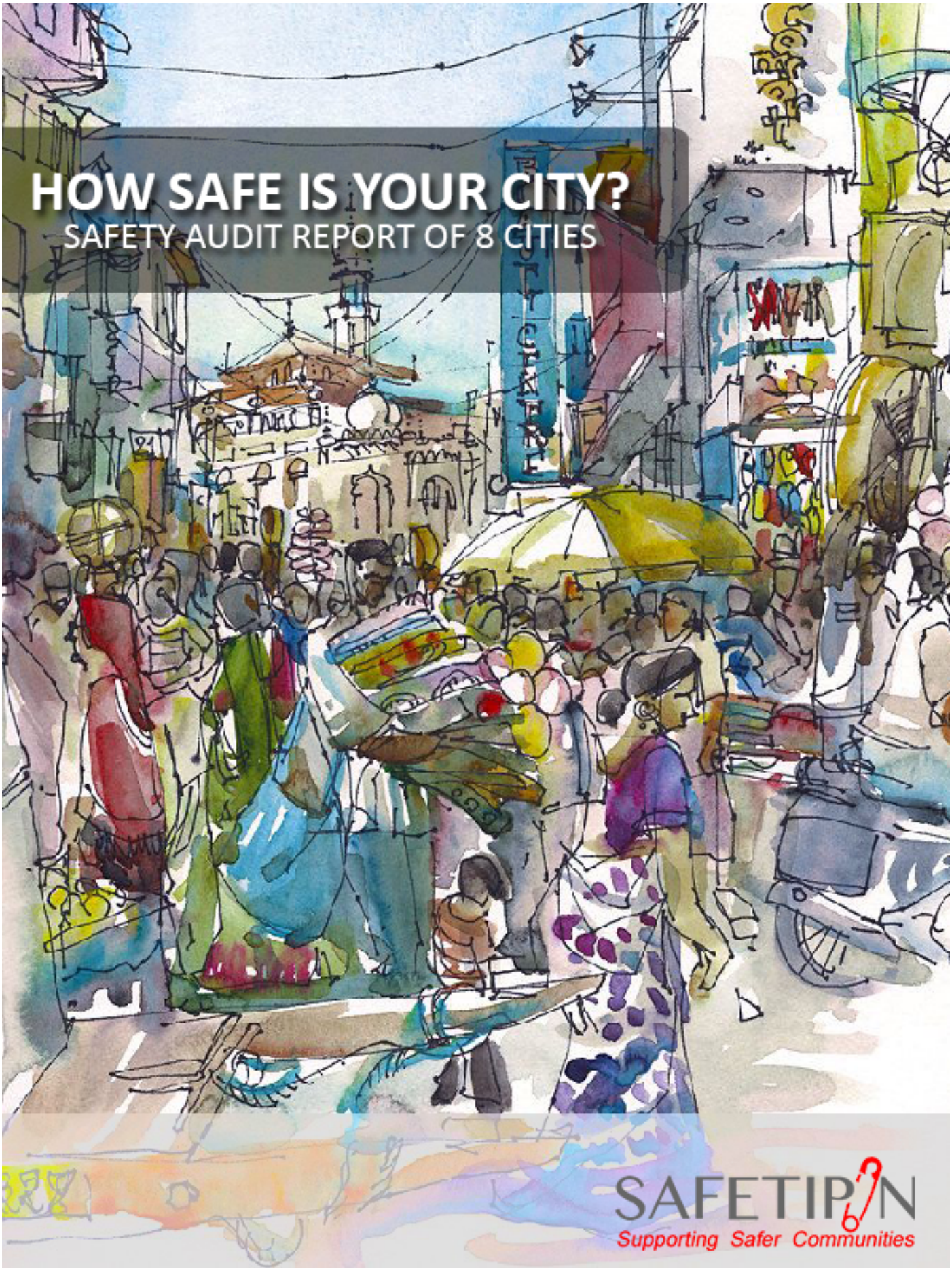

HOW SAFE IS YOUR CITY?

SAFETY AUDIT REPORT OF 8 CITIES

SAFETIPIN

Supporting Safer Communities

HOW SAFE IS YOUR CITY?
Safety audit report of 8 cities

New Delhi, 2015

UKaid from the British people
Knowledge Partnership Programme
The Asia Foundation
the David & Lucile Packard FOUNDATION

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HOW SAFE IS YOUR CITY?
Safety audit report of 8 cities, 2015

Report published in June 2015

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Acknowledgments

Safetipin would like to acknowledge the generous support it has received from UK Aid and The Asia Foundation, which has enabled us to conduct pilot studies in eight cities across India.

We would also like to thank our partners in these eight cities who have supported data collection and analysis and added to the knowledge of the issue of women's safety in these cities. Their energy and cooperation has enabled a new technology to be effectively used for the purpose of making cities safer. The partners are:

Pune - ***Samyak*** led by Anand Pawar and Shankar Gawali,
Guwahati - ***North East Network*** led by Bhaswati Deka and Sheetal Sharma,
Jaipur - ***Vishakha*** led by Bharat and Shabhnam Khan,
Chennai- ***Prajnya*** led by Anupama Srinivasan and Anusha Parthasarathy,
Kerala - ***Sakhi Resource Centre for Women*** led by G. Rejitha and Anna Mini
Delhi - ***Jagori*** led by Suneeta Dhar and Prabhleen Tuteja.

Finally, we would like to thank the many volunteers and citizens groups who have come forward and used Safetipin to audit their neighborhoods, university campuses, offices and public spaces in their cities with the hope that change will happen through this process.

Summary

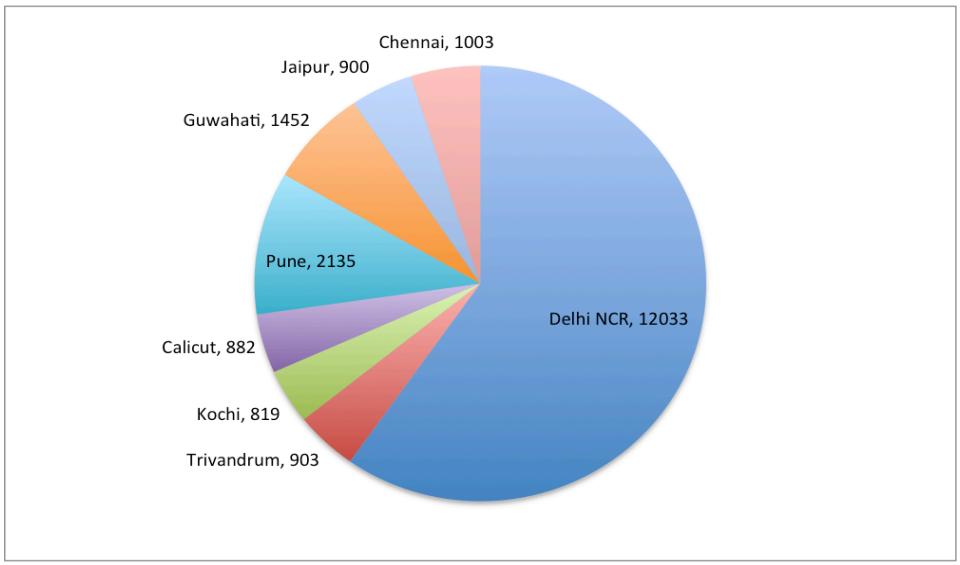
The rapid pace and nature of urbanization taking place throughout the world has thrown up new challenges for governments, and their populations as well as social scientists and activists. Urban spaces provide new opportunities for people to build their homes and lives, but at the same time reinforce existing inequalities and often create new ones. There is increasing concern about women's safety in cities over the past few years.

Creating safety involves much more than just responding to violence. It is important to create the conditions by which women are able to move about safely and without fear of violence or assault. Research has shown that many factors play a role in determining women's access to the city including urban design and planning, community involvement, improved policing, usage of space etc.

Keeping this in mind, we developed the mobile app and online platform Safetipin which collects information about public spaces through a safety audit that can be done by anyone, anywhere in the world. In cities everywhere in the world, women's safety in public spaces is becoming a growing concern. Safetipin is a free app and can be downloaded from the App store or Google play. At the core of Safetipin is the safety audit that measures nine parameters including lighting, the state of the walk path, as well as the presence of people and specifically women, on the streets and 'eyes on the street'. Each audit appears as a pin on the map and is used to compute the Safety Score of an area.

This report examines the data from eight cities in India - Delhi, Kochi, Trivandrum, Calicut, Pune, Chennai, Guwahati and Jaipur. In all the cities, audits were done by trained volunteers over a period of a few months. Delhi being the place where Safetipin was introduced in 2013 has a much larger number of audits. In each city, a local NGO was a partner in the data collection and a minimum of 800 audits were conducted to provide enough data for analysis.

Graph 1: Number of safety audits carried out in each city

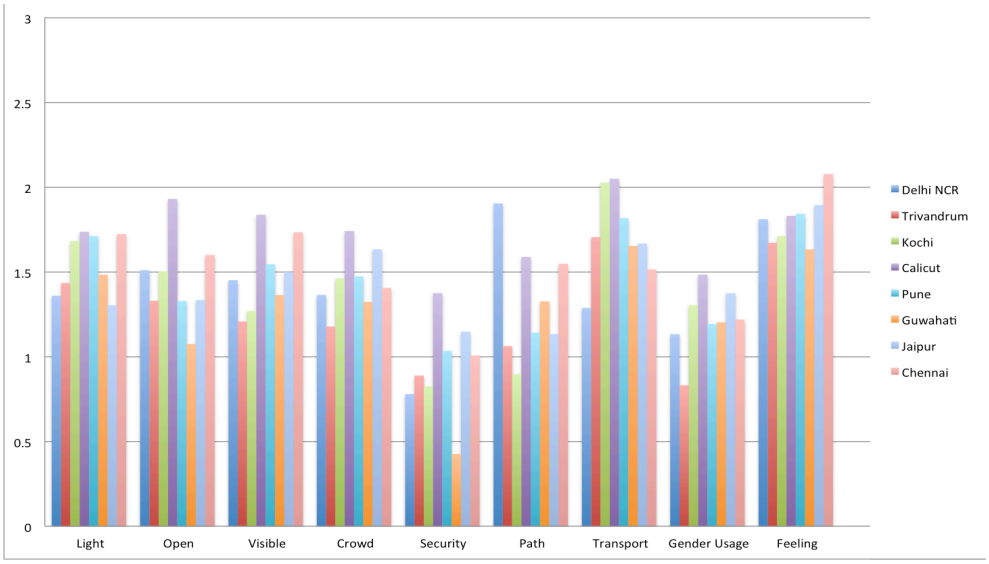


The data from each city is analysed in a separate chapter. The chapters analyse the data collected in each city to see the rating of the eight parameters that are being measured and the relation of each parameter to the feeling of safety. The cities all report different levels of security

and safety at different places. All the cities have some areas which are safer than others and the data tries to analyse the factors that lead to higher feelings of safety.

Across the cities, we can see that certain parameters were better than others. The findings show that security and gender usage were uniformly low across the different cities. Interestingly the overall feeling of safety was not too different between cities as the graph below shows. But we can also see that on other parameters there was quite a variation between cities. For example on the parameter of openness, the score in Guwahati and Calicut vary widely. Similarly in terms of walk path, Delhi has a very high score whereas Kochi and Trivandrum have much lower scores. On the other hand in terms of the availability of public transport, Kochi and Calicut rate higher than the other cities.

Graph 2: Average score of safety audit parameter in 8 cities



The data is delineated for each city in the following chapters to get a better understanding of the state of safety in our cities.

Introduction

The rapid pace and nature of urbanization taking place throughout the world has thrown up new challenges for governments, and their populations as well as social scientists and activists. Urban spaces provide new opportunities for people to build their homes and lives, but at the same time reinforce existing inequalities and often create new ones. There is increasing concern about women's safety in cities over the past few years. The fear of violence in public spaces affects the everyday lives of women as it restricts their movement and freedom to exert their right as citizens of the city – freedom to move, study, work, and leisure.

Creating safety involves much more than just responding to violence. It is important to create the conditions by which women are able to move about safely and without fear of violence or assault. Fear often plays a key role in women's experience and access to the city. Therefore in order to create greater levels of safety and comfort, both actual violence and the fear of violence need to be addressed. Research has shown that many factors play a role in determining women's access to the city including urban design and planning, community involvement, improved policing, usage of space etc. Research from different parts of the world show that women face sexual harassment on a regular basis in cities. In India, A study by Jagori in Delhi is 2010 revealed that 95% women had faced some form of sexual harassment in the past year. A similar study in Mumbai in 2012 also had similar results as also in Kerala. A 2008 study in Cairo showed that more than 50% women found that sexual harassment is a daily occurrence and a 2014 study in the US revealed that 65% women reported facing sexual harassment.

Keeping this in mind, we developed the mobile app and online platform Safetipin which collects information about public spaces through a safety audit that can be done by anyone, anywhere in the world. In cities everywhere in the world, women's safety in public spaces is becoming a growing concern. Safetipin is a free app and can be downloaded from the App store or Google play. At the core of Safetipin is the safety audit that measures nine parameters including lighting, the state of the walk path, as well as the presence of people and specifically women, on the streets and 'eyes on the street'. Each audit appears as a pin on the map and is used to compute the Safety Score of an area.

Safetipin has been designed both as a tool in the hands of individual women who can access information about safety in the city and as a method of collecting data on a large scale for city authorities to use for better planning and governance. An individual user can conduct a safety audit, pin places where she feels unsafe or has faced any form of harassment. She is also able to see all the information that has been uploaded by others and make informed decisions about moving around the city safely, visiting a new area and renting a place etc. Women (and men) can see the Safety Score of any place in the city and can also use it when they visit new cities.

But Safetipin also seeks to collect large scale information for helping city stakeholders improve safety using data. For the city authority, Safetipin provides large scale data that is crowd sourced and also provides a platform for interaction with citizens on their safety concerns.

The Safetipin audits measure nine parameters including lighting, the state of the walk path, as well as the presence of people and specifically women, on the streets and 'eyes on the street' , presence of security and nearness of public transportation.

How Does Safetipin Work

Safetipin is a map-based mobile phone application which works to make communities and cities safer by providing safety-related information collected by users and by trained auditors.

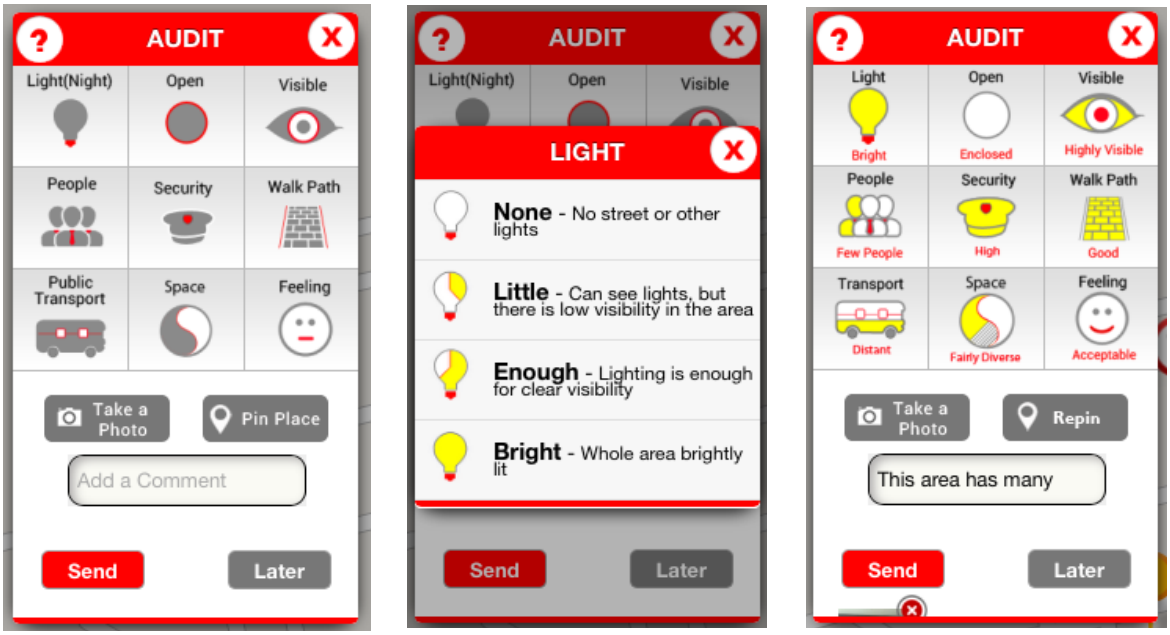
Safetipin was developed with the premise that engaging citizens and the community will help make our cities safer. Further we also believe that being able to define safety more clearly and putting a score based on a safety audit, will encourage people to works towards improvements. The information collected will be shared with key service providers to encourage quick response. We believe that if large numbers of people begin to be involved in safety, this will serve as an incentive for relevant authorities to respond.

At the core of the app is the Safety Audit. It consists of a set of 9 parameters that together contribute to the perception of safety. Each audit results in a pin on the specific location where the audit was performed and also records the time and date.

The safety audit is a methodology that has been used in many countries around the world to measure certain parameters that have been in some correlated with feelings of safety. For the Safetipin rubric, safety checklists from across many countries were reviewed and the final product went through the perusal of an International advisory committee.

Recording an Audit

The process of conducting an audit is simple. Each of the nine parameters shows four options to choose from. Once all parameters have a selection, the audit can be uploaded.



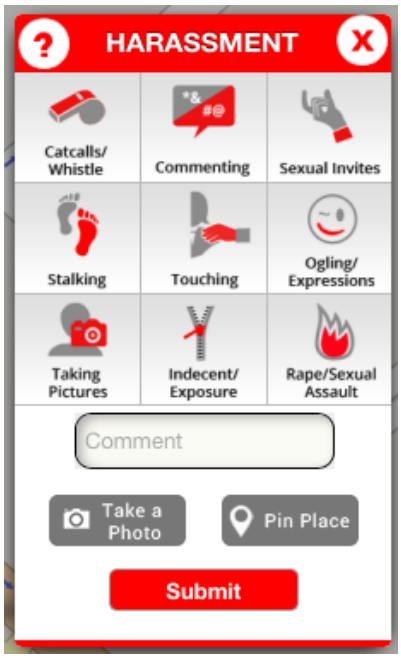
The nine parameters each have four options as which a user can choose. The entire rubric is given below.

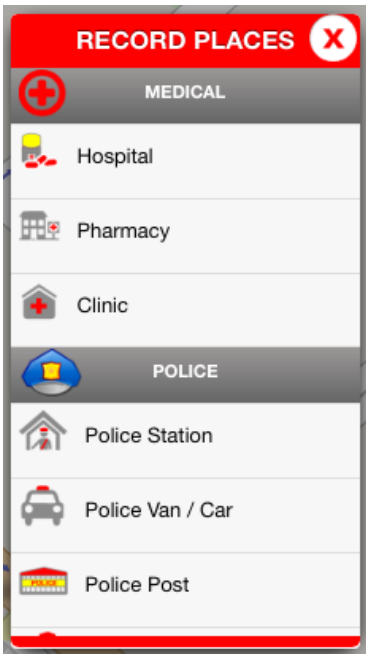
Score	0	1	2	3
Light (Night)	**None**. No street or other lights	**Little.** Can see lights, but barely reaches spot	**Enough**. Lighting is enough for clear visibility	**Bright**. Whole area brightly lit
Openness	**Not Open**. Many blind corners and no clear sightline.	**Partly Open**. Able to see a little ahead and around..	**Mostly Open**. Able to see in most directions.	**Completely Open**. Can see clearly in all directions
Visibility	**Not visible**. No windows or entrances (to residences / shops), or street vendors	**Less visible**. Less than 5 windows or entrances or street vendors	**Fairly visible**. Less than 10 windows or entrances or street vendors	**Highly visible** More than 10 windows or entrances or street vendors
People	**Deserted**. No one in sight	**Few people**. Less than 10 people in sight	**Some crowd**. More than 10 people visible	**Crowded**. Many people within touching distance
Security	**None**. No security guards or police nearby	**Possible**. Nearby area has some private security	**Likely**. Private security within hailing distance or police patrols	**Secure**. Police / reliable security within hailing distance
Walk Path	**None**. No walking path available.	**Difficult.** Path exists but in very bad shape.	**Fair**. Can walk but not run	**Good**. Easy to walk fast or run
Public Transport	**Unavailable.** No metro or bus stop, auto/ rickshaw within 10 minutes walk	**Remote**. Metro or bus stop auto/ rickshaw between 5 - 10 mins walk	**Available**. Metro or bus stop, auto/rickshaw between 2 – 5 mins walk	**Nearby**. Metro or bus stop, auto/rickshaw available within 2 mins walk
Gender Usage	**Not diverse.** No one in sight, or only men	**Mixed**. Mostly men, very few women or children	**Fairly diverse**. Some women and children	**Diverse**. Balance of all genders or more women and children
Feeling	**Frightening.** Will never venture here without sufficient escort	**Uncomfortable**. Will avoid whenever possible.	**Acceptable**. Will take other available and better routes when possible	**Comfortable**. Feel safe here even after dark

Other Record Elements

In addition to audits, Safetipin presently allows three other types of information to be recorded and displayed in much the same way.

- Harassment. To record, view and comment on any occurrence of Harassment. Recording of Harassment can also be done later through an online interface, since recording of Harassment on the spot may not always be feasible.
- Hazards. To record, view and comments on problems with Infrastructure.
- Places. There are four categories of places being recorded. Transport, Medical, Police and Shops, since all of these contribute to safety.





Growth and Use of Safetipin

Safetipin was launched in Delhi in November 2013. We began with collecting data in Delhi and the NCR area. Currently we have done over 12000 safety audits in Delhi. We have also conducted pilot audits in eleven other cities in India in partnership with local groups. The cities where we have done pilots include Chennai, Kochi, Trivandrum, Calicut, Bangalore, Guwahati, Kolkata, Jaipur, Pune, Lucknow and Bhopal. Except for Bangalore and Kolkata, all the cities have at least 800 audits conducted. In this report , we will share the findings of all these cities where at least 800 audits have been conducted.

Further Safetipin is now available in four languages. The Hindi version is meant for use in different parts of India. In addition, it is also available in Spanish and Bahasa. The Spanish version was done in partnership with the Municipal Secretary of Bogota in Colombia who has launched it in Bogota in April 2014. The Bahasa version was done in partnership with UN women, Jakarta for use locally and for integrating it into the work done by the city government.

Safety audits in low income neighbourhoods.

We recognise that smart phones are not yet available to everyone and we have devised a methodology for using the tool that would enable people from low income neighbourhoods to also benefit from Safetipin. Safety audits are conducted using Safetipin with a few of the women and youth in the neighbourhood. This data is then presented to a larger group of women for verification and inputs on other areas to conduct audits to make the data more comprehensive. This data is then made into an appropriate document to be used for advocacy with the local government. Jagori has partnered with Safetipin in conducting these.

About Jagori - Jagori was set up in 1984 by eminent feminists with a vision to create a space for women to reflect their realities, articulate their experience of oppression and find ways of fighting it. Jagori has pioneered the idea safe cities in India and run two programs on the theme; The Safer Cities free from violence against women and girls initiative, which partners with the Department of Women and Child Development, Govt of Delhi, UN Women and Jagori. The second is the Gender Inclusive Cities Programme that is a four city programme emphasizing on understanding safety and inclusion in urban public spaces from the perspective of 'right to the city'.

City Reports

In this report, we will present the findings from audits done in seven cities across the country. These audits were conducted between November 2013 and December 2014. In each city, Safetipin working in partnership with a local women's group or NGO so that the data collected could also be used for advocacy at the city level. The data was collected through volunteers and in some places in partnership with colleges so as to involve students. We hope many more cities also participate in collection of data through using Safetipin. Some of the findings have already been shared with the press and public. For example in Kerala, the safety audits findings were released by the Police and they have committed to act upon the findings. In the other cities too, the data will be used for advocacy to promote safety of women and girls in the city.

Findings and Analysis

Delhi NCR

DELHI NCR

The **National Capital Region** (NCR) in India is the designation for the metropolitan area which encompasses New Delhi, as well as urban areas surrounding it in neighboring states of Haryana, Uttar Pradesh and Rajasthan. NCR is India's largest and the world's second largest agglomeration with a population of over 21.7 million according to the 2011 Census. The share of urban population in NCR has been rising from 50.2% in 1991 to 62.5% in 2011 and the rural population declined in the same proportion. The sex ratio in Delhi is 868, which is below the national average of 940 as per census 2011.

Delhi per capita income though among the highest in the country, masks the great inequality there is in the city. Literacy rate in Delhi has seen upward trend and is 86.21 percent as per 2011 population census. Of that, male literacy stands at 90.94 percent while female literacy is at 68.85 percent. There are several reputed universities in the city and institutes of higher learning that attract students from all over the country and even globally. The literacy rate also belies inequality both in terms of gender and class. The Public Perception Survey undertaken for the Delhi Human Development Report (HDR) in 2013 shows that over 70% of the illiteracy is concentrated in jhuggi jhopdi clusters, resettlement areas and urban villages.

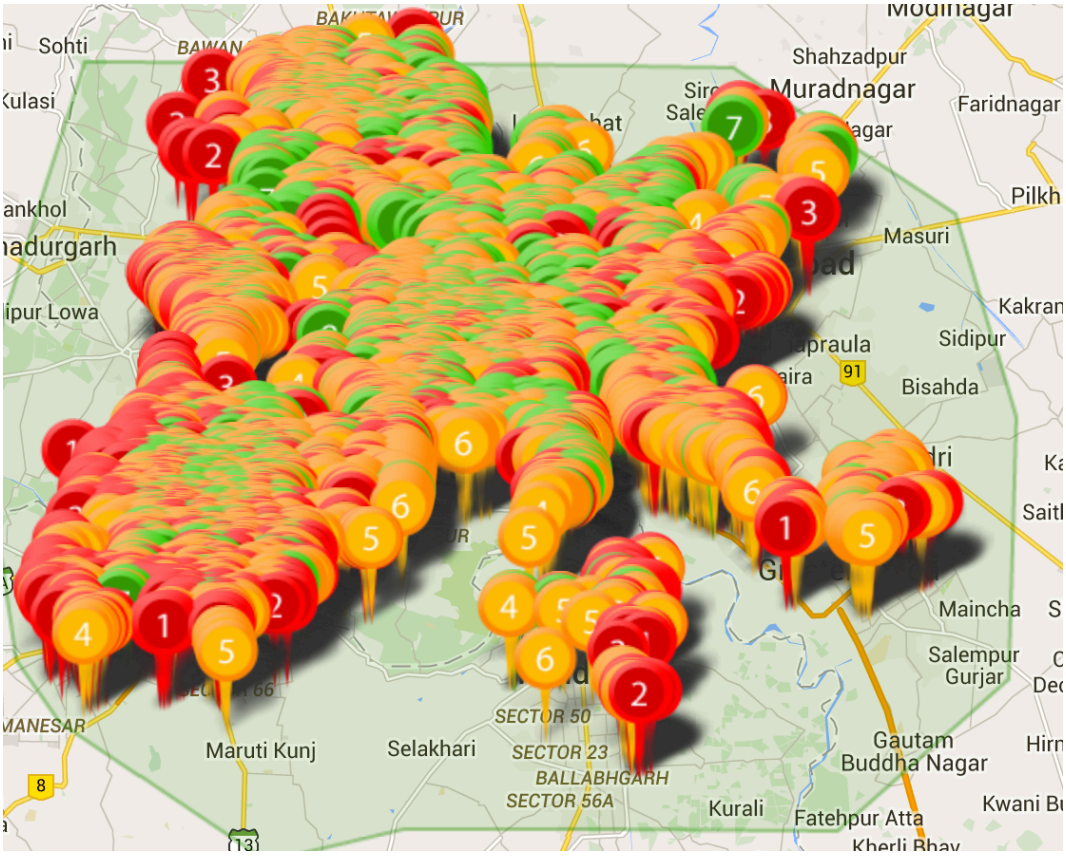
The migration rates were very high in the last decade and have stabilised now. Female workforce participation rates are very low in the city, with 11% reported in the 2011 census. While the overall housing situation is reported to be improving, there still exist a large number of homeless in the city, approximately 50,000 according to the Delhi HDR. Also, in the slum and resettlement areas, provision of services especially water and sanitation is extremely poor.

Delhi accounts for 15.4% of crime against women in Indian cities. Delhi has witnessed an 18.3 per cent rise in crime against women in 2014 as compared to 2013, with a 31.6 per cent rise in rape cases. Delhi (5,194 cases) has accounted for 14.2% of total such crimes. Since the gruesome gang rape case in December 2012, we have seen a tremendous increase in reporting of rape and violence against women. This can be seen as due to increased awareness and better systems of reporting within the police. The post 2012 period also saw improvements to transport and installation of CCTV's and other responses to address the concerns of women's safety.

Findings from Safety Audits

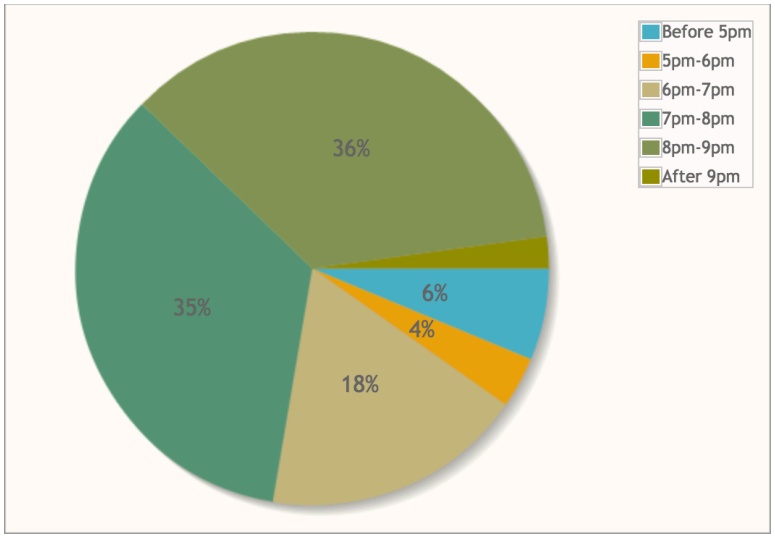
In Delhi NCR, safety audits were carried out from September 2013 and major parts of the city have been covered. The idea was to cover residential spaces, university area, popular markets, main roads and ring roads, bus terminals and metro stations. Safety audits were done in all parts of Delhi NCR including lower income communities and resettlement areas. At present, there are over 12,000 safety audit pins in Delhi NCR. The map below shows audit pins collected in Delhi and NCR.

Map 1: Safety audit pins in Delhi and NCR

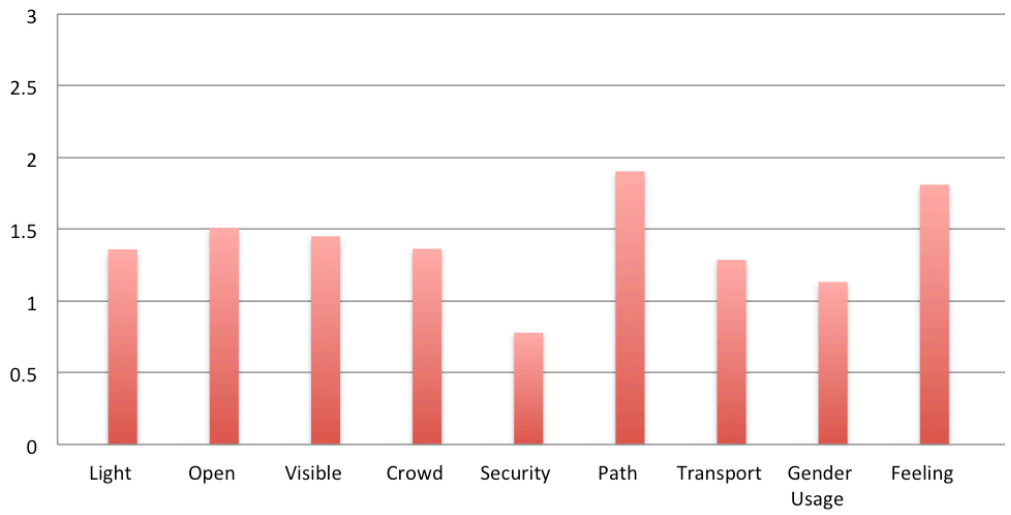


The audits were conducted during different periods of the day. As Graph 1 shows, the majority of audits (71%) were conducted between 7pm to 9pm. This is the time when it turns dark and streetlights are turned on. This is also the prime time when people use the streets for various purposes such as returning home, going to market, to the park etc. At this time, it is important to measure parameters and feelings of safety.

