

KENYA INFORMAL SETTLEMENTS IMPROVEMENT PROJECT



METHODOLOGY NOTE
Participatory Violence Mapping
in Informal Urban Settlements



1. INTRODUCTION

Kenya is experiencing rapid urbanization. In 2016, about 14 million people (25 percent of the country's population) were living in urban areas, but by 2030 that number is expected to increase to over 22 million, and by 2050 to 40 million—over 50 percent of the population (World Bank 2016).

A lack of inclusive growth in Kenya's cities has led to the proliferation of informal settlements and unequal access to services. Nearly 60 percent of people living in urban areas are in informal settlements, in housing characterized by a lack of permanent walls, no running water, a toilet shared by more than 20 people, and a

sleeping room shared by more than three people. They have significantly less access to basic services than people living in formal areas.

In Nairobi, only about 36 percent of households in informal settlements have access to piped water into their house or compound compared with 84 percent of formal-area households. With few exceptions, this disparity extends to access to electricity inside the home, solid waste collection services, and quality internal access roads. Poverty and inequality contribute to insecurity, negatively impacting quality of life and constraining investment and economic development.



Experiences in Kenya and elsewhere have demonstrated that reflecting the principles of Crime Prevention through Environmental Design (CPTED)¹ in urban planning and investment helps create safe public spaces. The approach deters potential criminal behavior by maximizing the visibility of spaces and their users and by fostering positive social interactions among legitimate users of private and public spaces. The potential offender is at greater risk of being caught and, sensing the increased scrutiny, is unable to locate a viable, covert escape route (Crowe 1991). Design elements include street designs to encourage walking and bicycling, as well as lighting along pedestrian walkways, stairs, entrances and exits, parking lots, matatu² (privately owned minibuses) stops, bus stops, and children’s play areas.

In 2016, the World Bank collaborated with the project team that has been implementing the Bank-financed Kenya Informal Settlements Improvement Project (KISIP) to introduce the concepts of CPTED to communities in the process of preparing settlement upgrading plans. Residents of the benefiting communities

gathered to engage in a highly participatory process to prepare the plans. With access to information about the benefits of CPTED and its specific approaches, they were better positioned to make decisions that would lead to safer communities.

One of the project beneficiaries is Kayole Soweto, a densely populated informal settlement that is home to about 90,000 people. The settlement suffers from high rates of violent crime. In 2016, a National Police Service report indicated that the Kayole Soweto area was among the top five most dangerous areas in Nairobi City County. Theft, armed robbery, and assault have been reported in the area, particularly during the hours of darkness.

Project participants in Kayole Soweto learned about CPTED concepts that can be applied to future upgrading initiatives in the settlement. The Bank provided technical assistance to explore effective ways of identifying the perceptions of residents regarding safe and unsafe places, which would in turn lead to proposals for making places safer.

1. CPTED is an approach to deterring crime through environmental design.
2. Matatus are privately owned minibuses.



2. THE APPROACH

The first step to determining appropriate interventions to prevent crime and violence is to understand where incidents are taking place and why these places are unsafe. Participatory violence mapping using geographic information system (GIS) tools offers an effective approach for such an assessment.

The mapping exercise had four objectives. It sought to: (1) test participatory techniques for the mapping of crime and violence in informal settlements; (2) create georeferenced maps that indicate crime and violence hotspots—including incidents of gender-based violence, information on community assets, and perceptions of safety; (3) identify safe and unsafe places, and propose interventions to make unsafe places safer; and (4) based on the results of the exercise, refine the participatory techniques.

The process involves four steps. (1) Create a base map that shows roads, structures, and open spaces; (2) collect data about the settlement using Global Positioning System (GPS) tools; (3) bring community members together to respond to questions on crime and violence by drawing directly on the base maps; and (4) conduct focus group discussions to obtain feedback on the stories depicted by the maps.

Participatory mapping is based on the idea that a community members are the experts of their own environment. The residents of Kayole Soweto worked on a base map that showed the layout of the settlement and its buildings and that provided details regarding amenities such as the chief's camp, police station, recreational hall, churches, security lights, schools, bars, restaurants, clinics hospitals, the dump site, and public

toilets. The participants then drew on the maps to show patterns of mobility for men and women, safe and unsafe areas as perceived by men and women, types of crime and support systems as perceived by men and women, and priority improvements in infrastructure and

services to prevent crime and violence as perceived by men and women. Appendix A presents the full list of mapped features as well as the template used to guide the collection of data using GPS technology.

3. METHODOLOGY

The participatory violence mapping methodology has four stages: (1) preparation, (2) community engagement, (3) data collection and capacity building, and (4) map production and validation. Each is described in more detail below.

Stage 1. Preparation

The preparation stage involves engaging with community leaders to gain an understanding of their expectations of the mapping exercise and to agree on the overall process, timetable, and participants. In the case of Kayole Soweto, the World Bank and KISIP teams contracted Spatial Collective, a firm with extensive experience in numerous countries with participatory mapping using geographic information system (GIS) tools. The project team then introduced the firm to Kayole Soweto's political representatives to discuss the project and reach agreement on the overall process.

Spatial Collective began by generating a base map. It purchased an aerial image and digitized its features, creating a map that shows the layout of the settlement and its buildings. Other options for acquiring a base map include using one created by a local government partner, which could save time and money, or creating one by digitizing satellite imagery.³

The firm also sought secondary data on crime from the National Police Service and the area chief. However, in Kenya, these records are kept as hard copies in various places. Several levels of approval are needed to obtain access, which is not always forthcoming. Where available, such information can provide valuable insights into what, where, and when various types of crime and violence occur in the settlement.

Stage 2. Community Engagement

Once the preparation stage was completed, the project team introduced Spatial Collective to members of the Settlement Executive Committee. The committee was established to represent the community in project-related matters, including the design of a project-financed settlement upgrading plan. The project team and committee members agreed that the committee would take the lead in identifying members of the community who, using mobile phone-based Global Positioning System (GPS) technology, could walk through the settlement and note key facilities; the committee would also find focus group discussion participants. Spatial Collective representatives emphasized that the community's diversity should be represented among the participants of both processes, including men and women, young and old, tenants and landlords, and physically fit and disabled people.

3. If the required data are not available through the government partner, the deliverables of a consultant should include the creation a base map and be built into the timeline.

Stage 3. Data Collection and Capacity Building

The third stage began with a workshop to compile a list of amenities to be mapped. All community stakeholders participated, including the Settlement Executive Committee, the local administration, the police, youth groups, religious leaders, and other civil society members. The committee identified 20 people—10 men and 10 women—from the settlement's 10 zones who were interested in collecting the data using GPS technology. After training the recruits on the use of technology, Spatial Collective assigned them to teams of two, comprising an experienced data collector and a community member with geographic knowledge of the area, ensuring the high quality of the collected data.

For six days, the teams collected information on over 200 points of interest in the settlement, including schools, health clinics, police posts, markets, shops, restaurants, bars, churches, streets and security lights, transportation hubs, water points, and public toilets. The collected data further informed the creation of the base map. Finally, a combination of the building extraction and GPS mapping completed it.

