

Study on the spatial perception of women friendly cities
Special reference to Nugegoda town

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Abstract

Today the government had launched various city development proposals to add aesthetic beauty to the city. Here I focused on urban development, especially on women friendly city development. In the public spaces women face various harassments by society and physical form of the city makes many disturbances or difficulties in their day to day activities.

Walkable environment is becoming more important in various ways. It takes attention related to public health, sustainability, economy or social life. Therefore there is a growing trend to develop walkable built environment. The study based on new way of recording and understanding the importance of women friendly walkable connections for the urban women in an urban context.

The study focused on Nugegoda city which attracts various ages of people for many purposes. Using several variables such as age, mode of transportation, purpose of coming to the city, etc. gathers information to recognize the usage of city by women. Through examination of women's activities within the city, by questioning and collecting mind maps collect data to identify how far the physical formation of the city helps them to make the efficiency of day to day life.

Objective of the research focused to identify how influence physical formations of urban walk ways for the women attraction or discouragement. Further study was to identify most important aspects to create women attractive urban environment by an analysis of a comparative study. Results of the empirical study confirm the significance of special perception on creating a women's friendly city.

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Chapter - 1

Introduction

Chapter 1: Introduction

Girl or woman always vulnerable or face multiple risks in domestic spaces or in public spaces. Here this study focuses to discuss about how public space could be perceived safe and women friendly for urban public. When creating a safe atmosphere in public spaces and public transportation for women to and from their residence makes better attraction to activities in urban life.

The necessity of the woman's safety situation in urban public space highlights by various incidents came across from media regularly.

“At least three children are raped in Sri Lanka each day, indicating that the incidence of sexual assault of minors is escalating. The statistics available at Police Headquarters reveal that 480 cases of child rape were reported between January and June 2010, while 925 such cases were reported 2009. An officer at Police HQ said the Ratnapura district had the country’s highest number of child rape cases – 79 in 2009, and 47 in the first six months of 2010.”

(Source: 3 children raped daily in Sri Lanka. (2010, October 10). Sundaytimes. Retrieved January 23, 2016, from http://www.sundaytimes.lk/101010/News/nws_02.html)

“Percent world population attract to the city than rural setting. “Each month, five million people are added to the cities of the developing world, and more than one billion children live in urban settings. It is estimated that by 2030, approximately 1.5 billion girls will live in urban areas.”

(Source: Travers, K., Ranganath, M., & Livesey, A. (2013).

Women take a vital role in the society today than in history. In the present world women actively participate in social economy or political progress of the country.

Women have family responsibilities and when they engage in the occupation for financial support to the family they have to care of employment responsibilities too. Women engaged in working in various fields and there are no restrictions on gender basis in Sri Lankan society for employment.

But when they get out of their doors, they face problems by virtue of their sex. This afflict happens physically, sexually, mentally & verbally as well. Therefore, women have to face immense of challenge outside doors.

“Urban Public Space (UPS) is a vital component in the formation of a cityscape. Such spaces further enrich the public requirements of activity nodes facilitating people’s interaction and relaxation. Thereby quality of UPS has a direct impact in terms of public benefits which may be in two folds of physical and psychological.”

(Source: Fernando, L. D., & Wijesundara, J. (2013).

The contribution of women in society is essential for the development of a society. Empowerment of women in society is an important because women are playing an important part in the development of the society. Here city women take a vital role in society & actively participate in different sectors than rural women. Therefore, women in the city generally face mental stress, sexual harassment, discriminatory practices safety & security issues.

In the present world women play a dual role in the balance of their domestic life as well as professional life by breaking boundaries around them. Therefore, it is important to consider about requirement of women than men in urban setting protection or security, comfort ability, easy or assistance for activities are very important when considering their requirements.

1.1 Research Question

- What are the key urban design and planning criteria to be adapted in fulfilling the women's needs in urban areas.

1.2 Objective of the study

This study focused identify

- Special requirements of women in a building or urban environment compared to men's needs
- What sort of engagement of women is done in an urban environment.
- To identify problems & challenges faced by urban working women in urban settings.
- To identify social economic benefits on consideration of woman's sensitivity to the urban setting.
- How urban planning policies can overcome these requirements.

1.3 Implication of study

- The study will help to identify Woman's' consideration in our city.
- Find possible solutions to issues.
- Create awareness among the society about equal importance of women & men.
- To improve existing states & security of women.

1.4 Limitations of study

The study area was focused on women in an urban public setting. Public transportation users and pedestrians were the main focus of the study. They frequently expose to difficulties on the road or in public spaces. Women who travel by private vehicles were not taken into the study, because they have safety within their vehicle and support travel within the city.

Totally physical disabled people like wheelchair users, blind people were not taken into account because of their need especial physical city design related to disability.

Scope of study focuses on both categories of women who come to the city regularly and newly or occasionally. Women who work within the city and residents who live within city or close proximity to the city always use the city. So they have a better experience of all areas of the city to get information related to study.

People who newly visit or occasionally enter into the city have different perception about the city associated with imageability and way finding.

1.5 Research Methodology

Refereeing related research papers, pervious work and case studies formulate the consistency to the research objective. Conduct an observational research on case Based on the theoretical ideas. Through the questioners, Observation on patterns of activates and characteristics of women in the city, gather data to solve the research question. The results of the empirical study confirm process to identify the significance of the major consideration on women's needs in urban planning. Different effects of the built environment, conditions of environment seem to influence creating women friendly cities. Findings from the study provide insight into how the interactions of built environment affect to create livable behavior of women in the city.

- Study of document analysis organizations annual reports, scientific researches.
- Held interviews with organizations, working women in selected city.
- Questionnaire for women on roads.
- Photographic survey.
- Perceive relative level of pedestrian density.
- Pattern of pedestrian flow.
- Route choices make for walking trips.
- Details of different activities taking place during walking.

CHAPTER - 2

Women friendly city

CHAPTER 2: Women friendly city

2.1 Sri Lankan Women and the society

In the history of civilization, women have been taken vital role as same as men. Therefore, it is a significant indicator to consist women takes high participation in developing a nation. Active participation of women in nation forces for the social, economic or political progress of the country. But in the society all the time women have seen neglected comparatively.

Women always take family responsibilities. But because of economic problems they have to help their families by going out for careers to gain economic support with all responsibilities of the family. Therefore they always take the dual role at outside home and in it. In the present world girl or boy equally get their primary and higher education and enter into society and engage in various kinds of job opportunities. Today, women participate in every kind of job opportunity in the society.

But because of gender, women or girl always considers as delicate or fragile character. Most of the time people look at the women as it is a pleasing character in the society. Therefore, all the time women face harassments in or outside their homes. In Sri Lankan society this gender based separation was not much highlighted, but nowadays we have to hear various kinds of harassments which had to be suffered by women in the society.

In the history Sri Lankan society, people describe their propriety for a young woman in society as “A young lady with a Gem on her hand can walk around the country and can return without any harm” This saying highlight how much society respect women and do not willing to any wrong. This kind of civilization developed under Buddhist religious culture. Rules of kings and religious impact form the society into better living situation for all. But today Sri Lankan Society totally changed and not consist that much of safe condition for women within the society.

Our society mixed with global culture and we are exposed to all good or bad things of the world, therefore women have to live within this kind of spoiled social envelop.

2.2 Needs of urban women

Women & the men use urban spaces in different ways because of women have responsibilities of their professional work & families. Women always become caregivers, mothers, householders or workers. They are willing to be fashionable care of children, carrying goods for houses, care of elders.



Fig:1 – Pregnant ladies have various physical discomforts
[Source: by author]

Body limitations are the other problem which especially women have to face. Most of them as cultural & religion requirement women have to wear traditional dress. Pregnant ladies have various physical discomforts with their body condition. When women carry their children on their lap or hip or maybe walking with the kids, they have to concern about not only themselves but also their children.



Fig:2 – women carry their children on their lap or hip
[Source: by author]



Fig:3 – women walking with kids
[Source: by author]

But the problem is that the built environment does specially care about the need of the women. Does it provide comfort ability in urban life?

The study was focused to identify what the women friendly city consists with to make their lives easier within the built environment.

- Enjoy public spaces & public life without fear.
- No violence against women or girl
- Way of using space to satisfy their needs

8-Point Call to Action on Girls Rights in the City All girls should have the right to:

1. Access safe education in the city.
2. Be free from violence in the city.
3. Secure and decent housing.
4. Move safely in the city.
5. Affordable and accessible services in the city.
6. Age-appropriate and decent work in a healthy urban environment.
7. Safe spaces in the city.
8. Participate in making cities safer, more inclusive, and more accessible.

(Source: Gaag, N. V. (2011, March 25)

Consideration in creating gender inclusive cities;

- Women`s ability to freely access & enjoy public spaces.
- Make public space safe for all.

Exploring the everyday experiences on the street by a survey to identify the diversity of women in the community.

- Group discussion.
- Women`s safety audits

Obtain comprehensive & reliable, context specific data based on gender.

2.3 The theory of routine activities

M. Felson (1987) described the importance of identifying exact routine activities of travelers in his article “Routine activities and crime prevention in the developing metropolis criminality”.