Graph 1: Auditing time of the day



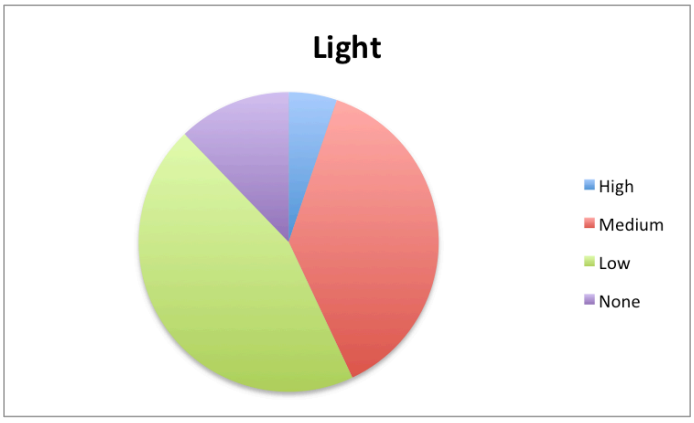
Graph 2: Average score of safety audit parameters

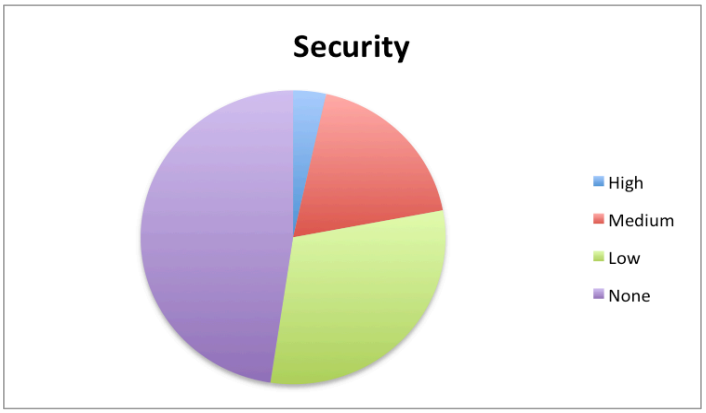


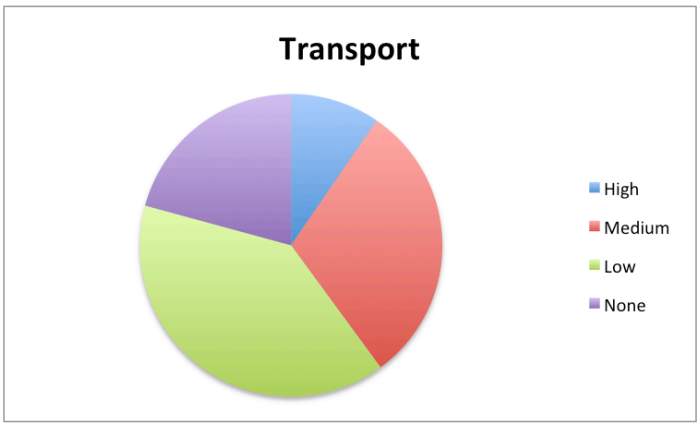
As Graph 2 suggests, most of the audit parameters scored below average, with security and gender usage being the lowest. The findings suggest in addition to lack of women and security on the streets, public spaces in Delhi NCR are also not uniformly well lit (some areas are well lit, but it is uneven), and public transport is not available close by in many parts of the city. Walk path is the only parameter, which is above average. Thus we can see that there is both a problem with provision of infrastructure as well as the ways that streets are used. The low visibility suggests that in many parts of the city, people feel a sense of unsafety because there are no "eyes on the street", that is people who can see the street from their doors, balconies as also street vendors and others who occupy the streets.

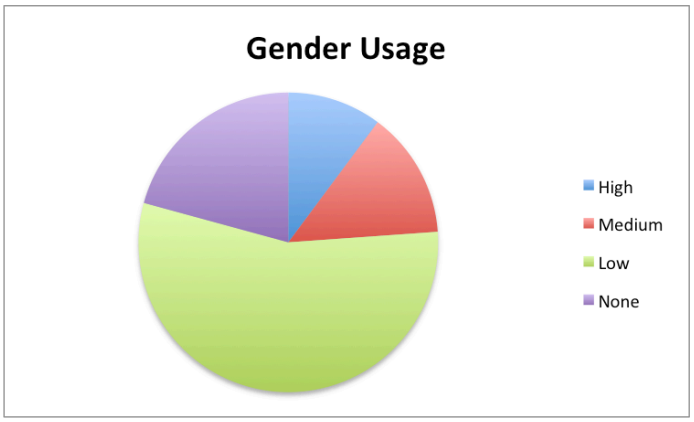
From Graph 3 below, we can see the break up of four parameters that had the lowest score. For gender diversity on the streets and security, we can see that only approximately a quarter of the audits gave the place a high or medium score. This reflects the fact that public spaces in Delhi are highly male dominated. The presence of visible security is also available only in approximately one quarter of the places that were audited. Lighting and public transport fared better with just under half the areas reporting high or medium scores.

Graph 3: Breakup of average score for safety audit parameters





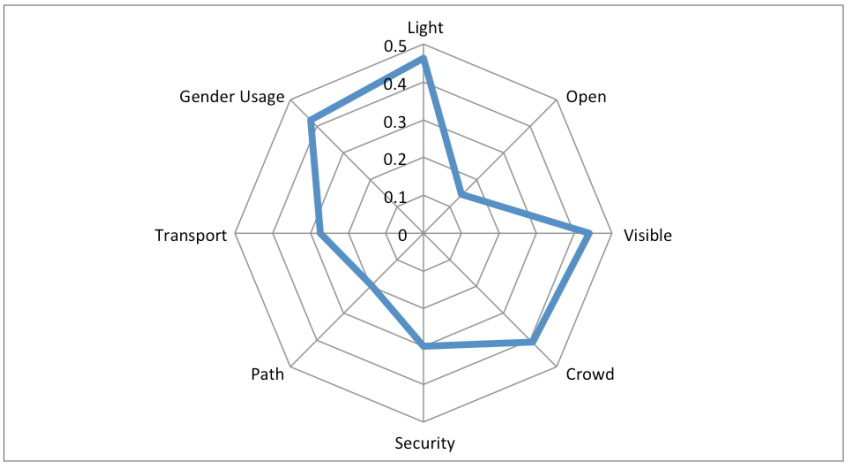




Feeling of safety

The feeling of safety of an area differs with various factors like time, number of people and familiarity with the area. To identify what factors make women and children feel safer in public spaces each safety audit parameter was correlated with feeling of safety given by the auditors.

Graph 4: Correlation of safety audit parameters with feeling of safety



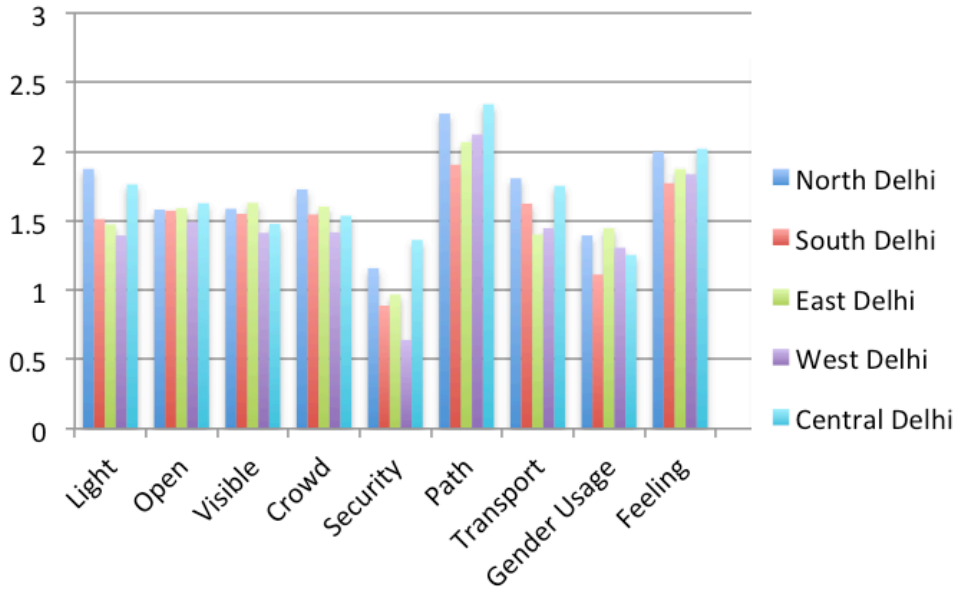
As shown in Graph 4, we found that well lit streets have the highest impact on the feeling of safety. This is followed by three other factors, which have high impact – visibility (eyes on the street), gender usage and presence of crowd in public spaces. All these three factors are linked to people being in public spaces. Thus people find places safer when there are other people (especially women) and where there are people who can see the streets. It is therefore important to not only focus on infrastructure, but also designing and planning streets for wider usage. For greater visibility, it is also important to not have high walls and setbacks, which isolate people who use the streets and prevent natural surveillance.

Delhi City

For analysis, we divided Delhi in 5 zones – North, South, East, West and Central.

- North Delhi extend from Bhalswa and Azadpur towards north campus of University of Delhi, Civil Lines, Model Town, Kashmiri Gate, Chandni Chowk and Delhi Gate.
- South Delhi District covers areas from Chanakyapuri, R.K. Puram, Hauz Khas, Kalkaji, Lajpat Nagar, Greater Kailash, Defence Colony and Vasant Vihar and Badarpur.
- East Delhi boundaries stretch along the borders Trans Yamuna, covering Shahadra, Lakshmi Nagar, Vivek Vihar, Preet Vihar, Mayur Vihar and Patparganj. West Delhi includes areas like Rohini, Pitampura, Punjabi Bagh, Janakpuri, Rajouri Garden and Patel Nagar.
- Central Delhi District extends from Anand Parbat and Karol towards Connaught Place, Pragati Maidan, Diplomatic Enclave and Lodhi Estate.

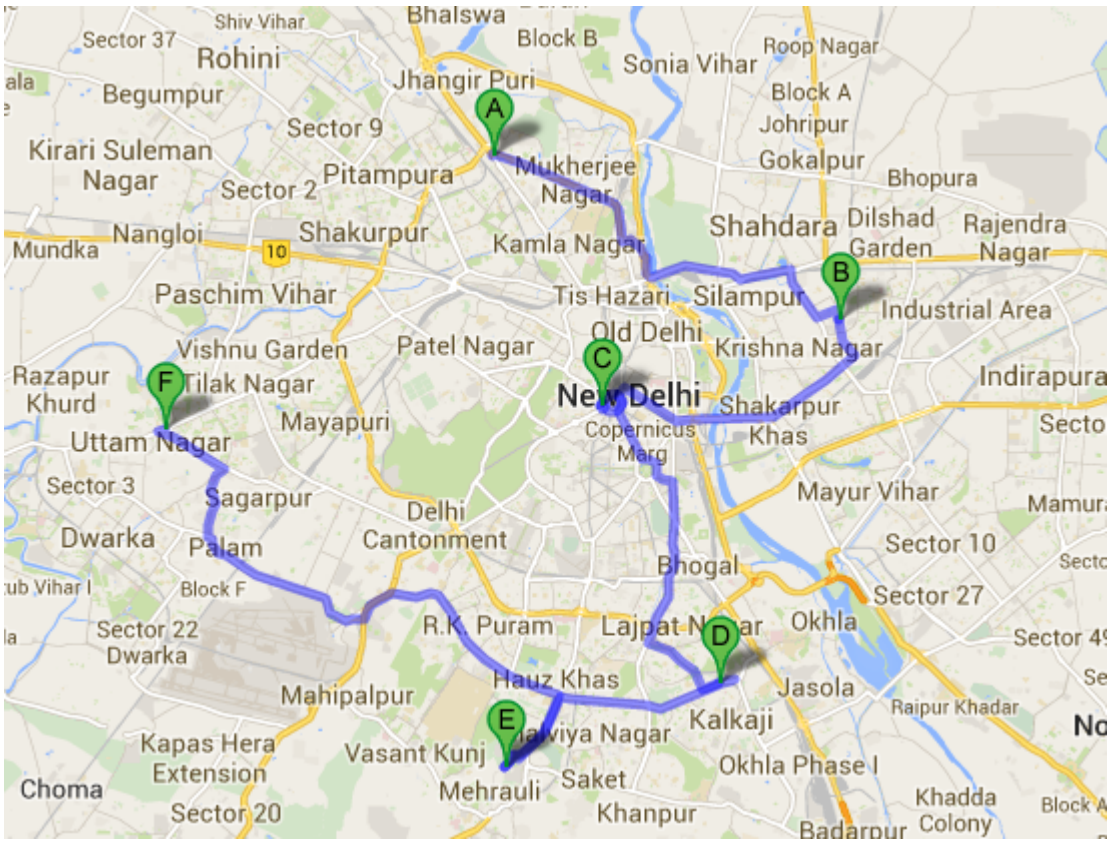
Graph 6: Average score of safety audit parameters across 5 zones in Delhi



Graph 6 shows that walk path across Delhi is scored above average whereas light, openness, visibility, crowd and public transport all have average scores. Security is scored lowest of all the audit parameters, followed by gender usage. This graph reinforces the fact that visible security, both public and private, is poor in the city and less women are present in public spaces, especially after dark. While there is not much significant difference among the regions, the Central area scores higher in several parameters. Interestingly, north Delhi also scores higher is some parameters. West Delhi appears to have lowest score in all parameters except in gender usage, where South Delhi has an even lower score.

Major bus terminals in Delhi

Public transport is the backbone of a city. It connects different parts of the city and is used by majority of city population on everyday basis. For the purpose of analysis we selected 6 major Delhi Transport Corporation (DTC) bus terminals, located in different parts of Delhi – Mehrauli, Nehru Place, Shivaji, Azadpur, Shahadra and Utaam Nagar to conduct safety audits. On an average, 12 safety audits were conducted at each terminal at the main terminal as well as 30 meters outside the terminal, between 6-9 pm.

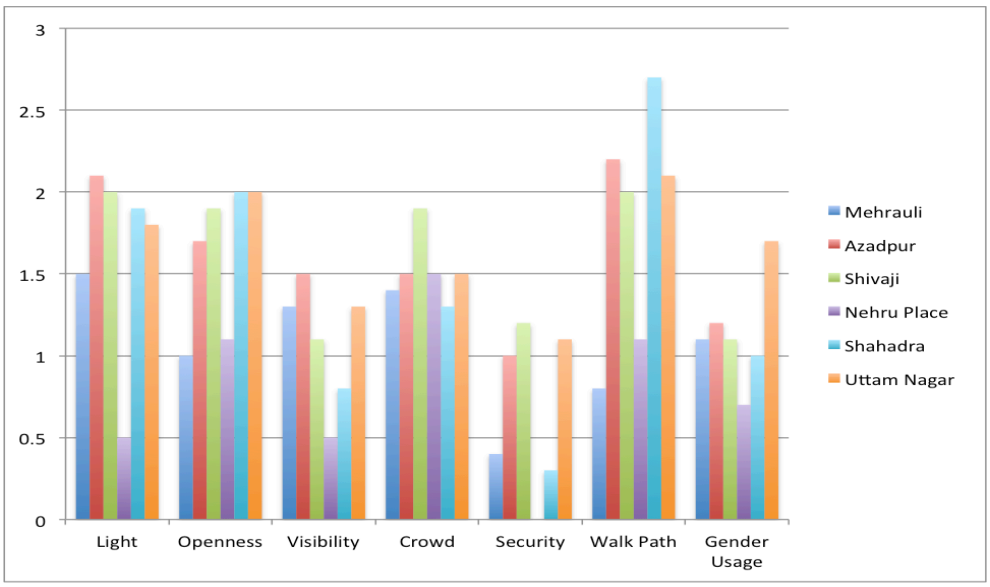


Map 2: Map of six major DTC bus terminals in Delhi

Graph 7 below indicates the score of each safety audit parameter in these public bus terminals. The findings from the audit show that visible security, number of women at and around the terminal and visibility (eyes on street) have lowest rating across the bus terminals.

The bus terminal at Nehru Place is scored lowest of all the terminals audited. It lacks proper lighting inside the terminal, lack of openness, no security and few people in the terminal, especially women. On the other hand, terminals at Uttam Nagar, Shivaji Stadium and Azadpur scored higher because of being well lit, having open spaces for easy access of the terminal, enough crowd, some visible security in and around the terminal, better walk path and relatively gender-balanced crowd.

Graph 7: Average score of safety audit parameters across the six DTC bus terminals in Delhi



The data has been shared with the Delhi Transport Corporation along with recommendations about how to improve safety of each terminal.

Safety Audits on December 16th 2014

On the night of December 16, 2014 to commemorate 2 years since the gang rape and murder incident, 54 representatives from various civil society organisations including Jagori, Safetipin, CFAR, Lawyers Collective, NFIW, AIPWA, Action India, Reclaim the Night, CHSJ, SNS, Samarthyam, Nirantar, Breakthrough, Women's Feature Service, Sakha Cabs, Azad Foundation, Miranda House, Kamla Nehru and several eminent women - joined together to conduct safety audits in New Delhi. Through this collective safety audit drive approximately 60 kilometres of roads were covered in Delhi and data was recorded on the gaps that exist in public infrastructure, social usage of public space, public transport and policing. We were able to conduct 146 safety audits, along with observation and speaking to people on the streets, in public transport and waiting for public transport.

Image 1 Shows non-functional streetlight

The audits were conducted using various modes of public transport such as taxis, buses and metro. Each group covered their designated route using all 3 modes of transport and also walked parts of the route. The group audited four routes covering the North, South, East and West Delhi. The four routes were:

- Civil Lines Metro Station to Jehangir Puri Metro Station covering a distance of approximately 9.2 kilometers.

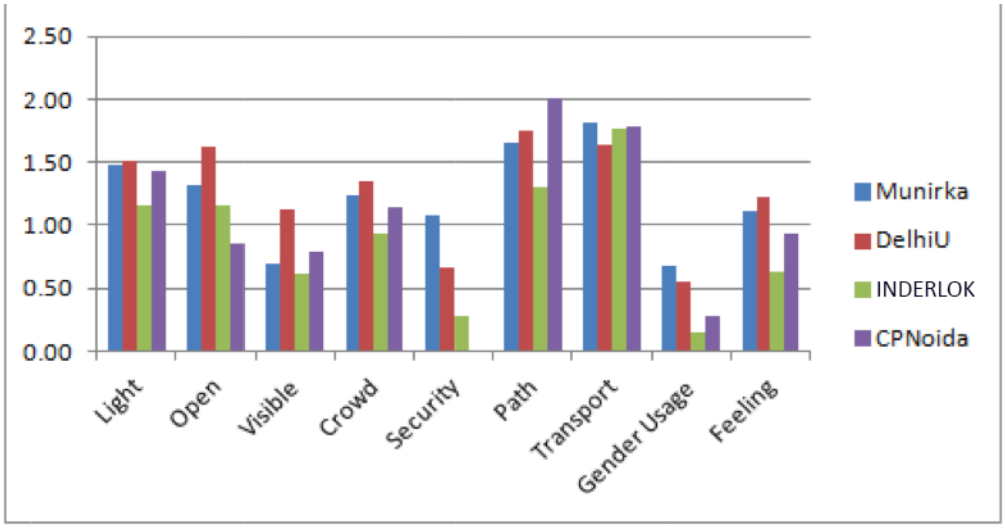
- Munirka Bus Stop to Mahipalpur a distance of approximately 7.6 kilometers.

- Rajiv Chowk Metro Station to The Great India Place Mall in Sector 18, NOIDA and an additional route through Baba Kharak Singh Marg, CP, distance of approximately 20 kilometers.

- Shanti Niketan Bus Stop to Inderlok Metro Station a distance of 16.2 kilometers.
  The four routes were chosen so that diverse demographics could be covered across the city.

The Murnirka to Mahipalpur route was covered so that data could be collected on the situation of infrastructure in the area two years after the horrific gang rape. Given below is a table with findings from all four routes. As we can see, gender usage is very low on all the routes. Presence of visible security is also quite low except for the Munirka route. Lighting is average in these routes. The Delhi University route scored high on several parameters except for security and gender usage. Walk path and availability of public transport scored the highest. This could be due to the fact that most of roads covered were main roads.

Graph 8: Average score of safety audit parameters across the routes

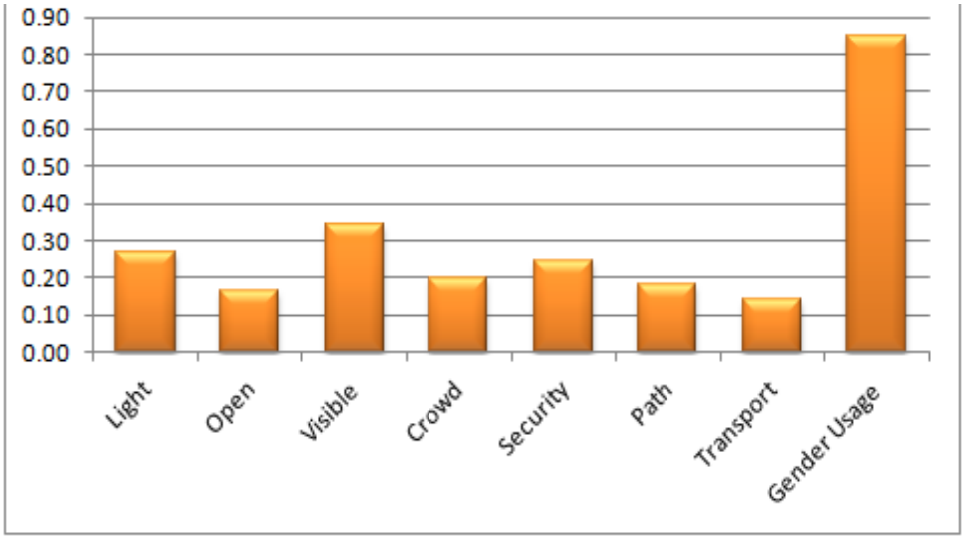


Security is very low on the Inderlok route as well as the Delhi University route, while the Munirka route has higher security. On the positive side, the walk path and availability of public transport is fairly high on several parts of these routes. Visibility is low in all the areas. This means that there are not enough eyes on the street- no presence of vendors, nor shops/doors/houses facing the street. This is a serious issue of urban design where we see high walls coming up all over the city and natural surveillance being reduced. Gender usage expectedly is low in all areas and this is a serious concern that the number of women on the streets starts reducing, as the city gets dark. The presence of security is also very low except on the Munirka route, which is ok. On almost all of the parameters, the scores are lower on the Inderlok route except for public transport where all the routes have a decent score. The feeling of safety on that route was also the lowest.

Based on all the above data, we found that gender diversity on the streets has the highest impact on the feeling of safety and comfort in being out. As can be seen in the chart below, it outranks every other factor. This is followed by three other factors, which

have about the same impact - visibility (streets where you can be seen by others, 'eyes on the street'), lighting and presence of visible security.

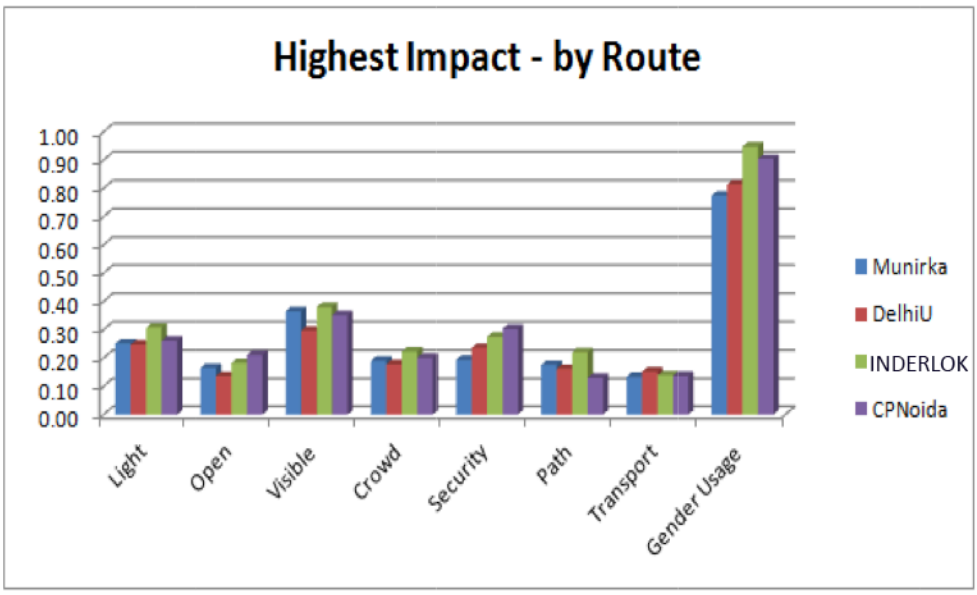
Graph 9: Correlation of safety audit parameters with feeling of safety



This analysis can be further broken down into the impact of these factors on the feeling of safety in each of the separate routes, which throws up a similar analysis. Visibility is given second most relevance in the feeling of safety. Improving natural surveillance on the streets is very central to creating safer spaces.

Jagori and the other women's groups have shared these findings with the Home Minister and the Lieutenant Governor of Delhi for follow up.

Graph 10: Highest impact on the feeling of safety

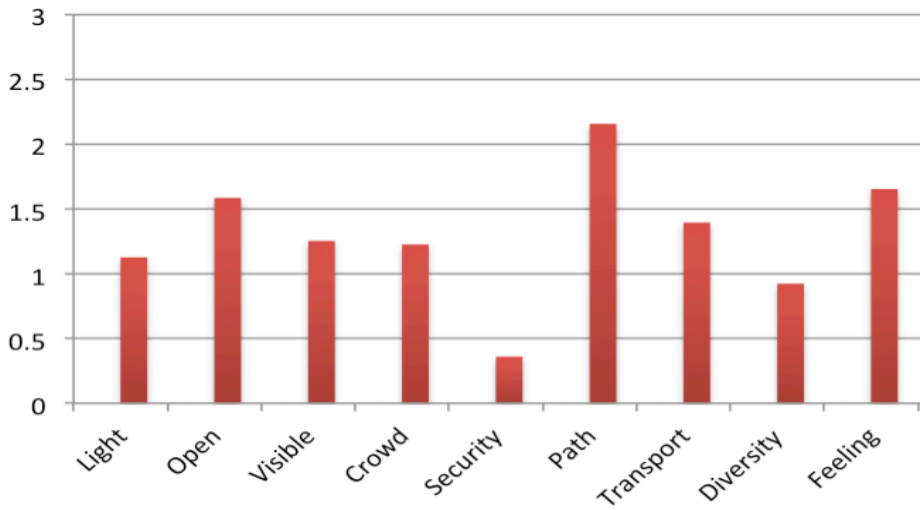


Safety Audits in Dwarka

Safetipin conducted extensive audits around all the sectors of Dwarka. Dwarka is a township in Southwest Delhi that has many residential buildings and some campuses and commercial spaces.

Map 3: Safety audit pins in Dwarka

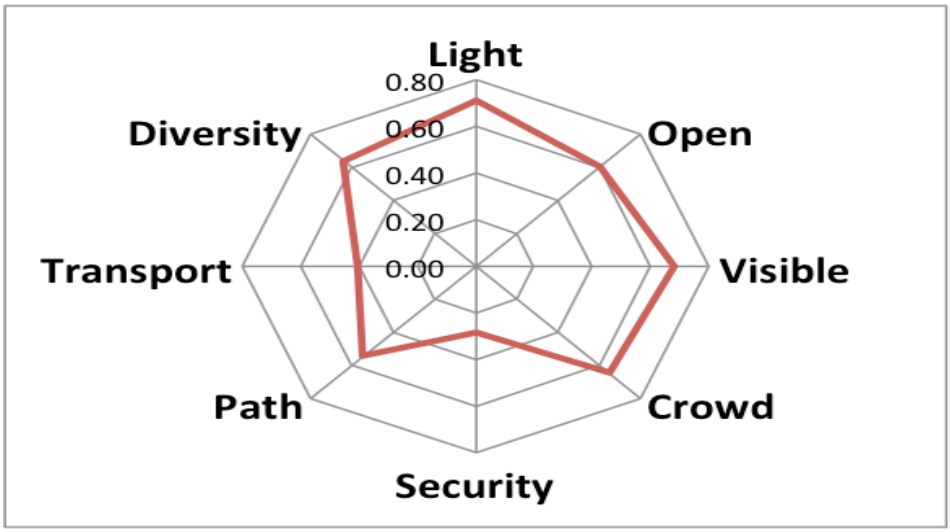
Graph 11: Average score of safety audit parameters



The findings from Dwarka (Graph 11) show that security is very low in the area. Further even lighting and gender diversity are fairly low. It has fairly decent walk path but scores low on all other parameters. The availability of the walk path is above average, which as we see is similar to several other parts of the city.

Lighting has the highest correlation to the feeling of safety in this area (Graph 12,. This is closely followed by gender diversity, the presence of people and visibility ('eyes on the street'). Interestingly security actually has lower correlation to the feeling of safety than other parameters.

Graph 12: Correlation of safety audit parameters with feeling of safety



As a follow up on these findings, proposals have been discussed for addressing all three concerns. The findings have been shared with the police in the district. In areas where the security is low or where there are very low scores, the police have started putting up sign boards with key police helpline numbers.

Safety Chaupal in Badarpur

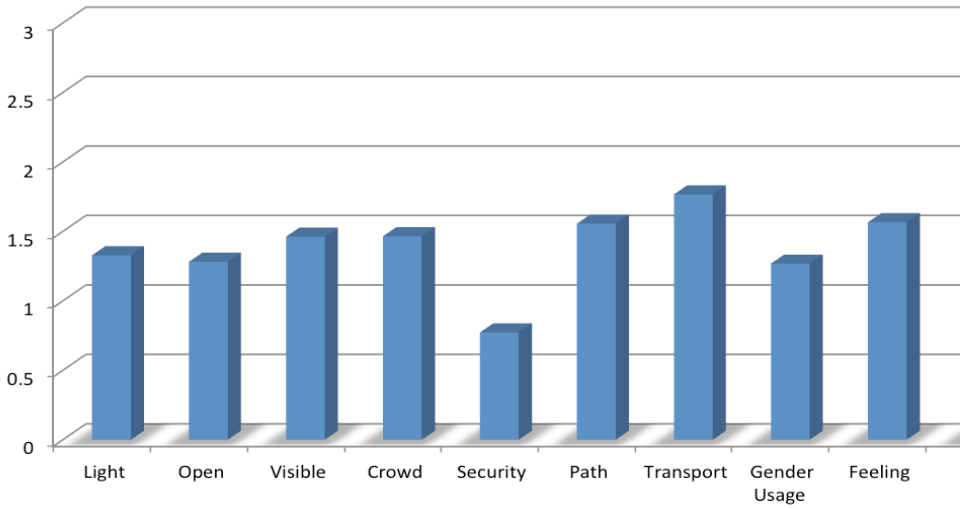
In low income neighborhoods where smart phones may not be ubiquitous, Safetipin partners with local NGO's and organisations to supplement mobile data collection with on ground meetings and activities to ensure the widest participation. We have given the name 'Safety Chaupal' to these activities. There are several stages of data collection. First meetings are held in the community with women and youth to talk about safety concerns in the neighborhood. Following this, a few people are trained to use Safetipin and they audit different parts of the neighborhood. After the audits are done, the findings are once again shared at a meeting of women and youth to see if they agree and to get their inputs. Finally this is converted into a report and recommendations, which are used by the local group to do advocacy with local stakeholders.