Focus group discussions provided data about perceptions of crime, violence, and security among community members, as well as the associated opportunity costs related to experiences of safety and/or insecurity. Participants included male and female youth (ages 18–25); male and female at-risk youth; and adult men and women, ages 40 and above.

BOX 3.1. Gender-Based Violence

Gender-based violence is not usually a point of focus in violence mapping exercises because it is commonly understood as something that takes place inside the home. However, in informal urban settlements, this form of violence is common in public spaces, and women are disproportionately impacted.

To collect qualitative data collection on the subject during focus group discussions, the methodology incorporated the following elements:

- A focus on women of all ages, including at-risk youth, to make sure that the process included their perceptions of violence in public spaces;
- Sensitivity training to ensure that data collectors considered the ethical implications of collecting data on gender-based violence, including guaranteeing the anonymity of participants and protecting psychological safety by avoiding retraumatization and by talking about general rather than personal experiences; and
- A consideration of gender sensitivity for each component of the mapping exercise, with attention to the design of focus group discussions.

The participants' perceptions of safe and unsafe areas were captured using a participatory map drawing method. Drawing directly on the map, the exercise asks participants to indicate the areas they most often visited, places they regarded as safe or unsafe, routes followed to accomplish certain activities, and potential interventions to make unsafe places safer.

Gender-sensitivity training was provided to data collectors, including ethical considerations—such as participant anonymity. It raised awareness around gender stereotypes and discrimination, explained how to incorporate a gender perspective into data collection, and proposed gender-sensitive behaviors for data collectors.

Stage 4. Map Production and Validation

The violence mapping exercise produced a set of four visualizations. The elements illustrate perceptions of mobility among men's and women; safe and unsafe areas as perceived by men and women; types of crime and support systems as perceived by men and women; and improvements in infrastructure and services proposed by men and women in the settlement.

Perceptions of Safety and Mobility

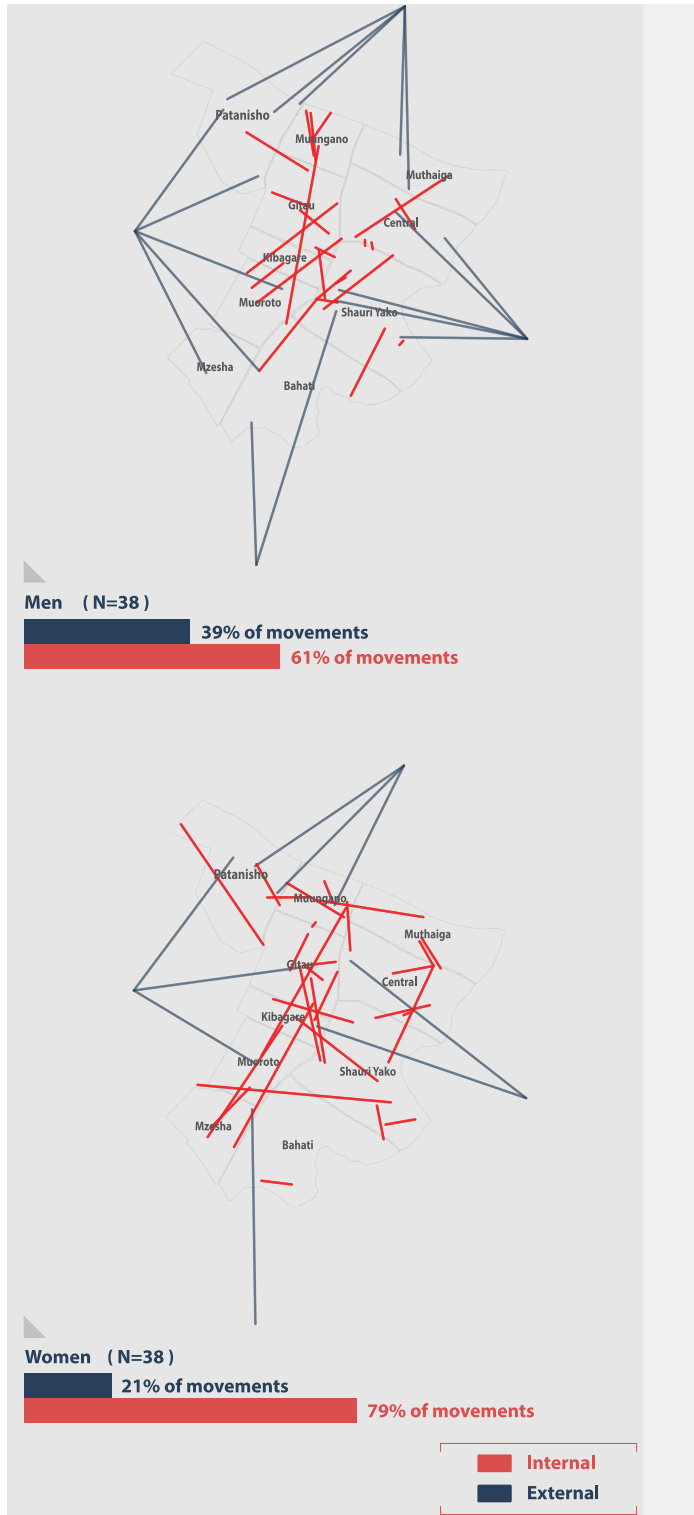
Patterns of movement in and out of Kayole-Soweto, as well as gender-specific perceptions of safety related to mobility within the settlement, are illustrated in maps 3.1 and 3.2. Map 3.2 can be divided into two parts. The first part answers the following questions:

- How do people navigate the places in which they live?
- How does gender influence mobility and in what way?
- How do men and women access opportunities within and outside the slum?

MAP 3.1. Perceptions of Safety in Mobility Among Men and Women



MAP 3.2. Perceptions of Safety in Mobility Among Men and Women



Participants were first asked to identify the location of their households and work. The aim of this exercise was to understand how many men leave the settlement to seek opportunities compared with women. The two circles represent all of the paths—or segments—traversed by both men and women. Men identified only 10 percent of the segments as unsafe, while women felt 34 percent to be unsafe. The findings indicate that 40 percent of men venture outside the boundaries of the informal settlement for work compared with only 20 percent of women. Overall, women travel within and outside the settlement at a much lower rate than men.

The second part of the map answers these questions:

- How are spaces in informal settlements traversed differently according to gender?
- Which paths are the most travelled in a community? When and why?
- Does gender influence perceptions of safety when it comes to movements within the informal settlement?