(Source: Hamid H.A., Noah RM., Sham R., 2013)

Level of security or comfortability of a female traveler in a city depends on trip chain, travel distance and time of travelling. Identification of this pattern of activities informs requirements or choice of urban women and it’s important when providing infrastructure facilities in urban designing to provide better service for them,

Trip chain

“Among the identified women travel pattern is the triple chain. According to Spain (1997), trip chain is being considered as a complex travel behavior, and it is more common for women than men. The statement was agreed by Hamed and Mannering (1993) who found that males were more likely to go direct to home after work than females.”

(Source: Hamid H.A., Noah RM., Sham R., 2013)

Above statement indicates that women always spend much time outside the working environment while travel to their home than men. Because they have to fulfill various requirements related to their dual role of family responsibilities. They have to do shopping to buy food items, child needs, household items, etc. Therefore, women have to spend more time within the city or streets. They travel to markets, shops, banks or many other service supply places to obtain their requirements. Therefore they always have chain of the trip on the street. They get late to go home before dark and have to struggle with crowded public transportation with their heavy stuffs. These situations always make risk to expose many problematic situations by women in the city. However trip chain of women has a significant relationship to level of safety.

Travel distance

“Another factor of the women travel pattern being identified is the travel distance made by women. However the existing research is unified that women have shorter commuting distance than a man. The underlying economic theory presented by White and Madden (1977) suggested that commute length the function of wages, housing prices, income, and other demographic variables with wages and housing prices endogenously determined.”

(Source: Hamid H.A., Noah R.M., Sham R., 2013)

Employed women tend to have greater household responsibility than men. As a result, women face greater time constraints and therefore ultimately women choose shorter commutes than employed man. This situation, forced to face many dangerous situations like accidents or other harassments.



Fig; 4 – crossing roads without using zebra crossing
[Source: bv author]



Fig;5 – crossing roads without using zebra crossing
[Source: bv author]

Women used to cross roads without using the zebra crossing to rush to turn the other side and face to accidents. Sometimes they use shortcuts or alleyways to reach to one place to another within shorter distance and they face various problems on those sub roads.

Time of travel

“These studies claimed that women faced higher feeling of fear while travelling after dark due to personal safety reason. One of the consistent findings on the reason for higher feeling of fear travelling after dark was because of the high crime occurrence during that period of time.”

(Source: Hamid H.A., Noah RM., Sham R., 2013)

Higher feeling of unsafety occurs during travel after dark for women. Most of the times women have to travel to their residences after dark because of responsibilities they have to fulfill before go home. In the present urban environment most of the time, except main road other sub roads poorly lit up and very lonely after getting dark. Most of neighborhoods locate along these sub roads and economically problematic women do not afford to travel by taxi daily from city to home if there is no public transportation system. Public transportations also become so limited after getting dark therefore women have to struggle with the crowd in buses or trains. When it's getting dark public transportation also feels unsafe for a woman to travel alone.



Fig; 6 – sub roads of which runs towards inner area feel very lonely and dark in evening time.

[Source: by author]

2.4 Why the city needs safe for a woman

In the city women or a girl need to be free from violence. They need to enjoy the public life without fear. Economic, social, political or cultural equality need for all of them.

When there is no equal freedom for community life because of insecurity, threat & violence, it prevents women participation in the development of society.

“Women & girls have a “right to the city” When this right is not realized, women & girls face significant obstacles to education, economic & political opportunities.”

[Source: UN women; building safe & inclusive cities for women a practical guide (July 2011)]

That means this lack of safety directly affect to the life of women & girls. If there was harassment while a girl on her way to school in her neighborhood it affects to reduce out from her education because of fear. Sometimes women avoid some areas of the city, keep away from certain places. This might affected for some opportunities that would be a short distance path from some place to another or some important place would be there to reach. But because of feeling, of insecurity constrains women avoid to access to unsafe areas of the city. If there is a lack of safety on urban public parks women & girl could not gain physical or mental relaxation by being in there.

Women always expose to unsafe situations because of their activity pattern, physical difficulties or by social perception of women. Most of the times women become very fussy, because of they have to fulfill various targets within a limited time. This busyness makes women facing with accidents. Therefore city needs to provide special consideration for the safety of women.

World population increase daily and city population increase mostly because of migration to cities. Therefore, women population also increase and city design should consider about the needs of the majority.

2.5 Why women feel unsafe in a city

City arrangement could create more vulnerable places for harassment. Lack of public amenities makes difficulties for women in cities. Unavailability, lack of safety for access, security, light levels, openness, general public awareness, less hygienic conditions and difficult to find the location of public amenities are the main problem of public amenities. Un-efficient transportation systems make difficulties to expose to harassments. Road traffic, un-efficient and inadequate public transportation system makes many difficulties for commuters.

CHAPTER - 3

Spatial perception of urban space for women

CHAPTER 3: Spatial perception of urban space for women

3.1 How spatial perception can be linked to women friendly city designs

When considering above matter, it should be addressed particular issues concerning women taking into account. Social roles of them access to resources, their choices & aspirations need to be concerned. Further different ages, ethnicity, disability and sexual orientation also need to be taken into concern. When recognize these differences spatial planning can ensure Safe, healthy, sustainable and enjoyable environments for all.

Urban design needs to ensure places & spaces work well for everyone & those needs to be usable by everyone.

To design a safe city for women need to identify

- What kind of spaces in a city mostly used by women & girls.
- What kind of spaces they avoid mostly.
- Identify characteristics & differences of both types of spaces.
- What time period girl or women mostly go out the city.
- Do they go along in groups or in the company of men
- Do women & girl staying spaces used them or just moved through them
- What do they do when they use urban spaces.
- What kind of experience of violence or insecurity does women & girls have in the city.
- Which group of women in the city most often experience violence or insecurity.
- What are regulatory policies against women insecurity & crime already exist in the city.

3.2 Factors That Influence a woman or a girl feel Sense of Safety

Sometimes this safe or unsafe condition depends on feelings & experience of women. It affects with social, cultural, economic or family issues.

Economy-

Today, many families not only men, women engaged to earn money to gain economic support to the family. According to the affordability they had to reach to the city by public transport or by private vehicle. Here the people who use public transport are the most victims who affected to harassments. They regularly access to public spaces, public transport, walk along the city & most exposed to unsafe situations.

Infrastructure-

Safe & clean physical condition of the city make safe for everyone. Public amenities need to have well maintenance to keep good condition for the public. Public toilets are most important need for the women in the city. It should be clean to promote women`s safety. Dark, dirty, with broken doors & far away from public area & less noticed by a public passer by spaces makes the feeling of unsafe for the women.

Lighting is another prominent requirement of promoting safety. Commercial areas need to be well light up at night time & alone the streets it need to be will light up to reach them neighborhoods. Unlit streets avoid women walk at night or in the dark evenings.

Public transportation is the most important transport mode for the women to access one place to another. Even if there has reserved seats for the pregnant mothers or elders or differently able people. It is hard to get that privilege because of attitudes of people. Other than that sexual harassment frequently happen within the public transportation make unpleasant for a woman to use it. Because of not running according to schedule time table makeover crowd within public transportation & it forced to face sexual harassments with public transportation. Women or a girl feels fear or shame to make a voice against these disturbances. Public need to be aware of these situations & must stand to protect women from this kind of nuisances.

When considering about infrastructure, walkways are very important. It should be free from obstacle structures & well maintained. Women feel very unpleasant & harsh conditions like, exposing to hot sun, dusk, smoke from vehicles etc.

Therefore, if its women friendly city it need to be safe, healthy & also comfortable to be there. It's effective to have shady walkways by trees or by shading devices. It promotes more public to walk under the shade.

Familiarity of space-

Women feels to going to places without hesitation if that space is familiar or feels safe condition for them. Some kind of male dominated space feels uncomfortable for women in the city. For examples liquor bars, male saloons, pubs, casino centers, taxi stand always crowded with men. Sometimes most of them were drunk & make nuisances to passerby. Therefore, women feel uncomfortable & feeling of unsafe in such spaces.

Social attitudes-

There is also takes a vital role in women safety upon women & women's attitudes, social attitudes within the society interrelate to create a safe society within the city. Women are often blamed by the public because of clothing or behavior inviting sexual harassments. Under the cultural habits, society maintains some kind of balance of the behavior of women. Women need to respect those if not they exposed to problems with them self. Therefore the women's safety responsibility takes care of them self as if she is out at night without important matter, what was she wearing, with whom she etc. on this type of facts.

However, social attitudes should not force women to live in fear & make the feeling of they like helpless victims. Social & cultural restrictions should not make barriers on women's freedom, mobility or ability to attend to social activities.

Physical characteristics of walkable community

“We need to give people more choices on how to travel when it comes time to make a trip to store, to go to school, to go to the park or library, or to visit a friend. We need to make the places where we live and the places where we work environments that encourage us to be active – to walk to the store, to walk to lunch, or perhaps to take an evening stroll just for the health of it. That’s why we need to make our community more walkable.

[Source: Mid - America Regional Council. (1998).]

1. Continuity

Pattern of walkway helps to read the distance while walking. Distance between posts, guard rails if continue n same intervals it helps walkers to measure the distance by the mind.