Image 2 Shows lack of openness in lower income neighborhood in Delhi

Safetipin has worked with NGO partners like Jagori, Literacy India and Satark Nagrik Sanghatan. The Safety chaupal in Badarpur

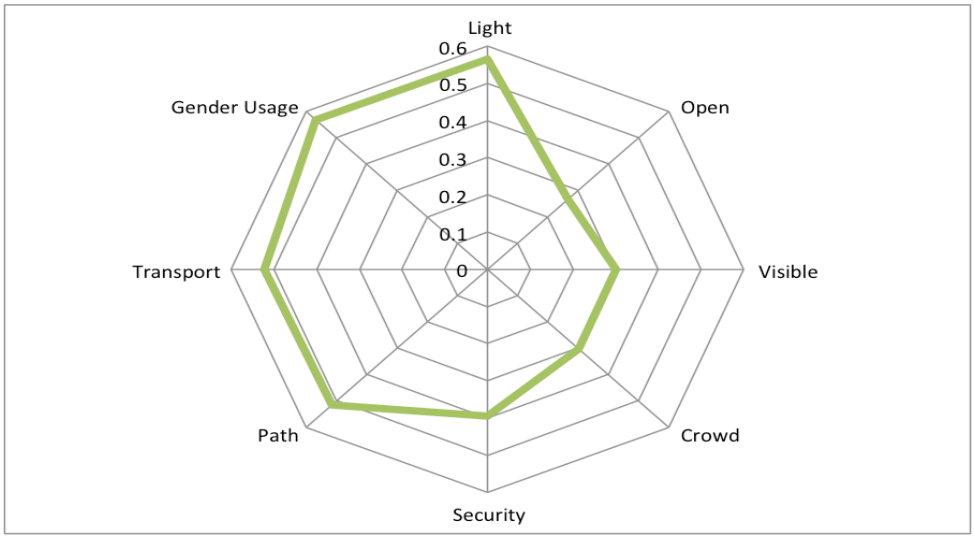
was done in partnership with Jagori. The auditors pinned a total of 412 safety information points on the selected routes in the neighborhood. Of these, 299 were safety audit pins, 70 hazard pins, 19 harassment pins, 21 places and 3 on feeling. They were collected over a period of three months between January and March 2015. Along with the safety audits, several meetings were also held with women to ask them to map out safe and unsafe areas where audits needed to be done.

Graph 13: Average score of safety audit parameters



Graph 13 shows the value of each parameter based on the audits done in the area. Security is very low, followed by lighting, openness and gender usage. Badarpur, being a low-income neighborhood, does not have much police patrolling within, but only on the main roads. In fact 80% of the area does not have any visible security, though it is slightly better on the main road. Only 43% of the Badarpur area has enough lighting and that is higher in the areas near the main road. Thus we can see that on all parameters the neighborhood itself has low rating while it gets better as we get closer to the main road. It is interesting to note that crowd and visibility are better as public spaces are usually well occupied. Also in these neighborhoods, there are not high walls and setbacks like in other parts of the city.

Graph 14: Correlation of safety audit parameters with feeling of safety



In terms of correlating each of these parameters to the feeling of safety, lighting and gender usage showed the highest correlation. In most of the other parts of the city too, we found gender usage had a high effect on the feeling of safety. Interestingly walk path and transport also had a high correlation to feeling of safety in Badarpur unlike other parts of the city. This could be due to the fact that since infrastructure is not as good in low income areas, the people felt that having good infrastructure will have an impact. The report and recommendations were shared with key stakeholders in the community including the police and administration.

Recommendations

- **Ensure that public spaces are planned for gender diverse usage**

Our audits show that the single biggest factor that would make women feel safer is the presence of other women in public spaces. In order for this, many steps have to be taken to change the male dominated nature of public spaces in Delhi. Activities that would encourage more women to use public spaces should be planned and encouraged. In terms of design and infrastructure, public spaces should be planned to encourage people and especially women to use without fear.

- **Lighting**

The audits have clearly shown a strong link between better lighting and the feeling of safety. It is therefore crucial to have good lighting uniformly across the city. Currently some places are well lit, but others are poorly lit. The maintenance of lighting should also be upgraded.

- **Improve last mile connectivity**

The audits indicate that there is a need to ensure last mile connectivity is made more efficient and safe. Our bus terminal audits for example show that the waiting areas are not well maintained or safe and these needs to be improved. Further areas outside metro stations need to be better organised to ensure that last mile connectivity is improved.

- **Improve police presence**

Audits in many areas, such as Dwarka have shown that police presence is very low in some parts of the city. Regular safety audits can be used to ensure that updated data is available for different parameters so that improvement can also be done on a regular basis.

- **Ensure there are more "eyes on the street"**

Poor visibility has been seen in almost all parts of the city. This is the urban design principle known as 'eyes on the street'. Jane Jacobs (1960) in her famous work on American cities talked about how eyes on the street are key to making our streets usable and friendly. Eyes on the street could be shops and windows that face the street or vendors and others who occupy or can see public spaces. In Delhi because of the increase in the number of high walls and setbacks, there are many parts of the city, which do not have natural surveillance. When you feel that you can be seen, there is a

sense of comfort more than in a place where no one can see you. Planners of the city will have to make important decisions on high walls and ensuring activity on the streets to improve safety.

Findings and Analysis

Kerala
(Trivandrum, Kochi, Calicut)

Kerala

Kerala is a state in the southwest region of India on the Malabar Coast. The state was formed on 1 November 1956 as per the States Reorganization Act by combining various Malayalam speaking regions. Spread over 38,863 Km it is bordered by Karnataka and Tamil Nadu and is flanked by the Lakshadweep Sea. With 33,387,677 inhabitants as per the 2011 census, Kerala is the thirteenth largest state by population and is divided into 14 districts. The capital of Kerala is Thiruvananthapuram and the official language is Malayalam.

Kerala has the highest Human Development Index (HDI) (0.790) in the country according to the Human Development Report 2011. It also has the highest literacy rate 93.91%, the highest life expectancy (almost 77 years) and the highest sex ratio (1,084 women per 1,000 men) among all Indian states, way ahead of the national sex ratio of 943 women per 1,000 men. However, these high indicators of social development do not paint the complete of the status of women in the state.

Kerala has drawn considerable attention for its paradoxical pattern of growth with high social development indicators, often referred to as the 'Kerala model of development'. In terms of sex ratio, literacy, life expectancy and mean age at marriage, women in Kerala score higher than any other state in the country. But there is a growing uneasiness with Kerala's social development outcomes linked to non-conventional indicators as in the rising visibility of gender-based violence and related crimes.

Kerala reported the highest crime rate (502.2) for IOC crimes in 2013. Kerala has reported the highest crime rate (20.9) in assault on women with intent to outrage her modesty as compared to the national average of 7.7 in 2012. Of the 2,44,270 incidents of violent crime in the country, Kerala accounted for 10,390 which is more than the much larger neighbor Tamil Nadu (7192) In 2012 the National Crime Records Bureau (NCRB) figures show that Kerala has a crime rate of 424.1, more than double the national average of 187.6. The high statistics of development are undercut by high statistics of violence against women in the state.

Sakhi Resource Centre for Women

The Sakhi Resource Centre was set up with the support of the John D and Catherine T Mac Arthur Foundation in 1996. Sakhi works with young people, especially adolescent girls in six districts of Kerala. Sakhi is a part of various independent and international campaigns to end violence against women. Significant among them are Violence Intervention and Legal Support, Anti Sexual Harassment Committee at Workplaces, and 16 Days of Activism. Over the last 17 years Sakhi has done extensive work on issues of women and is an authority in grass root and research work in the state of Kerala. Safetipin collaborated with Sakhi to examine the state of safety of women in Kerala. The Sakhi team conducted audits in 3 cities, Thiruvanathapuram, Kochi and Calicut. The three cities are profiled below.

Thiruvananthapuram

Thiruvanathapuram also known as Trivandrum is the capital of Kerala. The city is the 5th largest Urban Agglomeration (UA) in the state behind Kochi, Kozhikode, Thrissur and Malappuram. This UA consists of Thiruvananthapuram city, the municipalities of Attingal, Nedumangad and Neyyattinkara, three outgrowths and 24 census towns. The city has a population of 752,490 according to the 2011 census.

The city is home to central and state government offices and organisations. Apart from being the political nerve centre of Kerala, it is also an academic hub and is home to several educational institutions.

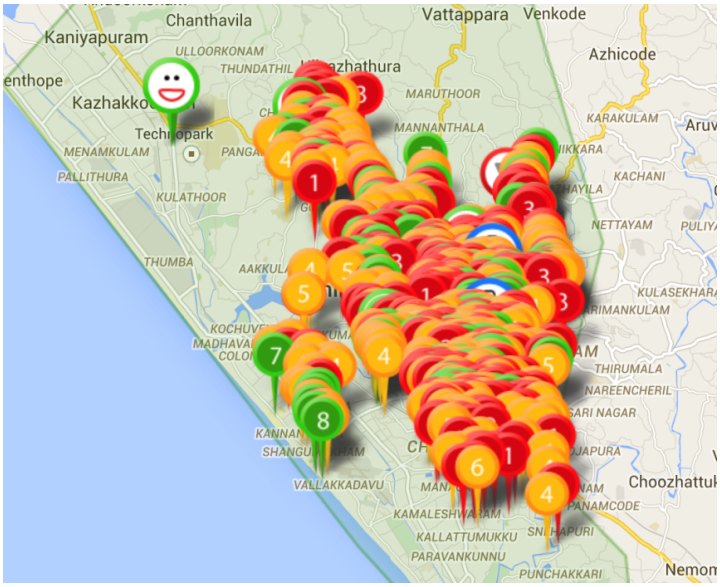
Findings from Safety Audits

The audit team consisted of 8 men and 9 women based in Thiruvananthapuram between the ages of 19 to 30. The majority of auditors were from the Department of Social Work at Loyola College of Social Sciences.

The audits were done in Thiruvanathapuram from July to October 2014. Thirty areas in the city were identified for conducting safety audits. 25 safety audits were conducted in each area. A total of 800 audits were completed in August.

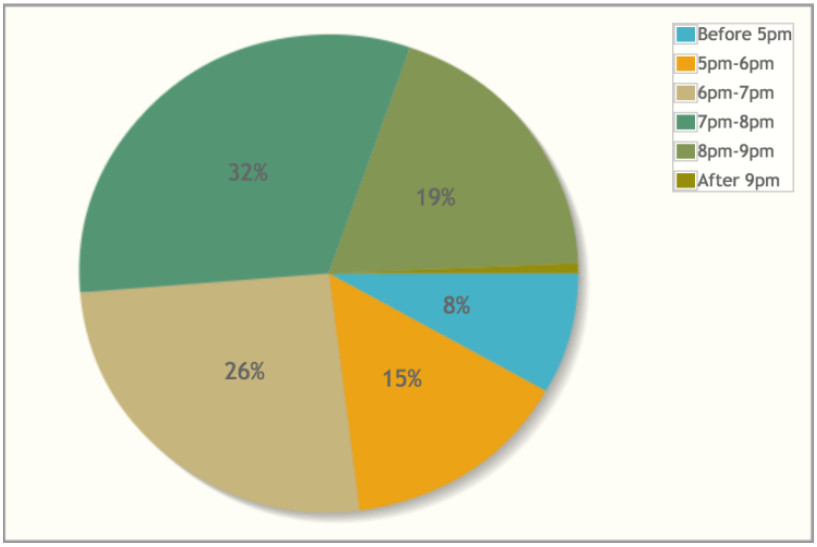
The following is a list of 30 selected areas in Thiruvananthapuram - SreeKaryam, Ulloor, Kesavadaspuram, Pattom, PMG, Palayam, Museum, Vellayambalam, Vazhuthacaud, Bakery Junction, Thycaud, Thampanoor, Over bridge, East Fort, Chalai Market, Statue, Pattoor, Vanchiyoor, Kannamoola, Medical College, Pettah, Chakka, Shanghumugham, Poojappura, Karamana, Manacaud, Kowdiar, Devaswom Board Junction, Nanthancode, Plamoodu. These areas include residential spaces, beaches, colleges and popular markets.

Map 1: Safety audit pins in Thiruvananthapuram



The audits were conducted during different periods of the day. As Graph 1 below shows, the majority of audits (32%) were conducted between 7pm to 8pm and another 19% after 9 pm. Even the audits conducted between 6-7 would have been able to capture the nighttime conditions in the city.

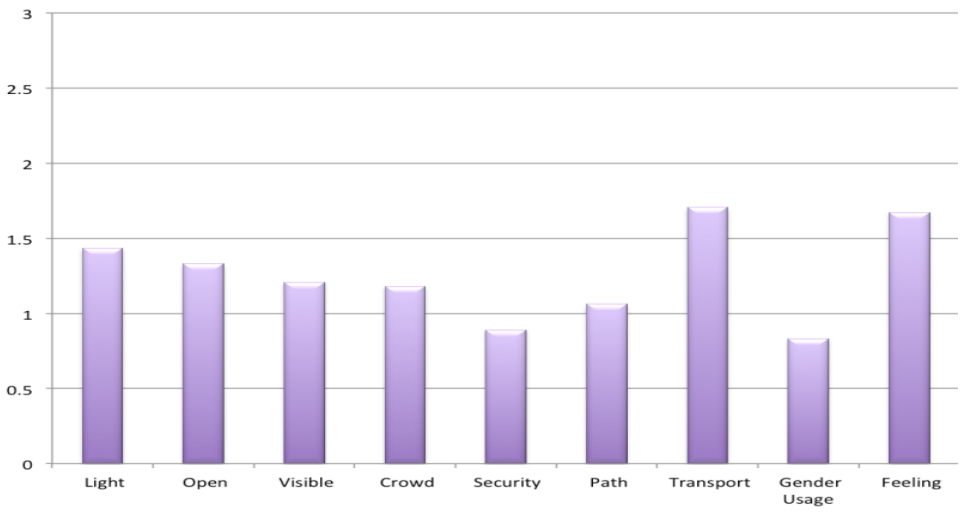
Graph 1: Auditing time of the day



The auditors faced difficulties in conducting audits after dark. They faced several instances of moral policing, catcalling and stalking while conducting the audits. Many student volunteers were not allowed to travel alone after dark by their family members, as they feared for their safety.

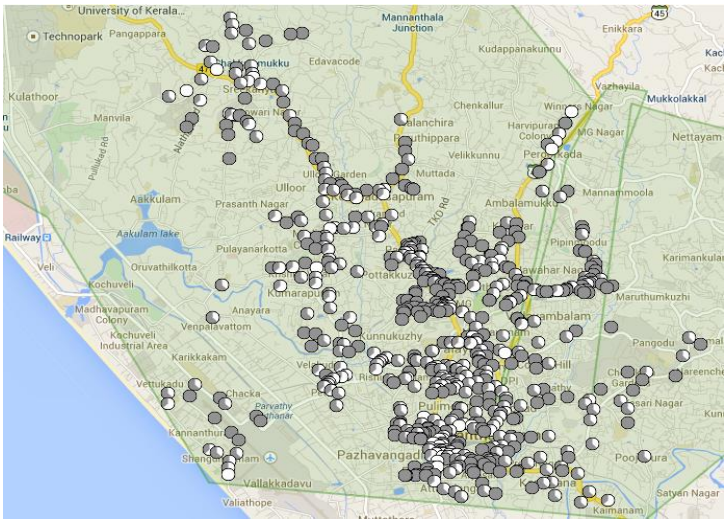
The safety audit findings show that, despite being the capital city of Kerala, Thiruvanthapuram lacks safe infrastructure for women. Graph 2 depicts the average scores of all the safety audit parameters. All parameters except public transport are below average.

Graph 2: Average score of safety audit parameters



The availability of public transport close by has the highest score, following by lighting and openness. Gender diversity has the lowest score among all the audit parameters in the city. Women keep away from public spaces after dark, except when men accompany them. The following areas in the city had particularly low gender diverse spaces Thakaraparambu Road, Kunnukuzhy, Sreekariyam Akkulam Road, Chirakkulam Road, Palayam, Ulloor, Akkulam Road, Kuravankonam, Nanthancode Road, Ambalamukku, Oolampara Road, Nandavanam, Sasthamangalam Pipinmoodu Road, and Pettah.

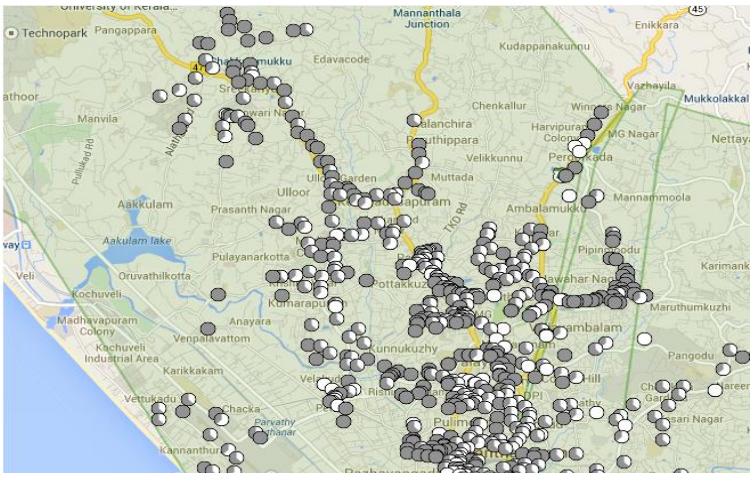
Map 2: Level of gender usage in Thiruvananthapuram



Map 2 above shows the fully grey spots are areas where there is no presence of women and children. Partially grey spots are areas that are somewhat gender diverse and fully white spots are areas, which are completely diverse. It is obvious from Map 2 that most of the public places are not gender diverse, particularly after dark. As we can see, almost the entire map is grey with a few pockets of white.

Map 3 below, shows the skewed levels of security in different parts of the city. The fully grey spots are areas where there are no visible security personnel or police and fully white spots are areas with high security, where there is enough police. It was noticed that even on the main roads, major junctions and bus stands there was absence of visible security. Kunnukuzhy, Pettah, Pottakuzhy, Killipalam, Vanchiyoor and Nandavanam and Bakery Junction road were areas with poor security.

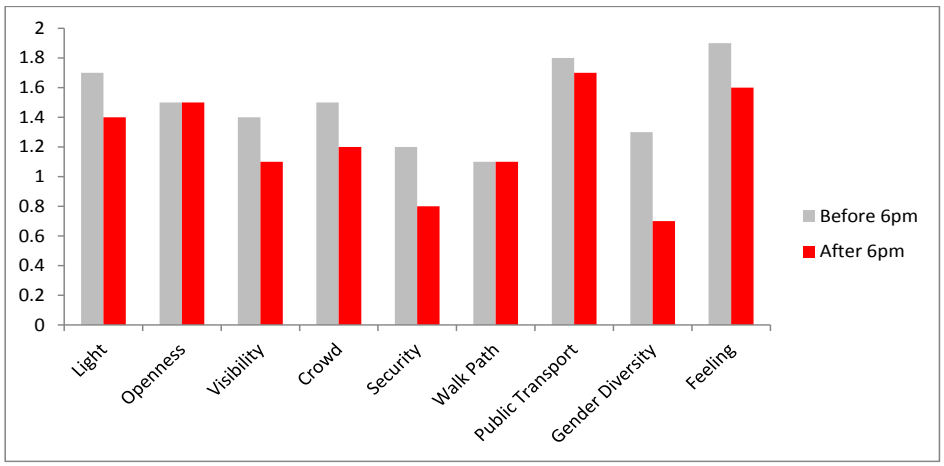
Map 3: Level of security in Thiruvananthapuram



Feeling of safety at different times of the day

The safety of an area differs with various factors such as time, presence of people and familiarity with the area. In Thiruvananthapuram, 207 safety audits were done before 6pm, before dark and 695 audits were done after 6pm. It is significant to note the large variation in the level of safety before and after dark. Graph 3 shows the scores of safety audits conducted before 6pm and after 6pm in Thiruvananthapuram.

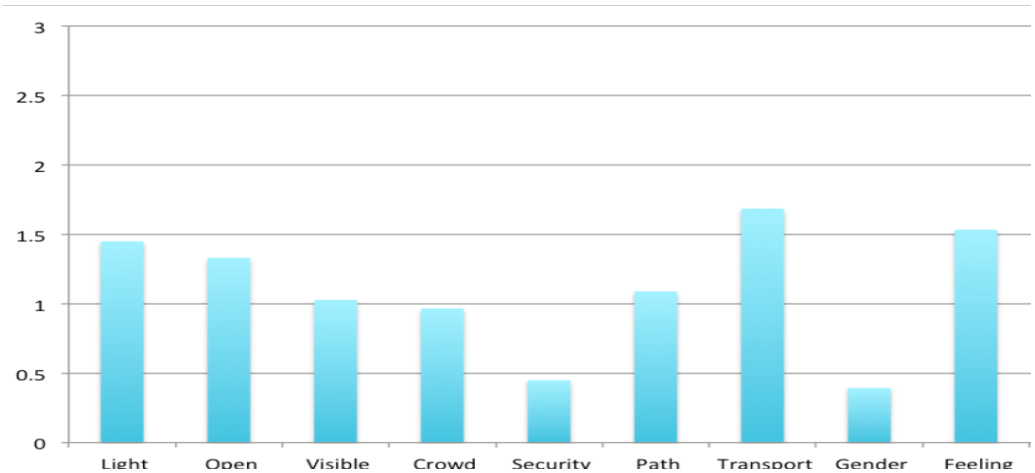
Graph 3: Feeling of safety at different times of the day



Most audit parameters were satisfactory before dark. In fact the feeling of safety is quite high during the daytime. On the other hand after dark most parameters become lower except for walk path and openness, which remained constant. Among the other parameters, the number of women out in public drastically decreased to almost half once the city turned dark. It is interesting to note that the availability of public transport did not reduce significantly after dark.

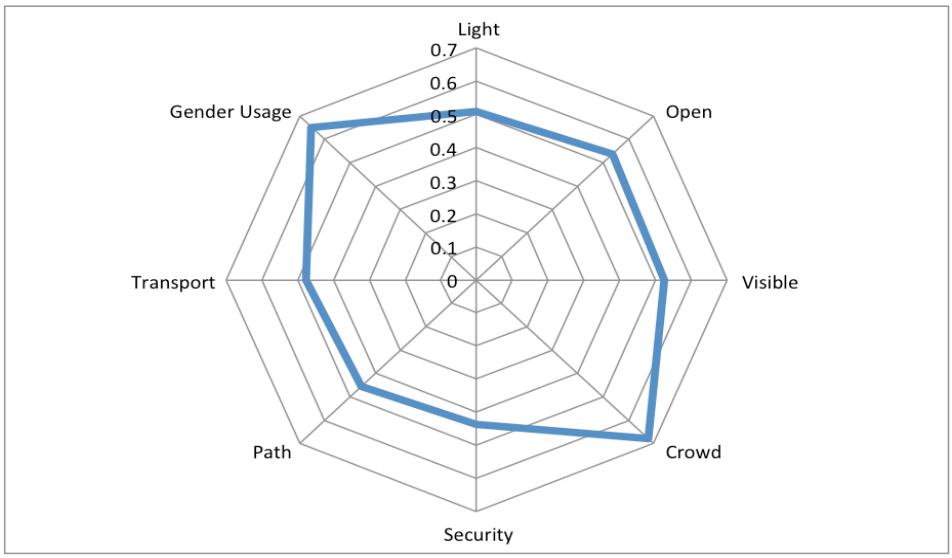
A possible correlation can be drawn between Map 2 and Map 3. With reduced security after dark the accessible spaces for women also shrink in the city. The number of women out in public spaces and presence of visible security is even lower after 8pm. Graph 4 below shows the scores of safety audits conducted after 8pm in Thiruvananthapuram. Only the availability of public transport remains above average after 8.

Graph 4: Average score of safety audit parameter after 8pm



In Graph 5, we can see the correlation of the feeling of safety with the other 8 parameters. The presence of people and particularly the presence of women in public have the highest correlation to the feeling of safety. This is followed by lighting, openness and visibility. Thus a place that is busy with activity and is well lit inspires the feeling of safety among people.

Graph 5: Correlation of safety audit parameters with feeling of safety

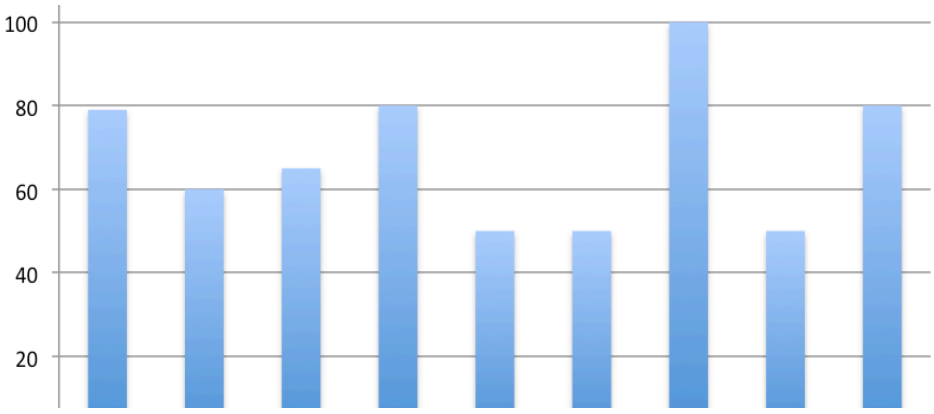


Major Railway Stations and Public Bus stands

The major railway station in Thiruvananthapuram is Trivandrum Central Railway Station, and major bus stands are Thampanoor and East Fort. For the purpose of analysis these three public transport stations are grouped together.

Graph 5 below indicates the score of each safety audit parameter in these public transport stations. A total of 50 audits were conducted in Trivandrum Central Railway Station, Thampanoor and East Fort bus stands. The findings from the audits show that visible security, number of women in the area and walk path have the lowest rating. The auditors also reported cracked and broken drainage slabs turned over walk paths.

Graph 5: Average score of safety audit parameters across the public transport stations



As majority of the audits were conducted after dark, the number of women in Trivandrum Central Railway Station, Thampanoor and East Fort bus stands were low.

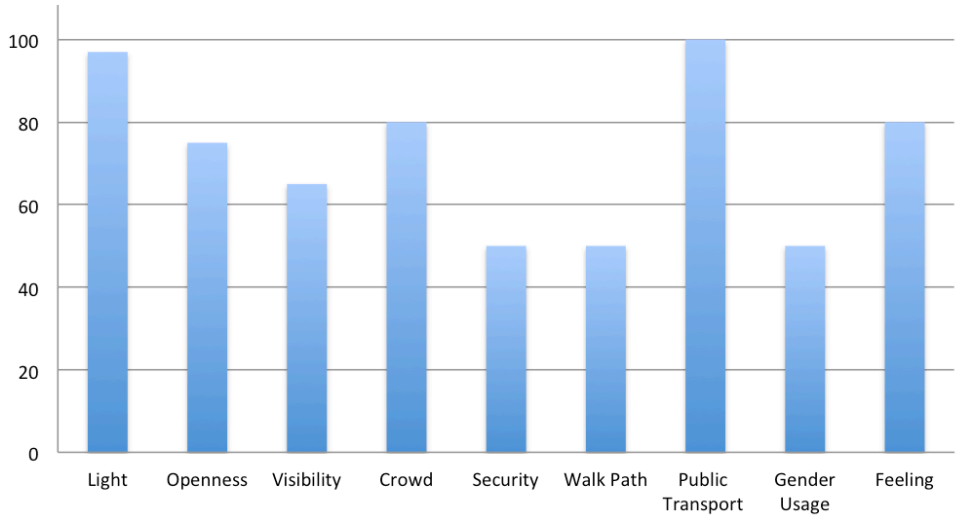
Prime Markets

The main markets in Thiruvananthapuram city, Chalai and Palayam Market are frequently used by citizens. For the purpose of analysis these two markets are grouped together.

Image 1 Shows absence of women in market area

A total of 58 audits were conducted in the market areas. The findings from the audits show that visible security personnel, walk path and number of women in the area have the lowest rating. Though Palayam and Chalai markets are the busiest markets in the city, there is no adequate police force in both the areas, especially inside Chalai market, which is bigger market. Chalai market is a connected network of small roads and by-roads. This overcrowded area has very narrow walk paths. Graph 6 indicates the score of each safety audit parameter in these market areas.

Graph 6: Average score of safety audit parameters across the markets



Conclusion

Overall findings from the audits show that the presence of women in the city has been reported the lowest among all audit parameters. Very few women are seen even on the main roads, major junctions, markets and public transport after 7pm. Women avoid many areas because of safety concerns. Those who are out are often accompanied by men. The presence of security personnel in public places is low. The third is the condition of walk path, though the main hubs of the city have

good walk paths, paths in the outer ring roads are in poor condition and visibility in many areas is also reported low after dark. In the case of lighting, many streetlights are either not functioning properly or are broken. On other parameters such as availability of public transport, openness and crowd, the scores are relatively high.

The auditors in different parts of the city experienced moral policing when the team had a man and a woman. A female auditor experienced incidents of catcalling and comments while riding her scooter from one place to another while conducting audits. She reported that this is a common problem faced by most of the women who ride two wheelers in the city. It was generally observed that public transport facilities are comparatively low after 8pm and those available are unsafe. The study also showed that number of women pedestrians in the city is very few after 8pm.

Way Forward

A number of suggestions and recommendations have come up as a result of the study conducted in Thiruvananthapuram.

Proper and wide walk paths to be built in the city and broken ones are to be reconstructed.
Walk paths to be built without obstructions and cracks to make it accessible for elderly people, people with disabilities and people with prams. An effective maintenance mechanism needs to be put in place to look after the condition of walks paths in the city. Dumping waste on the walk path and occupying it with vehicles or for street vending makes it difficult for pedestrians to walk safely. Spaces should be provided for street vending.

Improving visibility
The city should be planned and constructed with more open areas with proper visibility by minimizing the blind corners and areas without clear sightline.

Improved street lighting
There should be more streetlights and an effective mechanism for the proper and timely maintenance of streetlights. Further, there should be streetlights in all by-roads.

Increasing public transport and making it more women friendly
There should be increase in the availability of public transport to reduce the rush in buses to ensure safety inside the bus. There should also be more number of buses at night.

Making the city more gender friendly
There is a need for more gender friendly and open spaces in the city. The audits showed that there were many parts of the city that even female auditors found difficult to move around in.

Kochi

Kochi is the largest Urban Agglomeration in Kerala and is the commercial and economic capital of the state and is home to the Cochin Stock Exchange. The economy of the area is dependent heavily on the Kochi Port, which is a medieval trading point, formally under the control of the Portuguese empire. The population of Kochi City in 2011 was 601,574, with 296,668 males and 304,906 females. The sex ratio of Kochi city is 1028 females to 1000 males. The city is densely populated with 6300 people per square kilometer, much higher than 819 people per square kilometre, which is average in the state of Kerala. The Urban Agglomeration consisting of the Kochi City includes 5 Municipalities and 15 Panchayats. Kochi is the home to Southern Naval Command of the Indian Navy and the state headquarters of the Indian Coast Guard.

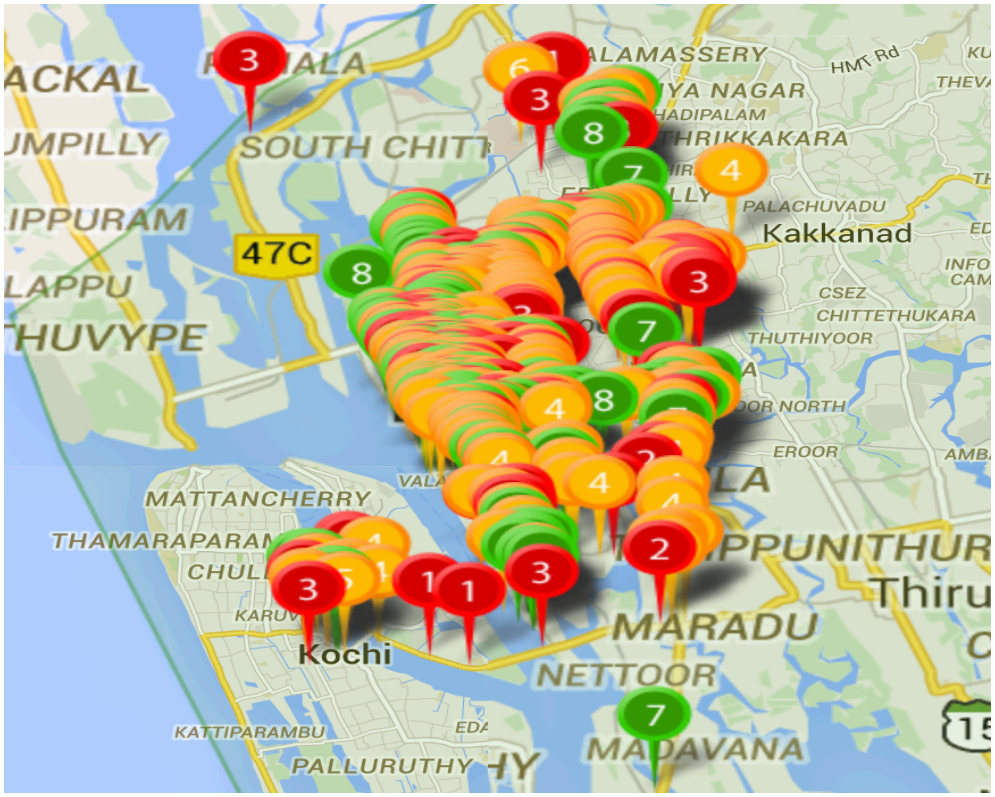
Findings and Analysis

In Kochi the audit team consisted of 4 men and 9 women between the ages of 19 to 30. The audits in Kochi were primarily conducted by students from Sacred Heart College, Thevara, Maharaja's College and Livelihood Advancement Business School. The project period in Kochi was four months, from July to October 2014. 30 areas were identified for auditing. In each selected area 25 safety audits were conducted.