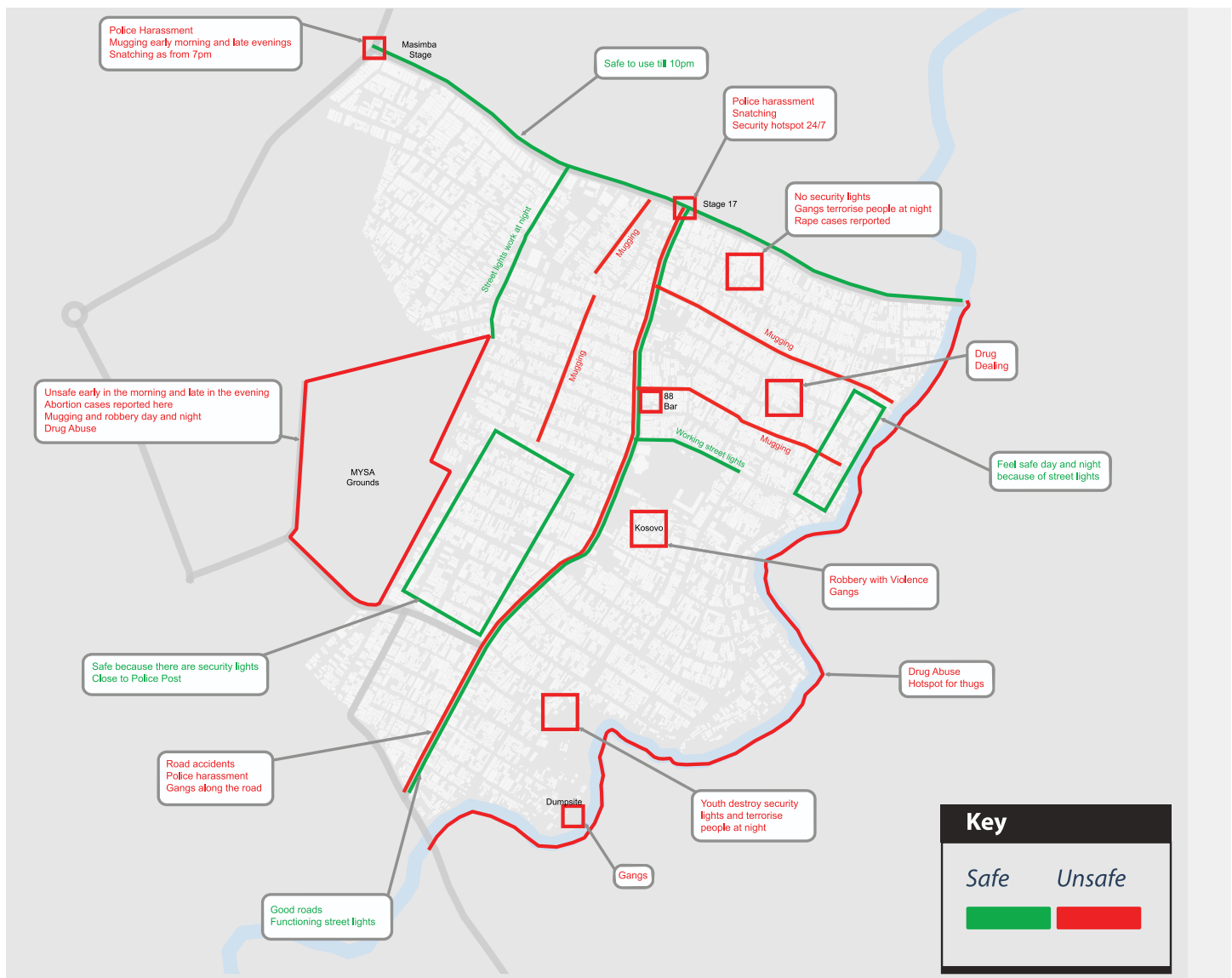
To answer these questions, 60 participants (35 men and 25 women) were asked to identify two locations, other than their homes, that they most frequent. The aim of the exercise is to understand perceptions of safety among men and women as they move through the settlement. When moving from one location to the next, do they feel safe or unsafe? Why? The maps use the *triangle method of mobility*, where each segment represents a path between three locations visited by an individual on a daily basis. A red line indicates that a person felt unsafe walking along the path; a blue line indicates that a person felt safe.

Perceptions of Safe and Unsafe Areas

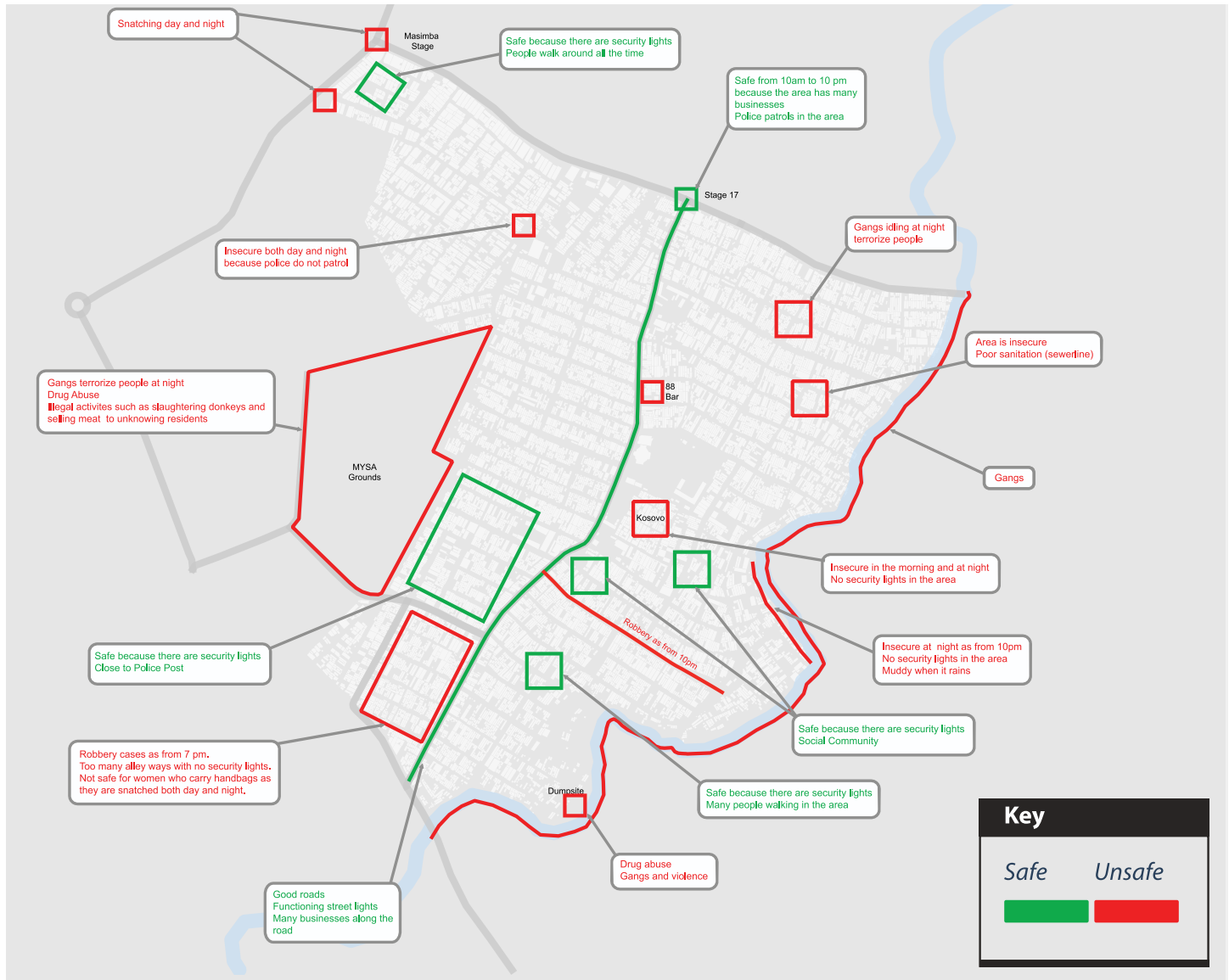
Maps 3.3 and 3.4 identifies areas, streets, neighborhoods, and other sites that men and women perceive as safe or unsafe. To produce the maps, the focus group discussion participants drew directly on the base map, noting areas that they perceived as safe in green and unsafe in red. The final maps are aggregates of all of the participants' answers.

