industry seemed strategic(Kalra, 2007). These technology-based industries initiated the process of further industrial development in Bangalore, some of which were the Bharat Heavy Electrical Limited and Hindustan machine tools. Around this time, many institutions specially for engineering and technical education were set up in the city to cater to the demands of these engineering companies.

A parallel development that was instigated by the large-scale industries and the engineers was the growth of the small scale industries. Due to the high costs of industrialisation, the public sector found it more effective to outsource several components to small-scale industries. But the setback was that the large labour force that shifted to the small-scale industries didn't earn the same salaries and enjoy similar working conditions that they did in the public sector. The state government acquired land on the outskirts of the city and provided incentives for land in order to promote



the small scale sector. (N Pani, N Singh, 2012) This further led to the creation industrial estates by the government in the western periphery of Bangalore (Srinivas 2004).

In 1970, the manufacture of garments started thriving as a business in India. One of the main reasons, this can be attributed is the shift from tailor-made to ready-made use of garments (M.S. Kumari & M.R. Bassanna 2015). The number of the garment industries steadily increased till the 1990s(T.S. Devaraja 2011) Initially, there were around 5-7 leading industries, which led to the cropping up of smaller units to take orders from the larger industries. This led to the formation of a garment agglomeration in the western part of the city.

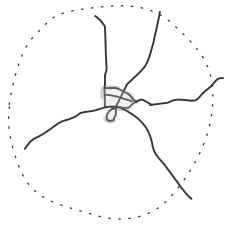
Till the 1980s, the public sector overshadowed the private sector. Most of the public sector companies had their own townships in the outskirts, isolated from the city (Nair, 2005). Since, a minority lived in these townships outside the city, the companies usually provided private bus services to the city, a cheap and convenient mode of transport. Other modes were either by bicycle, foot or by scooter (M.N Holmstrom, 1976).

According to Holmstrom's research, around 72% of these workers had dependent wives. The census of 1971 shows that the involvement of women accounted for only 6.8% of the total population of women in the Urban agglomeration of Bangalore. So, the urban woman was limited to the private sphere if the home and rarely went out to work. Apart from the type of work, cultural factors, the spatial organisation of the city and lack of accessibility, could have contributed to the low participation of women in the industry.



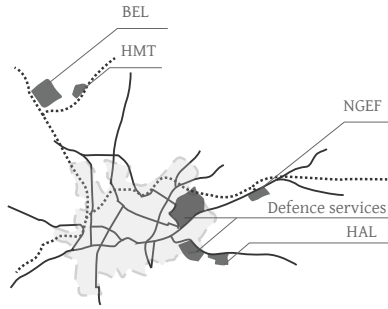
Figure 12.1
Spatial development of the city and the economic concentrations at every stage.

Drawn by author.



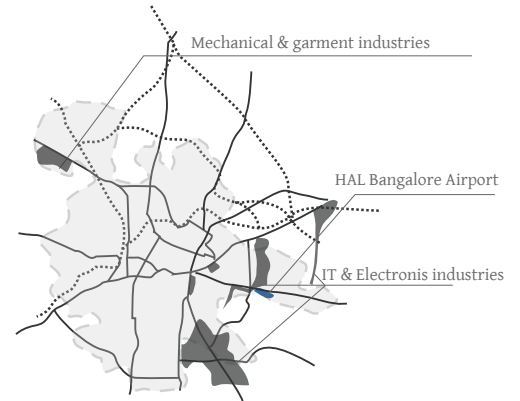
1800 - 1900
Cottage industries
Home as the base for production

pre independence



1947-1960
Research & Educational institutions
Defence industry
Public sector enterprises

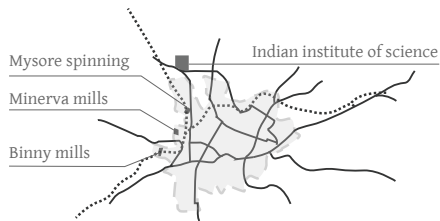
post independence



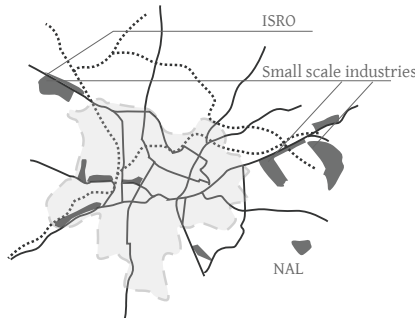
1980-2010
IT Corridor
Garment industries
HAL Bangalore airport

neo-liberalisation

1900 - 1947
Railway line and electric power
Textile mills
Indian institute of science



1960 - 1980
Small scale industries
Garment industries

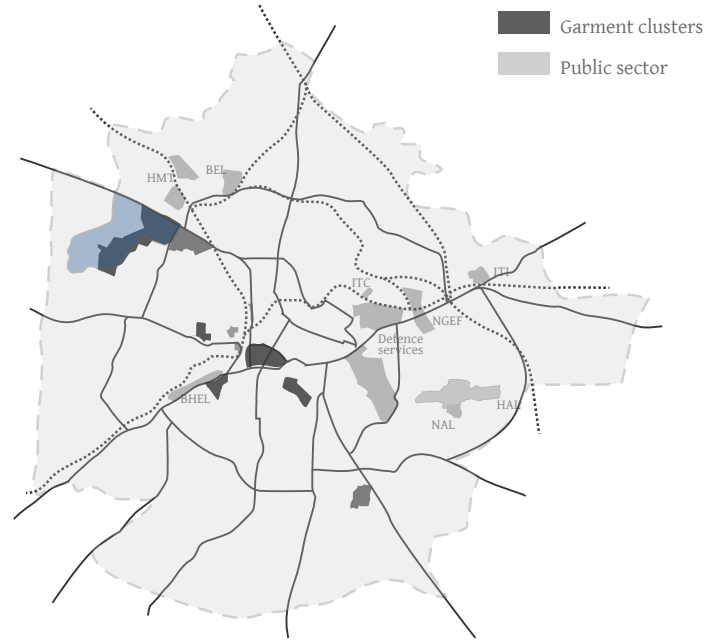


2010



Figure 12.1
Spatial development of the garment and
the IT Industry

Drawn by author.



Garment industry
IT industry