Areas covered during the safety audits were – Thevara, Kundannoor, Thoppumpadi, Ravipuram, Pallimukku, Darbar Hall, Jose Junction, Shenoys, Padma Junction, Karikkamuri, Kacheripady, Pachalam, Kathrikadavu, Mathrubhumi Junction, Palarivattom, Thammanam, Marine Drive, Kadavanthara, Vytila, KSRTC Bus Stand, Edappally, Vennala, Deshabhimani Junction, Kaloor, Boat Jetty, High Court, Menaka, Convent Junction, South Railway Station, North Railway Station

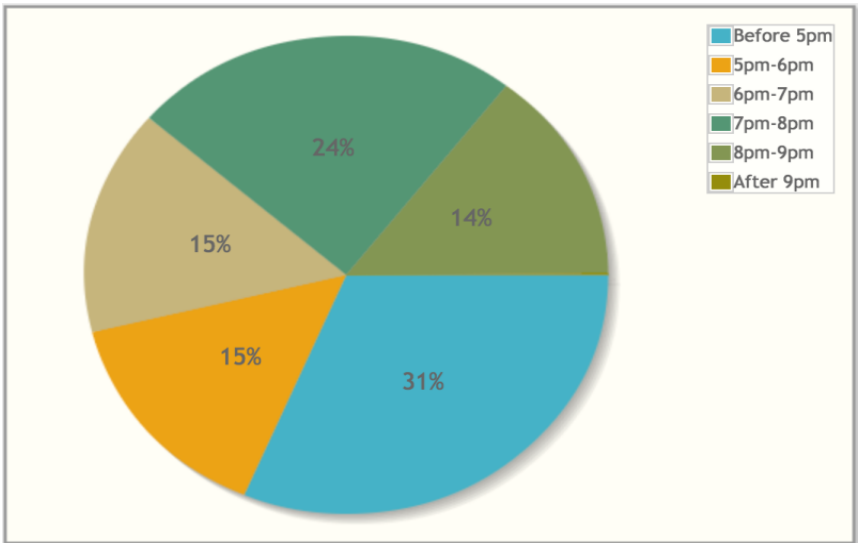
In Kochi, the 30 areas identified to conduct the safety audits included residential spaces, railway stations and major bus stands, commercial areas and popular markets. Over 800 safety audits were done, divided equally in each area; 25 audit pins in 30 selected areas. Map 1 below shows all the safety audit pins collected in Kochi. On the map, red pins indicate unsafe spots, amber pins indicate relatively less safe spots and green pins indicate safe spots. From the audits, 7 out of 30 areas were found to be unsafe – Karikkamuri, Thevara, Elankulam, Shenoys, Marine Drive, Ernakulam South and Vennala.

Map 1: Safety audit pins in Kochi



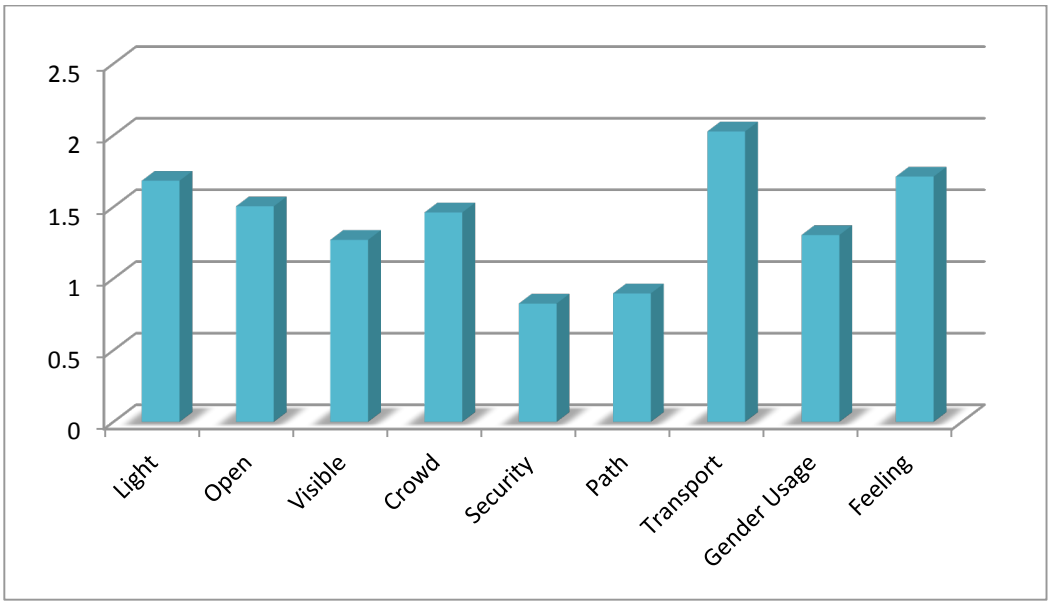
From the above map, we can see that while a few areas are green and some are red, the majority of the points are amber that represents average safety. With an understanding that many places that are safe and accessible during the day become inaccessible and unsafe at night, a majority of the safety audits were conducted between 5pm-9pm, with around 30% being conducted before 5 pm.

Graph 1: Auditing time of the day



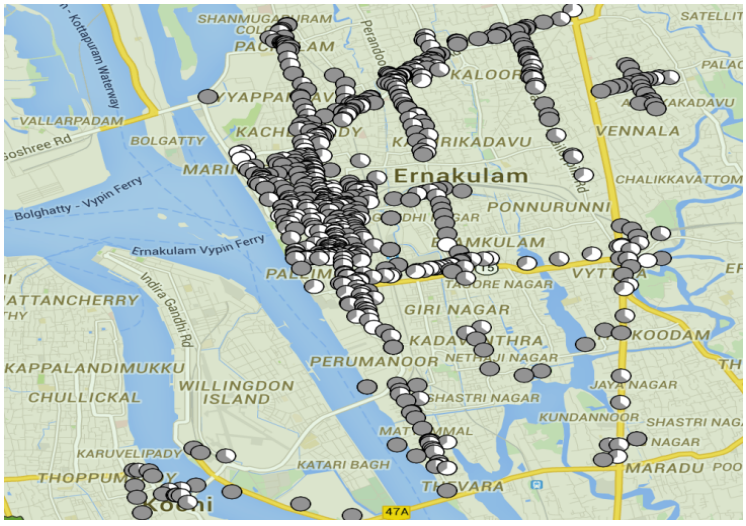
While the safety audit is used to measure safety after dark, the team in Kochi felt it was important to conduct some audits before dark, as places are unsafe even in the daytime.

Graph 2: Average score of safety audit parameters in Kochi



Four parameters have lowest rating –security, good walk paths, visibility and gender diverse spaces. The presence of security and walk paths is particularly low. It is useful to note that lighting and availability of public transport are above average in the areas audited.

Map 2: Level of security in Kochi

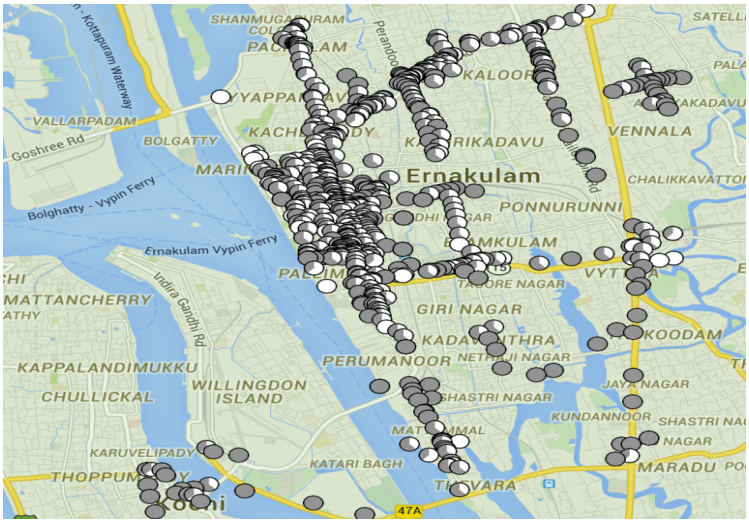


Map 2 above shows the level of visible security in different parts of Kochi city. The fully grey spots are points where there was no visible security personnel or patrolling cars. This condition persists even on the main roads and major junctions. Partially grey spots are points with minimal security

where private security personnel are available in reachable distance and fully white spots are points where public security personnel like police are available. The map clearly shows lack of security in many parts of Kochi. Some of the areas with total lack of security in Kochi are – Palarivattom, Ravipuram, Vyttila, Kaloor, Pachalam, Ernakulam South, Karikkamuri, Marine Drive, Vennala and Shenoys.

Findings from the audits show that walk paths are very rare and those available are in poor condition. There are no proper walk paths even in the main areas like M G Road, Kacheripadi, Ernakulam town railway station, Edapally etc. The map below gives a clear picture of the state of walk path in Kochi city.

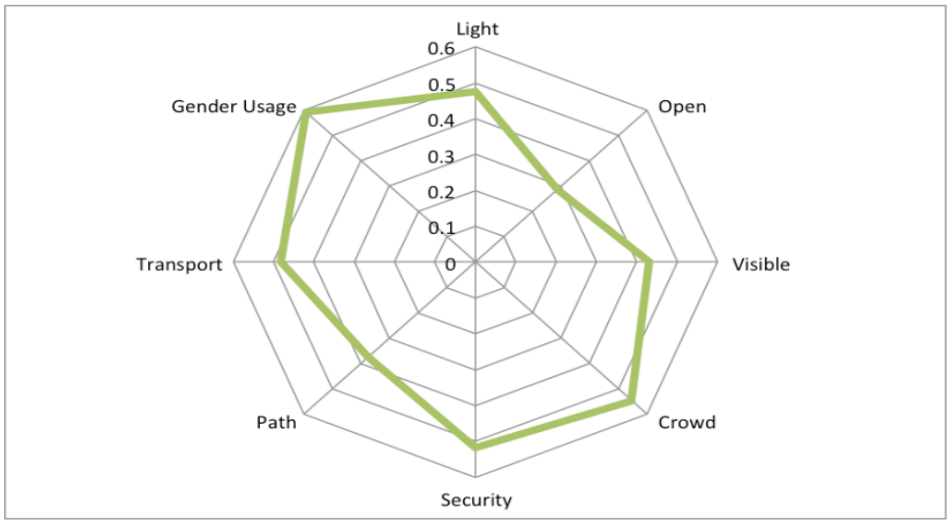
Map 3: Level of walk path in Kochi



The photographs below show the condition of walk paths across Kochi city

To analyze which factors have a higher impact on the feeling of safety, scores of each safety audit parameters were correlated with feeling of safety of the auditors.

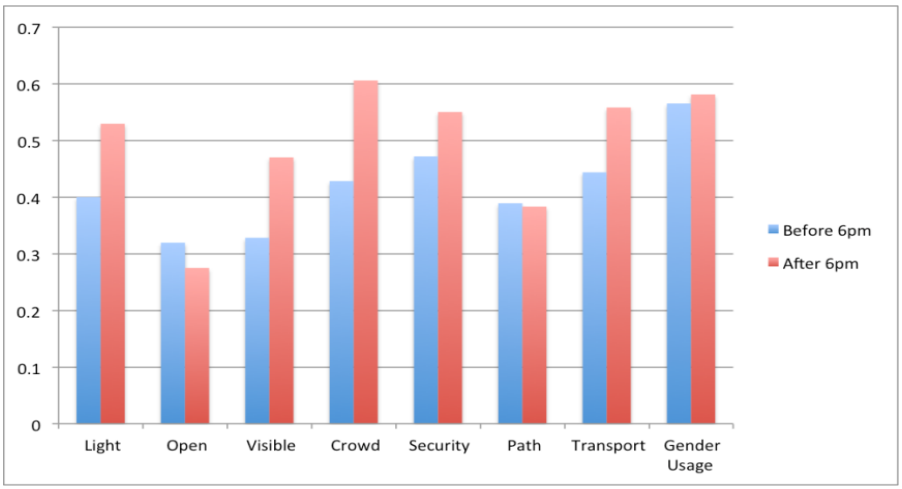
Graph 3: Correlation of safety audit parameters with feeling of safety



Graph 3 above shows that a gender-balanced crowd contributes the most to the feeling of safety in public, followed by presence of crowd. Security, availability of public transport and lighting in the area also have an impact on the feeling of safety. Other factors like good walk paths and openness have less impact on the feeling of safety. Thus both infrastructure factors and presence of people on the streets have an impact on safety.

This analysis can be further broken down into impact of audit parameters on the feeling of safety in day and night, which give similar analysis. Graph 4 below shows that irrespective of the time of the day, the presence of women and children in the crowd affects the feeling of safety the most. This is followed by presence of visible security and availability of public transport. Further, well-lit streets impact the feeling of safety after dark.

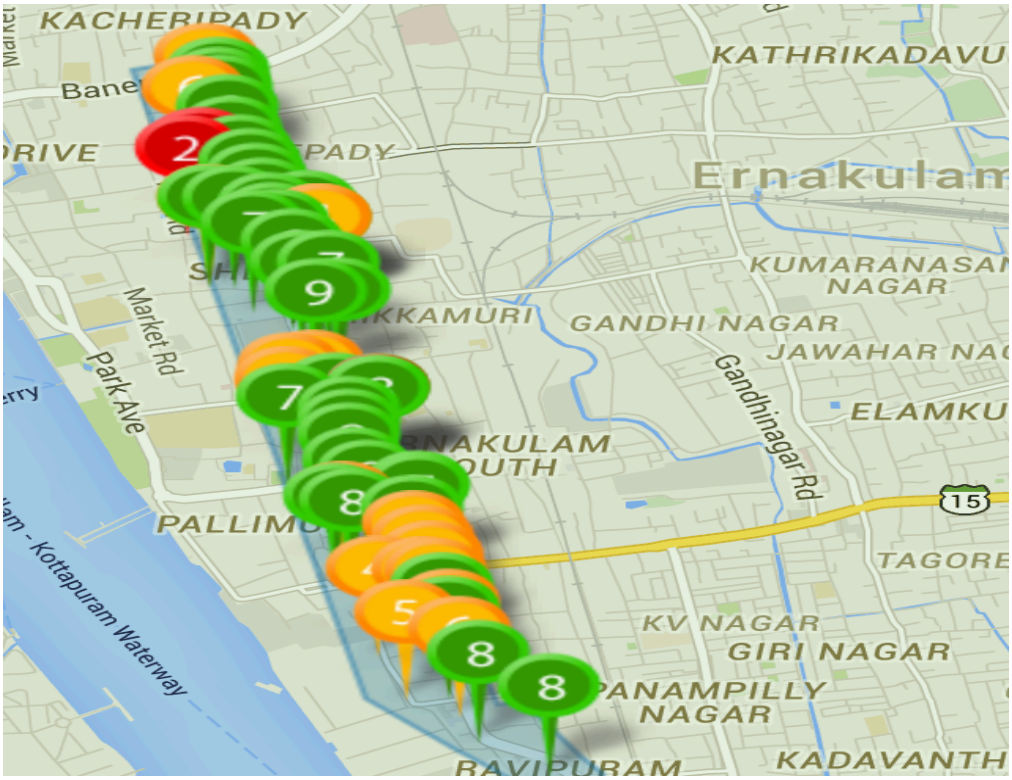
Graph 4: Feeling of safety at different times of the day



MG Road (Mahatma Gandhi Road)

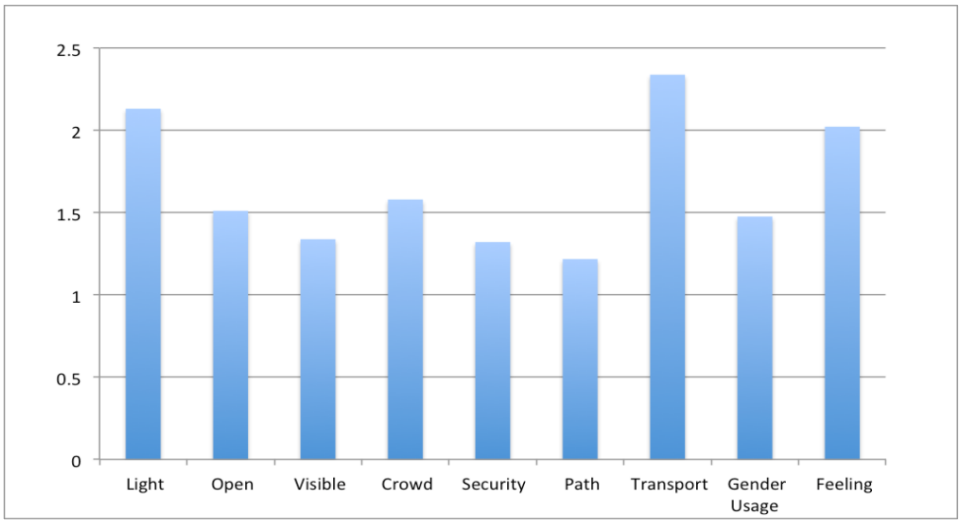
M G Road is the major commercial high street of the Kochi city. The road lies north south with its boundaries at the Venduruthy Bridge, Thevara in the south, and the Madhava pharmacy junction in the north, where it intersects the Banerji road. The total distance of the road is 4km; M G Road is especially noted as the 'lifestyle district' of the city. Alongside of the road, several famous retail stores, hospitals, banks, leading hotels, multiplexes and industries like Cochin Shipyard are located.

Map 4: Safety audit pins in MG Road



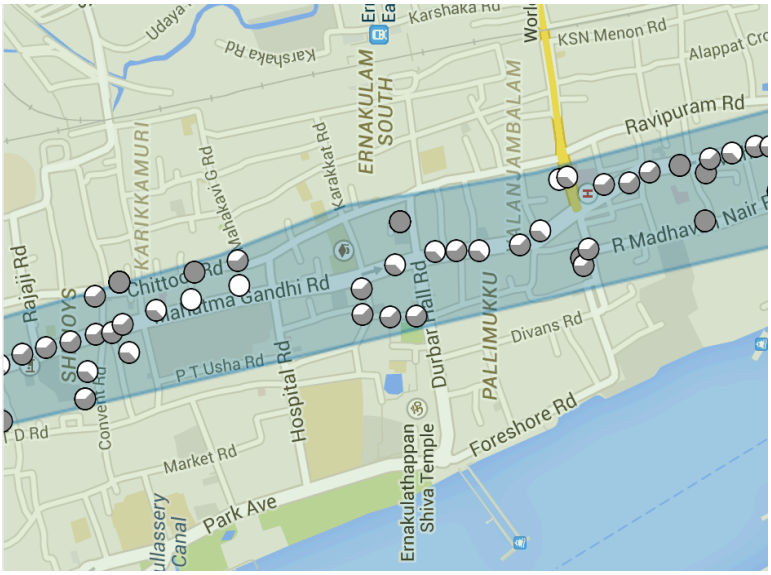
A total of 313 safety audits were conducted on M G Road. Graph 6 below shows that walk path, visibility, and presence of security is scored low. Factors like openness and presence of crowd are scored average and light and availability of public transport are scored fairly high. Gender usage is fairly high, since it is a main commercial street.

Graph 5: Average score of safety audit parameters in MG Road



Map 5 below shows the condition of walk path in the area. The audits show that although walk path is available on MG Road, the quality of path is rather poor.

Map 5: Level of walk path at MG Road

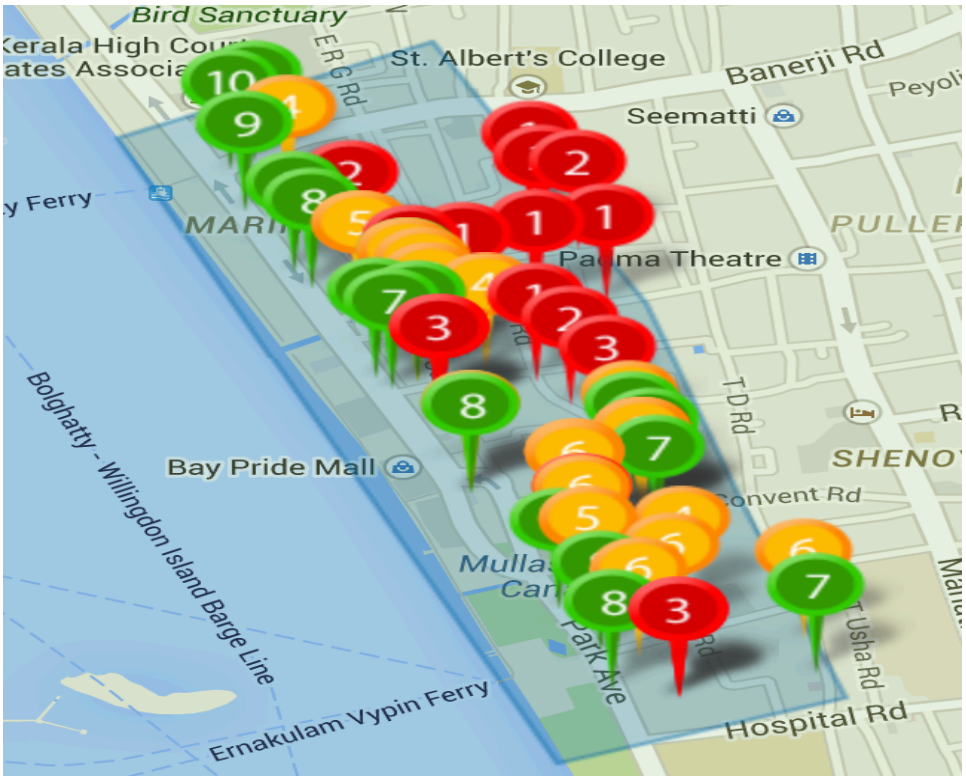


Marine Drive

Marine Drive is a picturesque promenade in Kochi, a popular hangout for the locals and an important centre of shopping activity in the city. Marine Drive is an area where a diverse section

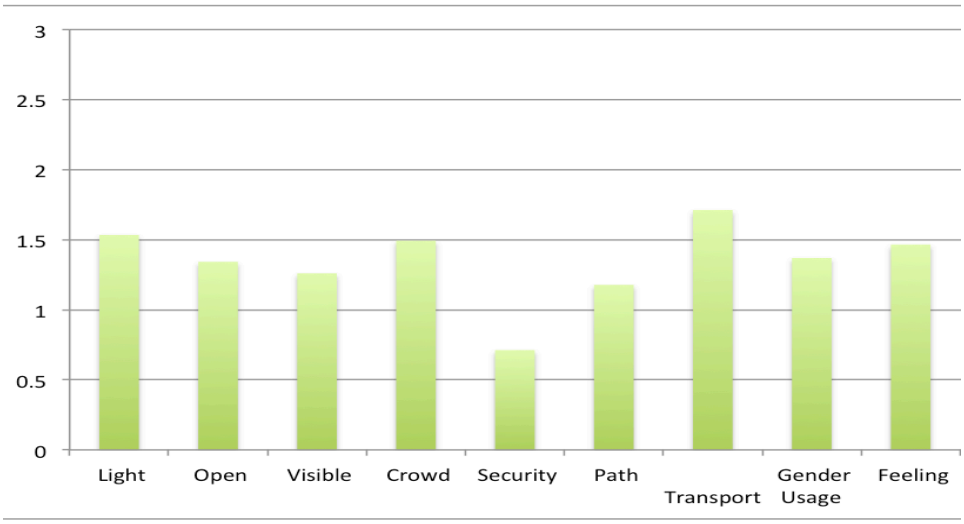
of people visit. This area is known for crimes like drug abuse, theft and attempts of sexual harassment.

Map 6: Safety audit pins in Marine Drive



A total of 60 safety audits were conducted in the Marine Drive. The graph below indicates that all the audit parameters are scored below average except availability of public transport, which is little above the average rating.

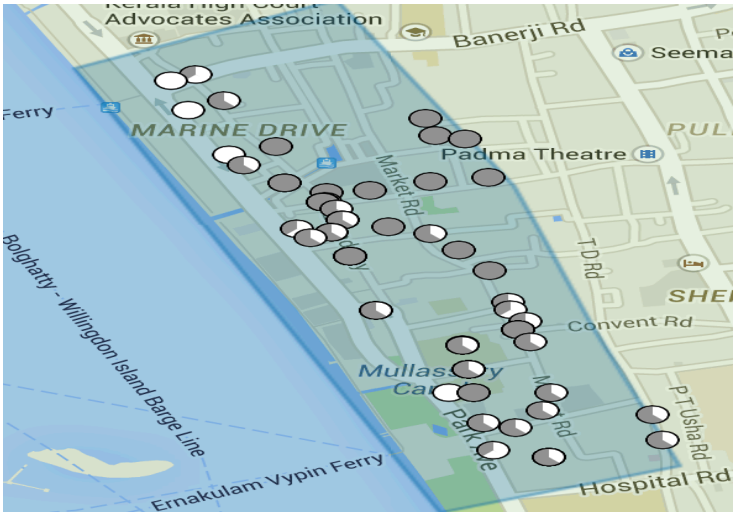
Graph 6: Average score of safety audit parameters in Marine Drive



The graph above shows the scores of each safety audit parameter on Marine Drive. Factors like security and walk path have been scored poorly. Other factors like openness, visibility and gender usage are also scored below the average rating, but gender usage is better than many other parts of the city. This is probably because the area is a bustling commercial and shopping area. Light, crowd and availability of public transport have an average rating.

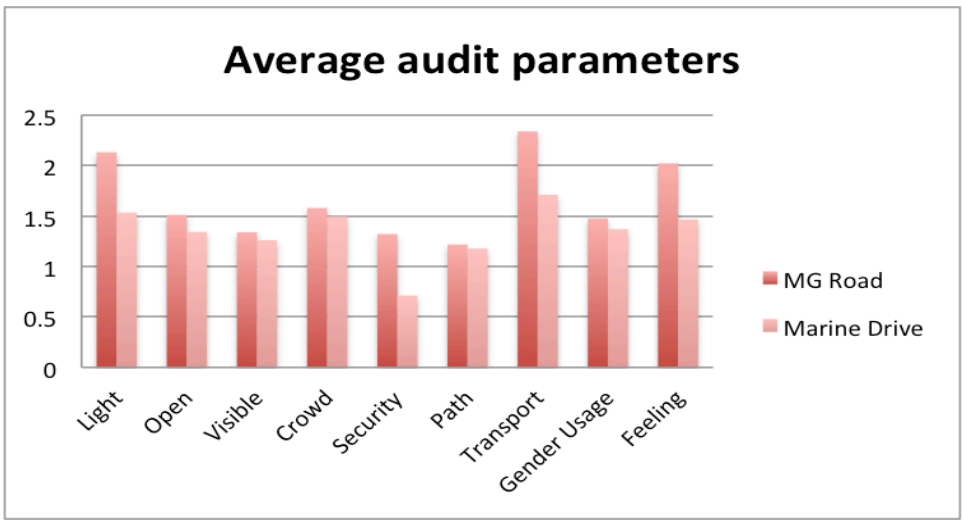
The map below shows the level of security in the area. The map helps in identifying specific spots in the area that require better security.

Map 7: Level of security at Marine Drive



If we look at these two areas together in Graph 7, they score well in many of the parameters. MG Road especially has good lighting, crowd, transport and gender diversity. In the feeling of safety is quite high in this area. Interestingly it is the walk path that has a poor score in both areas. The crowd in the area is average as they are well-used public areas. Lighting in both the areas and availability of public transport is relatively high, though Marine Drive could do with some improvement. Availability of public transport however is very high in both the selected areas.

Graph 7: Average score of safety audit parameters in MG Road and Marine Drive



Way Forward

There is a need to generally improve safety in the city. In fact, female auditors reported facing various attempts of harassment after dark. Kochi city is well connected in terms of public transport.

Address Safety on public transport especially after dark

Safety on public transport after dark needs to be improved. It was generally observed that public transport facilities become comparatively unsafe after 8pm.

Improve Security

The data shows that even in well used and populated areas like Marine Drive and MG road, security is low and this needs to be addressed. Since the streets become so male dominated after dark and women feel comfortable moving out only in the presence of men, more visible security would be a help for women who need to go out after dark.

Improve Lighting

Lighting was very variable across the city. Some areas such as MG Road and Marine Drive had average to good lighting, whereas several areas had poor lighting.

Calicut

Calicut also known as Kozhikode is the third largest city in Kerala and is part of the second largest Urban Agglomeration in Kerala. The city has a rich history of trade and in was a melting pot of many cultures including European merchants from the medieval times. The city continues to be a centre for flourishing domestic and international trade. Calicut has contributed to the all round development of the district in trade, commerce and economic development.

As per provisional reports of Census India, population of Calicut in 2011 is 432,097; of which male and female are 206,494 and 225,603 respectively. The sex ratio is 1093 per 1000 males.

Findings and Analysis

The audit team in Calicut comprised of 19 men and 2 women between the ages of 19 to 25. As Calicut is a conservative city and women's mobility is restricted it was difficult to find women who would be a part of the audit team. The auditors were students from AWH Special College in Kallai, Calicut.

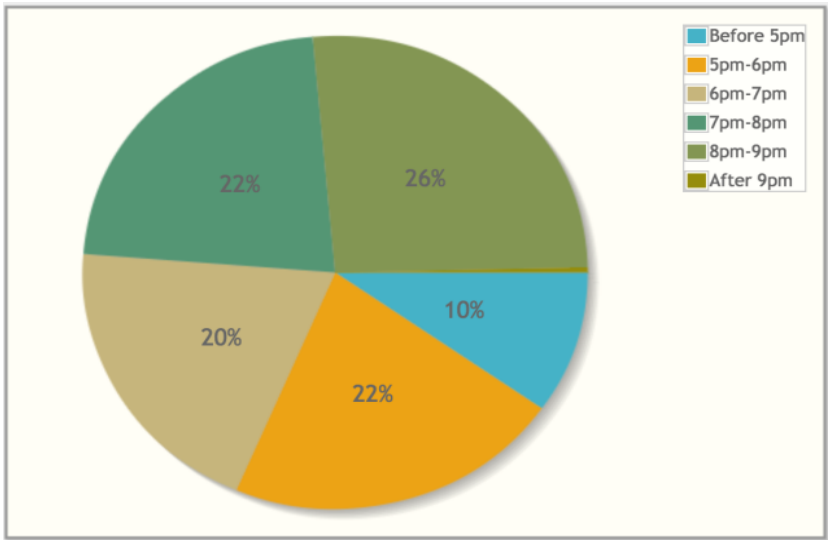
The safety audits in Calicut were carried out over two months, December 2014 and January 2015. 14 areas were identified across the city for the safety audits. In each selected area 25 to 30 audits were conducted. Areas covered in Calicut were - S M Street, Mananchira, Calicut Beach, Mavoor Road, Palayam, Puthiya Bus Stand Complex, Railway Station, Gandhi Park, Swapna Nagari, Eranjipalamm, General Hospital Road, Medical College, Kallai, Meenchantha. These areas include both residential spaces and public areas like parks and beaches.

Map 1: Safety audit pins in Calicut

In Map 1, green pins indicate areas, which are safe, amber pins for less safe places and red pins for unsafe places. Some of the unsafe areas in Calicut are Calicut Beach, Gandhi Park, Palayam and Puthiya Bus Stand Complex.

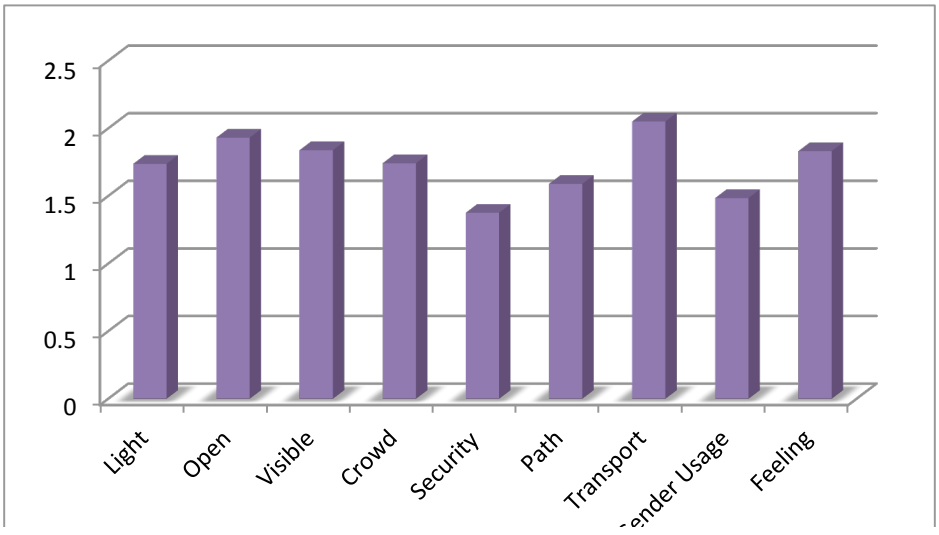
The audits were conducted during different periods of the day. Many places, which are accessible and safe during the day, become inaccessible and unsafe at night. As Graph 1 shows, 26% of the audits were conducted between 8 – 9pm, 22% of the audits were conducted between 7 - 8pm and only 10% of the audits were conducted before 5pm.