Participants expressed varying views about safe and unsafe areas. Young men, especially at-risk youth, indicated that their major source of insecurity emanates from poor hygiene conditions in the settlement—mainly the open drainage systems, poor sanitation, and the presence of garbage. With regard to crime, many young men noted that most incidents occur at night or during daytime rush hours. They identified some specific streets and bus stations as unsafe due to congestion as well as frequent muggings (map 3.3).

MAP 3.3. Perceptions of Safe and Unsafe Areas Among Men



MAP 3.4. Perceptions of Safe and Unsafe Areas Among Women



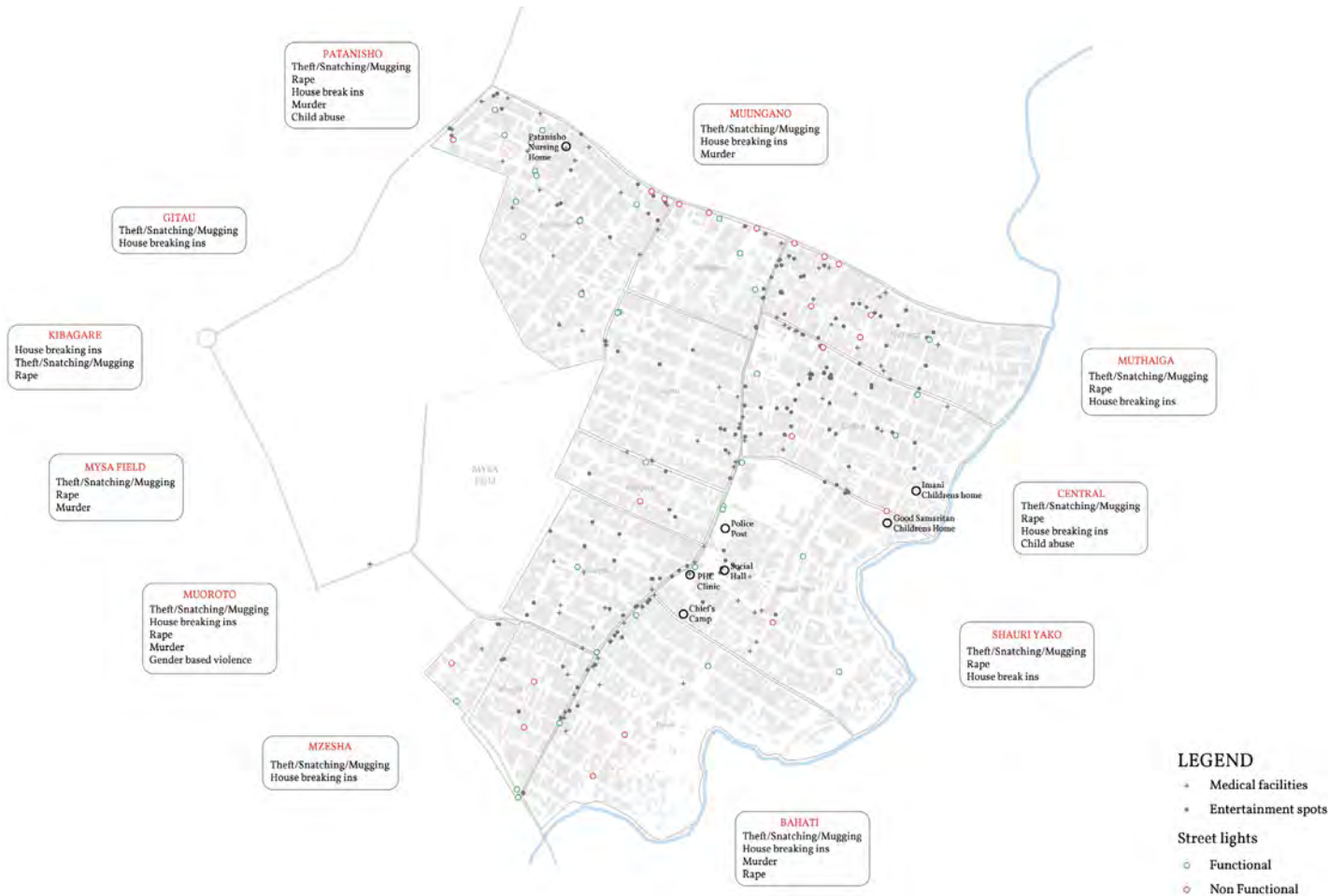
Young women, the elderly, and people with disabilities identified their homes and neighborhoods as places where they felt the safest, although some expressed worry over house break-ins. People with disabilities expressed safety concerns such as poorly designed and constructed infrastructure that presents obstacles to them, reduces their mobility, and increases their exposure to violent crimes like robbery.

Participants were also asked questions about types of crime and victim support. Map 3.5 depicts answers

to two questions: (1) What types of crime are most prevalent in Kayole-Soweto? (2) What support systems exist in the settlement for victims of crime?

In some instances, participants identified activities as “crimes” that are not actually illegal in Kenya, such as gambling and drinking, because they are perceived to increase the risk of insecurity. The depiction of illegal activities as well as unwelcome behaviors is important because of their impact on residents’ mobility, daily choices, and access to opportunities.

MAP 3.5. Types of Crime as Perceived by Men and Women



Participants identified a broad range of criminal and violent activity. Types of reported incidents include snatching; theft; mugging; house break-in; child abuse; and gender-based violence, especially rape. Land grabbing, gambling, and substance abuse were identified as key factors behind the crime and violence that affects the community. Young women, for example, indicated that they avoid areas where gambling is taking place because idle young men congregate there for hours on end, which leaves the women exposed to harassment. See map 3.6.

Many were surprised by the number of existing amenities located in Kayole Soweto. There are numerous

support systems for victims of violence, include police stations, security lights, a hospital, social halls, rehabilitation centers, religious institutions, schools, and facilities operated by nongovernmental organizations. Nevertheless, community members noted that reporting rates of crime and violence are low, partly due to the inadequacies of many of these facilities. For example, there is no support or referral system for victims of sexual assault, and many private clinics are unlicensed, expensive, and poorly equipped.