Fig; 7 – Pattern of walkway helps to read the distance

[Source: Place Dauphine on Île de la Cité in Paris, France <http://www.gettyimages.com/detail/photo/place-dauphine-on-A9-in-paris-france-royalty-free-image/155143641>]

2. Balance

If there is heavy traffic next to the pedestrian walkway, that will not enhance public to walk alone, such busy way. If there is a balance among transportation modes that will make the sound situation for pedestrians by reducing the number of vehicles enter to that road, reduce speed of vehicles can make a comfortable environment to pedestrians.



Fig; 8 – pedestrian friendly walk way

[Source: Location: 17 – 30 Tottenham Court Road, London W1T 1AZ, England, Tottenham Court Road Retail Units, UK Buildings, English Architecture, Images France <http://futurist-architecture.blogspot.com/2016/03/tottenham-court-road-retail-units-in.html>]

Above image describes a pedestrian walk separate from heavy traffic and ground floor façade of building visually connect with pedestrian floor. Set backed commercial facades form shady pedestrian walkway.

3. Safety

Safety is the most important element in pedestrian walking mainly from vehicles it should protect by separating the walkway without placing write next to the vehicle away. Then in road crossing, Signs, signal post, zebra crossing should be there for the safety of penetrations. Other than that when at night there should be proper light lamps to illuminate streets to walk. Always should be created to feel safer while walk alone day & even at night time by introducing more public activities. That type of critical spaces could be made habitable by change the view of the space.



Fig; 9 – more public attractive open space creates sense of safety.

[Source: The Sony Center: a circular-shaped pedestrian plaza. Potsdamer Platz: urban open space in the 21st century. Posted on June 9, 2010 <https://buildberlin.wordpress.com/2010/06/09/potsdamer-platz-urban-open-space-in-the-21st-century/>]

4. Comfort

Physical comfort is very important to promote & attract people from walking. Properly maintained drainages, shady walkways to prevent the hot sun and covered walkways to protect from rain are important in designing pedestrian comfortable walking environments.

5. Sociability

When the walk way more public friendly the space begins to interact more people to each other. Without rushing one place to another, they begin to connect with the environment & people. It helps to create socially friendly community.

6. Efficiency

Walking should not waste time. It should be efficient to select as a travel mode to shorter distances without using vehicles. It should be time & money saving, easy method. There should be new access ways to interconnecting places & those should be visible to public.

3.3 Women safety inspections

Women safety inspections are beneficial because they provide solid recommendations for improving safety. It's a great deal of detailed information on the factors which create or detract from women's safety within a specific area.

A safety audit provides an opportunity to engage with and understand the perspectives of different groups of women (Eg. Elderly women, poor women, pregnant women or differently able women). This is particularly useful when other methods of data collection, such as street surveys, are unable to reach a specific group.

This would be an opportunity for women to act as experts in relation to their own safety, which can be a very empowering process. It provides opportunity for women to take part with local decision-making on publicly discuss, clarify and raise awareness about the issue of women's safety and inclusion in cities.

When conducting a safety audit there are certain elements to consider which contribute to create safety or vulnerability. Further, it helps to identify possible actions which should be taken. It makes public awareness to implement these actions in local and policy level.

Safety audit can be held for a group of women within a particular area, including residents, users of the area and visitors.

Factors which could explore while conducting a safety audit

1. Lighting –

Important fact for the safety of passengers is how well the area where it up by street lamps at dark evenings and night. Light should be evenly distributed through walkways. Tree canopies, shelters should not cover the light.

2. Signage –

Signages are very important to knowing where you are and where you are going. Maps or Directions indication sign boards should not be disturbed by other structures.

3. Visibility –

Seeing and being seen is most important to feel safety. Dark, isolated corners, can create problematic situations when a lady alone.

4. Isolation –

How busy the area is and hearing and being heard by surrounding people is important to feel safety within the city. Lonely pathway, abundant or dilapidated buildings make the feeling of vulnerability to expose to some kind of trouble.

5. Escape routes –

Being able to escape and get help is the most important fact in the emergency of a victimized woman. Are there telephone facilities, is there a possibility to rush to people there around, area there any connections to public areas within close proximity are important facts in safety of a urban woman.

6. Maintenance –

Even if there are various facilities those should be well maintained to provide better conditions for the public. Garbage collection, regular cleaning of public toilets, proper maintenance of road paving, regular maintenance and replacement of broken street lights like that periodic maintenance should be held to safe physical condition within the city.

7. Overcrowding –

Un-efficient public transportation facilities make overcrowded situations and those circumstances make most unpleasant harassments for the women.

8. Familiarity –

Public places should make a feeling of welcome entry to women. This familiarity makes safety feeling for women.

(Source: O’Leary R., Viswanath K., (July 2011)

Chapter - 4

Case Study

Chapter 4: Case study

4.1 Introduction of research methodology

Purpose of conducting this survey is about women's safety in public spaces. By safety, mean safe from being harassed, assaulted or attacked because she is a woman. The research methodology was designed on interview and questionnaire focused on a randomly selected woman or girls in Nugegoda City.

Questionnaire survey focused to identify woman's perspective no their own safety within the city or on public space. The survey targeted on 2 main categories of women.

- Newly visitors to the city
- Regular companions to the city

Here survey focused to identify how both categories of them could identify the city and how extent they feel it as safe from being there as a woman. Here special consideration to select all women observing as they were alone or with children or with the ladies. Here women who were there under security of men were not taken into observation. Because of the purpose of this survey is to identify perceptions of women feel safe or unsafe in an urban environment.

First few questions were focused to identify her as a stranger, regular visitor or a resident of the city. Then get ideas about what kind of feeling do they have regarding the safety within the city and reasons to feel as such safe or unsafe situation. Then questionnaire survey focused to identify what type of harassment does they faced with public place or public transportation. How often do they face this kind of situations or is there particular time period to face these types of difficulties within the day. Finally gets some idea about what kind of action or precautions taken by her to pretend from such annoying.

Selected case study area was urban city Nugegoda. Nugegoda city was situated in close proximity to the commercial capital of Colombo. Basically Nugegoda city is popular for various categories of activities. Mainly it is more commercial city. More fashion shops available all over the city. Therefore, it is well popular among young crowd and especially for women. Secondly, it is popular as an educational hub. Because of there are well known private tuition classes and government schools within the city limits. Therefore, comparatively higher percentages of young student crowd enter into the city every day. Other than that there are many government and private offices situate in the city. Therefore, most of outside employers enter into the city daily for job opportunities.

A city located at important location and it connects mainly with most urban and commercial sub cities by close proximity. Therefore, many who need to reach to those destinations use Nugegoda city as a transportation hub. They enter into the city, get into another mode of transportation like bus or a train and go to another city. Therefore, interconnection of transportation modes is very important fact for the general public. But there are various issues regarding basic facilities required by the passengers. In this study going to analyze these issues and need to identify what kind of solutions could be applied to overcome those matters.



Fig; 10 – Nugegoda city linkage to outer cities
[Source: by author]

Table 1. Numbers of interviews were done in each case study area

Survey area	Day time		At Dusk	
	New visitors	Regular visitors	New visitors	Regular visitors
Overhead Bridge	15	25	6	34
Railway crossing	2	8	1	9
Bus stand	12	18	5	25
Public supermarket	1	14	-	15
Samudradevi Mawatha	3	27	-	8
Station Lane	-	25	-	25
Railway Avenue	4	16	2	12
TOTAL	37	133	14	128
312	170		142	

4.2 Analysis of the Collective data

Women and men experience the public realm differently and feeling of fear or safety also relatively different for both categories. This depends on location, time of the day, mode of transportation or who were there around them. Women always have mental list, which indicates do's and do not's in an urban realm which directly affect their lifestyle and daily routine.

Three main considerations focused on this audit such as

4.2.1 Women's safety when using public transportation

4.2.2 Availability and access to basic services

4.2.3 Women's safety and satisfaction on physical comfortability in public realm

Mobility of the urban public realm is the most important aspect for the user of the city. Availability of secure transportation mode is the key aspect to use the city by the general public. Here personal transport modes used women are always secured by public harassment accept road accidents. But when they also get out of their private

vehicle and walk alone the public realm without security of men they would also expose to difficulties or nuisance.

Mobility of the urban public realm is the most important aspect, but public transportation users are the most victims who suffered from various nuisances all the time. Not only within the public transportation, but also transportation hubs, shopping centers, parks, lonely residential areas are also most vulnerable to high rate of exposing for the harassments.

Availability of basic services is the key importance for the women to feel comfortable in urban space. Well maintained public toilets need to be there in close proximity to the public realm and it should be easily found and should feel safe to access. Pedestrian paths need to be well paved without, full of holes or pile of rocks all over. Broken steps, improperly covered manholes or drainage lines, muddy areas make uncomfortability to passengers and also course to happen accidents and injuries.