Graph 1: Auditing time of the day



Calicut is a comparatively conservative city where women's mobility is restricted. Because of this we were unable to get too many female auditors for the study and hence had to use more men for the audits. Graph 2 below shows that the scores of parameters of safety are largely above average except for security and gender diversity. Lighting, openness and visibility have got a better score and the availability of public transport is a positive factor in Calicut. Interestingly, there seems to be large numbers of people and crowd though the gender usage is less.

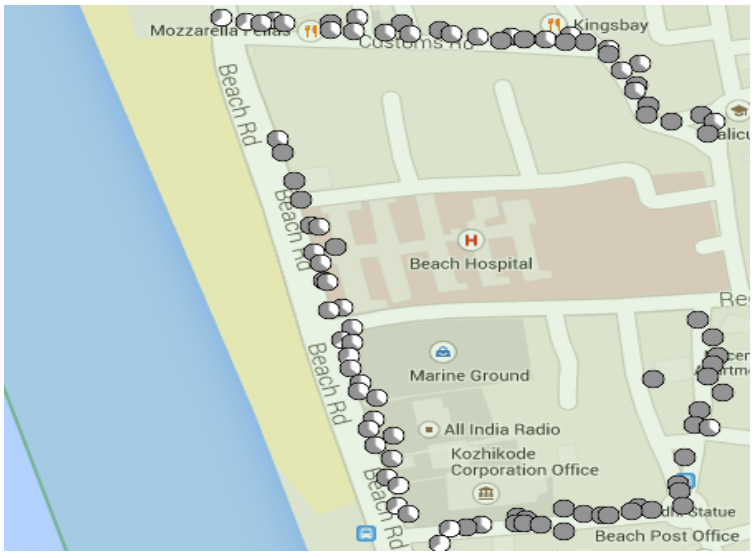
Graph 2: Average score of safety audits in Calicut



Map 2 below shows the level of visible security in some of the major areas in Calicut. The fully grey spots are points where there are no visible security personnel. This condition persists even in the main roads and major junctions of the city, especially in the areas near the beach and General hospital road. Partially grey spots are areas with minimal security, private or public security personnel available in reachable distance and fully white spots are areas with high security, where there are enough police. It is obvious from the map that there is lack of visible security in certain parts of the city. Some of the areas with lack of visible security personnel in Calicut city are Calicut Beach, General Hospital road, Gandhi Park, Palayam, Mavoor road and SM Street.

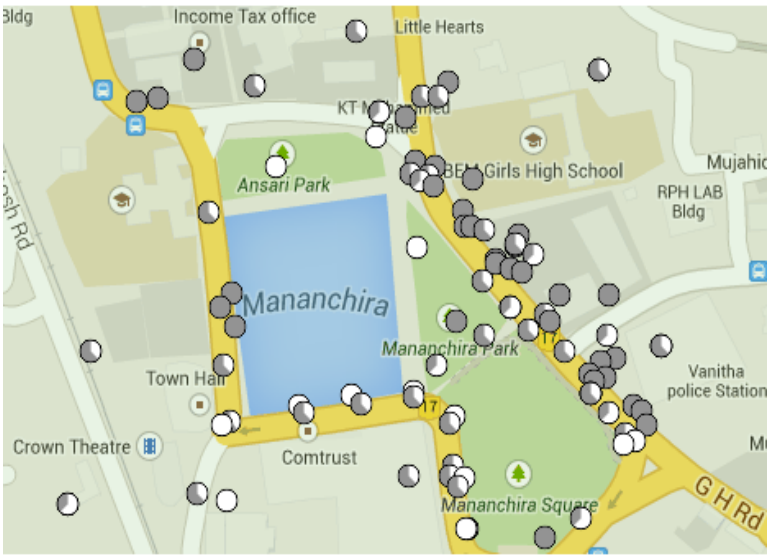
Map 2: Level of security in Calicut

Map 3: Level of gender diversity in Calicut



Findings from the audits show that the presence of women in public areas of the city is much lower compared to men. Women's access and visibility in public is restricted. This condition becomes worse after 7pm. Calicut beach, Gandhi Park and Mavoor road are some areas where there were very few women after dark. Map 3 above shows the level of gender diversity in Calicut Beach and Gandhi Park. The fully grey spots are points where there are no women. Partially grey spots are areas with few women and fully white spots are areas that are gender diverse. We can see there are no fully white spots in these areas.

Map 4: Level of lighting in Calicut



Lighting is also quite poor in many parts of Calicut. Though there are streetlights in the major areas, most of them are broken or dysfunctional. There are no streetlights in by-roads. Lack of street lighting in public areas makes it difficult for women to access these areas. Map 4, shows the level of lighting in and around Mananchira. The fully grey spots are points where there is no light. Partially grey spots are areas with little light and fully white spots are areas that are brightly lit.

Walk paths are in poor condition in many places in the city. There are no proper walk paths even in main areas like SM Street, Eranhipalam, Gandhi Park, Kallaiand Palayam.

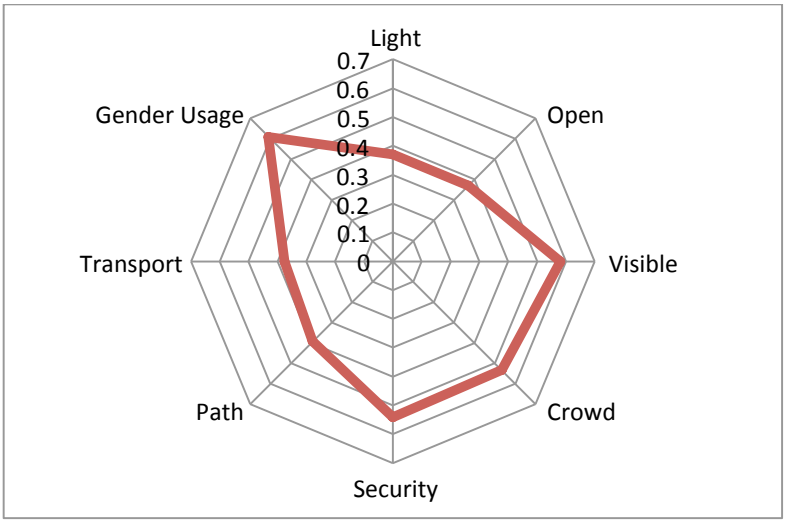
Other parameters such as availability of public transport, openness, visibility and crowd the scores are high. Calicut is well connected with public transport, especially private buses and auto rickshaws.

Correlation of feeling with safety audit parameters

Graph 3 analyses the impact of each parameter on the feeling of safety. The graph indicates that a gender-balanced crowd contributes the most to the feeling of safety in public spaces, followed closely by visibility, presence of people and visible security in the area, while the other audit parameters have less impact over the feeling of safety in public spaces. Interestingly the

correlation between lighting and safety is not very high here and this is different from the findings in other cities. This analysis indicates that it is important to have better and accessible public services for women and children in order to make public spaces more welcoming to them. It also suggests that having more visible policing will foster a feeling of safety.

Graph 3: Correlation of safety audit parameters with feeling of safety

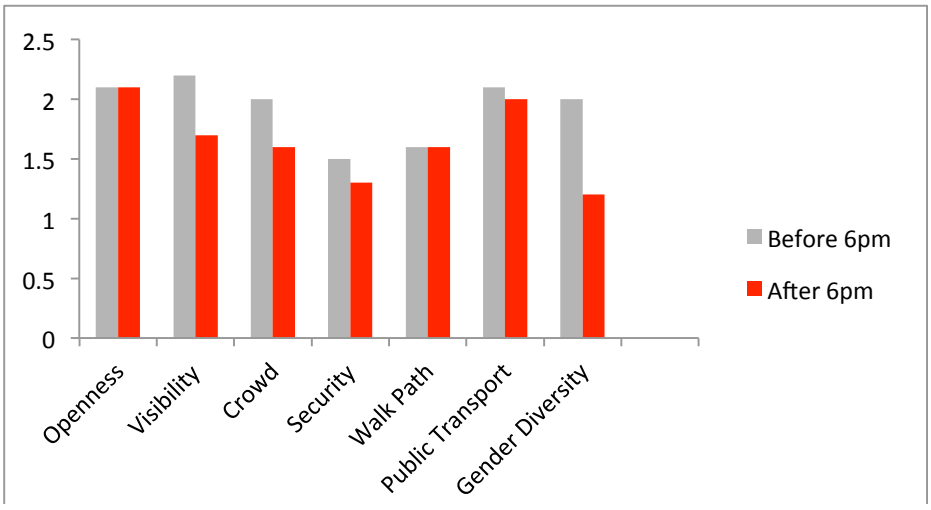


Feeling of safety at different times of the day

The nature and character of a city often changes at night. Therefore places which are safe and comfortable during the day become unsafe and uncomfortable at night. In Calicut city 250 safety audits were done before 6pm or before dark and 500 audits were done between 6pm to 10pm or after dark.

Graph 4 shows comparative scores of safety audits conducted before 6pm and after 6pm in Calicut city (Lighting is excluded because it is not a valid parameter during the day time).

Graph 4: Average score of safety audit conducted before and after 6pm

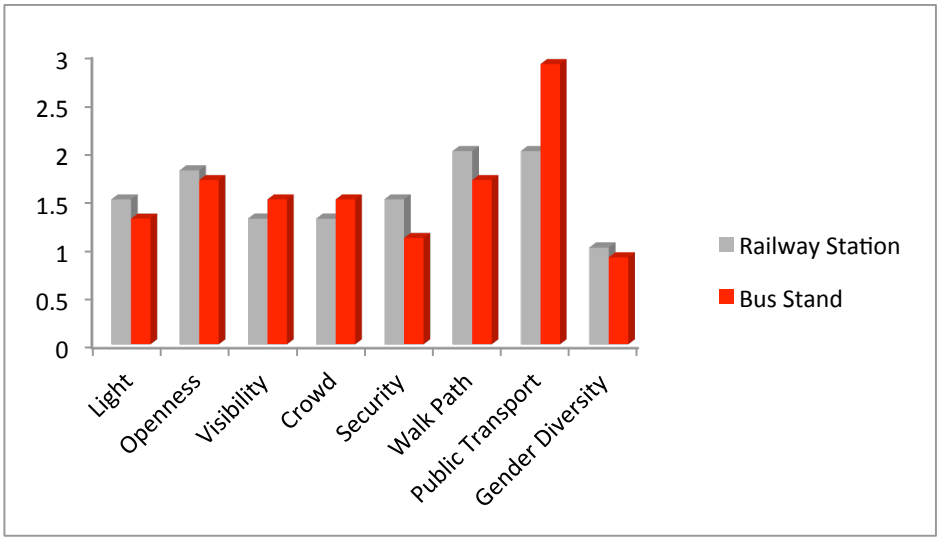


It is significant to note the large variation in the audit parameters before and after dark. All the parameters show a decrease after dark except for openness and walk path which remain the same in the day and night. It is relevant to note that Calicut is well connected with public transport even after dark. But it is reported that the public transport facilities available after dark are mostly unsafe for women. Graph above shows that there is a very large decrease in the number of women in public after 6pm in the evening. The graph above also indicates that visibility becomes less after dark, which means there are less people who are watching the street. This could be due to closing of shops and street vendors moving out. The crowd also reduces after dark.

Railway Station and Public Bus stand

The Calicut Railway Station and Bus stand complex Puthiya Bus Stand Complex were audited. A total of 100 audits were conducted in these two areas, which are major transport hubs of the city. Graph 6 shows the comparative scores of audits conducted after dark (after 7pm) in these two areas. The findings from the audits show that, the number of women in the area in these areas is very low. Security and lighting in the area are also below average.

Graph 5: Average score of safety audit parameters at railway stations and bus stands

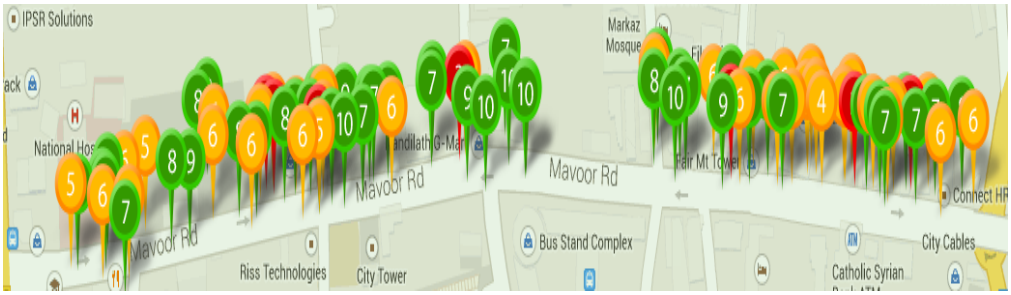


Mavoor Road

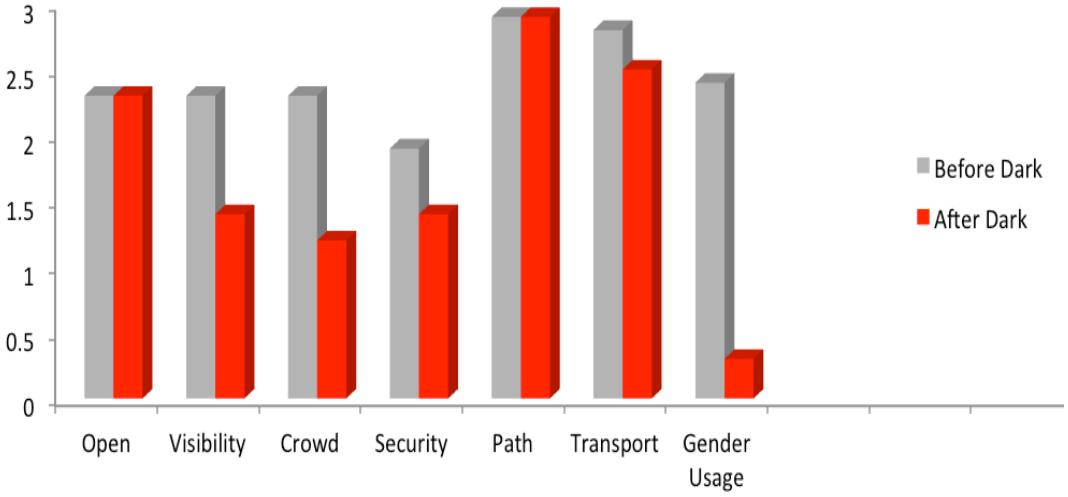
Mavoor road is one of the busiest roads in Calicut city. The stretch from National hospital to Mini by pass junction was audited. Map 6 shows Mavoor road with safety audit pins. Green pins indicate areas that are safe, amber pins for less safe places and red pins for unsafe places.

Fifty audits were conducted before dark and after dark.

Map 5: Safety audit pins in Mavoor Road



Graph 6: Average score of safety audit conducted before and after 6pm at Mavoor Road

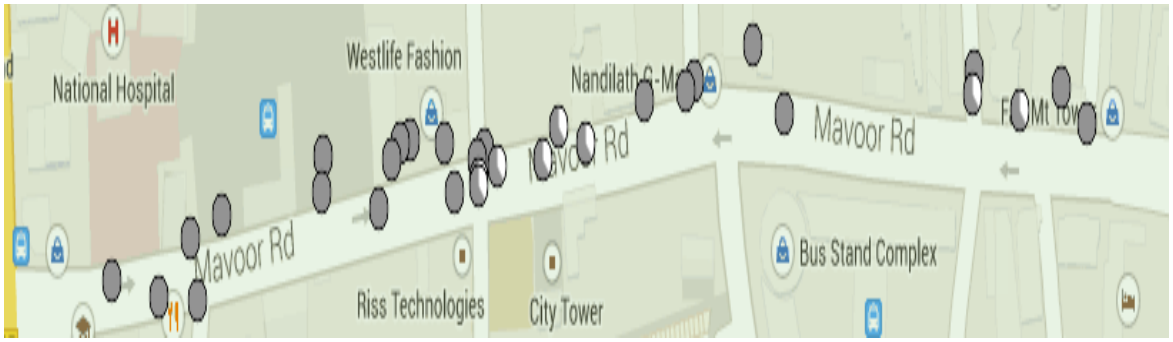


Graph 6 gives a clear picture of difference in the score of safety audits parameters in Mavoor road before and after dark. There is an extremely sharp dip in the number of women after dark. Further visibility and the presence of people also goes down significantly after it turns dark. Openness and walk path remain the same and the availability of public transport goes down a bit.

Image 2 Shows absence of security

Further Map 6 indicates the level of gender diversity in Mavoor road after dark. The fully grey spots are points where there are no women. Partially grey spots are areas with few women and fully white spots are areas that are gender diverse. Almost all the areas are grey indicating the lack of women in the area.

Map 6: Level of gender diversity at Mavoor Road after dark



Way Forward

Improve Gender Diversity

The lack of women in public places after dark is a serious issue and we were even unable to get women to be part of the audit teams. To address this, the design of public places have to be such that it encourages women to be out. So places should be well lit, have activity on the streets and have enough people out.

Increase Security

The presence of security is also low in the city and there is a need to step this up. Especially in light of the fact that in Calicut, the presence of security has a high correlation to the feeling of safety.

Findings and Analysis

Pune

Pune

Pune is the seventh most populous city in India and the second largest in the state of Maharashtra. As per the 2011 census of India, the population of the Pune urban agglomeration was 3,304,888, while the population of Pune District was 9,429,408. Growth in the software and education sectors has led to an influx of skilled labour from across India to the city. According to the Pune Municipal Corporation, 40% of the population lived in slums in 2001. The average literacy rate of Pune was 86.15 in 2011 compared to 80.45 in 2001.The sex ratio in Pune was 915 per 1000 male compared to 2001 census figure of 919. The average national sex ratio in India is 940 as per latest reports of Census 2011 Directorate.

With 811 colleges Pune Varsity is the second largest in the country. The large student population in the city adds unique challenges in the safety paradigm of Pune. The city has also witnessed terrorist attacks in the year 2010 and 2012. These have changed the perception of Pune as a safe city nationally. According to the NCRB Report of 2013 the state of Maharashtra recorded 15,728 criminal cases of violence against women. Further, according to the Pune Crime Branch 168 cases of rape, 303 cases of molestation were reported in the city in 2013. These were 85 and 112 respectively in 2012. Like the rest of the country the reported cases do not paint the actual picture as many cases go unreported.

Samyak

Samyak is registered as a Communication and Resource Centre on gender, masculinities, health and development. Based in Pune, Samyak works through collaborative partnerships and advocacy initiatives with voluntary and people's organizations, social and political groups, media, and society at large, to promote gender equity and justice and to advocate human rights of all individuals. The organisation works through diverse mediums their Communication and Research Centre focuses on development of communication materials on gender, masculinities, health and development using principles of development communication. Samyak has also undertaken capacity building initiatives with organisations that work in urban and rural settings.

Safetipin collaborated with Samyak to carry out the safety audits of the city. A press conference was organized on the 23rd of June 2014 for the launch of the project in Pune.

Findings and Analysis

16 areas were identified across the city to conduct safety audits. These areas were selected according to the local municipal divisions of Pune, these included residential spaces, university campus, popular markets, main bus terminals, bus routes and railway station. Over 2100 safety audits pins were collected in Pune by the auditors. The areas covered were Aundh- Baner,Camp, Deccan, Hadapsar, Karvenagar- Warje, Katraj, Khadki- Dapodi-Bopodi, Kondhwa, Koregaon Park, Kothrud, Mundhwa, Pune Station, Shivaji Nagar, Sinhgad Road, Swargate, Yerwada-Lohgaon.

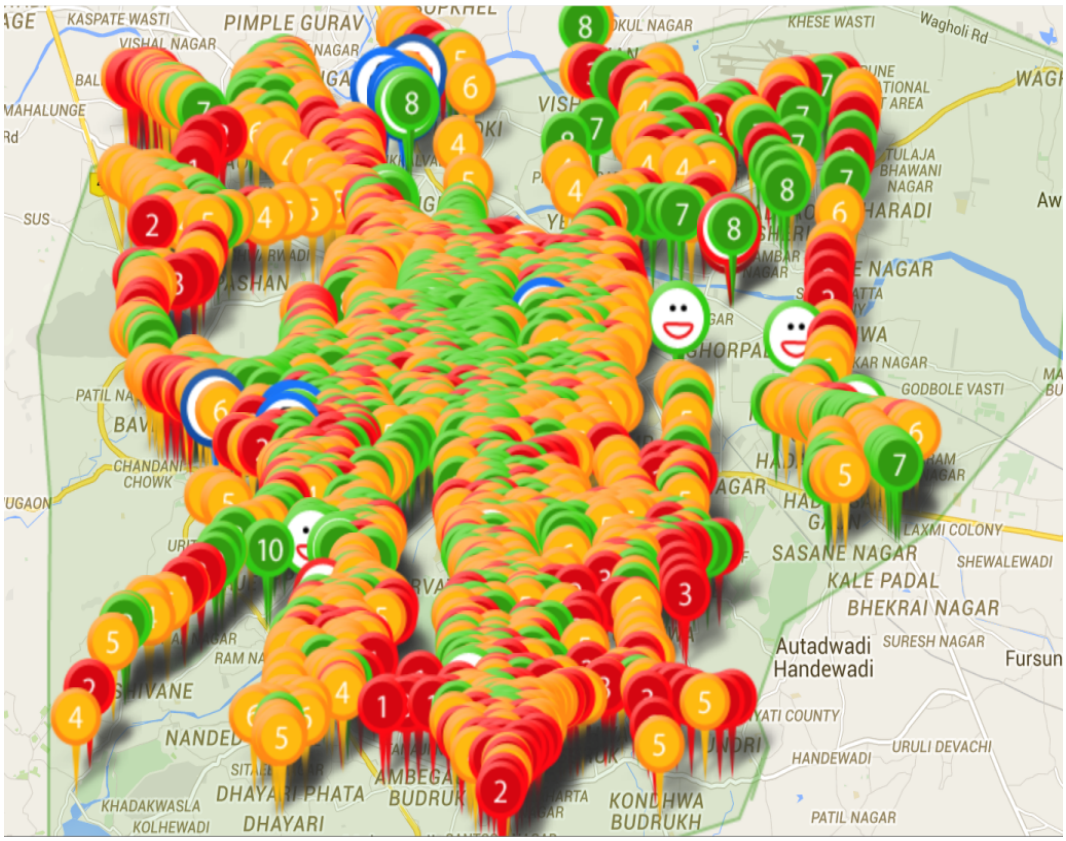
Samyak identified a group of youth activists called CEHAR. Six auditors from the group were trained during a session held on 6th and 7th of June, 2014. The session was

facilitated by Safetipin and was hosted by the Samyak Team. The session introduced the auditors to the discourse on women's safety in urban spaces and also trained them on how to effectively use the Safetipin app. Mock audit session were held for the group.

Following the first round of training, the Samyak team held a second auditor training session with volunteers from Karve Institute of Social Services. These 17 volunteers conducted safety audits as part of their field assignment. The training session was held on the 25th and 26th of August, 2014.

A total of 26 volunteers took part in data collection in Pune. There were 12 men and 14 women aged between 19 to 41 years. The auditors collected the data from the month of June to December 2014. All audits were done between 6 pm to 10 pm.

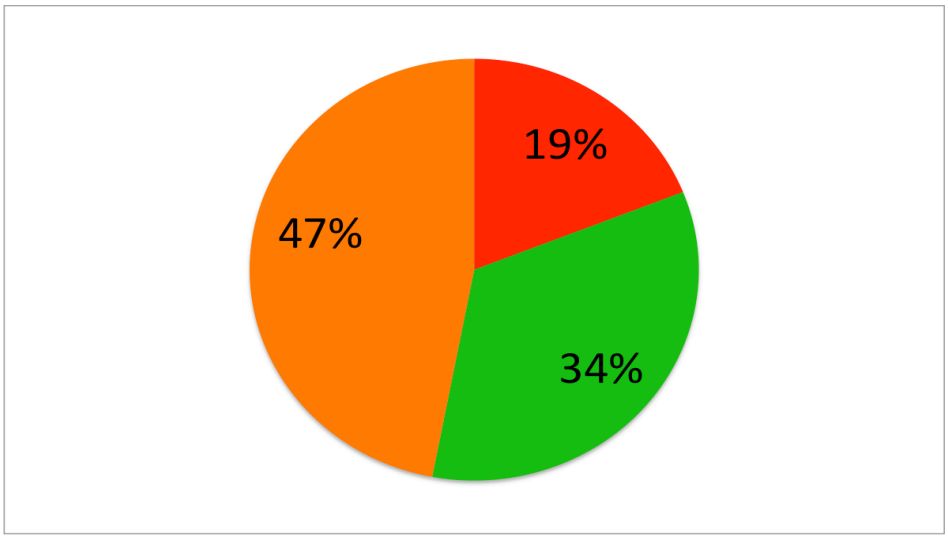
Map 1 – Safety audit pins in Pune



In Map 1, the green pins indicate areas, which are safe, amber pins indicate less safe places and red pins are the unsafe places. The map shows that there are more red and amber pins, especially in the suburban parts of the city. Areas like Shivajinagar, Deccan, Swargate that are in central Pune were rated safer by the auditors. The suburbanisation of Pune has increased the urban sprawl on the fringes of the city. This rapid increase in the agglomeration has led to problems like lack of effective policing and increase in the perception of low safety among the residents. The traditional city life of Pune has rapidly changed and the geographic spread needs to be navigated much more.

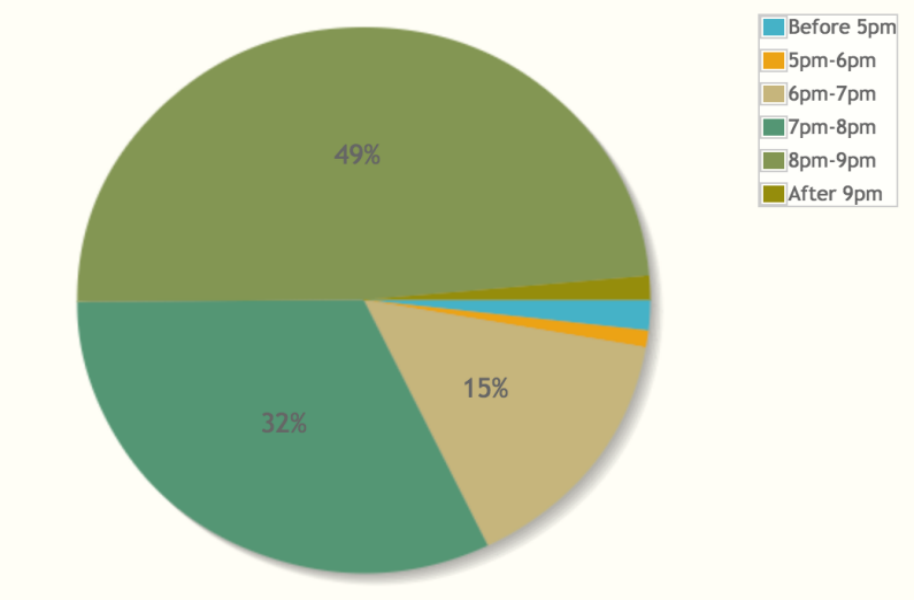
Graph 1 shows that 34% of the safety audits in Pune were green and therefore relatively safe for women and children. 47% of the city is colored with amber pins and 19% with red pins.

Graph 1 – Percentage of audit pins



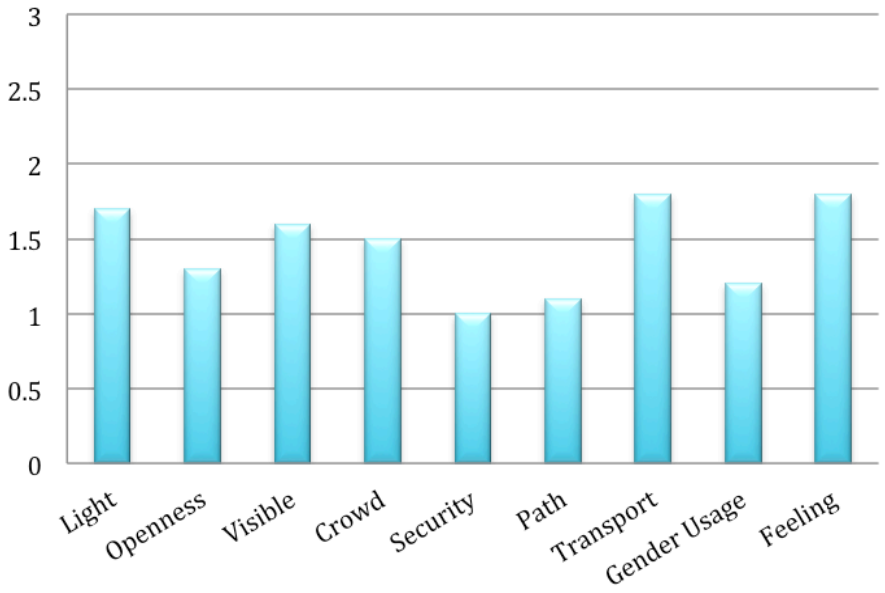
The audits were conducted mostly between 6-9pm. Graph 2 shows that 15% audits were carried out between 6-7pm, 32% audits between 7-8pm and 49% that is the majority of audits were carried out between 8-9pm.

Graph 2 – Auditing time of the day



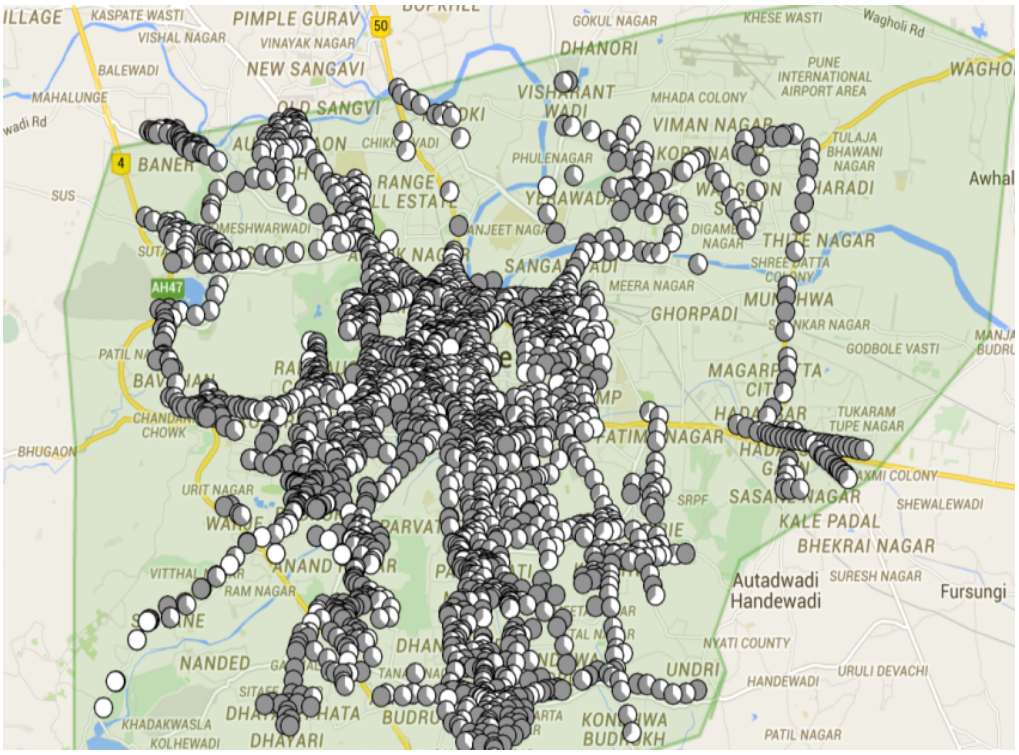
Findings from the audits show that on a scale of 0-3, four safety audit parameters have low ratings in Pune. These are security, walk path, gender usage and openness. Audit parameters such as visibility and crowd are average and light and public transport are above average.