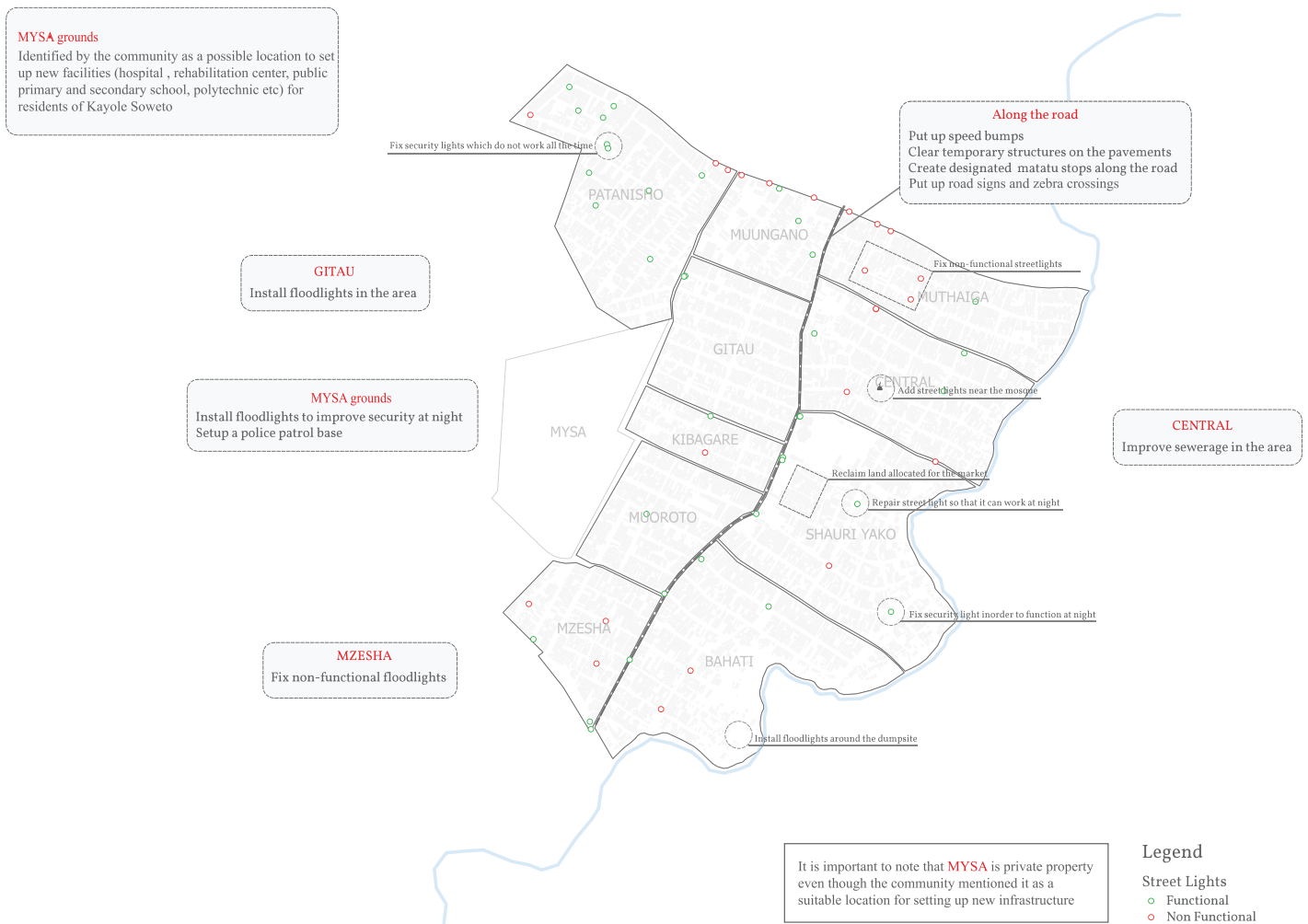
There was consensus among the focus group discussion participants that all forms of crime should be reported to the police. The chief’s camp, the social

hall (ward representative’s office), orphanage, and hospital were identified as alternative places where crimes could be reported.

Finally, participants were asked to identify investment priorities to transform unsafe places into safe spaces. Participants located problem areas on the

base map and made note of any improvements they wished to see made there (map 3.6). The proposed improvements were divided into a general and a specific group. The general category includes improvement of health and security services and construction of government-sponsored primary and secondary schools, a marketplace, and playgrounds for children. More

MAP 3.6. Proposed Infrastructure and Service Improvements





detailed and zone-specific improvements include: fixing existing street lights, installing additional ones, erecting speedbumps, and improving the sewerage system in problem spots. An increase in police patrols and support for community policing were also suggested as ways to reduce crime. Participants suggested that the Settlement Executive Committee could play an important role in preventing crime and violence by prioritizing infrastructure investments and by referring victims of crime to existing services and authorities.

The need to create additional urban parks and open spaces with playgrounds for children was highlighted. Participants pointed out that such improvements would foster social cohesion and the inclusion of youth, children, women, and men alike in after-school programs, recreational activities, sports, and life-skills development, and other community activities. Another prominent priority area among participants is the improvement of health facilities and services.

4. CONCLUSIONS

The participatory violence mapping exercise demonstrates the importance of Global Positioning System (GPS) data collection and data visualization for providing concrete insights into the relationship between physical infrastructure and crime, violence, and perceptions of safety. Map 3.2, for example, visibly demonstrates that the mobility patterns of women are restricted compared with those of men; and map 3.4 clearly identifies unsafe spaces that could be targeted with infrastructure investment, such as unlit areas that are dangerous at night.

Participatory violence mapping should take place prior to the preparation of settlement upgrading plans. Under

the Kenya Informal Settlements Improvement Project, communities can identify their priorities with the assistance of facilitators. The terms of reference for the preparation of the settlement upgrading plans include participatory violence mapping using geographic information system (GIS) technology that draws on the lessons learned through the exercise carried out in Kayole Soweto.

This participatory violence mapping exercise yielded critical lessons about how to identify crime and violence hotspots and how to reduce their levels using the principles of Crime Prevention through Environmental Design in settlement upgrading interventions.