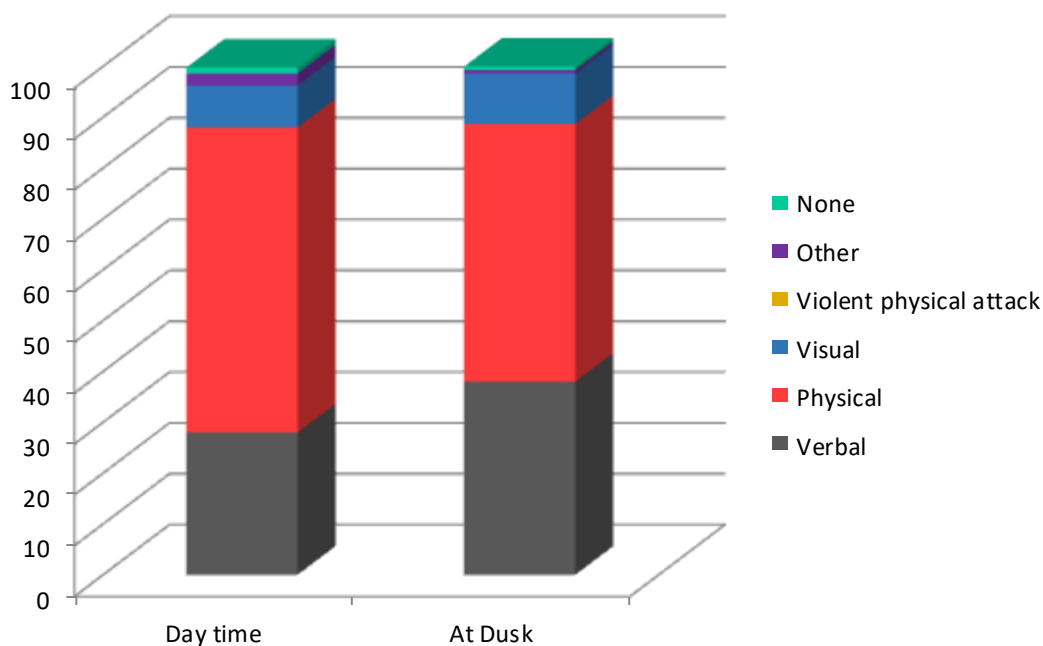
4.2.1 Responses based on women's safety on public transportation

Public transportation provides very lack of safe travelling for women or girl all over the city. 99% of ladies said they have immense of unpleasant experiences occurred in public transportation. Most of this happens in buses and few of them indicate even in train this kind of harassments taken place when it is crowded with people. When in buses not only by passengers, but also by some conductors, sellers inside bus touching, unpleasant interruptions were done when standing or even in seated.

Very little amounts of women arise against this kind of improper conduct because they fear of reaction by men or shamed to be highlighted middle of public to expose being harassed by men. Most frequently never or seldom other men represent to protect victim ladies to protect from nuisance.

	Verbal	Physical	Visual	Violent physical attack	Other	None
Day time	28%	60%	8.24%	0%	2.35%	1.17%
At Dusk	38%	50.7%	9.86%	0%	0.7%	0.7%

Table 2. The percentage of responses based on women's safety on public transportation



Graph 1. The percentage of responses based on women's safety on public transportation

Above analytical data indicate that many of the women who use public transportation faced with some kind of physical, verbal or mental harassment. Mothers interviewed in the city stated that they do not let their girls alone on public transportation just because of they knew what kind of child abuses happen in public places or in public transportation. Those little girls who were with their parents do not report feeling unsafe in public place because they are always in the presence of someone else taking care of them.

Even if city consists with better bus transportation system there is comparatively lacking of rail transportation facility. The main problem of rail transportation was a single line of the rail system. Therefore, the comparatively very

limited number of trains travels daily. Because of this in the morning in peak hours all trains run towards the Colombo city and in the evening peak hours there are trains only coming from Colombo. That means train facility only focused on commuters who daily travel to Colombo city and in the evening time who come back from Colombo city. Therefore, people who work in Nugegoda come from the Colombo area could not travel by train directly to Nugegoda. They always have to get into public bus transportation. If there was dual lines of railway system public transportation system would be more efficient for the passengers.

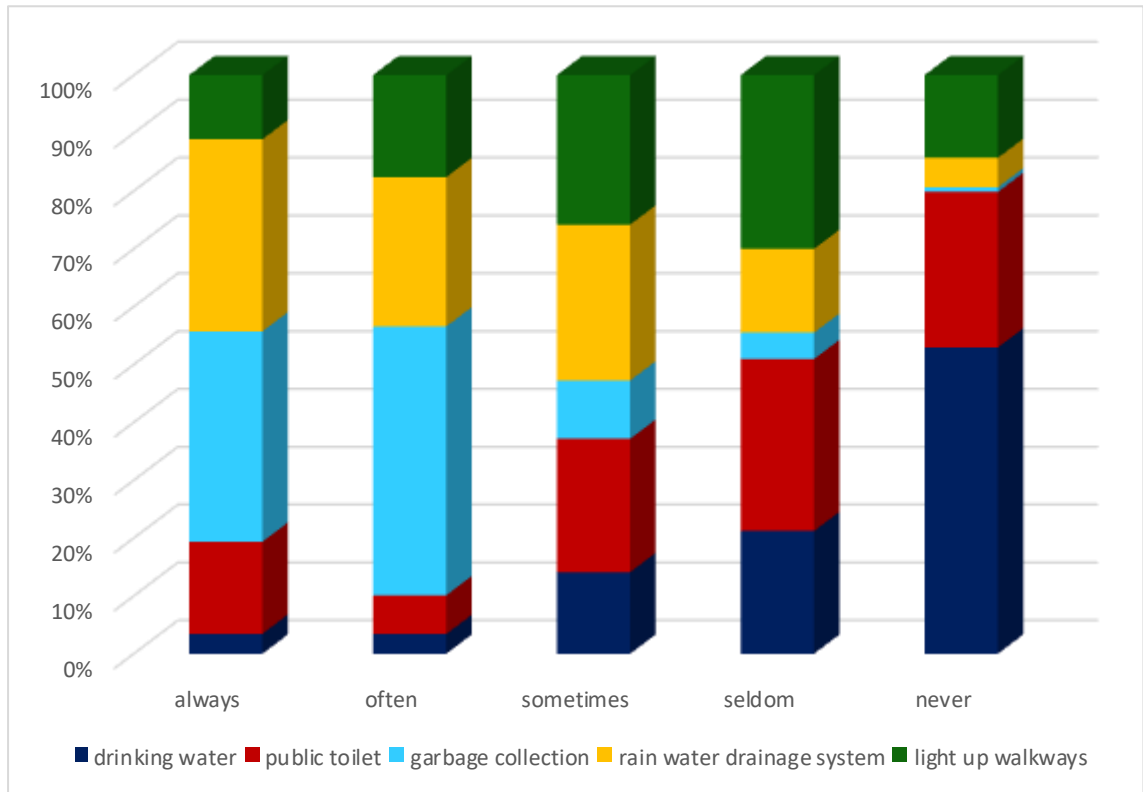
4.2.2 Availability and access to basic services

Basic services are the human right to be obtained by the general public. In urban design, planning process and it is important to make the linkage between availability, accessibility, affordability and adequacy of basic services. In urban design basic services are consist with drinking water, availability public toilet facilities and sanitation of them, garbage collection, and proper rain water drainage system.

Public water supply provided for the Nugegoda town. But there is no common taps or any other free drinking water facilities for pedestrians. Most of the women said they bring water from home from bottles. Because even if there was drinking water provide tap they do not satisfy about freshness of water. Some of them said they buy bottled water from the shops when they need water to drink. Some of the ladies don't even notice any common water tap in the city. Drinking water supply needs to be established with the proper situation to trust people drink safe water for free.

	Drinking water (%)	Public toilet (%)	Garbage collection (%)	Rainwater drainage system (%)	Waiting or resting spaces (%)
Always	2.5	11.5	26.3	24	8.01
Often	4.4	8.65	59.9	33.3	22.7
Sometimes	11.2	18.3	8.01	21.4	20.5
Seldom	22.4	31.4	4.8	15.3	31.7
Never	59.3	30.1	0.9	5.7	16

Table 3. The percentage of responses based on availability and access to basic services



Graph 3. The percentage of responses based on availability and access to basic services

Considering above data analysis can identify how extant basic services available to the general public.

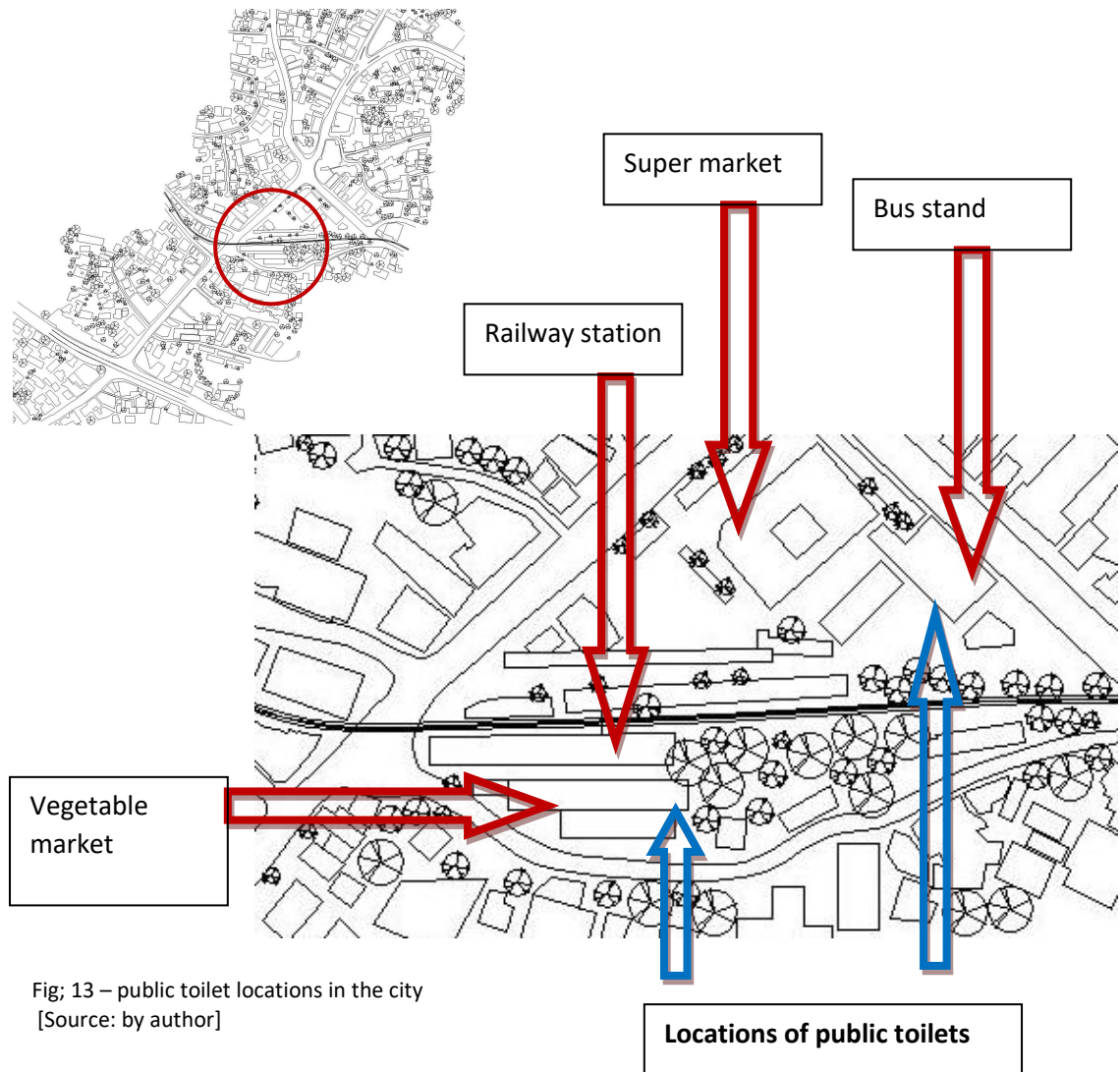
As same as public drinking water facility public toilet facility also very limited within the city limits. Most of women & girl, don't know where toilet facilities provided in the city is. In Nugegoda city one public toilet is available at corner of the public market. It's comparatively far away from main road & the more public gathering area.



Fig; 11– sellers, vehicle drivers & other scamps hang Around in public areas.
[Source: by author]



Fig; 12 – public toilets at corner of market
[Source: by author]



Fig; 13 – public toilet locations in the city
 [Source: by author]

No glimpse for general public to find the way to go there. Other than that it's in very low level of hygienic condition. Women do not like to go there because it's at the end of the public market. So there are sellers, vehicle drivers & other scamps hang around this area.

Next public toilet situates at the Nugegoda public bus stand. It is very low sanitation. The bus stand area became unpleasant with the odor of a public toilet. Most of the public do not use these toilets.

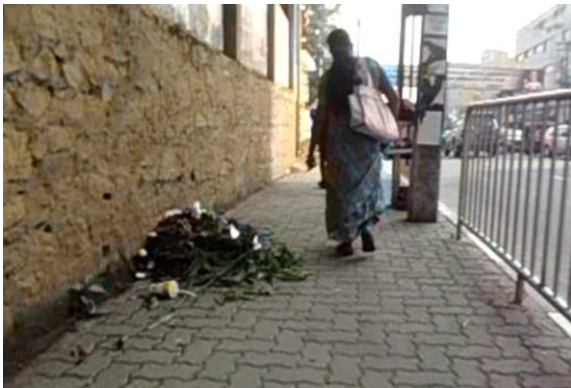


Fig; 14 – public toilets at bus stand
 [Source: by author]



Fig; 15& 16 – fish market areas are very unclean and bad smell make unpesent for women to walk
[Source: by author]

City doesn't show much with garbage. Early in the morning all garbage collects by municipality garbage collectors. But there is lack of garbage collection bins. Therefore, people throw their things by the sides of pavement & or side of roads. Therefore, there should be proper garbage collection bin system closer to the highly public gathering area to provide much clean public area.



Fig; 17 – no garbage collection bins
[Source: by author]



Fig;18 – garbage collects by municipality garbage collectors
[Source: by author]

There is a proper drainage system, but because of maintenance & the low quality of road & pavement paving system. There are water stagnating situations & make a disturbance to continuous pedestrian walking pattern.



Fig; 19– Walk ways become muddy in rainy days.
[Source: by author]

In Nugegoda city there is very limited pedestrian gathering spaces & resting places only in front of railway station & the public supermarket. There is a seating space in front of railway station open space use by people, but comparatively less usage by women. When we interview the people there opinion was its too open to the road, no shade, no proper condition of seating arrangement etc.



Fig; 20 – seating space in front of railway station
[Source: by author]



Fig; 21– women chose their own comfortable place
For gathering
[Source: by author]

Seating spaces situated in front of the supermarket occupied by beggars. Therefore, no women used to use this space. The women said it's unclean by crow shit. Some of them scared about beggars. At evening in a dark time beggars sit there suddenly come out from bush & ask for money. Most of the ladies were terrified about this. The shrub had grown around the seat above eye level. Therefore, they can't see around except things in front of them. Therefore it feels unsafe for women to wait there.



Fig; 22 – Seating spaces situated in front of super market occupied by beggars.
[Source: by author]



Fig:23 – Seating spaces situated in front of super market occupied by beggars.
[Source: by author]

4.2.3 Women’s safety and satisfaction on physical comfortability in public realm

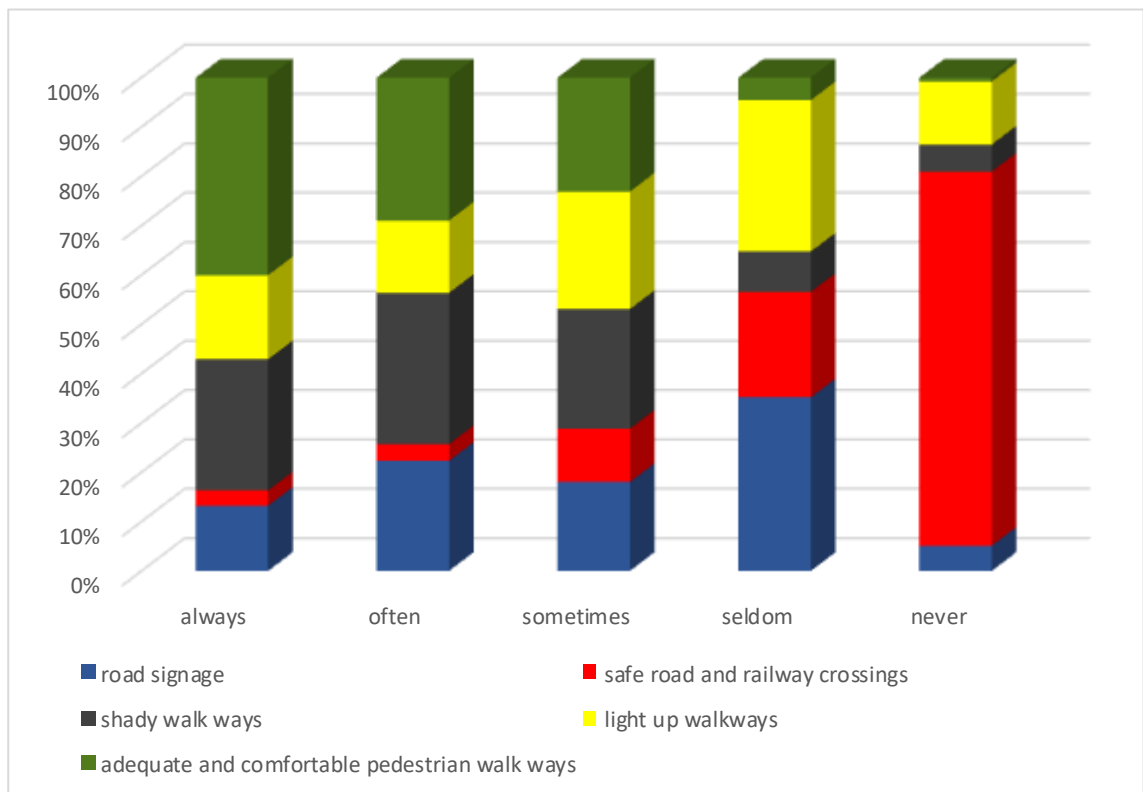
Physical comfortability is the most important aspect in a pedestrian friendly urban environment. Women need physical comfortability more than men comparatively because of their body limitations and as caregivers to children, carrying goods or as pregnant ladies.

Adequate and comfortable pedestrian walkways, continuous power supply, light up walkways at night, road signage, safe road and railway crossings, pedestrian overhead crossings, shady walkways, waiting or resting spaces are the basic elements which could be available at urban setting to feel comfortable for the public. If there are problems of these it becomes unsafe condition of the women.

Therefore, maybe they expose to harassments or accidents. If not women were used to reduce to attendance of social activities in the city. That will affect to sustainability of social network. Therefore, it is very important to facilitate these public amenities related to the requirement of the public need.

	Road signage (%)	Safe road and railway crossings (%)	Shady walk ways (%)	Light up walkways (%)	Adequate and comfortable pedestrian walkways (%)
Always	10.8	2.5	21.7	13.9	32.7
Often	29.1	4.4	40	19.1	37.8
Sometimes	18.7	11.2	25.2	24.7	24
Seldom	36.9	22.4	8.6	32.2	4.8
Never	4	59.3	4.3	10	0.6

Table 4. The percentage of responses based on safety and satisfaction on physical comfortability in the public realm



Graph 4. Percentage of responses based on safety and satisfaction on physical comfortability in public realm

Safe road and railway crossings

Road signages are available within the city. But when talking with women they said there are problem with light signals of pedestrian crossing. It is not working properly in most of the day. So it's difficult to take opportunity for them to cross the road. Some ladies said they waited until a man come to cross the road. Because her fear about facing with an accident by fast moving vehicles.



Fig; 24– no pedestrian crossing marked for sub roads.

[Source: by author]



Fig; 25 – wider roads difficult to cross within few seconds by ladies.

[Source: by author]



Fig; 26– no adequate pedestrian walk way near the Rail crossing.

[Source: by author]



Fig; 27 – lack of pedestrian overhead bridge cause Pedestrians met with accidents.

[Source: by author]



Fig; 28 & 29 – pedestrian walkway across the railway line neglected

[Source: by author]



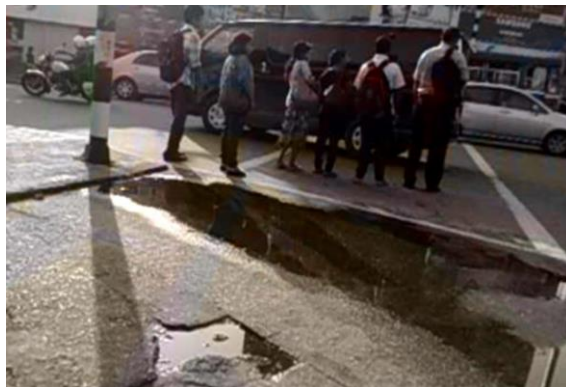
Because the low quality of preparation methods of public amenities it creates uncomfortable situations for pedestrians. For example, most of the pedestrian crossing starting point was filled with rain water in rainy days.



Fig; 30 - pedestrian crossing starting point was filled with rain water in rainy days.
[Source: by author]



Fig; 31 - pedestrian crossing starting point was filled with rain water in rainy days.
[Source: by author]



Fig; 32 - pedestrians stand on roads and its would Course dangerous of accident.
[Source: by author]



Fig; 33 – Bus stop areas filled with rain water in rainy days.
[Source: by author]

When the bus stops consist with mud buses smash mud, water all around and passengers difficult to get into buses.

Near the overhead bridge there are provisions to cross the road. Women say they feel so difficult to cross roads because they are very wide. But only near overhead bridge there is waiting space middle of roads. Therefore people say they can wait if they need rest to cross other part of the road.



Fig; 34 – sub divided road crossing make easy
For pedestrians to cross the road.
[Source: by author]



Fig; 35 – wait when they need rest before cross other
part of road.
[Source: by author]

But in four-way junction near shopping compels feel very uncomfortable for women. Because that wide road should cross at ones because there is no road dividing paved space in the middle. If there are no policemen to stop vehicles it's too hard to cross this road, especially for older women or women with children.



Fig36 – wider roads difficult to cross within few
seconds.
[Source: by author]

Adequate and comfortable pedestrian walkways

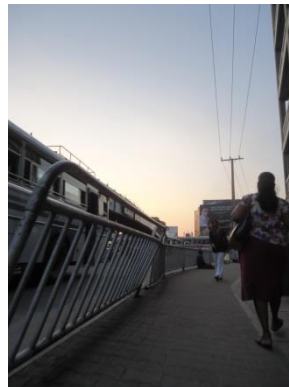
In rainy days bus stop areas fill with muddy water and most of the times pedestrian face difficulties.



Fig; 37 – Walk ways become muddy in rainy days.

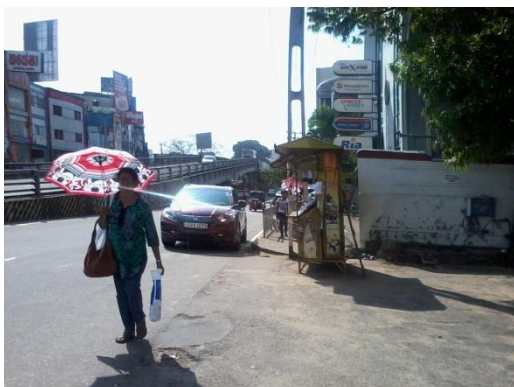
[Source: by author]

Most of the pedestrian walkways were disturbed by various structures. The road widened without considering adequate pedestrian walkways. Paving were removed for some repairs & they were not replaced again. Therefore, there are some difficulties in the pedestrian walk in physical comfortability.



Fig; 38,39 & 40 - Walk ways disturbed by various structures

[Source: by author]



Fig; 41 - Road widened without considering adequate pedestrian walk ways.

[Source: by author]



Fig; 42 - Paving were removed for some repairs & they were not replaced again.

[Source: by author]

Shady walkways

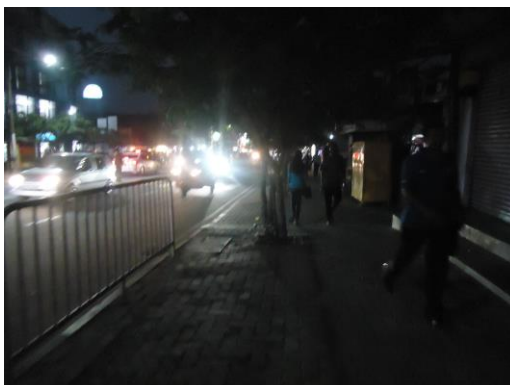
Some of pedestrian paths were well shaded by the tree canopies. Therefore, it's very comfortable to walk even in the hot sun. But some pedestrian paths do not have any shady structures for comfortable walking. But some of those shady walking becomes dark at night time because even if there are light posts tree canopy make shade to pedestrian path & make unsafe condition for pedestrians in dark times.



Fig; 43 & 44 – pedestrian paths were well shaded by the tree canopies.
[Source: by author]

Light up walkways

There should be a lower level lighting system for tree canopy shaded pedestrian path. Then it will light-up at dark times. Therefore, even in the day and night times avenue is well acted by pedestrians. Sellers, who were there by the side of this tree canopy, said that tree shade more profitable for them because most of the ladies, who were the main customers of their fashion and cosmetic shops, walk along this area because of the shade.



Fig; 45– there is no lower level lighting arrangement shady tree canopy consist walkway.
[Source: by author]



Fig; 46– poorly lit up main bus stop at main road
[Source: by author]

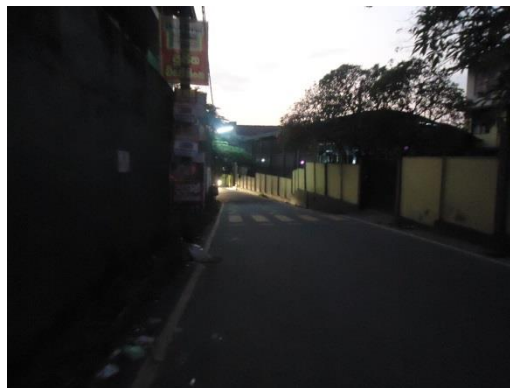


Fig; 47– commercial building front facades make clearly Visible inside and out to interact with pedestrian walkway.
[Source: by author]

Compared to the main roads sub roads, of which runs towards the inner area feel very lonely at evening time. High boundary walls totally disconnect side space with road. Therefore it feels so lonely & unsafe for pedestrian. Some roads are not well lighted. Most of the women said they used to travel by taxi after 6.00 p.m. along these roads. Even if they do not have economic affordability to spend money on taxies women care about their personal safety than saving money, because lonely road makes the feeling of unsafe for them.



Fig; 48&49– sub roads of which runs towards inner area feel very lonely in evening time.
[Source: by author]



Fig, 50– sub roads not properly lit up .



Fig51 & 52– homeless women in the city
[Source: by author]

Urban poor women in the city are most vulnerable to expose much harassment. This problem could be overcome by engagement of government or private organization help by providing low income affordable housing and by introducing self-sustaining employment system.



Fig53– women with lot of goods
[Source: by author]

Fig54– women with lot of goods
[Source: by author]

There is lack of waiting and resting spaces around commercial areas. Bus stops also do not consist with the seating arrangement. Therefore, women always become so tired of walking.



Fig55 & 56 – supermarket building does not attract by public
[Source: by author]

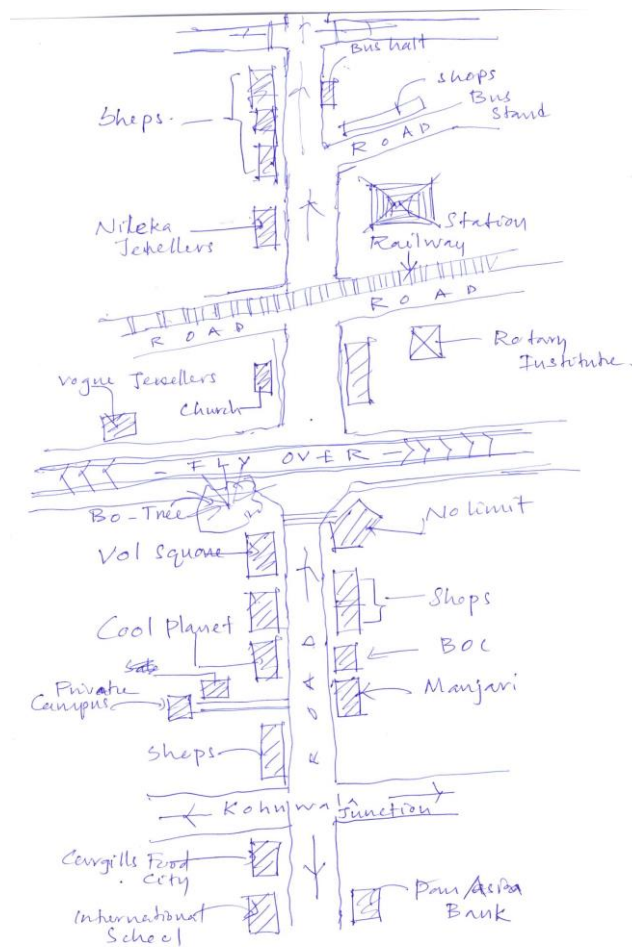


Fig57- mind map done by young lady who come to city regularly.
[Source: by author]

Above mind map is drawn by a young lady who daily come to the Nugegoda city for the occupation. She could fairly identify road network. Few mistakes which were done with her was could not correctly identify the exact location of the railway station. She indicates it wrong opposite side of the railway line. This might be because of she was not much concern about a railway station because she could not use it for daily traveling. She had highlighted many banks, jewelry shops, fashion shops, but does not notice the main supermarket building on her mind map. This indicates young women would not use to go to this shopping building because of its more introverted arrangement. Women do not feel comfortable on their safety to go for shopping in it.

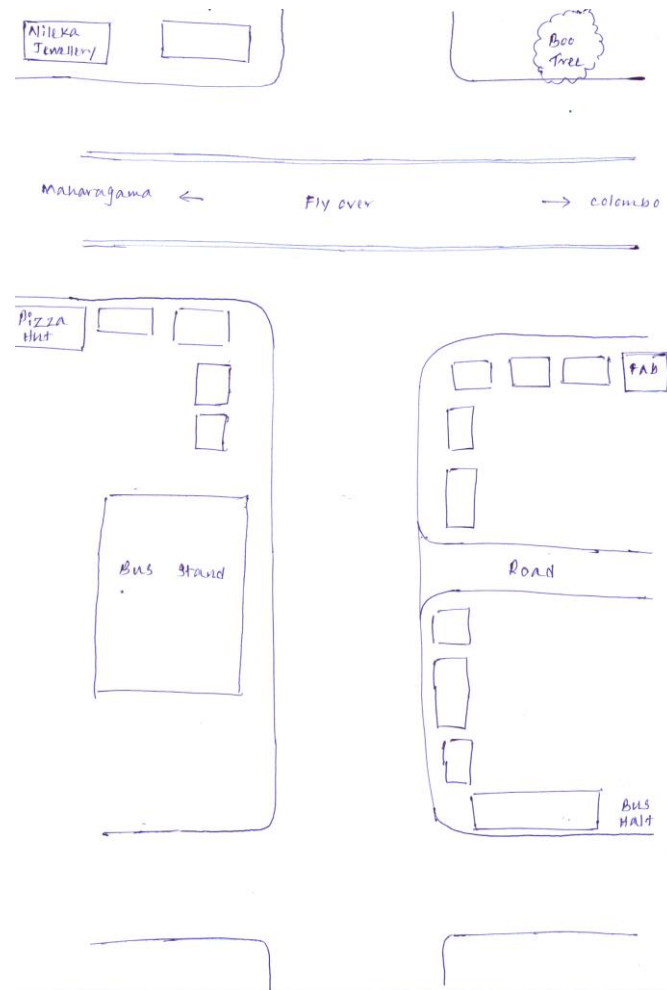


Fig58-mind map done by lady who visits the city most recently
 [Source: by author]

Above mind map was done by a lady who was a newcomer to the city. Because she came for the occupation from outside of Nugegoda city. She could identify very few landmarks as Flyover and Bo-tree. Less number of buildings was identified. She was not even notice the railway line. This mind map expresses how difficult newly visitors find the way and places which they need.

Conclusion

Creating women and girl friendly city is a basic and particular requirement. It is obvious human right. Today this topic takes into discussion on worldwide. Developing countries and also developed countries concern to create gender equality to provide better living conditions for women.

Women are different from men. They have different characteristics on society. They play various roles in the community. Even if they have many responsibilities in society do not care about what actually need for this urban woman.

To provide inclusive convenient and safe place for women needing to identify what are the needs of urban women in urban settings. When developing the city need to understand women's nature and their ways of usage in urban space. Misunderstanding and forgetting women's urban needs is a reason for arises difficulties in urban settings.

Municipalities or urban designers should concern this gender equality in age, income, physical disabilities or difficulties. If women involve or participate in development or if get their concerns about what they need in urban setting it will be very helpful to create much correct planning and design tools.

To facilitate women's daily tasks built environment quality and functionality would be convenient in urban settings. Women have the primary responsibilities of shaping the future of the society. Therefore, our environment should care about its women as same as it cares about the economy. Design approach and design tools should concern to increase women access to the city and its services. City make convenient and easy to access for women by providing women friendly neighborhoods, and better transportation facilities to the city from the neighborhood. Mixed used developments facilitate services and needs in close proximity

Development of public amenities is the important aspect to balance women's responsibilities as workers, mothers, and housekeepers. More convenient built environment support women to access public spaces, cultural centers, and provide women with leisure time. Landscaping, outdoor furniture formation of the physical arrangement of walkways, road crossings should be convenient for women.

City will eliminates spatial perception in women friendly city when women can enjoy public spaces in urban setting at any time of the day without fear of safety or threat.

It can create safe, physically comfortable working environment for the general public it will help to uplift physical healthiness' of the public. They need not to find additional time to go to the gym or parks to get exercise. And they also don't need to spend lots of money on taxis. They can walk to their homes from the city as exercise. But the presents it feels very unsafe to walk therefore women could not have the ability to walk alone.

Women have very limited time to spend as leisure time. Because of various responsibilities in busy life, they don't have proper exercise for healthy living. Therefore, they become so fatten and expose to many health diseases because of lack of exercise to their bodies.

Blind walls around sub roads make the very lonely situation on the road. Therefore, maybe government development regulations should be revised to avoid solid shatters or boundary walls by replacing visible permeable security grilles ensuring pedestrian can see through the barrios. It overcomes by see or be seen by surround. So walking women do not feel they are alone on the road.

Unobstructed views, appropriate lighting, maintaining permeability through visual or physical barriers are discouraging crime by preventing anti-social activities and discourage crimes. Therefore, designer should avoid blind corners and niches. Clear visibility should be maintained at high risk. Pedestrians can see what is around there by continuing the visual link. Pedestrians need to see what is at the next end and then they can consider whether there is a risk or not. Underpasses, tunnels, corridors need to be clearly visible.

If there are short cut create by always blind walls of those sides could create with openings of doors or windows. Public car parks also should not be lonely places.

Landscape objects should be maintained. Tree awning should be trimmed & matures should remove to create walkways without visual & physical disturbance. When landscaping in urban areas landscape elements & tree should be carefully selected by size & type of them. This should not be distributed to pedestrian

movement or activities in the city. Entrances or exits should not be blocked by landscape elements. Texture or pattern of the floors, walls, and guard rails should not be disturbing the activity pattern of commuters.