Graph 3 – Average score of safety audit parameters



Map 2 below shows the level of security in Pune. Most parts of the city are covered with grey spots, indicating a lack of visible policing in the city. Central Pune has better security services and police presence decreases as one moves outwards. The presence of security has an impact on the feeling of safety.

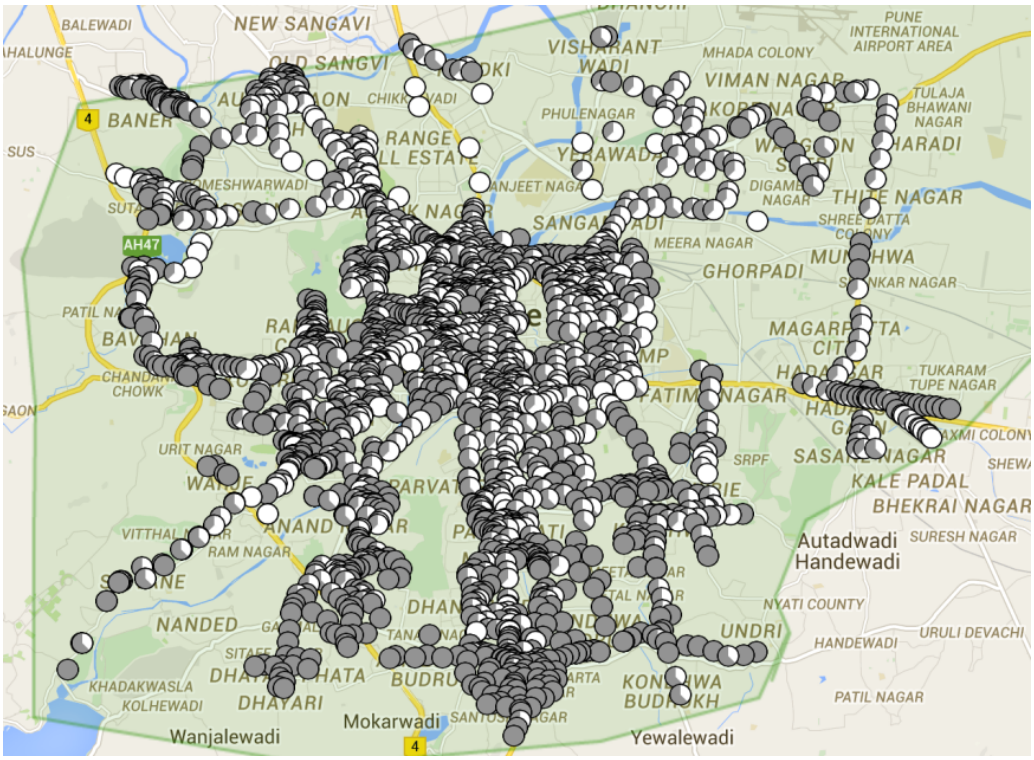
Map 2 – Level of security in Pune



Map 3 below shows the condition of walk path in Pune. Large parts of the city have poor walk paths, especially towards the south of the city. Walk paths in Pune have a moderate impact on the feeling of safety. Stress must be laid on the need to invest in building and

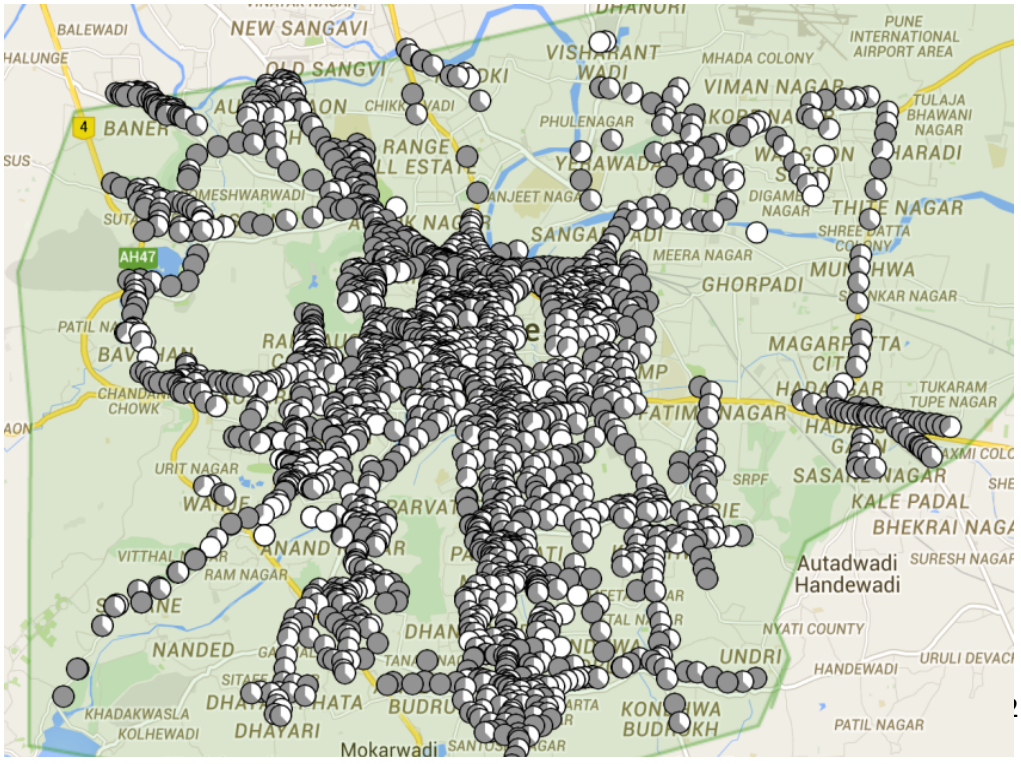
maintenance of proper walk paths in the city to reduce accidents and increase easy access to all citizens.

Map 3 – Condition of walk path in Pune



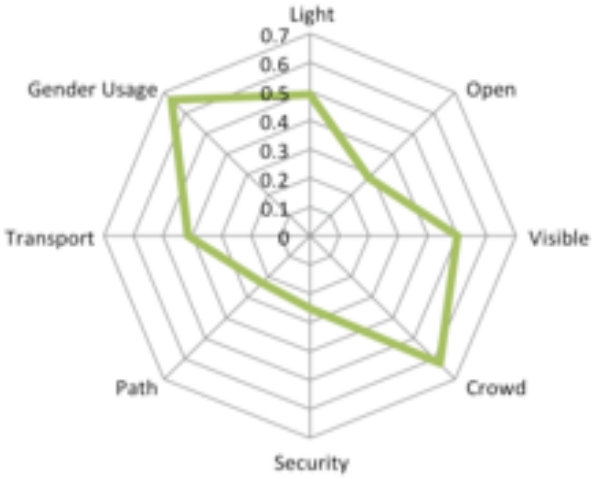
Map 4 below indicates the level of gender diversity in the areas audited in the city. While there are a few areas with good diversity, we can see that many areas are not used freely by women, especially after dark. The large student population in the city foregrounds this data even more sharply. The question of access of these young women to areas in the city is crucial in understanding the overall safety condition of the city.

Map 4 – Level of gender diversity in Pune



The above description is very significant as Graph 4 below indicates that a gender-balanced crowd contributes most to the feeling of safety in public spaces; followed by presence of people, lighting and eyes on the street. On the other hand, an accessible and good walk path, availability of public transport and openness of an area appears to have less impact on the feeling of safety.

Graph 4 - Correlation of safety audit parameters with feeling of safety

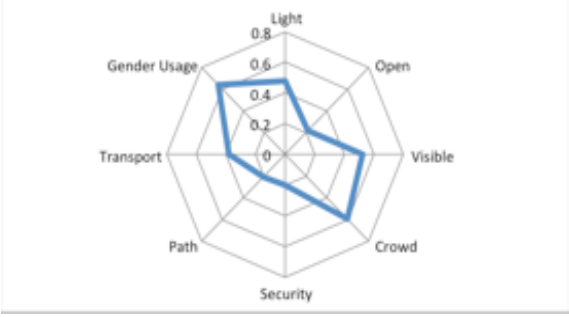


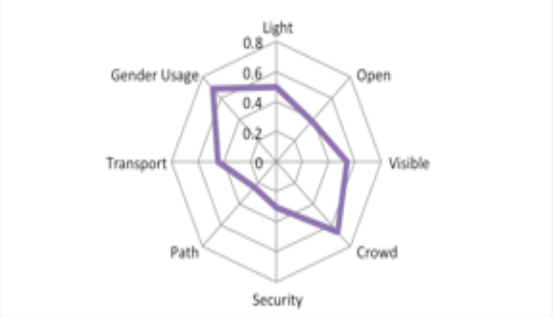
This analysis has been further broken down into impact of audit parameters on the feeling of safety in each of the selected areas, which give similar analysis.

We further analyzed the correlation of feeling with audit parameters scored by male and female auditors to document the change in perceptions due to gender.

Graph 5 – Correlation of safety audit parameters with feeling of safety scored by male auditors

Graph 6 – Correlation of safety audit parameters with feeling of safety scored by female auditors



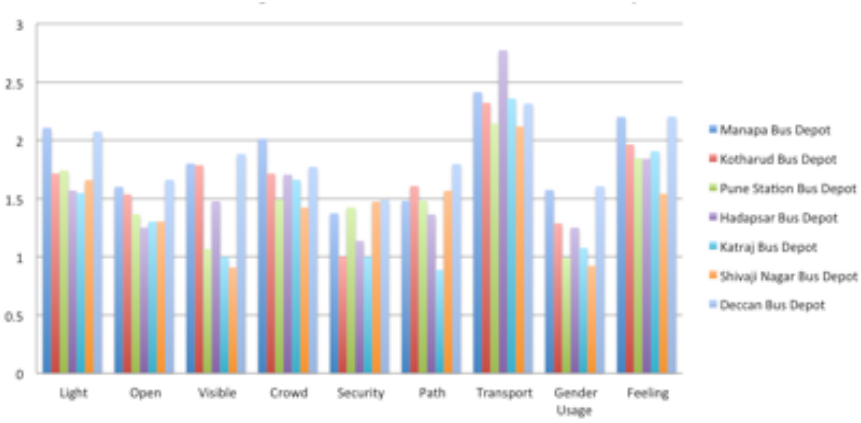


Graph 5 & 6 show the gender breakup of the overall analyses of correlation of feeling with safety audit parameters. Gender diversity and presence of crowd remain the most important factors that contribute to feeling safe in public spaces, followed by 'eyes on the street' and lighting. For women auditors the openness of an area appeared to have more correlation to the feeling of safety.

Safety Audits at Bus Depots

In Pune, safety audits were carried out at major bus depots and streets leading towards the bus terminals. For the audits, 8 bus depots in Pune were selected and each depot as well as roads approaching the depots were covered with 8-10 audits. The bus depots audited were Deccan, Hadapsar, Katraj, Kothrud, Manapa, Shivaji Nagar, Swargate and Pune Railway Station depot.

Graph 7 - Average score of safety audit parameters across the seven bus depots in Pune



On a scale of 0-3, security and gender diversity remained poor across the bus depots including the approaching roads. The average score of these two parameters was slightly better in Manapa and Deccan bus depot due to the presence of university campuses in the area. Presence of crowd and light had an average score across the depots except Manapa and Deccan bus terminal, where light has been rated above average. Score of walk path varies by the terminal; the main city localities like Deccan, Kothrud and Shivaji Nagar have better walk path as compared to Katraj, which is at the outskirts of Pune and has poor walk path.

Graph 8 – Correlation of safety audit parameters with feeling of safety across the seven bus depots in Pune

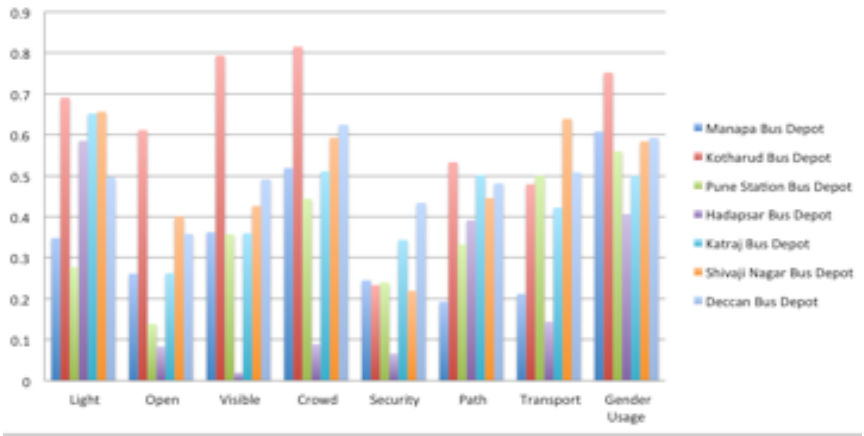


Image 1 Shows poor lighting in the area

Graph 8 shows that a gender-balanced crowd affects the feeling of safety across all the terminals. Presence of crowd and well-lit streets and public spaces are also important factors that contribute in creating a safer environment for women and children. Only in Kotharud bus depot, visibility and presence of people had a high correlation to the feeling of safety.

Recommendations

Safety audits in Pune show that the city is not very safe. Lack of proper infrastructure restricts the mobility of women who live in the city. Availability of infrastructure and services such as light, good walk path, visible security personnel, overlooking windows/entrances are important factors to enhance the feeling of safety among women and others. Here are some major findings from this study.

- **Creating Gender Diverse Spaces**
  The data shows that the feeling of safety is most closely linked to gender diverse public spaces. The city departments must work to design gender diverse spaces that encourage women to use them without the fear of violence or harassment. The presence of women and children in a crowd leads to an increased feeling of safety, thus creating a climate of inclusive access for citizens. The large student population of the city also adds another paradigm to this indicator.
- **Lighting**
  Our audits show that the availability of light is above average in the city as a whole but the distribution is not even. The central parts of the city like Bajirao Road, Shivaji Road, FC Road, JM Road, Karve road etc. are well lit. Areas at the outskirts like Katraj-Satara highway from Katraj bus depot towards Satara, engineering college road near Sangam Bridge, are mostly dark. Even the Pune University Campus recorded poor lighting.
- **Increasing options of public transport especially in the suburbs**
  Transportation facilities are good; the city is connected by PML bus service and auto-rickshaws. But, frequency of transport becomes low after 8 PM**,** especially in the sub-urban parts where even getting an auto becomes difficult after dark. Many bus stops do not have proper seating arrangements and proper lighting, which makes it uncomfortable for people to use the facility after dark**.**
- **Reducing secluded spots in the city**
  Through our data a strong correlation has emerged between feeling unsafe and deserted areas. Many auditors complained of being stalked and harassed near the secluded spots in NDA.. Increasing visible security and lighting in the identified areas will improve people's perception of the area and increase the crowd.
- **More policing and visible security**

The presence of police and other forms of private security lead to increased chances of assistance during a crisis situation. It also acts as a deterrent and reduces chances of street sexual harassment.

- **Walk Path**

  The condition of walk path is below average**.** Most walk paths are occupied either by street vendors or vehicles are parked on them. Building better parking facilities will help curb this problem. It was noticed that during the peak traffic hours bikers drive on the pavements, thereby limiting the space for pedestrians and also increasing chances of road accidents. Presence of traffic police in these spots and levying fines will deter this behavior.

Findings and Analysis

Chennai

Chennai

Chennai is the capital city of the southern Indian state of Tamil Nadu. Situated on the Coromandel coast off the Bay of Bengal, the city is the largest industrial and commercial centre in South India. It is the fifth largest city and the fourth most populous city in India. The population of Chennai according to the 2011 census is 4,681,087and the urban agglomeration had a population of 8,681,087. The population density is 26,903per square kilometer and the population density of the metropolitan area was 5,922 per square kilometer making Chennai one of the most densely populated cities in the world. The sex ratio is 951 females for every 1,000 males, slightly higher than the national average of 944.

Chennai, along with Mumbai, Delhi and Kolkata is one of the few Indian cities that are home to a diverse population of ethno-religious communities. Minorities include Marwaris, Parsis, Sindhis, Oriyas, Goans, Kannadigans, Anglo Indians, Bengalis, Punjabis, Malayalees. With a large expatriate population 51% of the 11 lakh households in the Chennai district are rented properties. Chennai also has the fourth highest population of slum dwellers among major cities in India, with about 820,000 people (18.6% of the city's population) living in slum conditions. And as the city continues to grow this percentage is projected to rise leading to increasing problems of urbanization.

Chennai is considered one of the safest cities in India. This perception of safety is often attributed to the notion that the city remains relatively conservative and is often described as having moved forward without losing track of its past. Though the city is perceived as being safe, even a cursory glance at State Crime Records Bureau reveals a contrary picture. As of December 2014, almost 7000 cases of violence against women have been reported for the year. This includes 229 cases of sexual harassment. In all 4117 cases of sexual harassment were pending trial in court.

Prajnya

Prajnya, our partner in Chennai is a non-profit centre for research, public education, and networking on issues related to peace, justice and security. Prajnya's work is organized into thematic initiatives that provide the basis for all its activities. Each initiative addresses a cluster of issues and is structured around a cornerstone or anchor project that will form its core agenda. The initiatives draw on each other, and some projects display a natural overlap which facilitates mutual engagement**.** Cornerstone projects that represent Prajnya's commitment to a sustained research and include Politics, Security and Women, Education for Peace Initiative and South Asia Security .

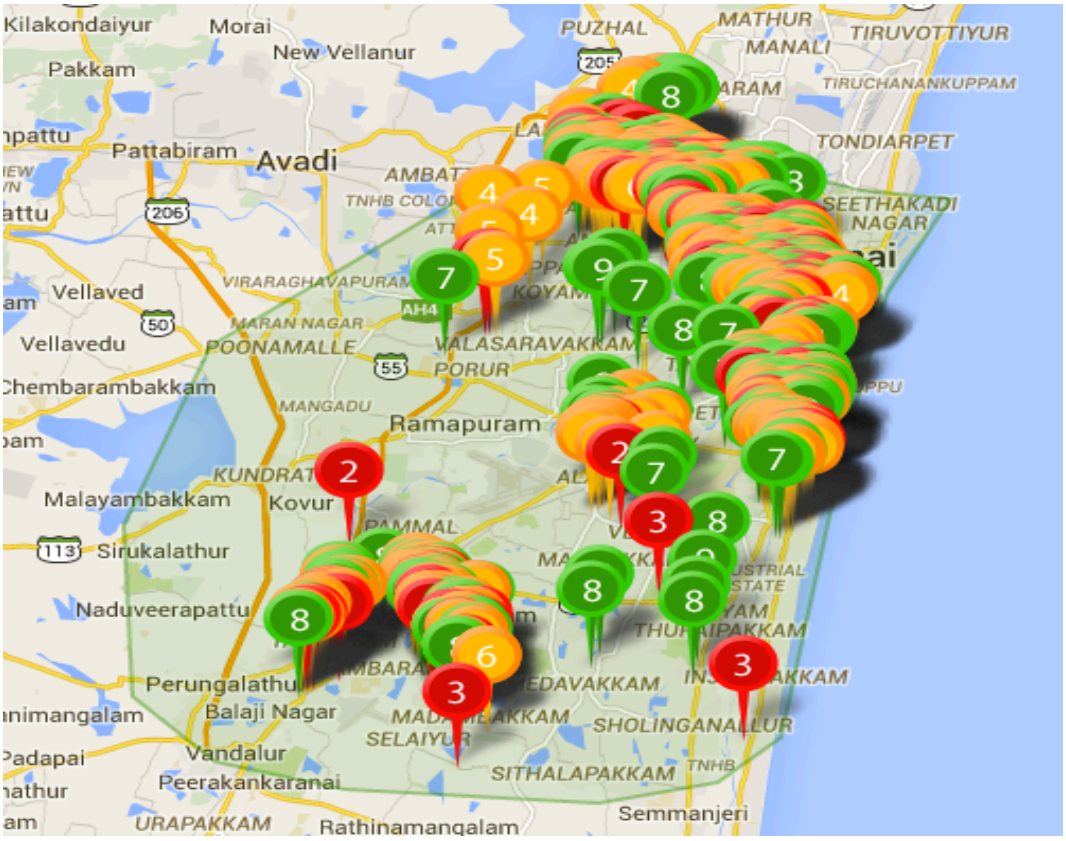
Findings and Analysis

Prajnya issued an open call for volunteers to audit Chennai using the SafetiPin app. The audits were conducted by a diverse, heterogeneous group, from different backgrounds and varying ages. It included 6 male and 4 female auditors

The first training session took place in June 2014 and was facilitated by the Safetipin team. A total of 1000 audits were completed in Chennai between July 2014 and January 2015. Of these, 323 audits were done by male users and 677 audits by female users. The audits covered several areas of the city including Adyar, Besant Nagar, Royapettah, Mylapore, Thiruvanmiyur, Anna Nagar and Kilpauk. One volunteer focused on Tambaram, a rapidly growing suburb southwest of the city.

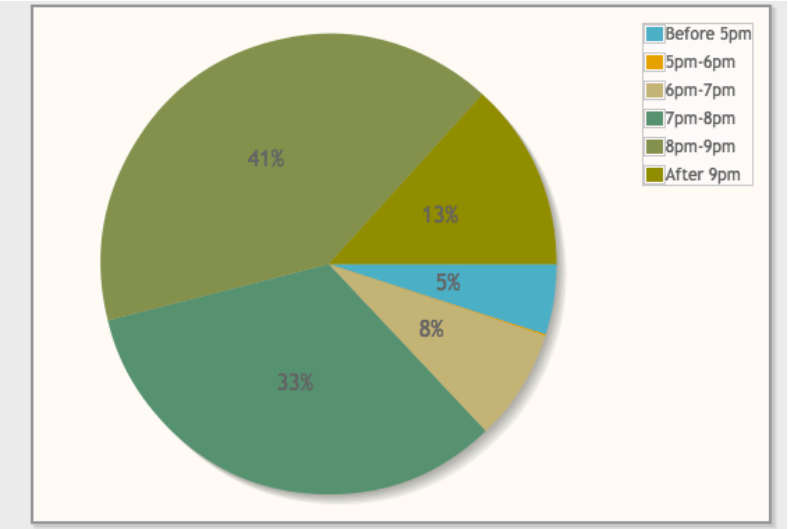
The safety audits conducted in Chennai covered several areas of the city, selected on the basis of population density and popular spaces that have offices and markets. Safety audits were extended to cover southwest suburbs and beaches as well.

Map 1: Safety audit pins in Chennai



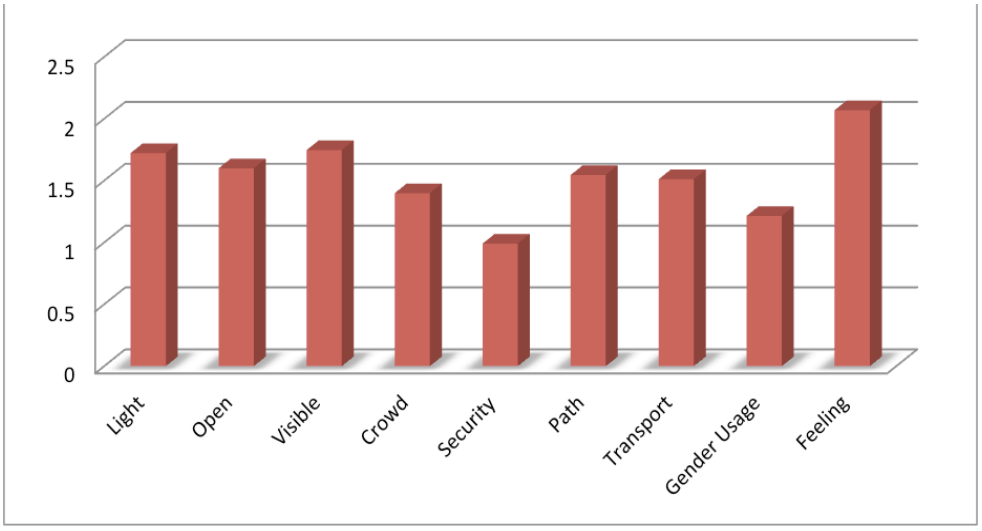
Of the 1000 safety audits conducted in Chennai, the majority of them were carried out after dark, with 74% of audits done between 7pm and 9pm. As shown in Graph 1, 13% of the audits were conducted after 9pm.

Graph 1: Auditing time of the day



Graph 2 indicates the average score of each safety audit parameter on a scale of 0-3, 0 being the lowest and 3 being the highest. Amongst all the objective parameters, Light, Visibility and Openness are rated relatively higher than the other parameters. This means that at majority of the audit points, there was reasonable light, the areas were fairly open and there were several windows/'eyes' from which one could be seen. The walk path and availability of public transport were rated average. On the other hand, auditors rated security and gender diversity of spaces less favorably. Security in particular was rated poorly, reflecting perhaps the need for greater patrolling of the city after dark.

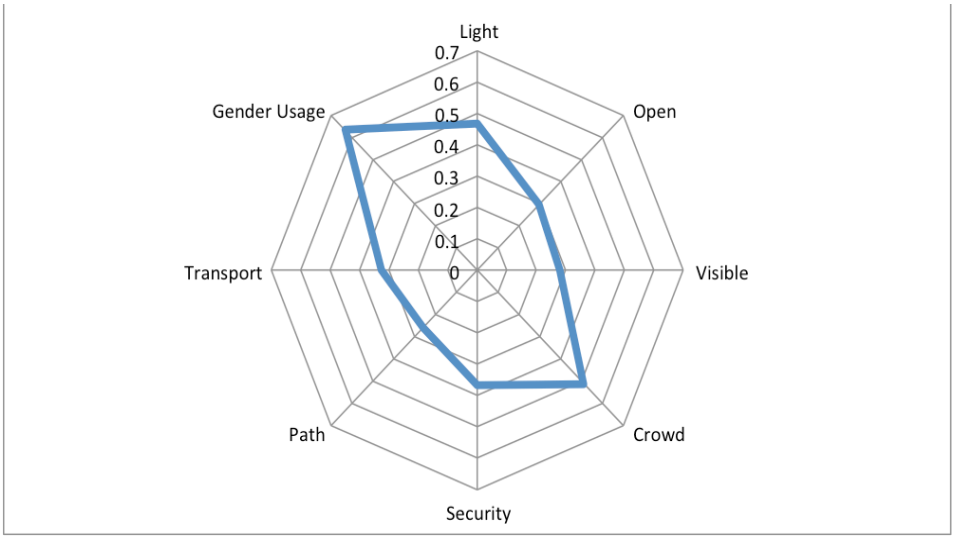
Graph 2: Average score of safety audit parameters



In the recent past while Chennai may have witnessed a dramatic change in its urban landscape, the development has not necessarily improved gender inclusion. There are large crowds in many parts of the city, but with poor gender diversity in the crowd and lack of visible security.

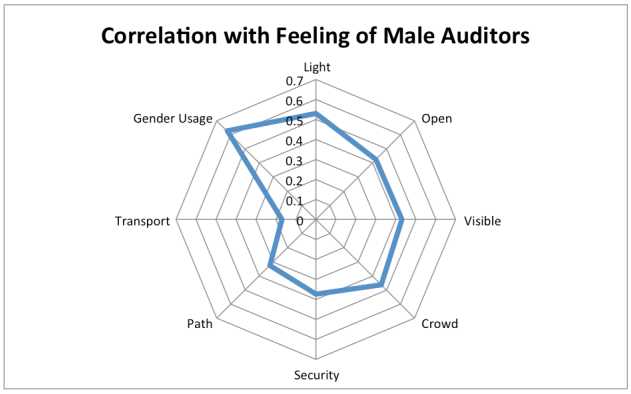
Our data allows us to produce correlations between the 8 objective parameters to the feeling of safety. Graph 3 presents this analysis.

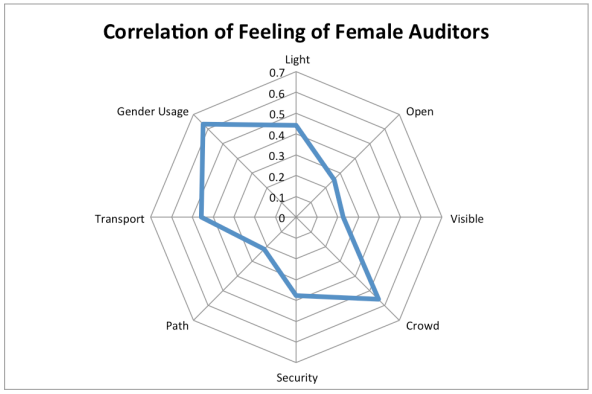
Graph 3: Correlation of safety audit parameters with feeling of safety



It indicates that a gender-balanced crowd contributes the most to the feeling of safety in public spaces, followed by presence of people, lighting and visible security. On the other hand, an accessible and good walk path, availability of public transport and openness of an area appears to have less impact on the feeling of safety.

Graph 4 & 5: Correlation of safety audit parameter with feeling of safety scored by male auditors and female auditors, respectively





Graph 4 and 5 confirm that gender diversity in the crowd influences the feeling of safety for both men and women, followed by crowd and well-lit streets. On the other hand, female auditors also scored availability of public transport and visible security relatively higher than male auditors. Interestingly male auditors gave a relatively higher score for the state of the walk path and its link to the feeling of safety.

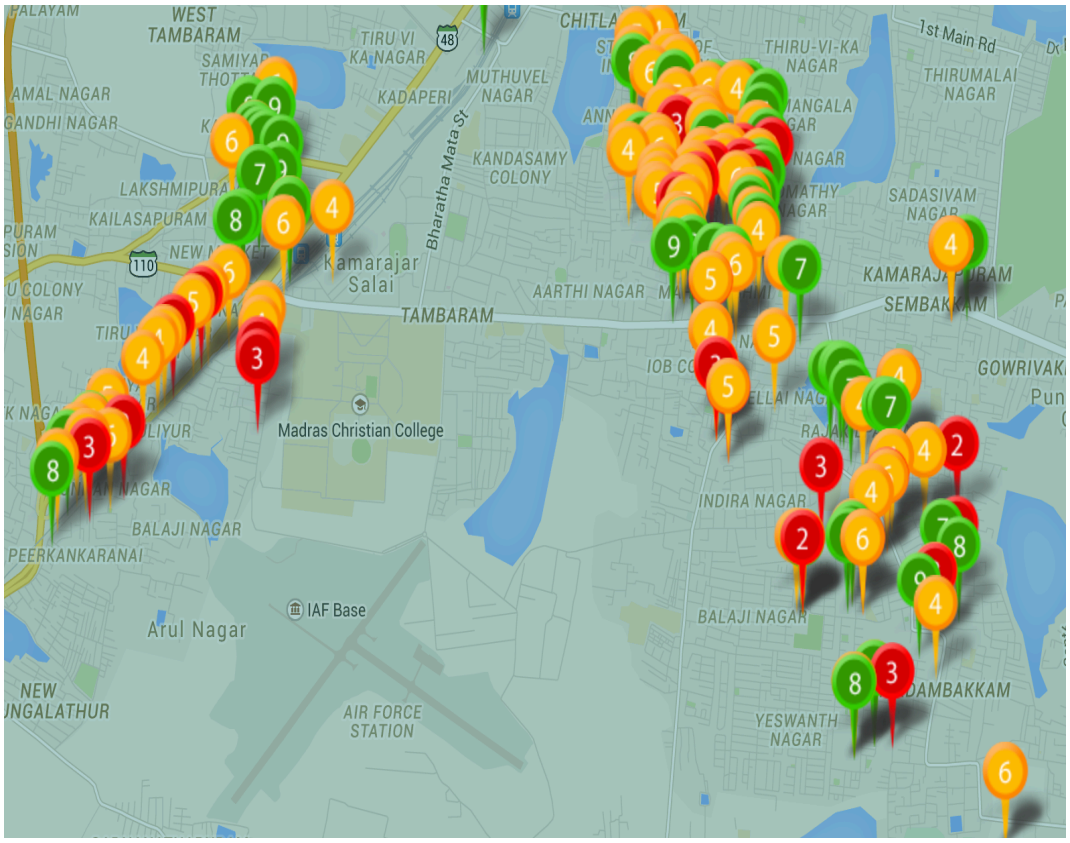
A few areas were audited more in depth. The analysis is given below.