References

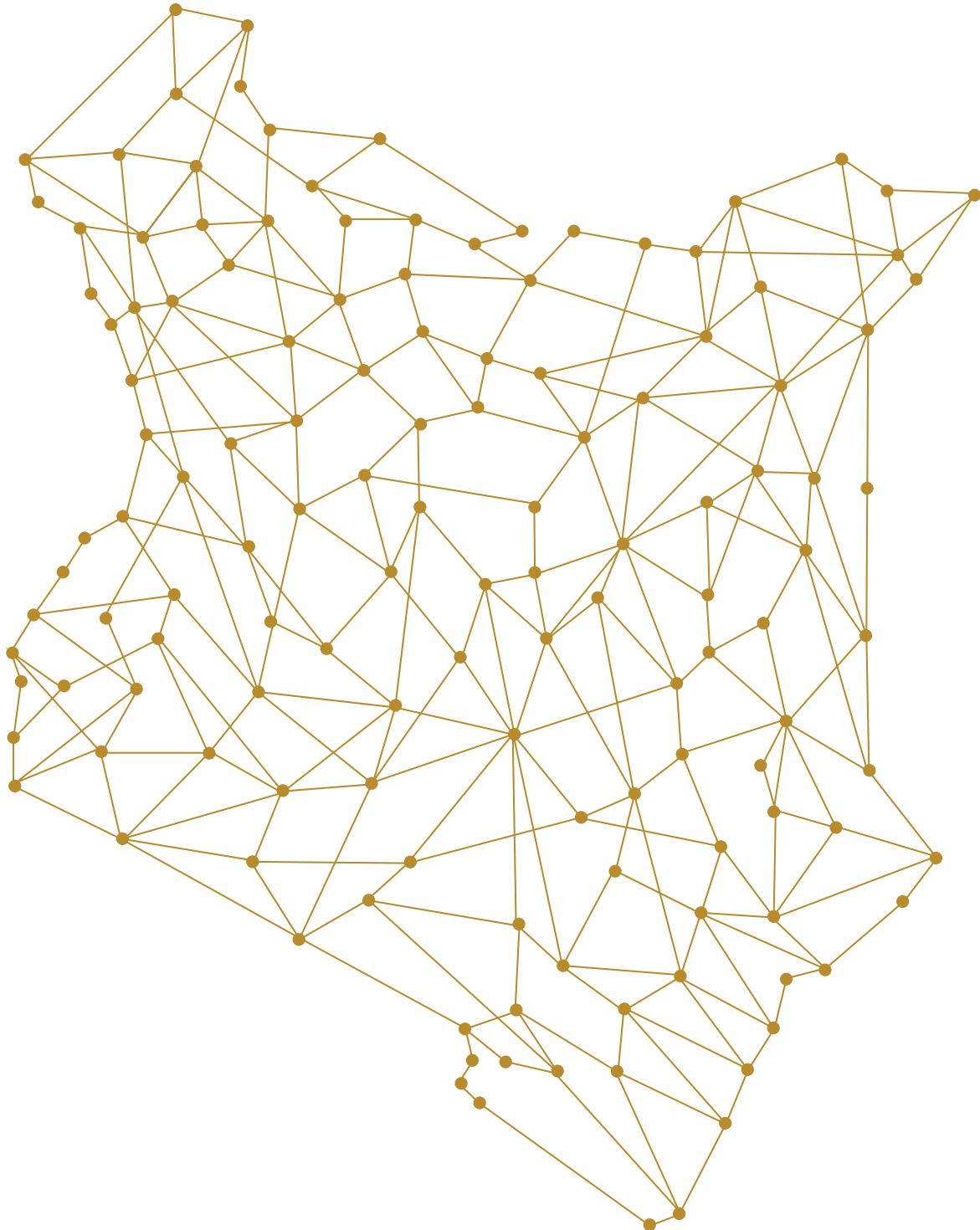
- Crowe, Timothy, D. 1991. *Crime Prevention Through Environmental Design: Applications of Architectural Design and Space Management Concepts*. Louisville, KY: National Crime Prevention Institute.
- World Bank. 2016. "Kenya Urbanization Review." Report AU8099 (February). World Bank, Washington, DC. <http://documents.worldbank.org/curated/en/639231468043512906/Kenya-urbanization-review>.

ACKNOWLEDGMENTS

This note was coauthored by Margarita Puerto Gomez, Senior Social Development Specialist, Rachel Brown, Consultant, World Bank; and Wendy Schreiber Ayres, Senior Consultant, World Bank. This note benefitted from the very useful inputs from Primož Kovačič and Edwin Obare from Spatial Collective and reviews from Flavia Carbonari, Senior Consultant on Violence Prevention; Andres Villaveces, Senior Consultant on Violence Prevention; and Ellen Hamilton, Lead Urban Specialist. The team wishes to express its appreciation to Gladys Imbosa and George Arwa from the Kenya Informal Settlements Improvement Project.

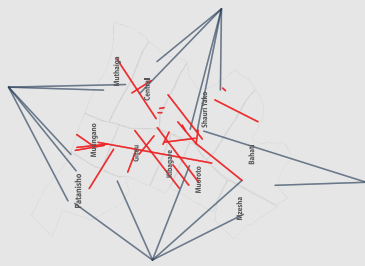
APPENDIX A.

GENERATED MAPS OF KAYOLE-SOWETO, NAIROBI, KENYA



Men's and Women's Perceptions of Safety Related to Mobility

Movements



Men (N=38)



Men travel outside the settlement for work more than twice as often as women

How do people navigate the places in which they live? Does their daily routine and mobility vary? How do men and women access opportunities within and outside the town? These are some of the questions we wanted to answer during participatory map drawing of movements of men and women in Kayole-Soveto.

Between May 22 and 30, 2016, mapping study took place aimed at linking perceptions of safety and insecurity to infrastructure development in order to inform the future of infrastructural upgrading in informal settlements. Focus group discussions and GPS mapping were conducted with groups of residents of Kayole-Soveto as part of a pilot study to understand their perceptions of safety and security in their area. Focus group discussion consisted of youth male and female ages 18-25; reformer youth, male and female ages 18-25; and men and women ages 40 and above. GPS mapping consisted of 10 male and 10 female community members representing all ten zones*. This map is the first in the series of maps designed for this study.

Some 97 participants (52 women and 45 men) responded to a series of questions designed to help understand gender specific patterns of movements in and out of Soveto, as well as gender specific perceptions of safety of movements within the informal settlement.

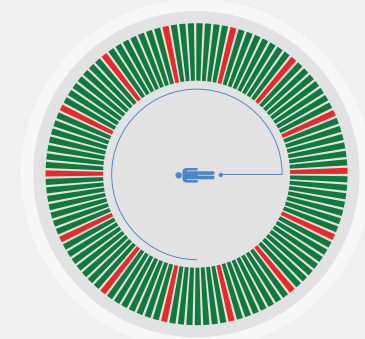
Participants were asked to first identify locations of their households and locations of work. The aim of this exercise was to understand how much men versus women leave the settlement to seek opportunities outside.

We found that 40% of men indicated that they went for work outside the boundaries of the informal settlement compared with only 20% of women.

* Reformed youth is term coined by Kayole-Forum and represents youth whose experiences range from substance abuse and sexual exploitation to prostitution.

* Reformed and unimpaired settlements in Kisumu are usually further from the city centre and are located in the informal settlements administrative areas. Kayole-Soveto is divided into 10 zones.

Safety



Men (N = 35)



Men feel a much greater sense of safety in the community than women

How do spaces in informal settlements present different safety perceptions? Which spaces do most people travel in a community, when and why? Does gender influence perceptions of safety when it comes to movements within the informal settlement?

Some 60 participants (35 men and 25 women) were interviewed to understand their perceptions of safety in their community. The aim of this exercise was to understand the perceptions of safety of men and women while moving through the settlement, whether in their movements to and from their homes, to work, to school, to the market, and why they felt a certain way.

The 35 men interviewed drew 110 segments while 25 women drew 68 segments. Each segment represents a path between at least three locations that individual visits every day. Red indicates that people felt unsafe, while green means that people felt safe while walking between two locations in the settlement.

Men identified only 10% of the segments as unsafe, while women chose 34% segments as unsafe. The two circles represent all of the segments, or perceptions of safety, of men and women aggregated.

Overall, men—being and doing—move much more freely within Kayole-Soveto and outside the area. Men of all age groups reported very few areas of insecurity in Kayole-Soveto in general and were thus much more mobile than women. Young men in particular identified few unsafe areas in Kayole, which implies a low perception of insecurity. Insecure spaces were perceived as those where police who often target youth for being associated with criminal activities. Additionally, older men added that to enhance individual safety it is better to use the main road rather than side streets.

Overall, women travelled within and outside the settlement less than men. Women of all ages reported planning their routes from one point to another to avoid areas perceived as unsafe. Women mobility patterns are dynamic. They change their routes as a security precaution to avoid areas perceived as insecure. They also reported that they were more likely to walk during the day than at night. Women primarily identified their neighbourhoods and their homes as the places they felt most safe. They felt safer during the day.

While each age category had different perceptions of safety, some factors were commonly attributed to their perceptions of safety, such as the presence of young men and lack of street lights.

Descriptions

This map identifies gender-specific patterns of movements in and out of Kayole-Soveto, as well as gender-specific perceptions of safety related to mobility within the settlement. The map is the first in a series of visualizations showcasing community's perceptions of safety in Kayole-Soveto.

Kayole-Soveto is a government-located settlement located in the southern location of Embakasi East constituency in Nairobi City County. The settlement is further divided into 10 administrative zones. Soveto is a settlement consisting of permanent and semi-permanent structures in a house, an estimated population of 40,000 people in approximately 22,400 households.

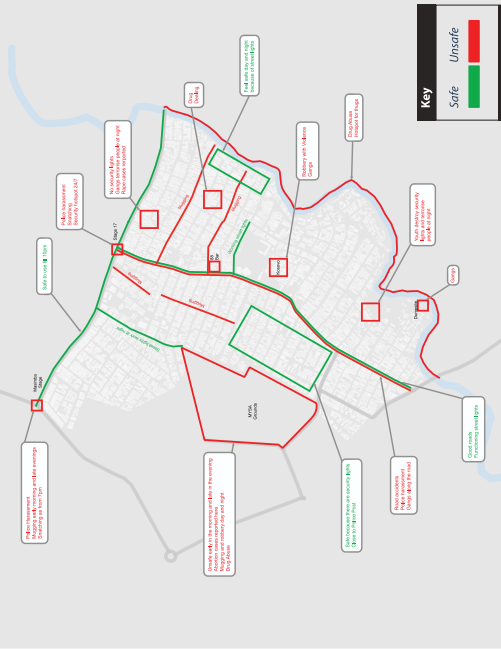
The map was produced by Spatial Collective in collaboration with The World Bank and the Government of Kenya. Ministry of Lands, Housing and Urban Development, the aim of the map is to provide a visual representation of information. System-based participatory mapping approach to support Kenya Informal Settlement Improvement Project in developing settlement specific designs by linking perceptions of safety to infrastructural upgrading in informal settlements.

The map is an overlay of information obtained using a mixed-method approach including stakeholder consultations and participatory project planning; b) building extraction by youth using aerial imagery; c) GPS data collection by community members; d) participatory map drawing through focus group discussions with community members; e) and map creation.

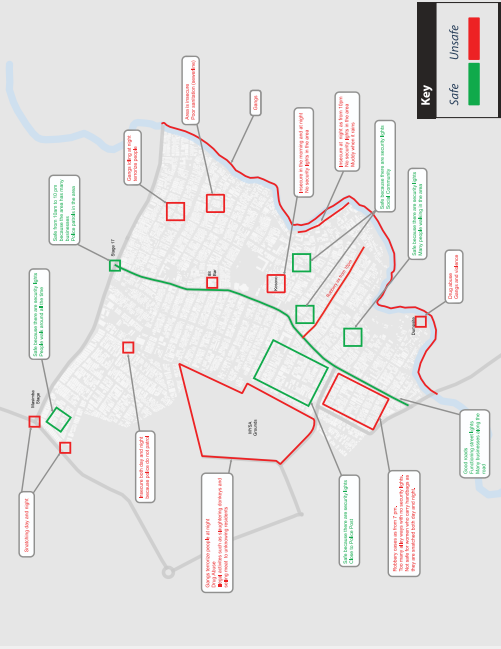


Safe and unsafe areas as perceived by men and women

Men's perceptions of safe and unsafe areas



Women's perceptions of safe and unsafe areas



Descriptions

This map identifies safe and unsafe areas as perceived by men and women in Kayole Sweto. The map shows the areas of violence, based on various community perceptions of safety in Soweto.

Kayole Sweto is a government-relocated settlement located in Soweto. Location of Embank East constituency in Nairobi City County. The settlement is limited to 10000 households. The settlement consists of permanent and semi-permanent structures which house an estimated population of 30,000 people in approximately 22,400 households.

The map was produced by Spatial Collective in collaboration with the Government of Kenya, Ministry of Lands, Housing and Urban Development. The aim of the project was to develop a Geographic Information System-based participatory mapping approach to support Kenya Informal Settlement Improvement Project in developing participatory mapping approaches for identifying perceptions of safety in infrastructural upgrading in informal settlements.

The map is an overview of information obtained using a mixed-method approach including a stakeholder consultation and participatory project planning in building the map. The map was created using GIS data collected by community members of participatory map drawing through focus group discussions with community members of and map creation.

Methodology

These maps are an overview of information obtained through GIS data collection and focus group discussions with selected community members.

Between May 23 and 30 2016, a mapping and risk data collection was conducted in order to inform the future of infrastructural upgrading in informal settlements. Focus group discussions and participatory mapping were conducted with groups of residents of Kayole Sweto as part of a pilot study to assess the perceptions of safety and insecurity in the area. Focus group discussions consisted of youth, male and female, ages 18-25, reformatted youth, male and female, ages 18-25, and men and women ages 40 and above. GIS mapping consisted of 10 male and 10 female community members representing all ten zones³. This map is the second in the series of maps designed for this study.

Spatial Collective trained 20 community members, representing all 10 zones of Kayole Sweto, on basic GIS data collection techniques to map amenities related to safety and security in the settlement. The list of amenities included police station and child's camp, security lights, hospital, clinics, pharmacies, chemists, social halls and recreation centers, religious institutions, schools and children's homes.

After the initial GIS data collection, focus group discussions were held to identify safe and unsafe areas as perceived by men and women from the settlement. The participants - 57 women and 45 men - were asked to draw safe (green) and unsafe (red) areas on top of a base map designed after the initial mapping.

Generally, the participants felt safer in areas with which they were more familiar, as opposed to the areas they didn't know.

Reformed youths - both male and female - reported feeling safe in every zone of the settlement, all 10 zones. They attributed this sense of safety to being "local" within the community. They did however mention that they avoid walking around the settlement in large groups as this attracted police who would harass them.

The same group added that the major source of insecurity for them emanates from poor hygiene conditions in the settlement, mainly open drainage systems and poor sanitation and the presence of garbage. As for crime, they noted that most of it takes place at night and at rush hours during the day.

Older men said they felt safer within their homes, but they still worry about house break-ins. Additionally, they identified several unsafe areas in the settlement (see the map), such as Mbatamba bus stage and Mwangi road due to congestion and frequent muggings.