City lighting system is the most imperative aspect in reduction of crime. The good lighting system contributes to the safety of women, because, the well-lit zones make sense of safety. In the design stage lighting should be well concern to how to avoid dark corners & dark tree shadows awnings. Other than that regular maintenance, operation of lighting equipment & replacing broken items should not be regulated. By providing better lighting can reduce anti-social activities within the city which make dangerous situations for women. Light location, number of lights, appropriate. Light fixtures & focusing angle need to be well design by urban designers. Lighting can create a dramatic situation in urban spaces at night. Therefore, it could attract more public for night life activities. If city active with more public it vanishes the feeling of unsafely for women. They also can enjoy the city than stressed on threat of safety.

Navigation or sense of direction is an essential need for women in unknown domain. Signages are essential components in urban design to provide a fair idea of location & direct where to go.

Clear & accessible place should select to place the way finding signage were mostly public gather or entrance and exits of transportation hubs. These way finding maps indicate where you are now highlighting the place where sign board. Placed & then people quickly find their destination without unnecessary delay. This is especially important for women to find the way without facing themselves at risk. These signs should indicate in main languages use by society with appropriate font / size & clear contrasting colour because most of the public could not familiar with international languages.

These signs should be illuminating at night because they are essential for night use. This way finding signs should not be covered by bill board's telephone structure or vegetation etc.

The sign should face the general flow of pedestrian traffic & they should indicate public telephone points, public toilets, water or taxi parks, etc. Regular maintenance need for these signs a head by avoiding sticking bills, damaging to their.

Compatible mixed land use encourages the greater level of natural surveillance. Both residential & nonresidential activities increase different activities taken place during the day.

When designing urban builders special interior of public building as supper market. Parking lots and transportation hubs are essential to avoid isolated corners to reduce vulnerable unsecured spaces. These safety issues need to be considered at the first stage of building concept design. Entrance & front facades of buildings should be responding to the pedestrian path, creating lobbies which interact with public spaces, create outdoor gathering spaces, and use glass facades to interact visual connection with inside & out. These aspects invite more public to the commercial building which locates by the sides of pedestrian walk. Especially women attract these inviting qualities consist building because they feel safer by seen more public in their spaces.

Strategies to overcome the goal

By assessing the situation can develop an action plan and can evaluate the plan. Finally, it needs to be reviewed periodically the plan to evaluate effectiveness of its successfulness.

To overcome above target data collection methods needs to be crucial to gather a maximum of details specific to men and women and the way each uses urban space in future these data collection methods need to be based on segregation of age, income, ethnicity and physical abilities.

Then designers can identify more women specific need by analyzing collected data. These developments should be focused on long term benefits.

Primary recommendations to overcome spatial perception of women friendly city design.

- Women do not use spaces as same manner of men usage of urban space.
- Women's needs need to be taken into early consideration when in the planning process.
- Mainly this development process needs to focus on convenience, safety, and accessibility for woman.
- Space planning actually needs to be target related to the gender.
- Women ideas need to be involved in planning process.
- Transportation system needs to be effective and realistic to provide women safety and accessibility.
- Changes and reshaping of built environment need to be implementing to provide safe and inclusive women friendly city.
- Further, this research implementation strategies need to be generate and take as base for urban planning and design practices.

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Annexures

Street survey questionnaire

Do you feel you can answer questions on women's safety in this area?

It will take less than 10 minutes.

1. How long have you lived in this city?

Longer than 5 years

1-5 years

Less than 1 year

Just arrived to the city

2. Why you come to the city today?

On the way to home

On the way to work place

On the way to study

For shopping

To meet someone

3. How often have you been to this area in the past one year?

Just once or rarely

Occasionally

Frequently or daily

4. What kind of personal safety risks do you feel when you are in this area.

(Tick all that apply)

None, I have no concerns

Sexual harassment, hassling, "eve teasing",

Stalking, touching, staring

Sexual assault or rape

Robbery or having money or possessions stolen

Murder

Other (Specify)

5. In this area which factors contribute you to feel unsafe?
Tick all that apply.

Poor lighting

Lack of way finding information

Poor maintenance of open public spaces

Crowded public transport systems

Lack of clean and safe public toilets

Lack of people in certain area

Lack of visibility

Alcohol drunk or drugs taken men

Lack of respect from men

Other (Specify)

6. Do any of these factors affect on your personal safety in this area?
Tick all that apply.

Being a woman

Being of a certain religion

Being of a certain race

Being from another country

Sexual orientation

Other (Specify)

7. What kind(s) of sexual harassment/ assault have you faced in public places?
Tick all that apply.

Verbal (comments, whistling etc.)

Physical (touching, feeling up, etc.)

Visual (staring, leering)

Violent physical attack

Other (Specify)

None

8. What kind(s) of sexual harassment/ assault have you faced in public transportation? Tick all that apply.

- Verbal (comments, whistling etc.)
- Physical (touching, feeling up, etc.)
- Visual (staring, leering)
- Violent physical attack
- Other (Specify)
- None

9. How often have you experienced such incidents in this area in the past year?

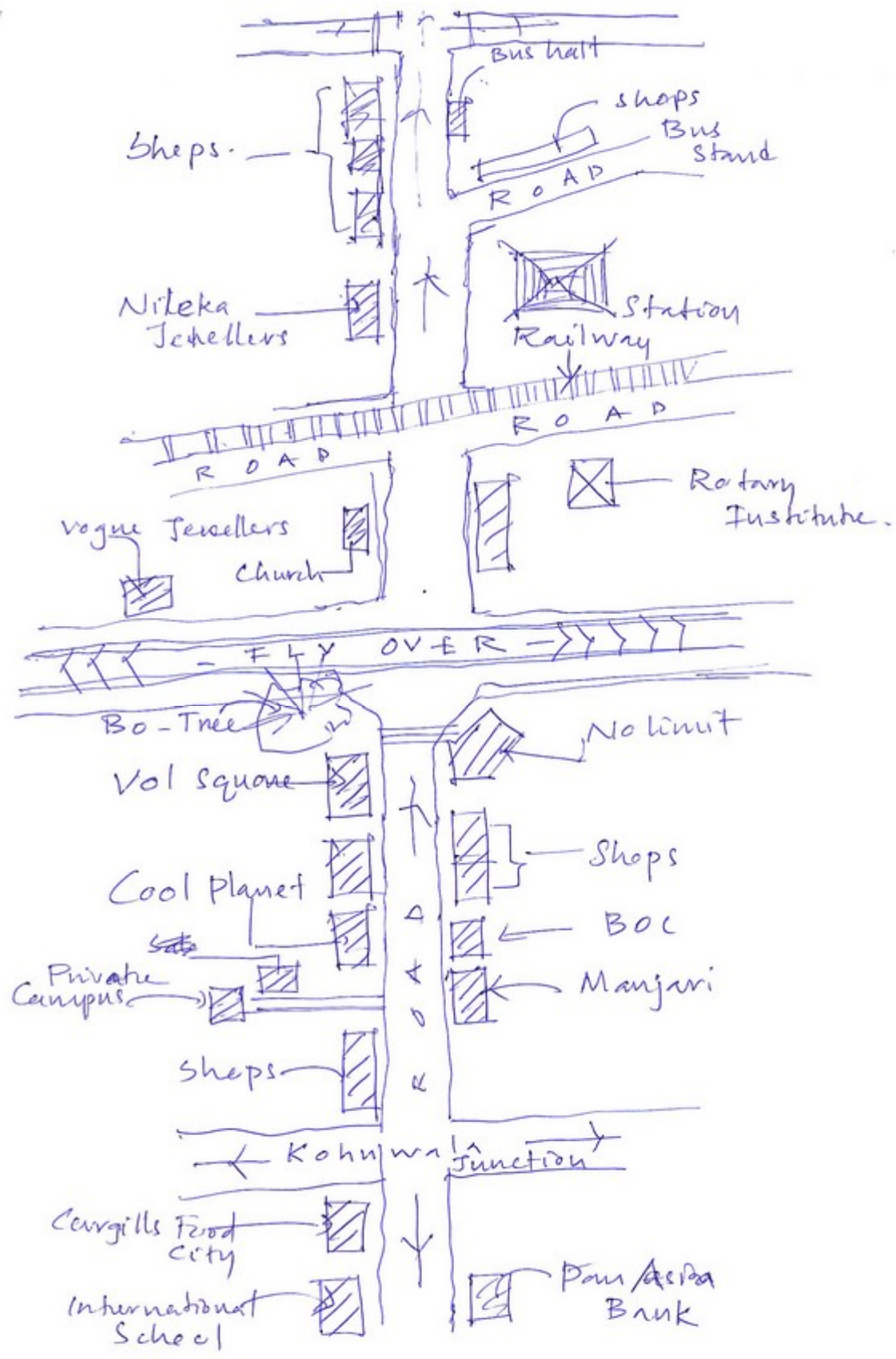
- Just once
- 2-5 times
- More than 5 times

10. At what time of the day did these occur?

- Day time
- After dark
- Both

11. What do you do any of the following to avoid sexual harassment? Tick all that apply.

- Avoid certain public spaces completely
- Avoid going out alone completely
- Avoid public transportation
- Avoid going out alone after dark
- Avoid going to crowded places
- Avoid going to secluded places
- Avoid wearing certain clothes
- Carry items to protect myself
- No, I don't do anything
- Other (Specify)





Maharagama ← Fly over → Colombo