Tambaram

Located on the outskirts of the city, Tambaram is a bustling suburb that is both residential and industrial in nature. The area has a population of 174,787 as of 2011. In

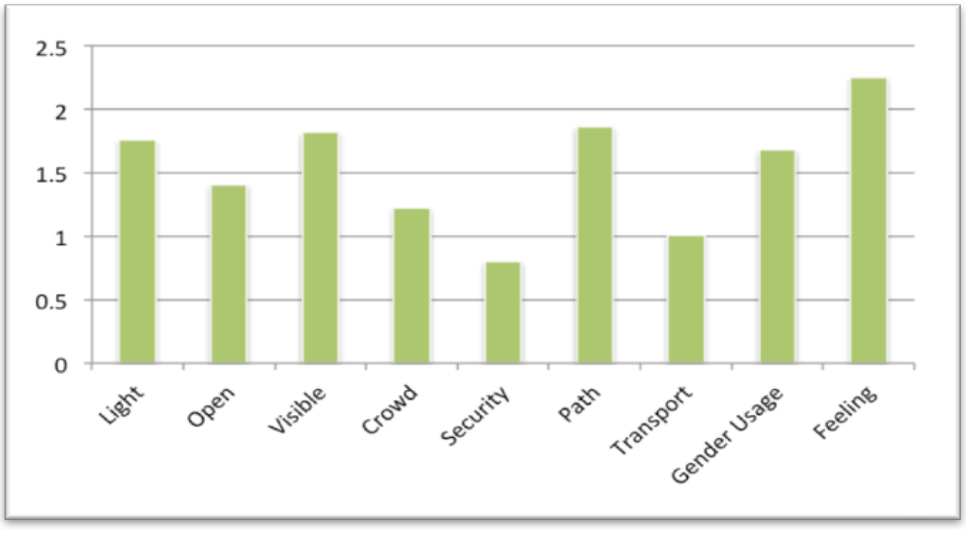
all, 201 audits were done in the Tambaram area. Most of these audits were done between 7pm and 9pm.

Map: 2 Safety audit pins in Tambaram



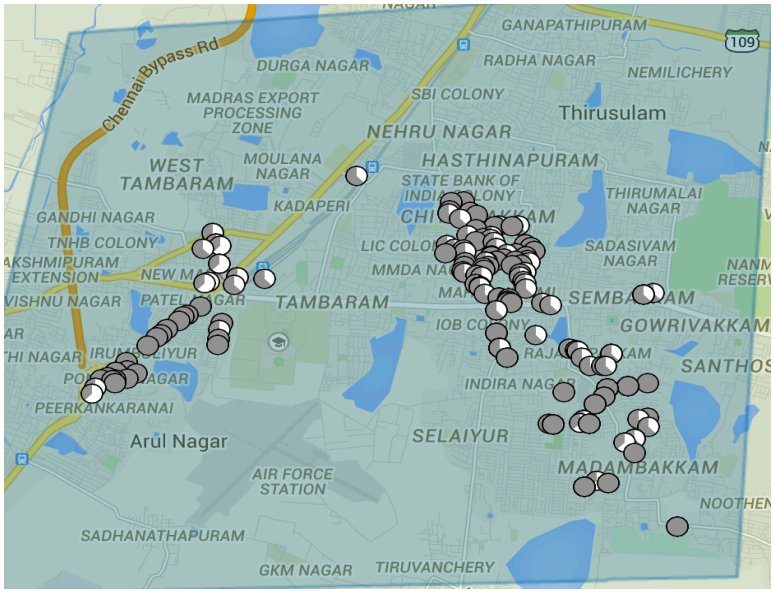
The graph below shows that Light, Visibility, Walk path and Gender diversity in the crowd in public spaces rate above average. However, presence of security is low as are availability of public transport and crowd. It is interesting to note that gender usage is higher than crowd. This reflects that since the area is well lit, has eyes on the street and a good walk path, women feel comfortable to use it even after dark. Further being a bustling residential neighborhood with much activity, women felt safe to move around.

Graph 6: Average score of safety audit parameters in Tambaram



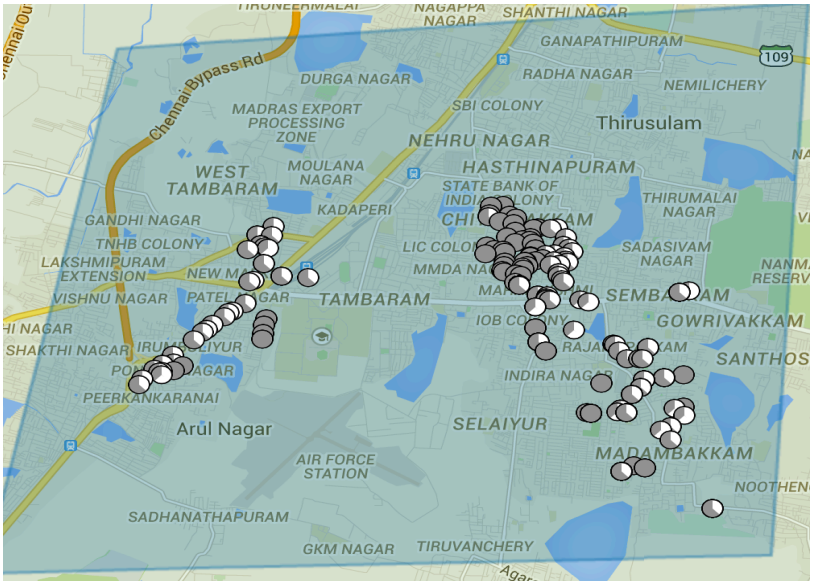
The map below shows the level of security in the area. The circles that are completely grey denote points with no security; while the partly shaded ones and the rare white circles show areas with better security conditions. As we can see, there are very few areas where there is adequate security and many areas have no security.

Map 3: Level of security in Tambaram



Map 4 shows the availability of public transport in the area. One area in the north is completely dark, leading one to conclude that there may be little access to transport facilities for the people living there.

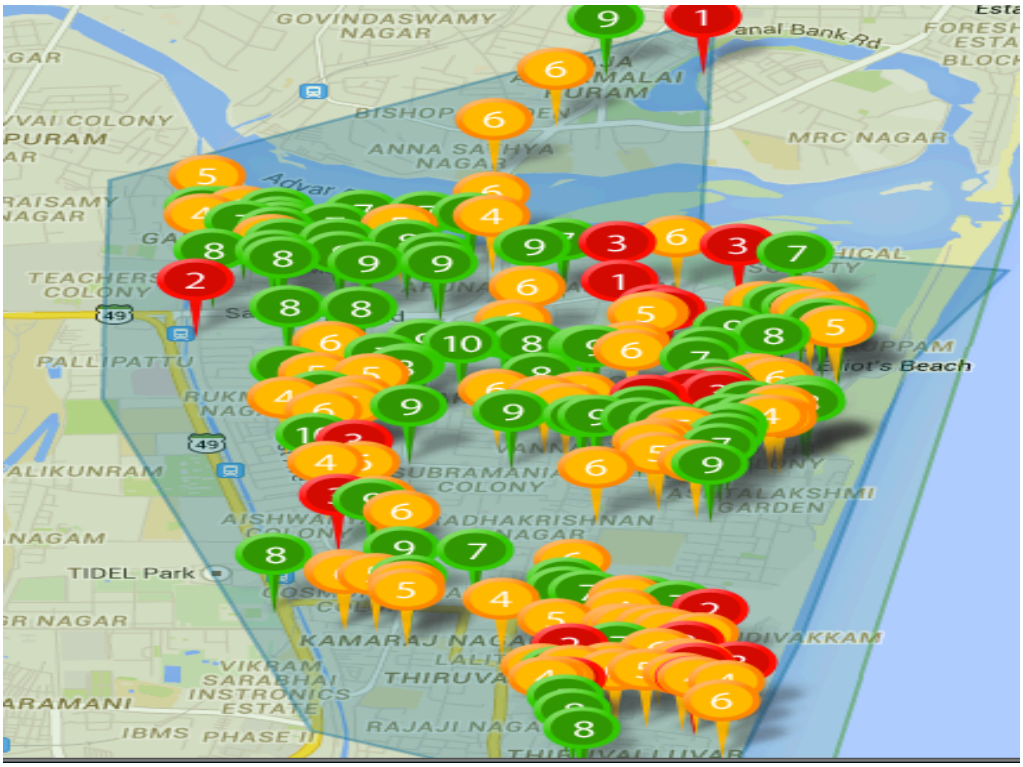
Map 4: Availability of public transport in Tambaram



Adyar

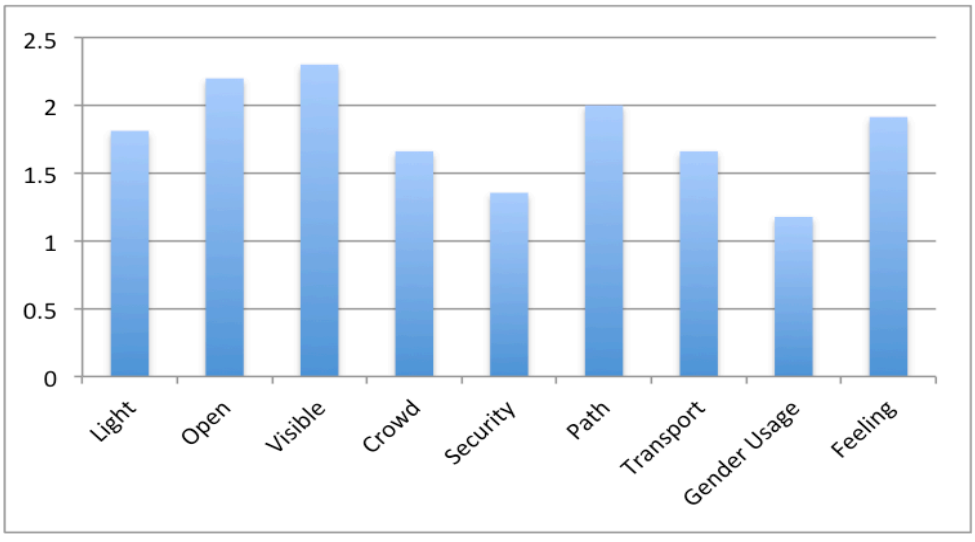
Adyar is a large area in South Chennai, extending from RA Puram towards Besant Nagar and Thiruvanmiyur and includes the beach. The auditors did 186 audits in the area.

Map 5: Safety audit pins in Adyar



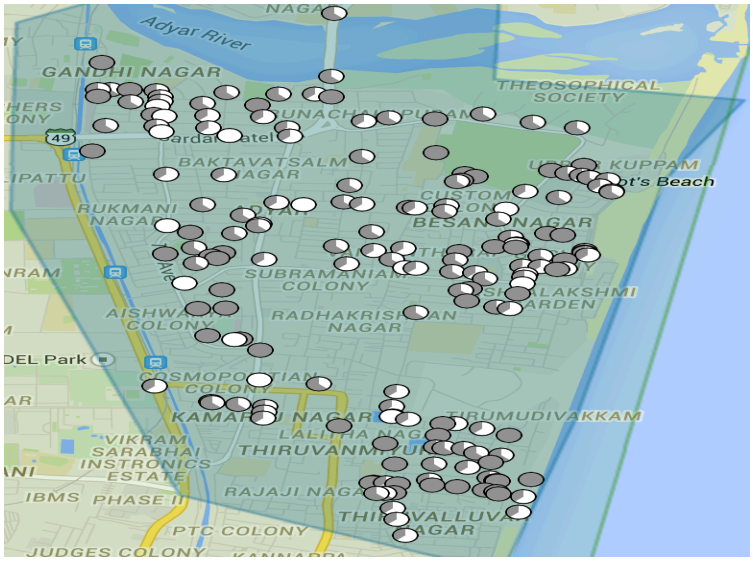
The safety audits done in this area reflect that on the whole that it is quite positive in terms of most of the parameters. Except for gender usage, every other parameter is quite positive. Security is also slightly lower. On other parameters, particularly openness and visibility, the area ranks fairly high. The infrastructure in terms of lighting and walk path are also above average.

Graph 7: Average score of safety audit parameter in Adyar



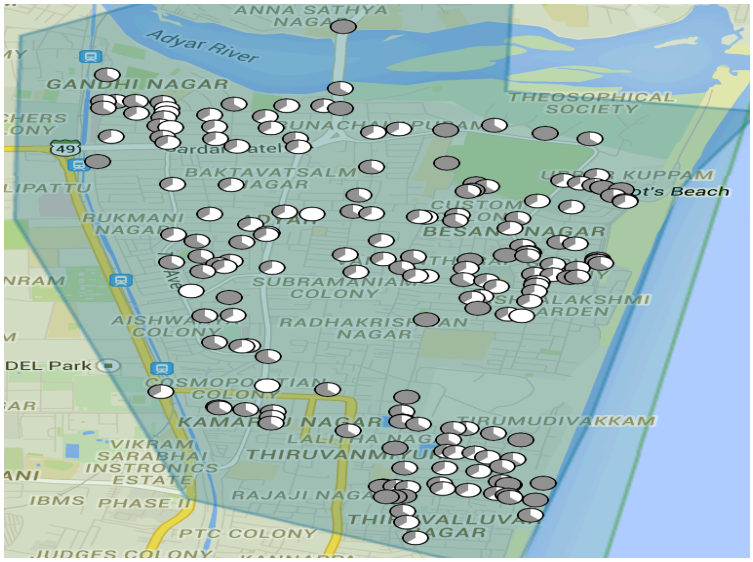
Though lighting has been scored above average in Adyar, this is not uniform. Places like Thiruvanmiyur have poor lighting. In fact paths leading to the Thiruvanmiyur beach have no streetlight at all. Presence of several shops as well as the large residential areas provided for 'eyes on the street' and visibility to people.

Map 6: Level of security in Adyar



From Map 6 we can see that security in Adyar is in fact better than many other places. There are a few pockets which are completely grey and have no security but by and large, most of the areas are partially white have at least some security. Some areas closer to the beach seem to have less security. Adyar is well-developed middle and upper class residential area and is considered relatively safe.

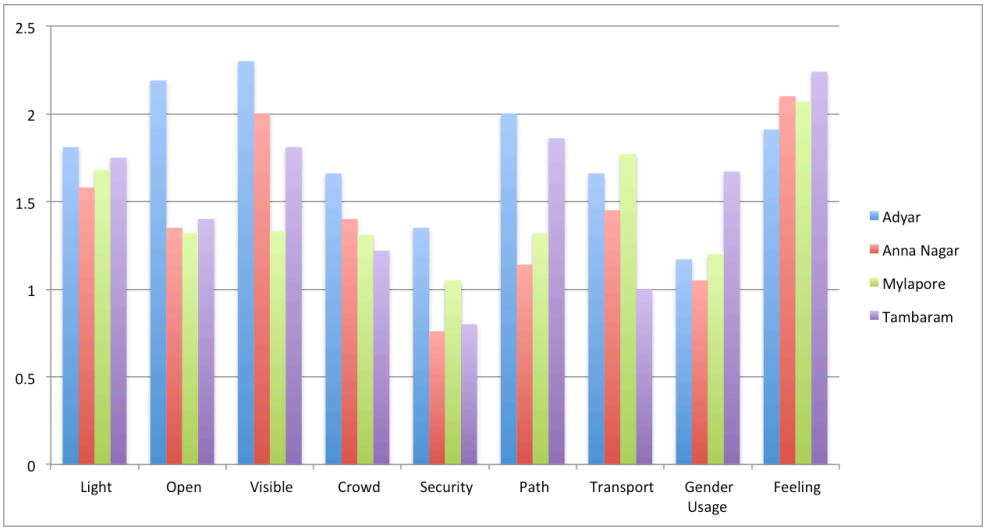
Map 7: Level of gender usage in Adyar



Gender usage is also mixed in the area. As seen in Map 7, there are some areas where women are very visible, but as we get to certain areas like Thiruvanmiyur Beach area, Elliots Beach and near the Besant Nagar beach, there are fewer women. While it is possible that many women do visit in the daytime, certainly as it gets dark, there are fewer women in the area. There are other areas like Gandhi Nagar and Rukmini Nagar, which also have grey spots reflecting the poor presence of women.

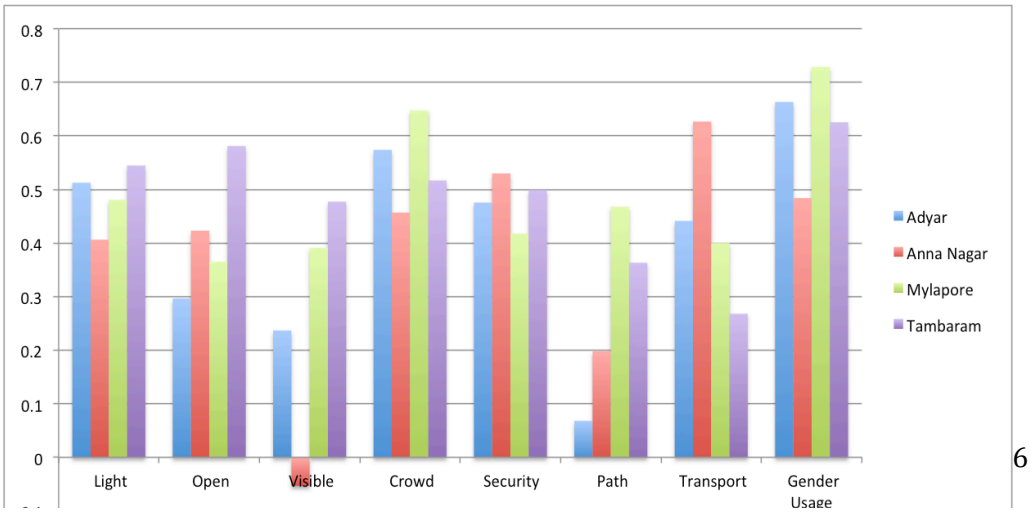
Based on the safety audits done in Chennai, four main areas – Adyar, Anna Nagar, Mylapore and Tambaram were examined in greater depth. Adyar and Tambaram have already been described. Mylapore is famous for its temple and shopping and has many people visiting and Anna Nagar is a middle class residential area with some commercial pockets. As Graph 8 indicates, presence of visible security is very low in all the areas. Gender diversity and openness is also quite low except for Tambram. Light in all the areas and availability of public transport is relatively high. Visibility and openness was very high in Adyar, but the openness of the other areas was lower. Walk path is quite good in Adyar and Tambaram but below average in Anna Nagar and Mylapore.

Graph 8: Average score of safety audit parameters across the 4 regions



As shown in graph 8 above, feeling of safety in these neighborhoods is very high. To analyze which factors have a higher impact on the feeling of safety, Graph 9 examines the correlation between the parameters and the feeling of safety. As we can see, gender usage has the highest impact on feeling safe and this is across the areas. The presence of a crowd and lighting are also positively correlated to the feeling of safety. In Anna Nagar, transport had a higher correlation than the other areas, whereas in Tambaram, openness had a higher correlation to safety. In terms of walk path there was a lot of diversity with Mylapore reporting high correlation and Adyar reporting low correlation.

Graph 9: Correlation of safety audit parameters with feeling of safety across the 4 regions



Recommendations

- **Gender diverse public spaces**
  Safetipin's data from Chennai shows the need to strengthen gender diversity in public spaces to improve the feeling of safety. The fact that most women feel unsafe when venturing out is one of the biggest indicators of lack of safety in the city. Special programs can be instituted by the civil society and government bodies to increase access of women and children to public spaces.
- **Increase visible security**
  There is a lack of visible security in the city. Existing Safetipin data can be used to create patrolling routes, especially in places that have recorded no or low security. Stationing police officers in market places, beaches and in suburban areas are all important inputs to improve women's safety in Chennai.
- **Light up Chennai**
  The lighting in Chennai is above average but the distribution of light is uneven. There are spots in the city that have no streetlights or the existing ones are not working. Maintenance work needs to be carried out to change the existing status.

Findings and Analysis

Guwahati

Guwahati

Guwahati is one of the fastest growing cities in India. Situated on the banks of the Brahmaputra River and on the foothills of the Shillong Plateau, the city is the gateway to the north eastern region of India. With recent focus on the region by the central government there has been a positive policy shift which has led to infrastructure development and setting up of educational and health institutes in the region. Due to this the city of Guwahati has witnessed rapid growth in the last decade and is now the most populous in the region. Like the rest of the country, the rapid growth has been largely uneven with serious gaps in infrastructure development and maintenance of law and order.

In 1971 the population of Guwahati was 200,000 and according to the 2011 census the population is at 968,549. This rapid increase in population has led to many challenges. The sex ratio of the city is 918 females to 1,000 males. . Average literacy rate of Guwahati city is 91.11 percent of which male and female literacy was 92.89 and 89.16 percent respectively.

The predicament of violence against women in Guwahati is known across the country. The horrific case of a mob of 30 men molesting a teenage girl in 2012 made news headlines across India. According to the National Crime Records Bureau report of 2013 a total of 17,449 cases of violence against women were reported in the state of Assam. In Guwahati 103 rapes, 207 cases of molestation have been reported. Moreover, according to a survey conducted by the North East Network 74.3% of women have been recorded to have faced sexual harassment and violence in public spaces.

The North East Network

North East Network (NEN) is a women's organisation established in 1995 during the mobilisation process for the Beijing Conference. Ever since its inception the organisation has been raising women's rights issues, particularly within the developmental and political context of the north east region of India. NEN responds to specific needs of women in north east India such as gender budgetary allocations, strengthening support services for women affected by violence, and security of women in conflict areas through fact finding processes and advocacy with the government. In addition they organize training, workshops and publish materials for stakeholders to disseminate information related to violence against women, livelihood, conflict, peace and women.

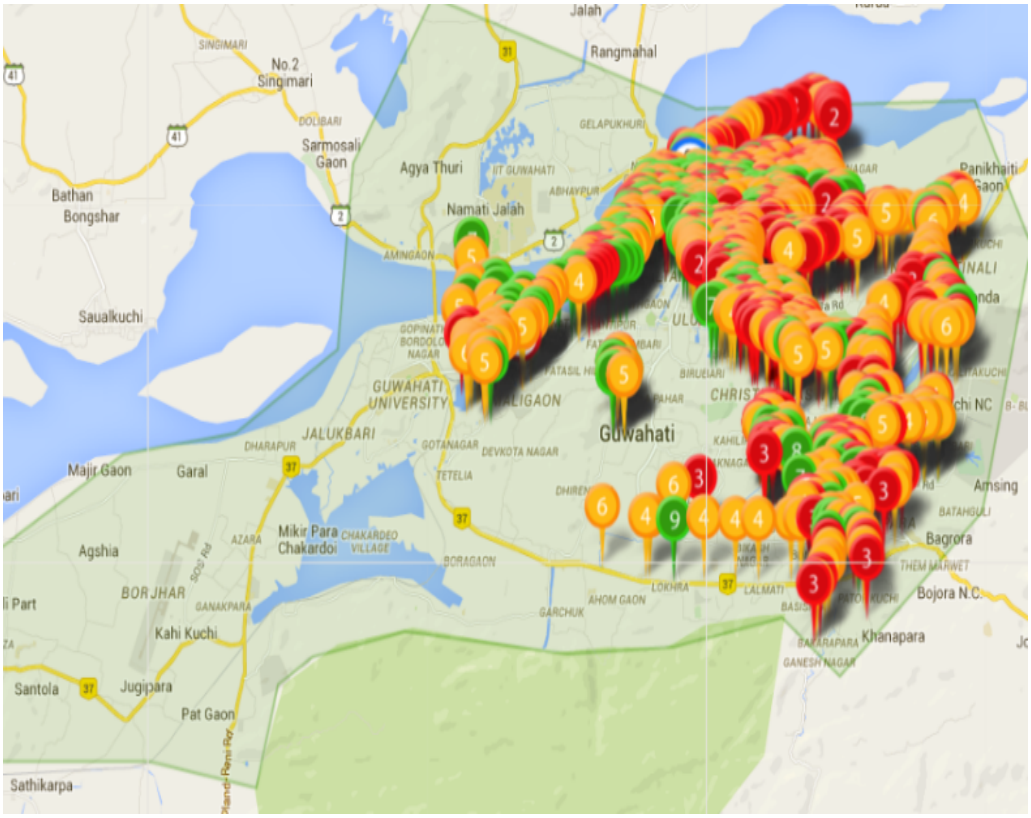
Findings and Analysis

The Safetipin team facilitated a training session in Guwahati on 28th April, 2014. The session was hosted by the NEN team and was attended by 15 volunteers who then conducted safety audits using the Safetipin App. The Safety audits were conducted in 32 localities in Guwahati between April and August, 2014.

Some of the areas covered were - Parts of National Highway 37,GNB road, RGB road, G.S road, Chandmari area, Lachit Nagar, Kharghuli road, Zoo Narengi road, Hengrabari, GMC area, The stretch from Basistha Chariali to Basistha mandir, Sijubari, Nabagraha

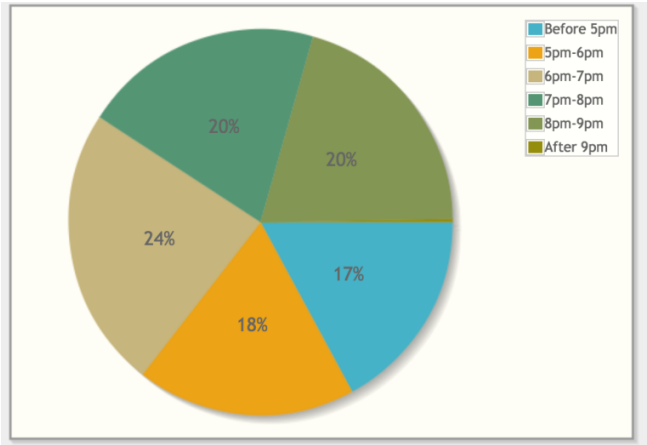
A total of 1454 audits pins were recorded through the auditing work undertaken by NEN. The following analysis has considerably increased our understanding of the scale and nature of safety lacunas that exist in public spaces in Guwahati.

Map 1: Safety audit pins in Guwahati



Map 1 shows the safety audits pins collected in Guwahati. The red pins indicate unsafe spots, amber pins indicate relatively less unsafe spots and green pins indicate safe spots. Cross city connecting roads like G.S Road, RGB Road and GNB Road also showed lack of proper infrastructure leading to lack of safety for citizens especially women.

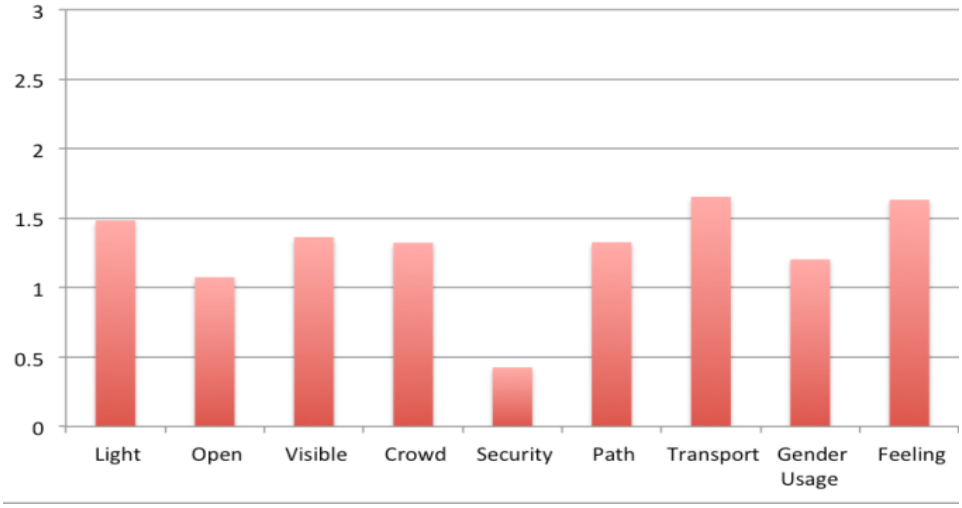
Graph 1: Auditing timings of the day



As shown in the above diagram, the safety audits were done during different times of the day. The majority of the audits were conducted after 6 pm and of these, 20% of the audits were conducted after 9 pm. Since parts of the city are also unsafe in the daytime, 35% of the audits were done before 6 pm.

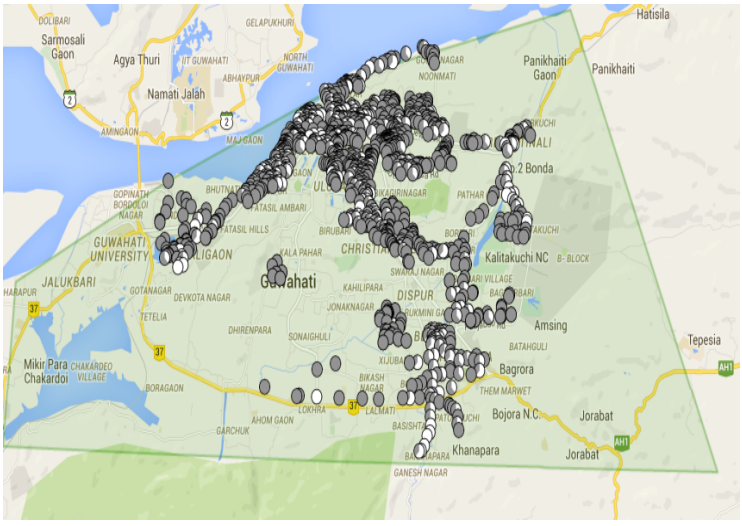
The safety audit findings show that despite being the most developed city of the North Eastern region of India, and one of the fastest growing cities in India, Guwahati lags behind in safe infrastructure and essential services. Graph 2 below indicates the score of each safety audit parameter on a scale of 0-3.

Graph 2: Average score of safety audit parameter in Guwahati



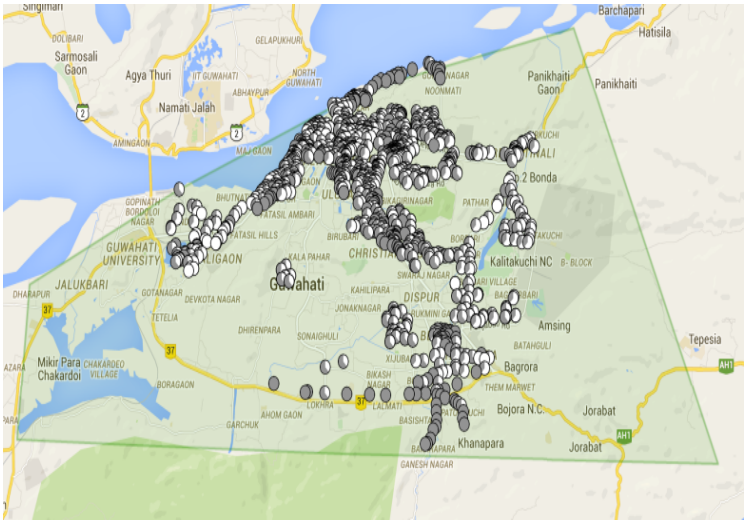
Except for transport, all the parameters are marked less than 1.5 on a scale of 3. The three parameters that have the lowest rating are Security, Openness and Gender Usage. The lowest score is the presence of visible security.

Map 2: Level of security in Guwahati



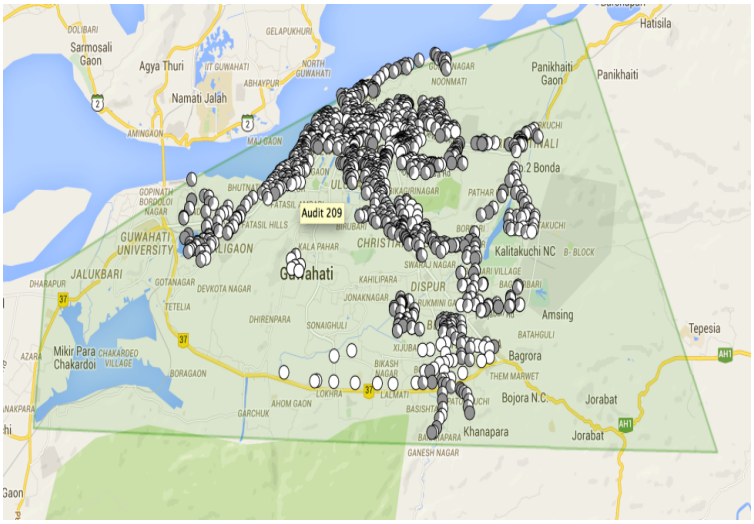
Map 2 shows the presence of security in the city. We can see that most of the city is covered with grey spots which represent lack of security. According to the auditors there were very few areas which had security personnel, either from private security groups or from the Assam Police. The interior roads had no police presence during the day and at night. Private security guards were visible during day time in the official establishments and in some residential apartments. Overall security scores the lowest amongst all audit parameters.

Map 3: Condition of walk path in Guwahati



Map 3 shows the condition of walk paths in Guwahati. Of the areas audited most lanes and sub-lanes had poor walk-paths. The grey spots that cover the map clearly reflect the conditions of the roads, lanes and sub-lanes in the city. It is not only the quality of the roads that is responsible for this large number of grey spots but also open drains, open manholes, missing slabs on footpaths, dirty garbage bins which have added to the dilapidated condition of the walk paths. Incidents of death due to open manholes have also been reported in Guwahati city.