Young women on the other hand, identified their homes and their neighborhoods as places where they felt most safe. They also generally felt safer during the day. Young women felt insecure around bars and gambling spots where young men hangout.

The group of reformed young women at first denied feeling insecure in the settlement, however as the discussions continued, they indicated feeling unsafe in areas where older young men congregate. They stated that they often change the route of their daily commute to avoid these areas.

Older women said that there are no safe public places in the settlement. They felt relatively safe only at home and felt mostly unsafe outside of their homes, especially during the night.

³ Reformed youth is a term used by Kayole citizens and it represents youth whose experience range from substance abuse and sexual violence to homelessness. Participants were identified through a local rehabilitation program.

⁴ Former and unimproved settlements in Nairobi are usually further divided into 'Wages' or 'Zones' which represent the smaller administrative units. Kayole Sweto is divided into 10 zones.

Improvements in infrastructure and services as proposed by men and women in Kayole Soweto

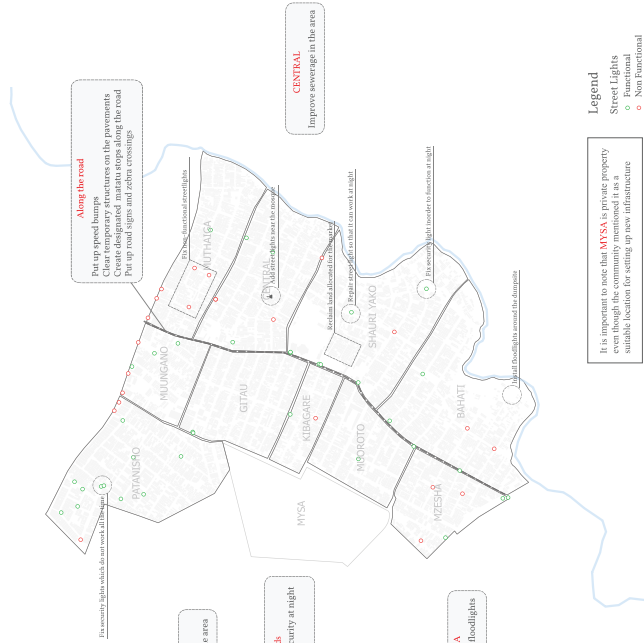
Improvements

MUSA grounds
Identified by the community as a possible location to set up new facilities (hospital, rehabilitation center, public library, polytechnic etc) for residents of Kayole Soweto.

GITAU
Install floodlights in the area

MUSA grounds
Install floodlights to improve security at night (along a public-paved lane)

MZESHA
Fix non-functional floodlights



What we hope of the infrastructural improvements that people of Kayole Soweto would like to see implemented to increase the sense of security in the area? This is the final question we wanted to answer during participatory mapping of perceptions of safety in Kayole Soweto.

Between May 23 and 30, 2016, a mapping study took place aimed at linking perceptions of safety and insecurity to infrastructure development in order to inform the future of infrastructural upgrading in informal settlements. Focus group discussions and participatory mapping were conducted with groups of residents of Kayole Soweto. The study was held in two focus group discussions: one with 10 male and 10 female participants (aged 18-25) and another with 10 male and 10 female participants (aged 40 and above). GIS mapping consisted of 10 male and 10 female community members representing all ten zones. This map is the fourth in the series of maps designed for this study.

During the focus group discussions, some 97 participants (52 women and 45 men) responded to a series of questions designed to help understand what infrastructural improvements they would like to see implemented to increase the sense of security in the area. Based on their answers, the improvements put forth by the community can be separated into more general and more specific. More general improvements touch on improving health and security services in general and on construction of primary and secondary government-sponsored schools, a marketplace and playgrounds for children. More detailed and more specific improvements are indicated on the map and include: installing streetlights to improve security, installing speed bumps, and improving the sewage in certain areas.

* Referenced profile is a firm owned by Kayole citizens and represents youth whose experience of the area would work in homesteads. Participants were identified through a local mobilization program.
* Referenced profile is a firm owned by Kayole citizens and represents youth whose experience of the area would work in homesteads. Participants were identified through a local mobilization program.
* Referenced and unpowered settlement in Nairobi are usually further divided into 'Majengo' or 'Zones' which represent the smallest administrative areas. Kayole is divided into 10 zones.

Number of times a specific improvement was mentioned during focus group discussions with men and women in Kayole Soweto

Affordable health care centers including a drug rehabilitation and addiction treatment center
Improving medical services - including building a rehabilitation and drug addiction center - within Kayole Soweto featured most prominently among all of the groups in the focus group discussions. In addition, issues concerning existing medical facilities include cost. Participants felt that the cost of medical services in the area are too high, lack of equipment to treat more complicated cases, and lack of more nuanced services, such as family planning and gender-based violence recovery centers. Also, private and often expensive services are available, according to the participants, but for greater abortions and stalling of ill in medicine.

Improving security by installing more streetlights and fixing the non-operational streetlights
Improving infrastructure tied to security ranked next. It was another major issue put forth by all of the participants of the focus group discussions. During the mapping exercise, the participants captured most of the functioning and non-functioning streetlights, as well as so-called black spots or areas devoid of lighting. Furthermore, citizens felt that increasing police patrols and supporting community policing can help alleviate crime in their community.

Construction of government sponsored primary and secondary schools
The settlement does not have a government-sponsored - public - primary or secondary school. Participants were concerned with the quality of education offered to the children of Kayole Soweto and wished the government to make more involved in the process.

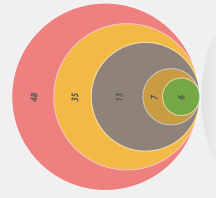
Construction of a marketplace
The initial aerial map of Kayole Soweto indicates an area allocated to the construction of an open market. Through the years, the property has been misappropriated and the community demands that the land be reclaimed for its initial purpose.

Create more urban open spaces with playgrounds for children and green areas
Youth in particular recommended construction of safe open spaces and playgrounds for the children.

Other infrastructural developments proposed by the participants - and indicated on the map - included:

- Improved drainage along newly constructed roads
- Clearing of encroached sidewalks to reduce road accidents
- Installing speed bumps on newly constructed roads
- Installing road signs

Number of Mentions (number of participants: 97)



Descriptions

This map identifies areas for improvement as perceived by men and women in Kayole Soweto. The map is the fourth in a series of visualizations - showcasing community's perception of safety in Soweto.

Kayole Soweto is a government-allocated settlement located in Swamati location of Embakasi East constituency in Nairobi City County. The settlement is further divided into 10 administrative zones. Soweto is a settlement of approximately 90,000 people in approximately 22,400 households.

The map was produced by Spatial Collective in collaboration with the World Bank and the Government of Kenya. Ministry of Lands, Housing and Urban Development. The project was to develop a Geographic Information System-based participatory mapping approach to support Kenya Informal Settlement Improvement Project in developing settlement-specific designs by linking perceptions of safety to infrastructural upgrading in informal settlements.

The map is an overlay of information obtained using a mixed-method approach including stakeholder consultations and participatory project planning, by building interaction by youth using aerial imagery, GIS data collected by residents, and participatory group discussions during the focus group discussions with community members and map creation.