Map 4: Condition of light in Guwahati



Map 4 shows the condition of lighting in the city. Again, the predominant fully grey spots show a lack of lighting. There appear to be a few areas in the southern part of the city which have better lighting and some areas of the city appear to have some level of lighting.

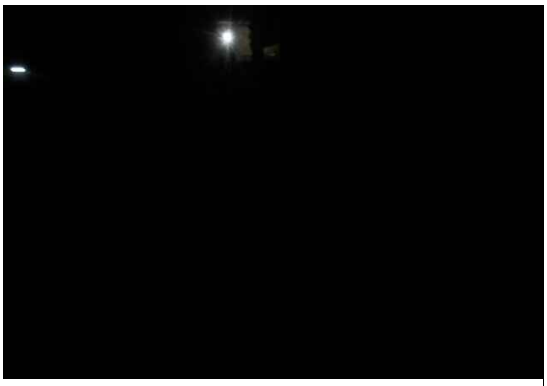
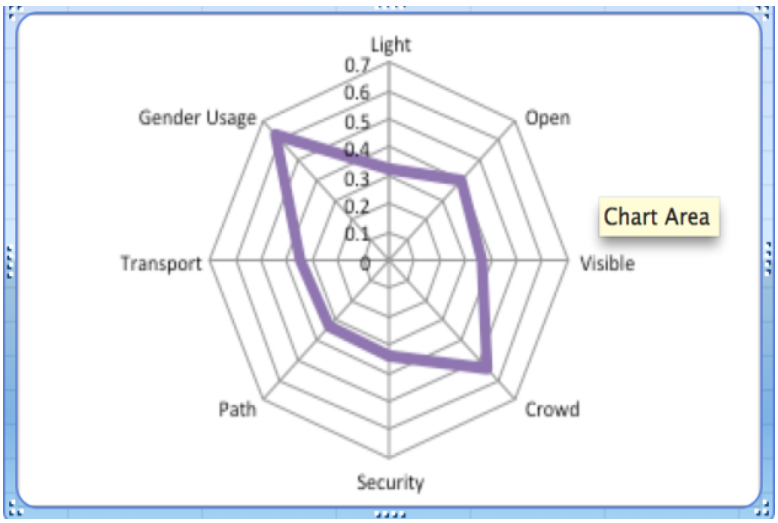


Image 1 Shows absence of street light in the area

The Auditors found that only national highway number 37 had good lighting. On main roads like GNB road, RGB road and G.S road, the street lights were installed but most were not functional. Major centres like Chandmari Engineering College, Lachit Nagar, entire Kharghuli road, Zoo Narengi road, Hengrabari, GMC area, the stretch from Basistha Chariali to Basistha mandir, Sijubari and Nabagraha have very poor lighting. As Guwahati is growing rapidly, many new residential areas have come up for migrating population. But these areas are very poorly planned with roads that have no street lighting. These areas need special attention of urban planners and city officials.

Graph 3: Correlation of safety audit parameters with feeling of safety



Graph 3 shows the correlation between the feeling of safety and the other parameters. The data shows that the city of Guwahati has a strong need for gender inclusive spaces to make its citizens feel safe. Other parameters that have a high correlation to the feeling of safety are Openness, and Crowd. People feel safer in areas which have more people moving around, specifically women. Openness, which reflects be able to see around and not blocked by corners or buildings, also seems to have an impact on how safe the auditors felt in using public spaces.

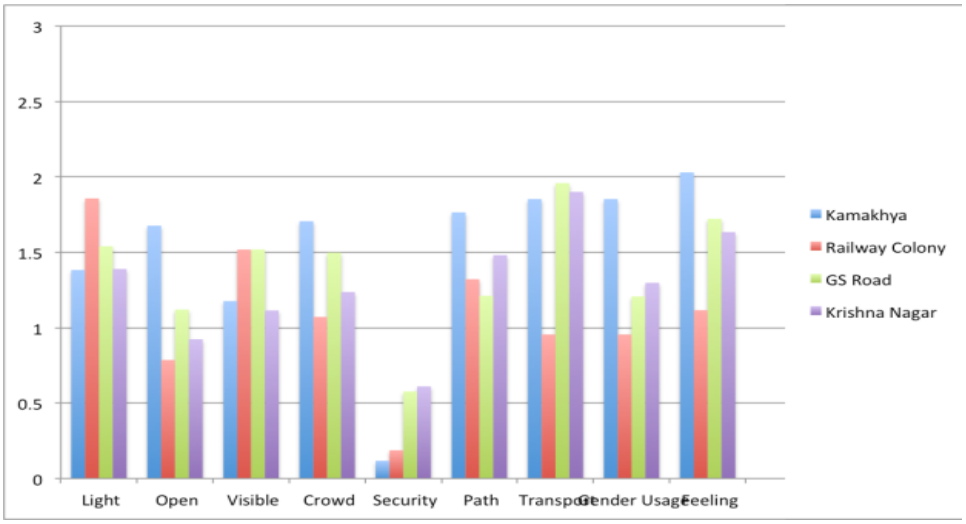
To further break up the data that has been collected we have compared some specific parts of the city- particularly Kamakhya, Railway Colony, GS Road and Krishna Nagar

The Kamakhya Temple and its neighbouring areas attract a lot of pilgrims from all over Assam and other north eastern states, Odisha and West Bengal. The area has many hotels for the tourists and shops and vendors selling religious items. The area is crowded. The railway colony is a residential

complex for railway employees. The Colony also adjoins the biggest railway station of Guwahati, Kamakhya. Visible security is poor in the area, followed by openness, availability of transport and gender usage of the area. GS Road is the commercial hub of Guwahati. It has offices of all the big business centres and shopping malls and clubs for young people who frequent the place. As Graph 4 shows, availability of transport is the best here amongst all the areas profiled, though all areas had good transport except for Railway Colony. The presence of people is also higher in Kamakhya and GS Road and Kamakhya has the highest gender diversity of the four areas. Security is dismally low in all the areas. Visibility and openness are also below average. Krishna Nagar is a crowded area in old Guwahati. It has the Guwahati Railway station and is also flanked by Paltan Bazar a crowded market place that is crime prone, with incidents of petty crime being reported often. Availability of transport is also average. The area scores poorly in openness.

Image 2 Shows absence of women in the area

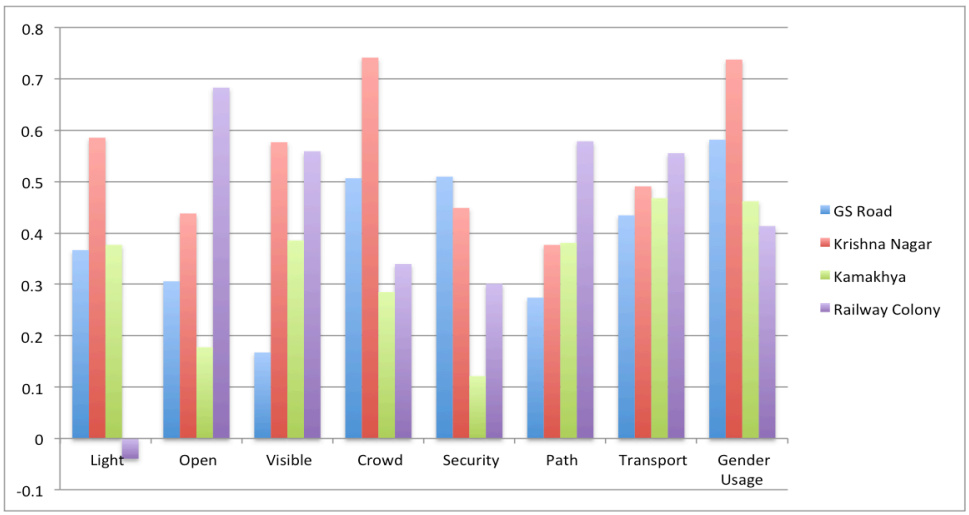
Graph 4: Average score of safety audit parameters across the 4 regions



On many parameters such as openness, crowd, walk path, transport and gender usage, Kamakhya scores fairly high. This results in a higher feeling of safety in that neighbourhood. While lighting is fairly good in Railway Colony, the feeling of safety is low as are other parameters including openness, security, and walk path, nearness to transport, presence of people and especially gender diversity.

Correlation with Feeling of Safety

Graph 5: Correlation of safety audit parameters with feeling of safety across the 4 regions



We have further analysed the feeling of safety in the chosen Guwahati areas. The above graph explains the correlation between each parameter and the feeling of safety in Kamakhya, GS Road, Railway Colony and Krishna Nagar. In Kamakhya the availability of transport and gender usage has the highest impact on the feeling of safety. In GS Road gender usage, crowd and security impact the feeling of safety. In Railway Colony openness and path have the strongest bearing on the feeling of safety. The impact of light is low here which is unusual for residential colonies. But overall Guwahati has poor lighting. In Krishna Nagar the gender usage and crowd effect the feeling of safety. This is followed by lighting and visibility. In all four areas, we can see that the presence of gender diversity in the crowd is an important factor affecting the feeling of safety.

Recommendations

Increase gender diverse spaces

Guwahati needs more gender diverse public spaces that strengthen the mobility of women. The data suggests that women are afraid to venture out alone after dark in most areas, including large residential colonies. Measures need to be taken by the government bodies and civil society activists to address these lacunae in the city.

Increase Security

Guwahati has reported very low visible security. Even central areas that are commercial have low security. Reports of violence against women in public areas have been reported out of the city nationally. There is an urgent need to increase policing. Resources would have to be deployed to address this gap.

Create better infrastructure

The city needs better walk paths and more open places. Fatal accidents have been reported due to bad walk paths. Lighting is also low and streetlights need to be fixed in many areas. These changes will lead to citizens having a better experience of their city.

Findings and Analysis

Jaipur

Jaipur

Jaipur, more famously known as the Pink city of India, is the capital and largest city of Rajasthan. As per the 2011 census of India, the city has a population of 3.1 million, which continues to expand with the rapid migration to the city for education, employment and better standard of living. Along with the growth in the education sector that attracts students from across the country, Jaipur is recognized among the top emerging global outsourcing cities, which has led to an influx of people from small villages and nearby towns for employment. Jaipur also has the distinction of having the largest slum population of Rajasthan. According to the 2011 population survey, there are over 190 slums under the Jaipur Municipal Corporation and 47 slums under Jaipur Development Authority. As of 2011, the average literacy rate of Jaipur was 76.44. In terms of the sex ratio in Jaipur, it stood at 909 per 1000 males in 2011, which is much below the average national sex ratio in India which is 940 as per the 2011 Census report.

Jaipur distinguishes itself from other cities in terms of its infrastructure and the regularity of its streets. The city is divided into six sectors by broad streets that are 34 meters wide. Networks of gridded streets further divide the urban quarters of Jaipur. However, it does not qualify as a gender friendly and safe city. The NCRB report 2013 states that crime rate against women is significantly high in Jaipur and stands at 139.81 as compared to 52.2 at the national level. Of this, the crime of indecent representation of women remains high since 2011.

Vishakha

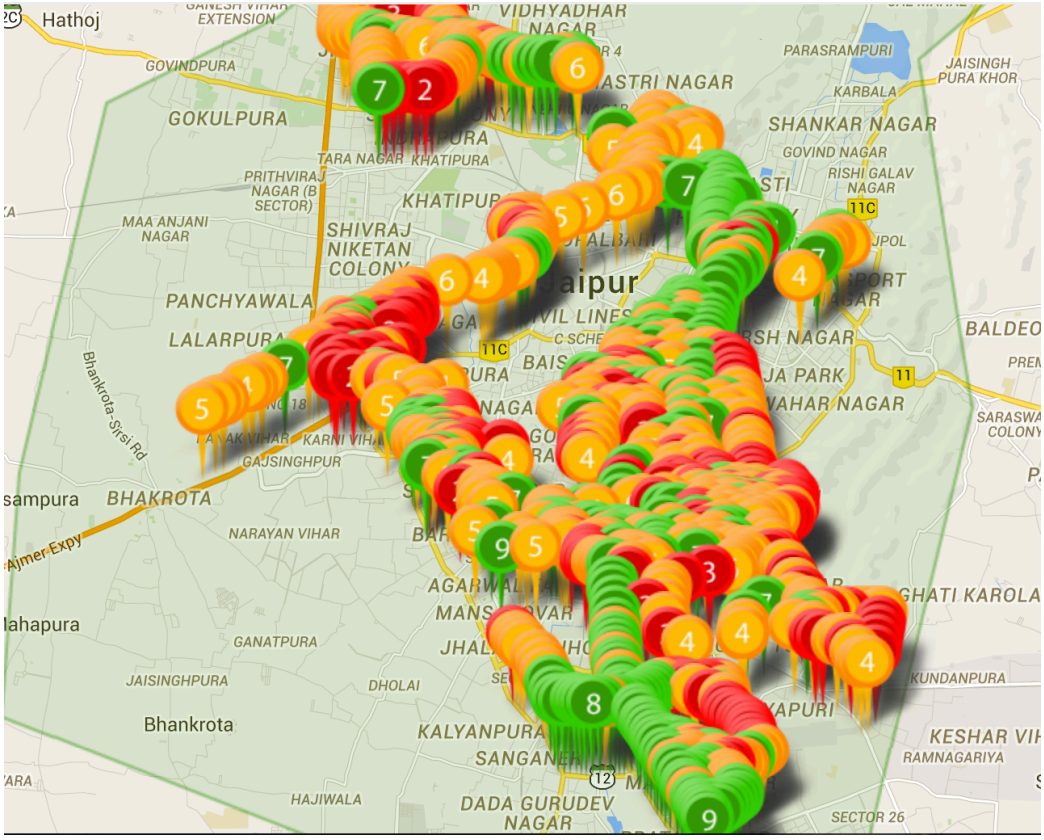
Vishakha is an organization, which grew from the women's movement in Rajasthan, India, in the early nineties. Today it is an NGO, steadily increasing its programs with partners as well as the government of Rajasthan. The vision of the organization is to reestablish the woman as an individual with her own rights, by creating a society without discrimination and violence. To be able to implement these changes in a conservative and rural society like Rajasthan it is important to work with all different levels of the community. To create a change the first task is to raise awareness.

Findings and analysis

Vishakha identified a group of youth activists to carry out safety audits in Jaipur. Fifteen auditors from the group were trained during a session on 17th and 18th of October 2014. The session was facilitated by Safetipin and was hosted by the Vishakha Team. The session introduced the auditors to the discourse on women's safety in urban spaces and also trained them on how to effectively use the Safetipin app. Mock audit session were held for the group.

For the pilot project, over 900 safety audits were done in the main Jaipur city. Areas for the audits were identified based on the population density and frequency of visits. The focus of the program was to cover residential localities, popular markets, university campuses and main routes connecting the city.

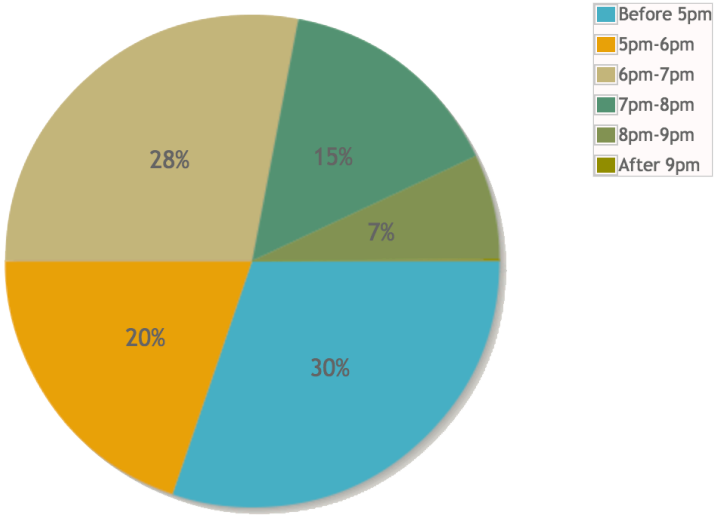
Map 1: Safety audit pins in Jaipur



Map 1 shows all the safety audit pins in Jaipur. These audits were conducted during different periods of the day. Many areas in Jaipur are considered unsafe and inaccessible even during the daytime. Therefore conducting safety audits in such areas during both daytime and evening hours was considered important.

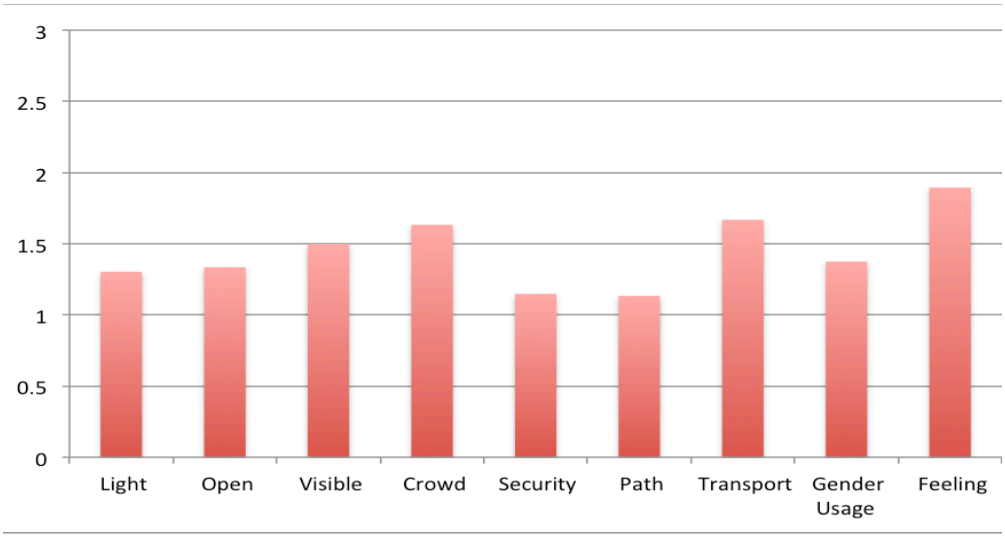
As Graph 1 shows, 30% of safety audits were conducted before 5pm. The majority of audits were carried out after dark, with 50% audits between 6-9pm. This is the time when many people are out on the streets for various purposes.

Graph 1: Auditing time of the day



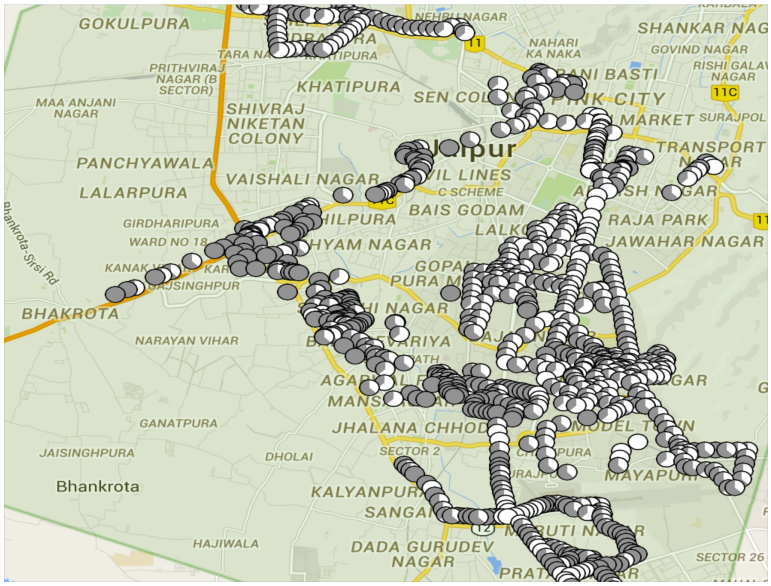
The safety audit findings show that despite being a well-planned city, Jaipur lacks good infrastructure for safety. Graph 2 below indicates the score of each safety audit parameter

Graph 2: Average score of safety audit parameters



As Graph 2 shows, 5 safety audit parameters are scored below average. Jaipur lacks well-lit streets, openness, presence of formal and informal security; good walk paths and gender diverse crowd in public spaces. Eyes on the street/ Visibility have an average score and presence of crowd and availability of public transport are scored little above the average line. Thus while there are people on the streets, there are not enough women at all times of the day, especially after dark.

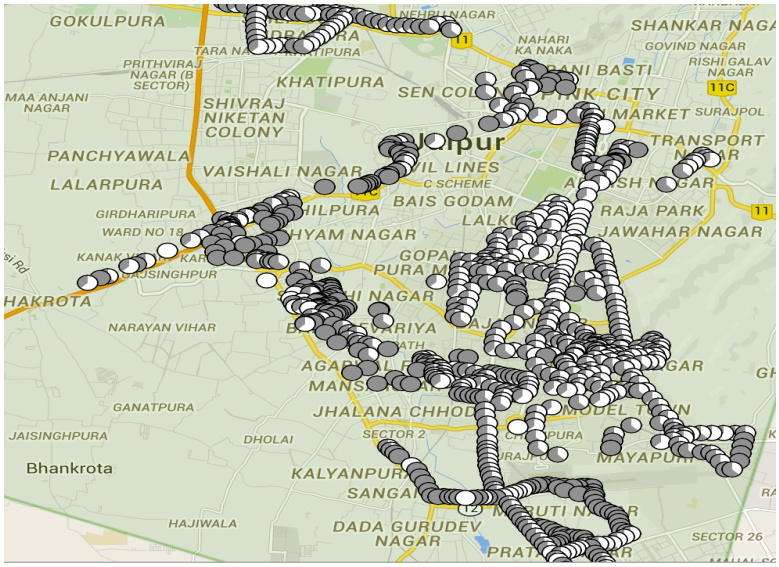
Map 2: Level of security in Jaipur



Map 2 shows that the presence of security, both public and private, is unevenly distributed with major areas of the city lacking security. It was noticed that private security in general is poor and police vans were mostly stationed on road junctions with no patrolling in the area. Police patrolling is missing even on the main roads and connecting highways.

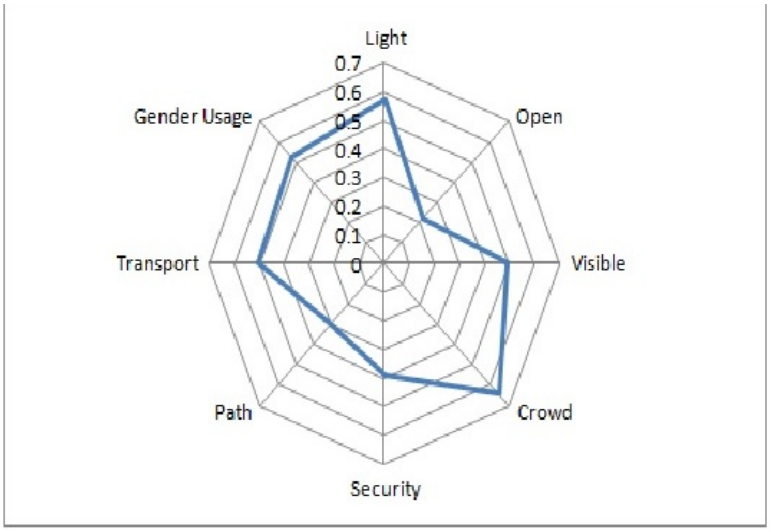
Map 3 below shows the condition of walk path in Jaipur. While a walk path is available in main city, towards the outskirts it is in poor condition. The map shows the distribution of good walk paths (white) and poor walk paths (grey).

Map 3: Condition of walk path in Jaipur



Feeling of safety of an area differs with various factors like time, number of people and familiarity with the area. To identify what factors make women and children feel safer in public spaces the parameters are correlated with feeling of safety scored by the auditors.

Graph 3: Correlation of safety audit parameter with feeling of safety



Graph 3 shows the correlation of feeling with other safety audit parameters. The analysis shows that presence of crowd, light, gender diverse spaces and availability of public transport have the highest impact on the feeling of safety in public spaces. Other factors like walk path, and presence of security have less impact on the feeling of safety. Openness appears to have the lowest impact.

Recommendations

Fixing existing streetlights and increasing their number

It was observed that in most areas streetlights did not work either because the bulbs were missing or they needed replacement. Auditors also observed the need for more streetlights, especially in areas on the outskirts of the city. Jaipur needs to invest in better lighting to make the city safe.

Walk paths need to be fixed and encroachments reduced

Many parts of Jaipur lack good walk paths. Even in the main city, walk paths are a rarity. Areas where walk path is available are narrow and need maintenance. It was also recorded that walking space is mostly taken up for parking vehicles or by street vendors. With better planning more parking facilities must be built to accommodate the growing population of Jaipur. The existing walk paths must be repaired and street vendors provided their own spaces for vending. Vendors also play the important role of being "eyes on the street" and thereby improve visibility in public spaces.

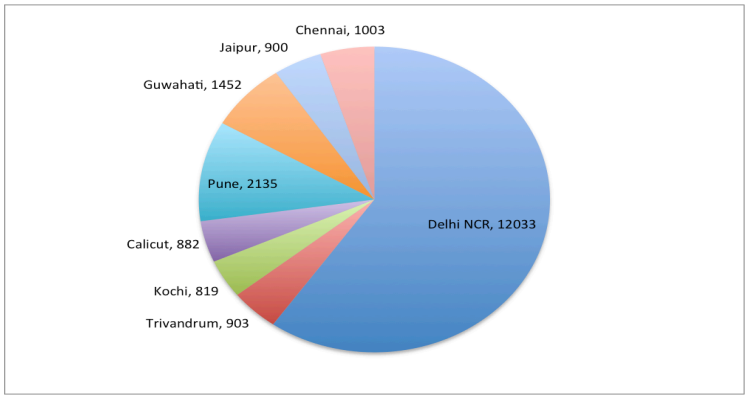
Increasing patrolling by the police

The safety audits revealed that visible public and private security is low. The police are mostly stationed at main circles or junction points. Patrolling in the inner lanes is very rare. We recommend an increase in the patrolling by the police and ensuring availability of police at fix checkpoints. Having women police personnel in patrolling units will also add to safety of the area. The presence of visible security increases the feeling of safety.

Conclusion

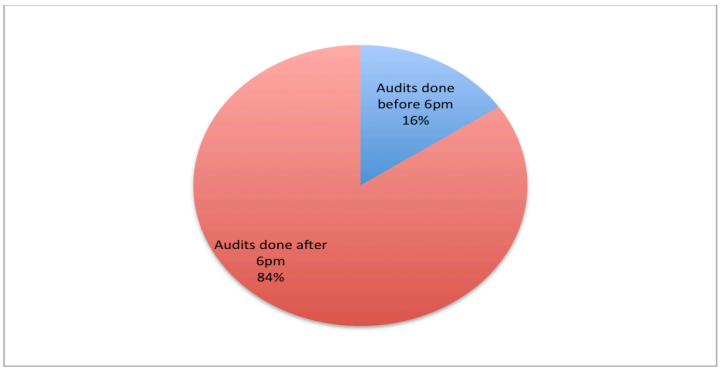
These chapters have presented the data and findings from the safety audits conducted in each of these cities. In all cities , at least 800 audits were carried out. In Delhi NCR, the largest number were done both because it was first launched there and because a large number of audits were commissioned over the past 17 months that Safetipin has been available. In the other cities, as we saw, the audits were done by the partner organisation with the help of students and other volunteers. Graph 1 shows that all the cities had between 800-2200 audits, except for Delhi.

Graph 1: Number of safety audits carried out in various cities

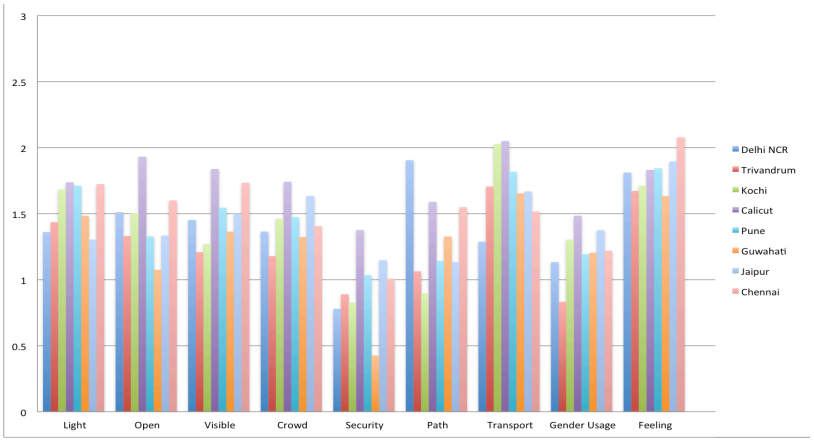


All these eight cities are very diverse in terms of size and other parameters and it is not possible to do a comparison. Nevertheless it is interesting to look at some of the trends. We can get an idea of whether there was great variation between the cities or whether their experiences and perceptions were similar. Graph 2 below show that 84% of the audits were carried out after 6 pm and thus capture the city at night.

Graph 2: Auditing time of the day in the cities

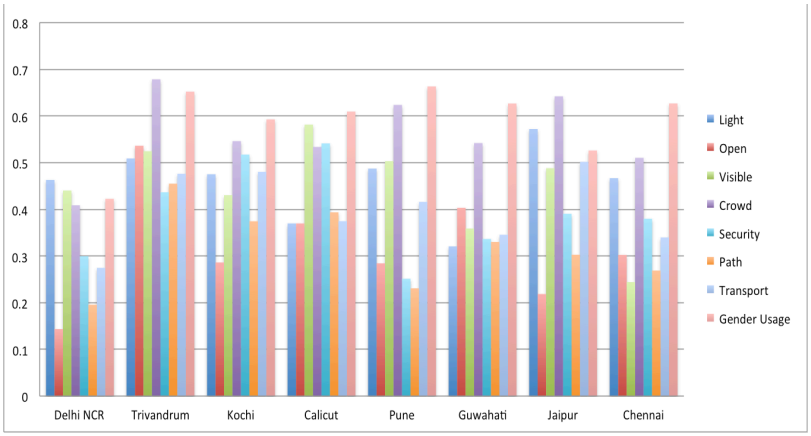


Graph 3: Average score of safety audit parameter across the 8 cities



A brief look at a comparison between the cities shows that security and gender usage are quite low in all the cities (bit higher in Calicut and lower in Guwahati). Following these two parameters, we can see that lighting is approximately average in almost all the cities. The availability of public transport is fairly good in all cities scores higher than average, except in Delhi. While Delhi has a decent public transport system, this shows that there are several parts of the city where it is not very good. Walk path on the other hand scored highest in Delhi followed by Calicut and Chennai. On almost all the parameters, Chennai scored fairly high. The feeling of safety across the cities is also approximately the same and ranging between 1.5 and 2.0. All the cities were approximately the same with Chennai ranking a bit higher.

Graph 4: Correlation of safety audit parameters with feeling of safety across the 8 cities



When we look at the correlation (Graph 4), the data shows that across all the cities the parameters of gender diversity and presence of people in public spaces seem to have the highest correlation with the feeling of safety. This was followed by a rather strong correlation

between lighting and feeling of safety. It is interesting to note that the presence of security does not have a very high correlation to the feeling of safety, except in the three cities in Kerala where they seem to have a higher rating. In several of the cities, the parameter of visibility (Delhi, Kerala, Jaipur) also has a high correlation to the feeling of safety. This shows that people feel safer in public spaces if they feel that people can see them. Thus having a crowd and natural surveillance through "eyes on the street" both play a important role in feeling safe in public spaces.

The presence of people and especially women and usage of the space appears to have the highest correlation to the feeling of safety in public spaces. The presence of diverse groups of people including women has come out as another major factor in creating a sense of safety in public. A bustling marketplace would tend to be seen as a safer space than a deserted area. Thus public spaces that are vibrant and promote activity tend to be safer. On the contrary segregated spaces, high walls and lack of visibility all lead to greater feelings of insecurity. The visibility of a place is highly linked to feeling safe. If a woman feels that she can be seen in a public place by people from their windows, shops, vendors etc, she tends to be more comfortable moving around.

In terms of infrastructure, the extent of lighting in a place has a significant effect on the feeling of safety, and it is thus important to ensure that all areas of the city are well lit. As we saw in all the cities, there were strong recommendations for improving lighting across.

While planning cities, it is therefore imperative to pay attention to both these aspects of the infrastructure and the ways spaces are used. A focus merely on infrastructure would not be as significant in creating safety, as our findings from all the cities show that is equally important to look at we the way public spaces are occupied. The data in this report tries to show how people perceive their public spaces and their own understanding of where they feel safe or unsafe. The data has clearly brought out the importance of all the factors mentioned above. There it is essential that our cities are planned and managed in ways that promote safety, accessibility, mobility and inclusion.

OUR CITY PARTNERS: