FINAL REPORT

LINKAGES

Validating and Estimating the Number of Key Population Individuals at the Hot Spot Level in

Burundi

USAID FROM THE AMERICAN PEOPLE
PEPFAR U.S. President's Emergency Plan for AIDS Relief
LINKAGES Across the Continuum of HIV Services for Key Populations
fhi360 THE SCIENCE OF IMPROVING LIVES
CADSAO

LINKAGES

Validating and Estimating the Number of Key Population Individuals at the Hot Spot Level in Burundi

FINAL REPORT

USAID FROM THE AMERICAN PEOPLE
PEPFAR U.S. President's Emergency Plan for AIDS Relief
LINKAGES Across the Continuum of HIV Services for Key Populations
fhi360 THE SCIENCE OF IMPROVING LIVES
CADSAO

Table of Contents

Acronyms and Abbreviations

AIDS	acquired immunodeficiency syndrome
ART	antiretroviral therapy
BSS	biobehavioral sentinel survey
CADSAO	Cabinet de Développement de Statistiques et d'Appui aux Organisations
CI	confidence interval
CNLS	Conseil National de Lutte Contre le SIDA
DHS	Demographic and Health Survey
FSW	female sex worker
HIF	hot spot information form
HTC	HIV testing and counseling
HIV	human immunodeficiency virus
KI	key informant
KP	key population
LINKAGES	Linkages Across the Continuum of Services for Key Populations Affected by HIV
MSM	men who have sex with men
NAC	National AIDS Council
NSP	National Strategic Plan
PEPFAR	President's Emergency Plan for AIDS Relief
PLACE	Priorities for Local AIDS Control Efforts
PWID	people who inject drugs
STI	sexually transmitted infection
SW	sex worker
UNAIDS	Joint United Nations Programme on HIV
USAID	United States Agency for International Development

List of Tables

List of Figures

Executive Summary

This programmatic mapping exercise was conducted to inform the planning of the LINKAGES project in Burundi, which aims to reduce HIV transmission among key populations (KPs)—men who have sex with men (MSM) and female sex workers (FSWs)—and to improve their enrollment and retention in care. The exercise was conducted in five provinces in Burundi (Bujumbura Mairie, Bujumbura, Kayanza, Ngozi, and Kirundo) and was based on the sites identified by a PLACE study conducted in 2013.[1] The validation was performed by community consultants who are members of the KP groups, which facilitated access to the hot spots and to the KP individuals who served as informants at each site. Overall key findings include:

- Of 1,289 sites (1,161 FSW and 128 MSM) identified by PLACE in 2013, only 413 (32 percent) (363 FSW and 50 MSM) were still active. While conducting this validation, we also identified 451 new sites (388 FSW and 63 MSM) that have emerged since 2013, for a total of 864 active sites, 59 percent of which were in the capital province of Bujumbura (**Table 1**). The most prevalent type of hot spot was bar/nightclub (73 percent), followed by lodge/hotel (10 percent).

- Sixty-eight percent of KP hot spot sites from 2013 were no longer active in 2016 — an indication that repeated programmatic mapping is essential for program planning with highly mobile KPs (**Table 1**). The results of such validation exercises enable effective distribution of resources, microplanning by local nongovernmental organizations (NGOs) working with peer outreach workers, and rapid scale-up of programs.

The maximum number of FSWs from the hot spot mapping and size estimation (16,907) was comparable to the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) LINKAGES FSW programmatic target (16,659) for FY17. However, the maximum number of MSM from the mapping exercise (2,128) was significantly lower than PEPFAR's MSM programmatic target (3,544) for LINKAGES, which will have implications for MSM program results.

MICROPLANNING WORKSHOP

In mid-January 2017, a microplanning workshop was conducted with LINKAGES partners in Burundi to present the results of the mapping exercise. The workshop also focused on building the capacity of the partners to use the data for more targeted and effective community outreach (e.g., peer educators, HIV testing), ensuring that peer educators were chosen from the hot spot based on particular criteria (i.e., size of networks, communication skills, interest in the program), devising individualized risk assessments for KP members, and planning an outreach strategy by hot spot to increase service availability/accessibility. Key achievements of the workshop included:

1. Presentation of the data by province/commune for all hot spots, and the population estimates per site
2. Comparison of existing KP data (e.g., PLACE/programmatic) with the new data
3. Self-assessment of outreach and clinical services for KPs
4. Assessment of program capacity to deliver effective services according to the hot spot and population data
5. Development of strategies for coordination among the various stakeholders in the project area
6. Planning for implementation of the KP program in each province, with specific next steps and clear deadlines

1 MEASURE Evaluation. Burundi PLACE report: priorities for local AIDS control efforts. Chapel Hill, NC, USA: MEASURE Evaluation; 2014.

TABLE 1. Old and new/active hot spots from the LINKAGES exercise and PLACE study

KP Type	Active Sites/Hot Spots from 2013 PLACE Study	Closed Sites/ Hot Spots	Percentage of Sites Closed, by KP Type	Old Sites/Hot Spots from 2013 PLACE Study Active in 2016	New Sites/Hot Spots from 2016 Mapping Exercise	Total Active Sites/ Hot Spots from 2016 Mapping Exercise
FSW	1161	798	69%	363	388	751
MSM	128	78	61%	50	63	113
Total	**1289**	**876**	**68%**	**413**	**451**	**864**

KEY FINDINGS FOR FSWS

- A total of 751 FSW sites were visited, and 864 sites were mapped.
- The majority of the sites mapped were bars/ nightclubs/discos/parlors.
- Peak times of the day when the maximum number of KP individuals could be found at the hot spots were afternoons and evenings, with 76.0 percent in the evenings (5 p.m.–9 p.m.) and 61.2 percent in the afternoons (12 p.m.–5 p.m.). From 9 p.m. to late night, 27.6 percent of the FSWs could be found at the hot spots, while 17.3 percent were present in the morning (before 12 noon) and 5.3 percent could be found at any time within the 24-hour period.
- On "a usual day," the FSW minimum population at sites was estimated to be 5,873, and the maximum was 9,725.
- Bujumbura Mairie had the highest concentration of hot spots and KP individuals, accounting for 37 percent of the sites and 49 percent of the KP individuals (a maximum of 4,543 on a typical day).
- On a peak day, the FSW population at the site was much higher than on a usual day; the minimum was 7,742, and the maximum was 12,272.
- During special days/periods, the size of the FSW population on-site was much higher than on a usual day; the minimum FSW population was 10,964, and the population could reach a maximum of 16,907.
- The peak times were in the evenings (5 p.m.– 9 p.m.), followed by the afternoons (12 p.m.–5 p.m.) and then the mornings (before 12 p.m.). Few sites operated 24 hours a day.
- HIV prevention activities were very weak; in particular, condom distribution had occurred but was not consistent.
- The FSW population under age 25 was estimated at a minimum of 2,486 and a maximum of 4,648.
- It was reported that many FSWs used mobile phones for solicitation. The minimum number was found to be 2,199, and the maximum was 4,005.
- The Internet was also used for solicitation. A minimum of 913 FSWs used the Internet, while the maximum was 1,831.

KEY FINDINGS FOR MSM

- A total of 113 sites were visited and mapped.
- On a typical/usual day, the MSM minimum population was 618, and the maximum was 1,141.
- The maximum MSM population size during peak times was found to be 1,362, and the minimum was 906. The peak time was in the evenings (5 p.m.–9 p.m.), followed by the afternoons (12 p.m.–5 p.m.).
- During special days/periods, the MSM population increased to a minimum of 1,410 and a maximum of 2,128.
- The MSM population under age 25 was estimated to be a minimum of 309 and a maximum of 662.
- The Internet was also used by MSM for solicitation, with a minimum of 302 at minimum and a maximum of 469.

Context of Microplanning Exercise

Burundi is a densely populated country in sub-Saharan Africa, with a 2016 population estimate of 11.5 million.[1] The country's history of civil war from 1993 to 2010 and the recently ignited violence in 2015 have weakened the health system and donor/private sector support. The country has a generalized HIV epidemic with higher prevalence among key populations (KPs). Surveys conducted in 2011 indicated that the prevalence rate of HIV among sex workers was 19.8 percent (CI 95 percent: 17.5 percent–22.0 percent) and 2.4 percent among men who have sex with men (MSM) (CI 95 percent: 0.9 percent–3.9 percent). The 2012 Demographic and Health Survey (DHS) report cited a decrease of HIV prevalence in the general population from about 3 percent in 2007 to 1.4 percent in 2010 (1.0 percent in men and 1.7 percent in women, 4.1 percent in urban areas and 1.0 percent in rural areas). However, the persistence of risky behaviors remained a reality, and results indicated that 3.2 percent of men had had two or more sexual partners over the previous 12 months, and only 14.5 percent reported using a condom during last sexual intercourse. The Burundi HIV National Strategic Plan (NSP), 2014–2017, promotes comprehensive prevention, care, treatment, and support for KPs, including sex workers (SWs) and MSM.[2]

The Priorities for Local AIDS Control Efforts (PLACE) study conducted in 2013 in Burundi generated detailed venue information for female sex workers (FSWs), MSM, and people who inject drugs (PWID).[3]

In the study, site informants reported that women came to solicit customers at approximately half of the 2,300 venues visited. At approximately 75 percent of venues sampled for individual interviews, at least one woman reported having received money in exchange for sex. PLACE researchers estimated 59,225 FSWs in Burundi: 15,059 in Bujumbura Mairie, 12,266 in other urban areas, and 31,899 in rural areas. The prevalence of HIV infection was found to be higher among FSWs than in any other risk population — 21 percent among women who had exchanged money for sex in the previous year. Less than half of FSWs used a condom during the last intercourse, and approximately 40 percent were tested for HIV in the previous year. Regarding MSM, site informants reported that men met sex partners at only 2 percent of the venues visited. PLACE researchers oversampled to obtain more robust estimates of HIV prevalence and sexual behaviors within the population, and they found that at least one man reported having sex with other men at 44 percent of venues. Based on site informant interviews, it was estimated that 12,716 MSM were living in Burundi (6,176 in Bujumbura Mairie, 3,322 in other rural areas, and 3,218 in rural areas). In addition to the MSM interviewed at venues, an additional 150 men were recruited, for a final sample of 290. The HIV prevalence among those men was 4.8 percent, compared to 2.9 percent among men from venues who reported no sex with men. Only 32 percent of MSM had been tested for HIV in the previous year, and approximately half had used a condom at last anal intercourse.

1 United Nations, Department of Economic and Social Affairs, Population Division. World population prospects: the 2015 revision, key findings, and advance tables. New York: United Nations; 2015.
2 Conseil National de Lutte Contre le SIDA (CNLS). Plan stratégique National de Lutte Contre le SIDA 2014-2017. Burundi: CNLS;2014.
3 MEASURE Evaluation. Burundi PLACE report: priorities for local AIDS control efforts. Chapel Hill, NC, USA: MEASURE Evaluation; 2014.

The LINKAGES project aims to increase access to prevention and care services for KPs across the continuum of HIV services for key populations affected by HIV. LINKAGES conducts a range of activities to reduce HIV transmission among key populations — MSM, SWs, and transgender people — and to improve their enrollment and retention in care and treatment. To obtain basic information to better plan interventions, the LINKAGES project commissioned a mapping study of the KP sites in five provinces. The study consisted of programmatic mapping of KPs and systematic identification of public sites where KPs congregate and can be reached with services. It included an assessment of service availability near these sites and provided information on the number of KP individuals, the types of individuals, and the times when they were present.

This special data collection exercise provides key population estimates at the local or hot spot level, information and classifications of hot spots, and detailed characteristics about each spot to guide management of personnel and resources, such as mobile testing. It will help build scientific evidence for resource allocation and for planning targeted interventions, and it will inform program planners' decision making about what kinds of services to offer, how many services to offer and where, and staffing and infrastructure needs (e.g., clinics, drop-in centers).[4]

In addition, the results could inform microplanning. Peer outreach workers could confirm the results, drawing their own pictorial map and recording details of each spot, including the typology of each spot (e.g., bar, street, brothel), the days when the spots are active (i.e., weekdays or weekends), times when the spot is in operation (e.g., evenings, nights, all day), and the estimated number of KP individuals (by typology) in each spot. This will ensure that the program can accelerate its activities in specific concentrated areas.

The collected data may also be useful for planning at the national level. Information on location and size of KPs could be used to effectively prioritize geographic areas where interventions should be scaled up. Scale-up in areas with the highest concentrations of KP individuals will ensure the highest coverage possible with the available resources. Saturating coverage of key populations in high-concentration geographic locations helps to avoid spreading resources thinly across a wider area.

4 World Health Organization, United Nations Population Fund, Joint United Nations Programme on HIV/AIDS, Global Network of Sex Work Projects, The World Bank. Implementing comprehensive HIV/STI programmes with sex workers: practical approaches from collaborative interventions. Geneva: World Health Organization; 2013.

Methodology

The LINKAGES validation exercise used PLACE study results to develop a comprehensive and updated list of hot spots where KP individuals solicit sex or congregate. A systematic approach was used to gather data on the geographic locations and sizes of KPs. The main steps in the mapping process are detailed below.

1. PROGRAMMATIC MAPPING PREPARATION

- Decisions were made about where the mapping would be conducted. In agreement with the LINKAGES team, five provinces (Bujumbura Mairie, Bujumbura, Kayanza, Ngozi, and Kirundo) were selected for this exercise, which were also the five provinces where LINKAGES is being implemented.
- The data collection tool was developed, based on decisions make about the information to be collected during the mapping.
- The decision was made that the same questionnaire would be used for MSM and FSW groups.
- A data collection schedule was developed.

2. FIELD TEAM RECRUITMENT

Community consultants were recruited to conduct the fieldwork. The role of community consultants was to gain access to the community in general and particularly to KP members. They were selected from KPs, as KP members had the necessary acceptability and credibility to effectively mobilize other KP members and generate in-depth, accurate information to inform the LINKAGES program design. Community consultants were identified for the field team with the help of local partners and KP organizations.

3. FIELD TEAM TRAINING

A four-day training was held to:

- Assign roles to field team members, including the research team (two individuals from CADASO and one international consultant), five field coordinators, and 30 community consultants
- Clarify typology of sites, typology of populations, and terminology regarding these populations
- Agree on the timetable for data collection
- Pretest the data collection tool
- Review the questionnaire, the meaning of each question, and how to complete it
- Gain hands-on field experience by doing field visits and addressing challenges from real-life scenarios

4. MAPPING EXERCISE

A fresh mapping exercise was conducted in all hot spots identified in the 2013 PLACE study from October to November 2016 to revalidate whether the hot spots had remained or closed, and to learn whether new ones had emerged.

The field team was first provided with the locations of previous hot spots (addresses), physical directions for how to reach them, and the names of potential key informants by the research leads from CADASO, who had also worked on the PLACE study and knew of potential key informants. CADASO research leads visited all sites to see which were active and which were not. All hot spots were then visited by the field team, which included a community consultant, at different times/days to capture the information comprehensively. To validate the hot spots once in the field, the team carried the hot spot information form (HIF) developed by the mapping coordination team (comprised of an international consultant, the national coordinator, and a statistician) and drew geographical maps using chart paper and colored pens.

Spot visits of all hot spots were conducted, with "seeing is believing" as the driving principle of the visits. They were the opportunity to access the respondents and see the services for sexually transmitted infections (STIs), HIV, and AIDS (such as HIV testing, antiretroviral therapy [ART], and STI clinics) available at the sites. Characteristics of the spot were obtained, including the number of KP members visiting the spot and whether the spot currently received outreach services.

Community consultants conducted interviews with KP key informants, who played a crucial role in providing information. Interviews were conducted in the afternoons or evenings to maximize the chances of finding the key informants at the sites. They were asked questions about types and numbers of KP members at the sites, the busiest days and times, and other pertinent information. The field coordinators would then pass by the site to collect the HIFs and check to see if they had been completed.

The field team made three to four visits to each hot spot to complete the HIF, as not all information was able to be collected during the first visit. If the required information was not obtained after three to four visits, the hot spot was labeled "inactive."

DATA PROCESSING AND ANALYSIS

A database with built-in quality checks was developed in SPSS for all data capture tools. Once the dataset was entered, it was cleaned by the statistician and analyzed by the lead consultant. KP size estimates were then calculated for each hot spot using the estimates provided by informants, which were recorded using the hot spot information form. The estimates were summed by commune and province, as shown in Annexes B and C.

Results

SITE CHARACTERISTICS

The micro-hot spot mapping and size estimation activities were conducted in five provinces. A total of 864 sites (751 FSW sites and 113 MSM sites) were identified. **Figure 1** shows the sites by province.

Most of the sites, whether for MSM or FSWs, were located in Bujumbura Mairie. For FSW sites, the other provinces in decreasing order of concentration were Bujumbura, Ngozi, Kayanza, and Kirundo. Kayanza had the most MSM sites, followed by Kirundo, Bujumbura, and Ngozi.

The number of sites also varied within the provinces. For example, in the province of Bujumbura, Mutimbuzi commune had more MSM and FSW sites compared to other communes in the same province. In fact, one area of the commune (Gatumba) in the process of becoming urbanized was characterized as being a large hot spot.

For Kayanza and Ngozi, the capital communes of the provinces had the most MSM sites. For Bujumbura, the communes close to the city of Bujumbura had more sites. Note that there were several municipalities where no MSM sites were found. Key population members interviewed at the sites reported that MSM were a minority and that they preferred to socialize in the province capitals.

Of the nine communes that make up the province of Bujumbura, only four had MSM sites and three only had one or two hot spots, except Mutimbuzi, which had 8. Note that the commune Mutimbuzi, while not being the capital of the province, is considered an urban city and had characteristics similar to the municipalities of Bujumbura Mairie.

For the provinces of Kayanza and Ngozi, the capital communes registered more sites, as shown in **Figures 3–6**.

As seen in **Figure 6**, the commune Bwambarangwe, which is not the capital of the province, had the most MSM sites.

Information on hot spot type was also collected. Among all the sites identified, bars represented a significant proportion of hot spots (**Table 2**).

FIGURE 1. Total sites in five provinces

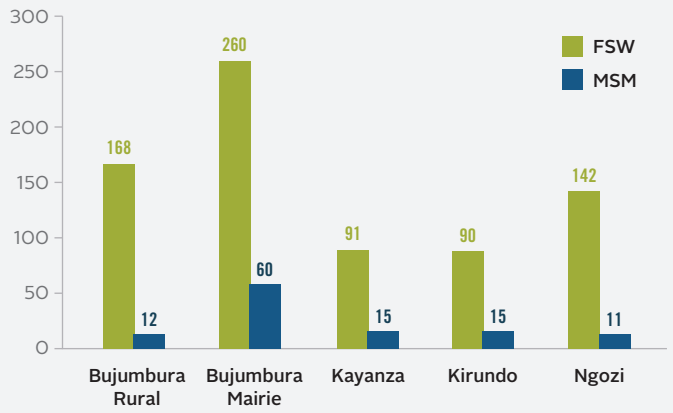


FIGURE 2. KP sites for Bujumbura

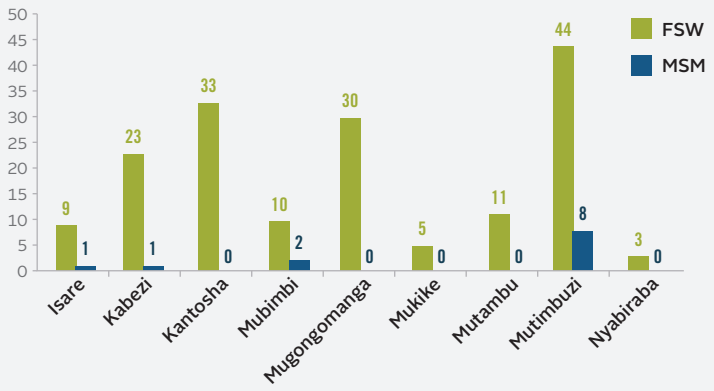


FIGURE 3. KP sites for Bujumbura Mairie

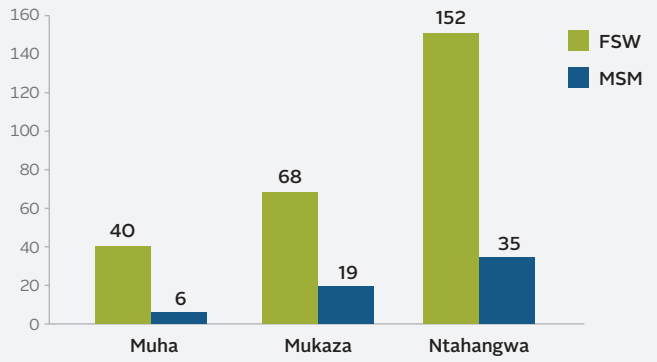


FIGURE 4. KP sites for Kayanza

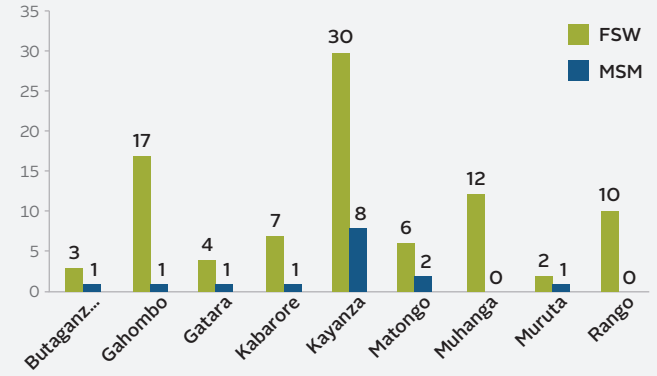


FIGURE 5. KP sites for Ngozi

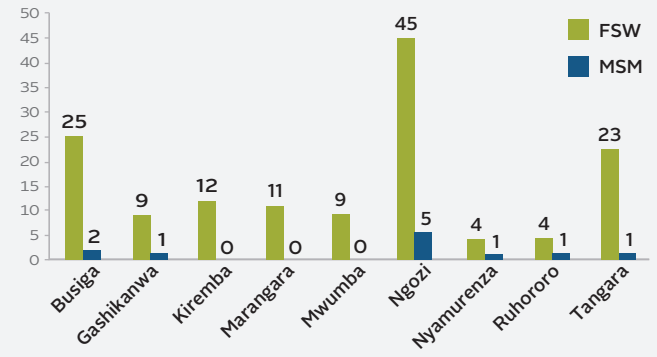
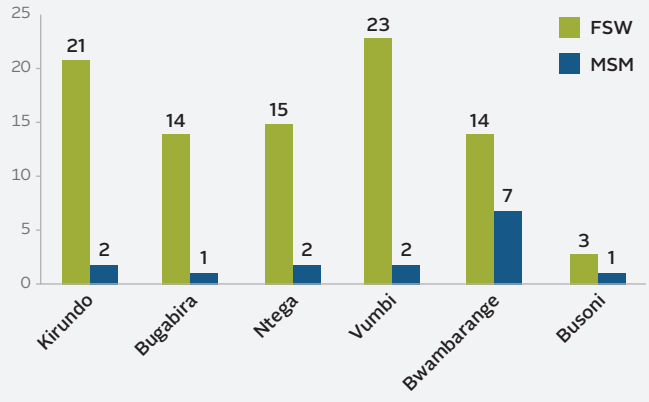


FIGURE 6. FSW sites for Kirundo



HOT SPOT PROFILE

1.1.1 Size of KPs at Sites

1.1.1.1 Usual/Typical Day

On a usual day, the FSW minimum population at sites was 5,873, and the maximum was 9,725. The province of Bujumbura Mairie had the largest population, followed by Ngozi, Bujumbura, Kayanza, and Kirundo (**Figure 7**).

On a typical/usual day, the MSM minimum population was 618, and the maximum was 1,141. Bujumbura Mairie and Kayanza had the highest MSM population, followed by Bujumbura and Kirundo (**Figure 8**).

1.1.1.2 Peak Days

On peak days, the size of the population at the site was higher than on typical days; the minimum FSW population was an average of 7,742, and the maximum was an average of 12,272. Bujumbura Mairie always had the largest population, followed by Ngozi, Bujumbura, and Kirundo (**Figure 9**).

The total MSM population at peak time was assessed to be a minimum of 906 and a maximum of 1,362. **Figure 10** shows the breakdown by province.

1.1.1.3 KPs on Special Days/Periods

At certain times of the year, such as during religious festivals, more KP members tend to be present at the

TABLE 2. Types of site by province

Hot Spot Type	Bujumbura	Bujumbura Mairie	Kayanza	Kirundo	Ngozi	Total
Brothel	0	8	0	10	0	18
	0.0%	2.5%	0.0%	9.5%	0.0%	2.1%
Home	5	10	1	6	2	24
	2.8%	3.1%	.9%	5.7%	1.3%	2.8%
Bar/parlor/nightclub/ disco	140	235	88	77	90	630
	77.8%	73.4%	83.0%	73.3%	58.8%	72.9%
Lodge/dhaba/hotel	5	44	15	5	12	81
	2.8%	13.8%	14.2%	4.8%	7.8%	9.4%
Street	4	5	2	0	1	12
	2.2%	1.6%	1.9%	0.0%	.7%	1.4%
Park	6	0	0	0	0	6
	3.3%	0.0%	0.0%	0.0%	0.0%	.7%
Market	0	2	0	2	12	16
	0.0%	.6%	0.0%	1.9%	7.8%	1.9%
Cinema hall	3	1	0	0	0	4
	1.7%	.3%	0.0%	0.0%	0.0%	.5%
Abandoned area	3	1	0	0	0	4
	1.7%	.3%	0.0%	0.0%	0.0%	.5%
Public toilet	1	0	0	0	0	1
	.6%	0.0%	0.0%	0.0%	0.0%	.1%
Local video/TV	0	1	0	0	0	1
	0.0%	.3%	0.0%	0.0%	0.0%	.1%
Beach	3	11	0	0	0	14
	1.7%	3.4%	0.0%	0.0%	0.0%	1.6%
Others	10	2	0	5	36	53
	5.6%	.6%	0.0%	4.8%	23.5%	6.1%
Total	**180**	**320**	**106**	**105**	**153**	**864**
	100.0%	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

FIGURE 7. FSW population size by province

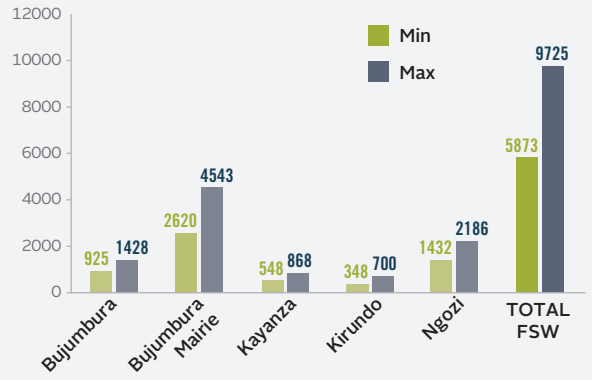


FIGURE 8. MSM population size by province

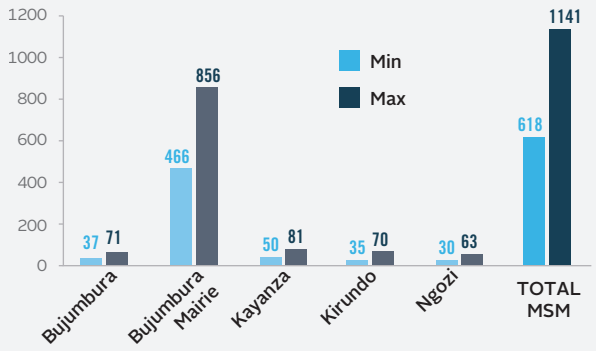


FIGURE 9. FSW population at peak time by province

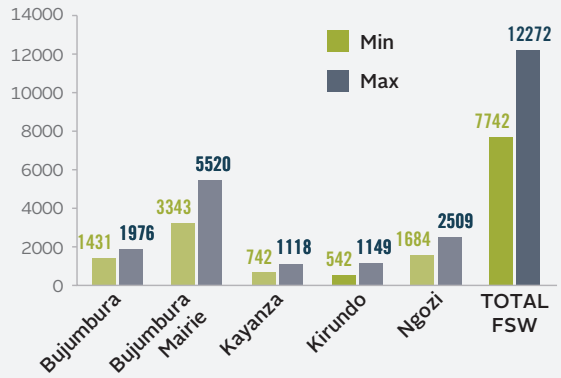
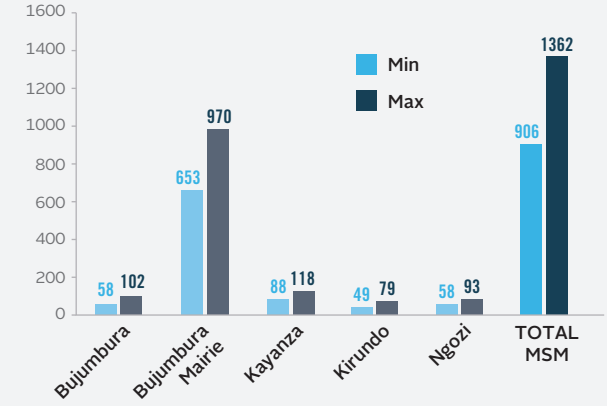


FIGURE 10. MSM population at peak time by province



sites. During the special days/periods, the population of FSWs was an average of 10,964 at minimum and reached a maximum of 16,907. The MSM population, for its part, rose to an average minimum of 1,410 and a maximum of 2,128. This population varied by province, as shown in **Figures 11** and **12**.

1.1.2 KP Members Under Age 25

The KP individuals at the sites were generally very young, as the FSW population under 25 years old was estimated at a minimum of 2,486 individuals and a maximum of 4,648 (**Table 3**). MSM under 25 years old also represented the majority and were estimated at 309 individuals for the minimum and 662 for the maximum (**Table 3**).

1.1.3 KP Individuals Who Solicit Partners via Internet and Mobile Phones on a Typical Day

MSM and FSWs used information technology, in particular mobile phones, to solicit sexual partners. A total of 4,005 FSWs and 803 MSM were found to seek partners by this means (**Table 4**).

MSM and SWs also used the Internet to search for sexual partners, but in reduced numbers compared to mobile phones (**Table 5**).

1.1.4 Peak Times

1.1.4.1 Peak Times of Day

In general, peak times for KP attendance at hot spots were evenings (5 p.m.–9 p.m.), followed by afternoons (12 p.m.–5 p.m.) and then nights (9 p.m.–late night)

FIGURE 11. FSW population size during special days/ periods by province

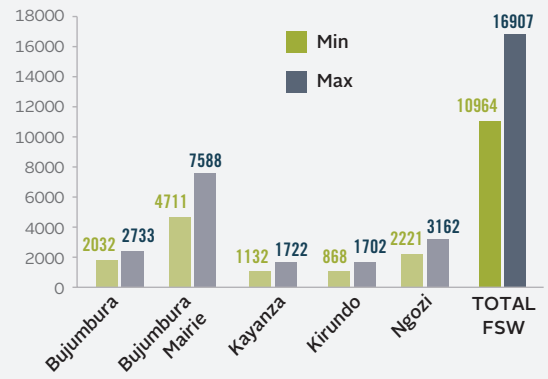


FIGURE 12. MSM population size during special days/ periods by province

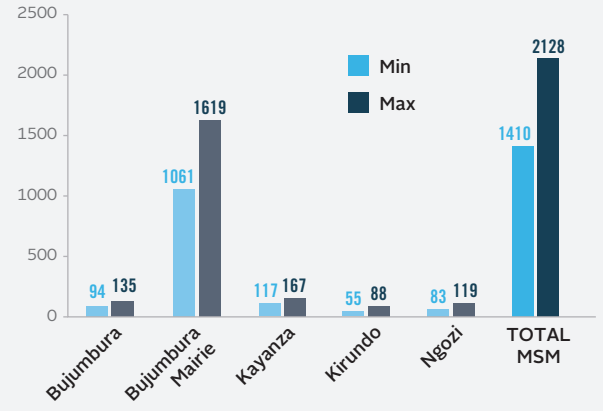
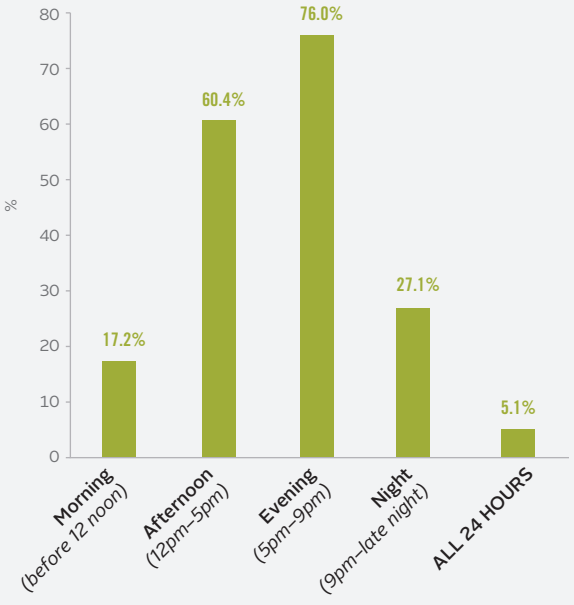


FIGURE 13. Peak times of day



(**Figure 13**). Only a few sites operated 24 hours a day. This was the case for all provinces except Ngozi, where the peak time was afternoons (**Figure 14**).

1.1.4.2 Peak Days of Week

Peak days of the week were Friday to Sunday (**Figure 15**).

For Bujumbura Mairie, Friday and Saturday were the peak days for FSWs. For other provinces, Friday and Sunday or Saturday and Sunday were the peak days (**Figure 16**).

For MSM, peak days were mostly Saturday and Sunday (**Figure 17**).

1.1.5 Mobility of KP Individuals on a Typical Day

1.1.5.1 Mobility to Nearby Hot Spots

KP individuals were very mobile. During the mapping exercise, almost half of KP individuals were also found in other nearby spots (3,199 minimum and 5,345 maximum among FSWs; 365 minimum and 596 maximum among MSM). Mobility was very high in Kirundo province, as 71.5 percent of the total population also visited other neighboring sites (Figures 18 and 19).

It is important to note that KP members visiting the sites had already visited other hot spots in the neighboring province. **Table 6** shows that almost half of the population came from other hot spots.

1.1.5.2 KP Members Who Transitioned Out

The mapping exercise showed that many KP members had transitioned out of mapped hot spots during the previous three months for several reasons, including migration and stopping sex work. **Table 7** shows minimum and maximum numbers and percentages by province.

1.1.5.3 KP Members New at Hot Spots

Just as some KP members transitioned out of the sites, others also entered. A significant number had entered the sites in the previous three months, as shown in **Table 8**.

Table 8 shows that a minimum of 18.6 percent and a maximum of 22.2 percent of FSWs were newly soliciting clients in the hot spots during the previous three months.

TABLE 3. FSW size population under 25 years on a typical day by province*

Size	Bujumbura	Bujumbura Mairie	Kayanza	Kirundo	Ngozi	Total
FSW Population						
Maximum	988	1930	604	314	812	**2486**
	69.2%	42.5%	69.6%	44.9%	37.1%	**42.3%**
Minimum	606	1020	289	127	444	**4648**
	65.5%	38.9%	52.7%	36.5%	31.0%	**47.8%**
MSM Population						
Maximum	66	477	51	31	37	**662**
	93.0%	55.7%	63.0%	44.3%	58.7%	**58.0%**
Minimum	34	212	29	14	20	**309**
	91.9%	45.5%	58.0%	40.0%	66.7%	**50.0%**

TABLE 4. Population size using mobile phone to solicit sexual partners by province*

Size	Bujumbura	Bujumbura Mairie	Kayanza	Kirundo	Ngozi	Total
FSW Population						
Minimum	366	1189	218	171	255	**2199**
	39.6%	45.4%	39.8%	49.1%	17.8%	**37.4%**
Maximum	561	2188	394	409	453	**4005**
	39.3%	48.2%	45.4%	58.4%	20.7%	**41.2%**
MSM Population						
Minimum	28	409	31	8	13	**489**
	75.7%	87.8%	62.0%	22.9%	43.3%	**79.1%**
Maximum	53	648	50	21	31	**803**
	74.6%	75.7%	61.7%	30.0%	49.2%	**70.4%**

TABLE 5. Population size using Internet to solicit sexual partners by province*

Size	Bujumbura	Bujumbura Mairie	Kayanza	Kirundo	Ngozi	Total
FSW Population						
Minimum	117	701	35	9	51	**913**
	12.6%	26.8%	6.4%	2.6%	3.6%	**37.4%**
Maximum	191	1410	98	36	96	**1831**
	13.4%	31.0%	11.3%	5.1%	4.4%	**18.8%**
MSM Population						
Minimum	0	298	1	5.7%	1	**302**
	0.0%	63.9%	2.0%	8.6%	3.3%	**48.9%**
Maximum	0	454	4		5	**469**
	0.0%	97.4%	8.0%	0.0%	16.7%	**41.1%**

** The proportion is from the total population (minimum–maximum) of province.*

TABLE 6. KP members coming from other neighboring hot spots by province*

Size	Bujumbura	Bujumbura Mairie	Kayanza	Kirundo	Ngozi	Total
FSW Population						
Minimum	229	1095	113	194	598	2229
	24.8%	41.8%	20.6%	55.7%	41.8%	38.0%
Maximum	454	1990	235	401	958	4038
	31.8%	43.8%	27.1%	57.3%	43.8%	41.5%
MSM Population						
Minimum	7	243	11	4	6	271
	18.9%	52.1%	22.0%	11.4%	20.0%	43.9%
Maximum	16	426	19	15	20	496
	22.5%	49.8%	23.5%	21.4%	31.7%	43.5%

TABLE 7. KP members who transitioned out in the last three months by province*

Size	Bujumbura	Bujumbura Mairie	Kayanza	Kirundo	Ngozi	Total
FSW Population						
Minimum	98	737	72	60	375	1342
	6.8%	22.0%	9.7%	11.1%	22.3%	17.3%
Maximum	179	1369	180	160	618	2506
	9.1%	24.8%	16.1%	13.9%	24.6%	20.4%
MSM Population						
Minimum	1	128	1	0	6	136
	2.7%	27.5%	2.0%	0.0%	20.0%	22.0%
Maximum	6	240	8	4	20	278
	8.5%	28.0%	9.9%	5.7%	31.7%	24.4%

TABLE 8. KP members new to the hot spots in the previous three months by province*

Size	Bujumbura	Bujumbura Mairie	Kayanza	Kirundo	Ngozi	Total
FSW Population						
Minimum	172	710	75	70	341	172
	18.6%	27.1%	13.7%	20.1%	23.8%	18.6%
Maximum	317	1355	159	167	629	317
	22.2%	29.8%	18.3%	23.9%	28.8%	22.2%
MSM Population						
Minimum	1	49	0	0	4	54
	6.3%	20.0%	0.0%	0.0%	17.4%	15.9%
Maximum	6	94	2	4	15	121
	14.6%	22.2%	5.9%	5.7%	28.8%	19.5%

** The proportion is from the total population (minimum–maximum) of the province.*

FIGURE 14. Peak times of day by province

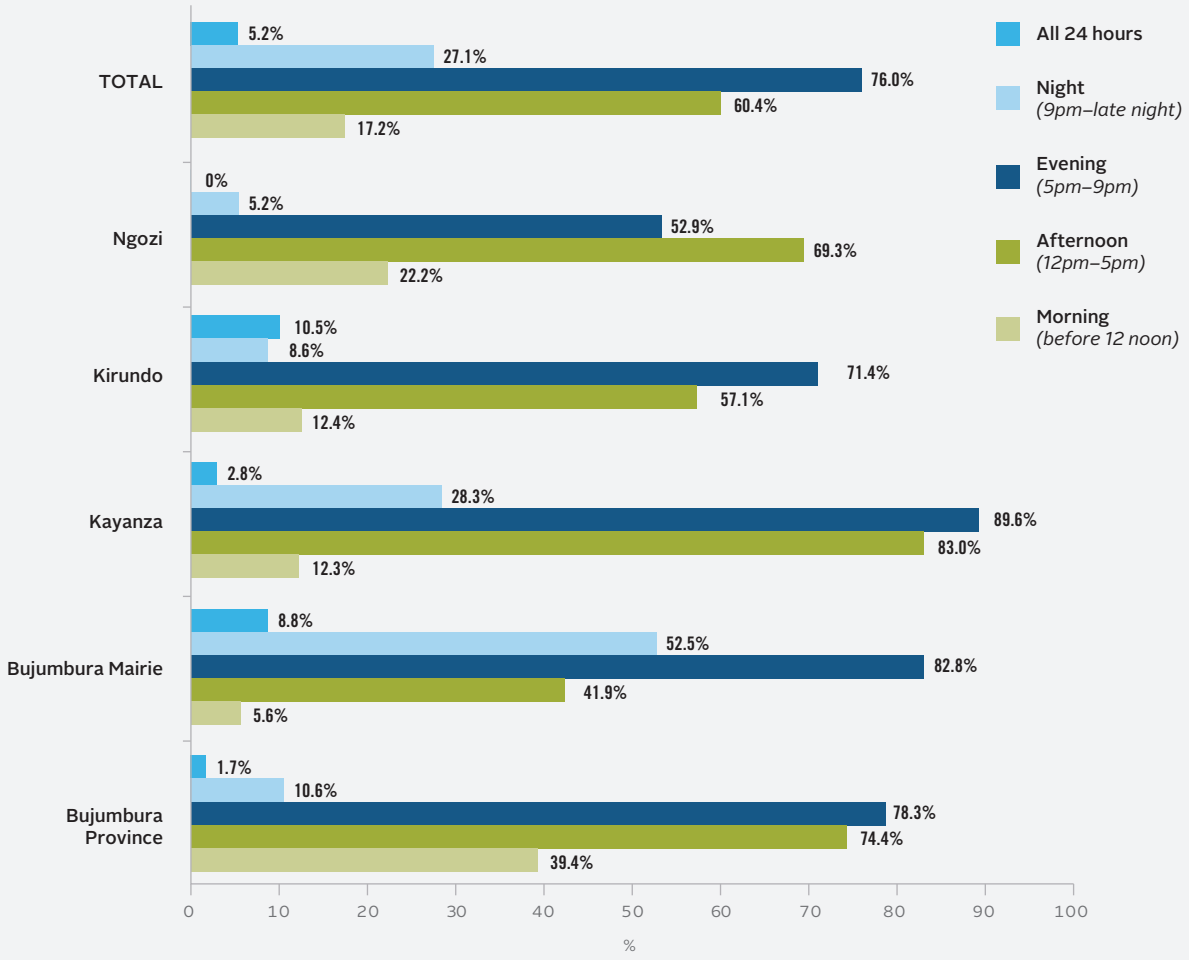


FIGURE 15. Peak days of week

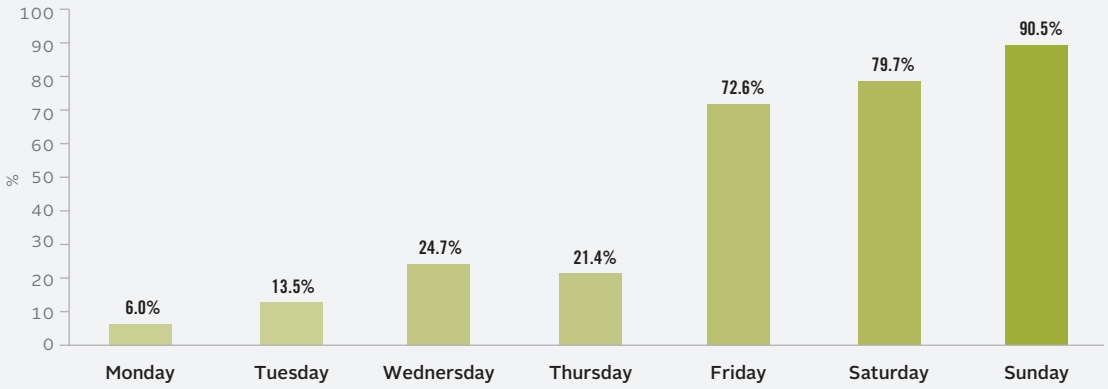


FIGURE 16. *Peak days for FSWs by province*

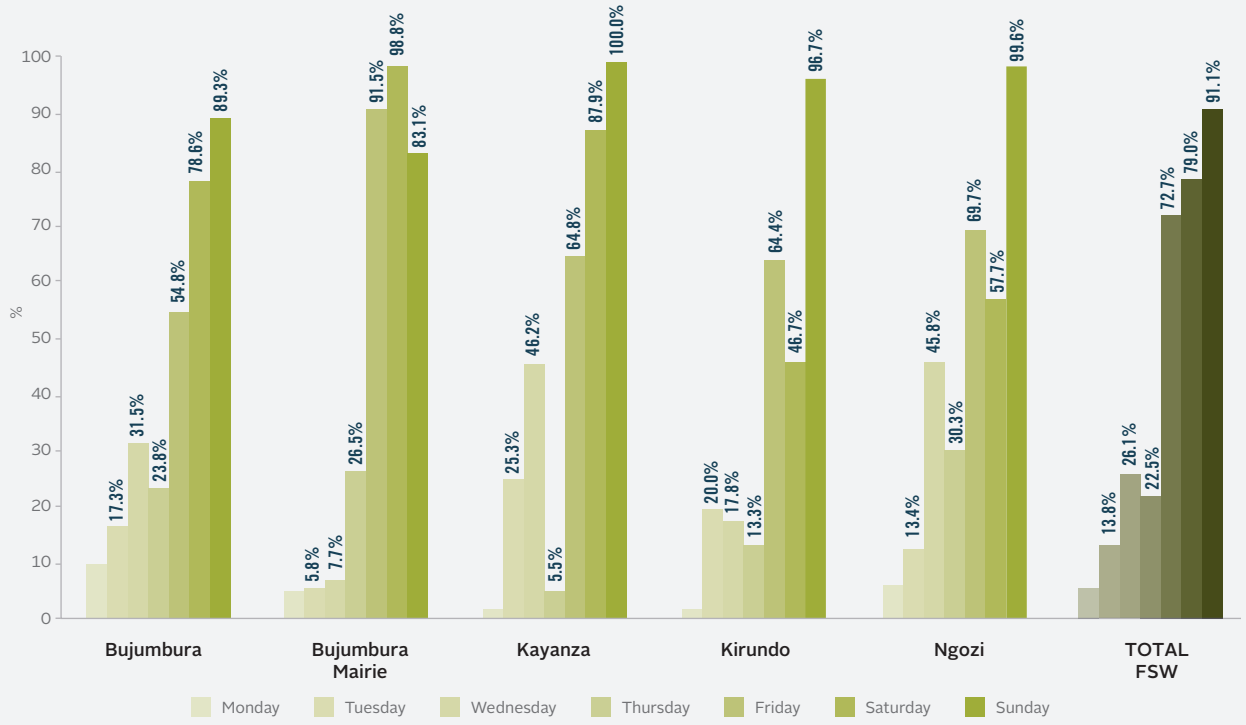


FIGURE 17. *Peak days for MSM by province*

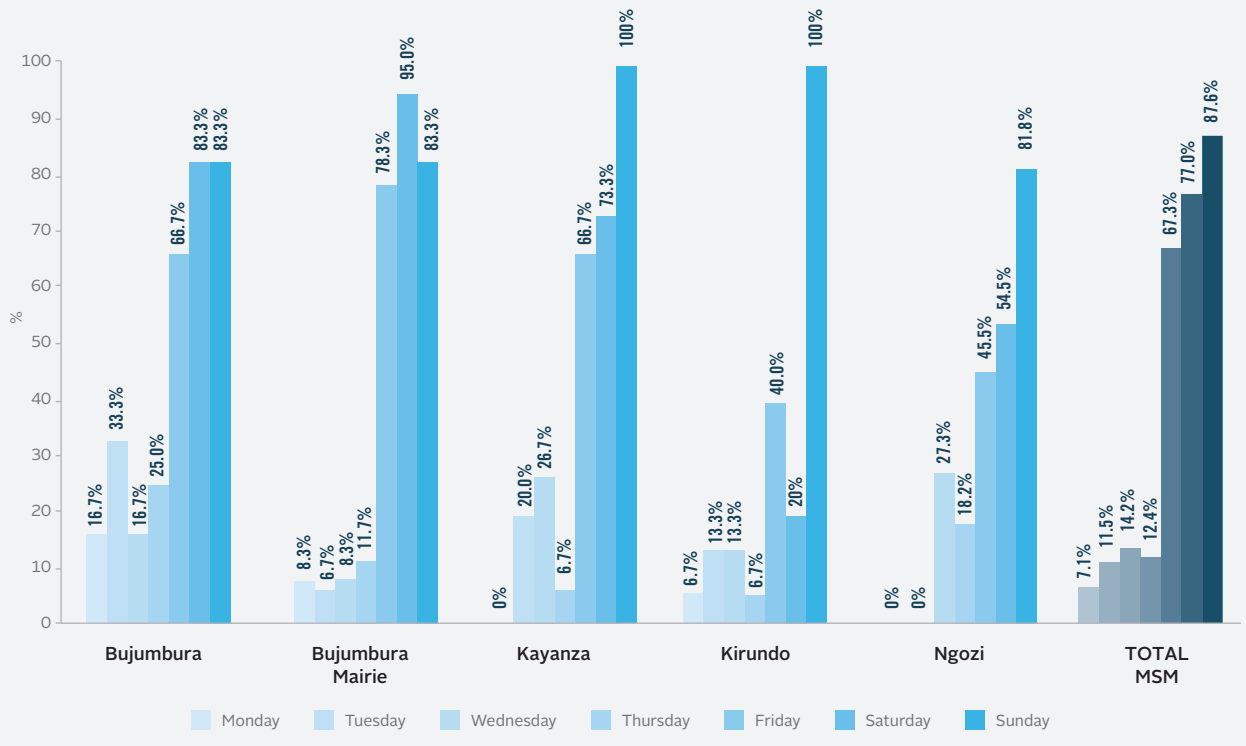


FIGURE 18. Mobility of FSWs to other nearby hot spots by province

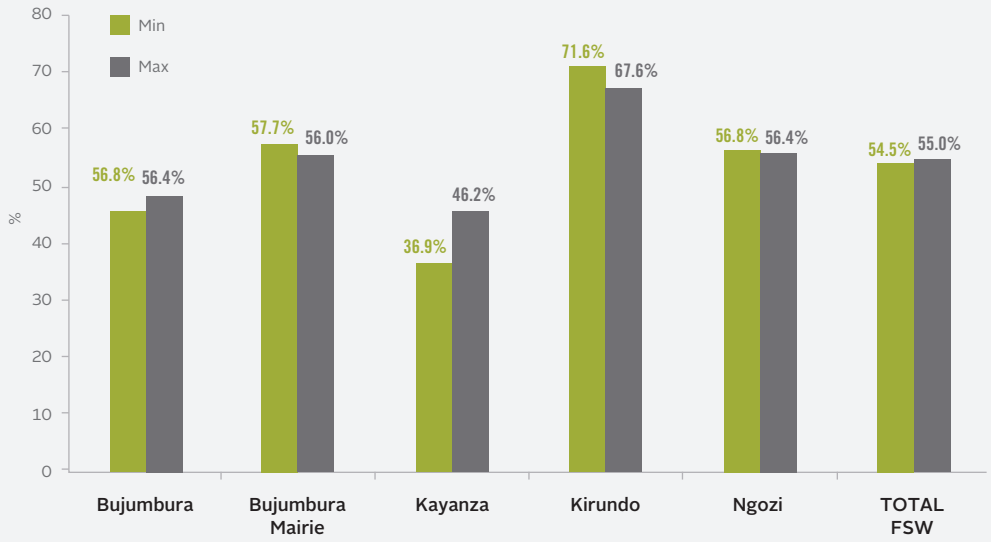
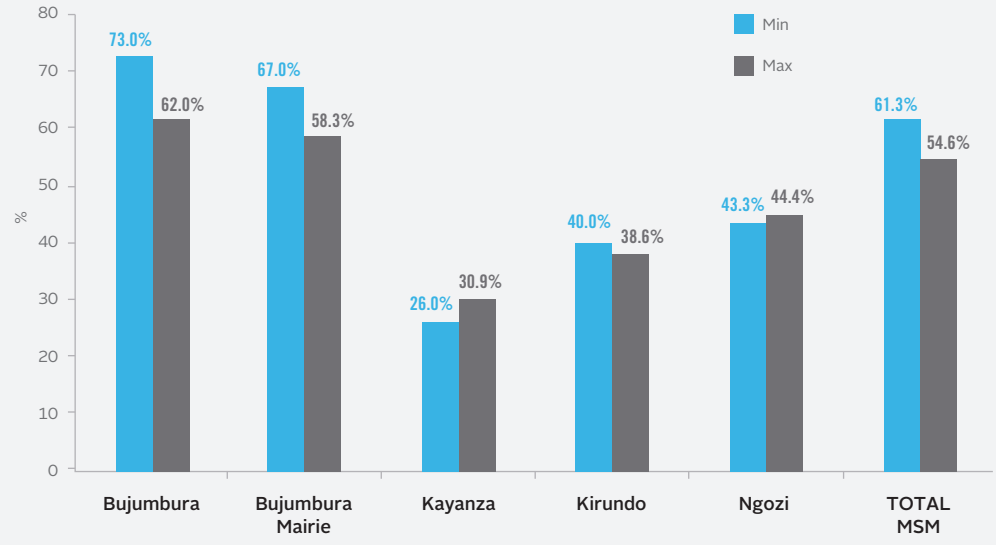


FIGURE 19. Mobility of MSM to other nearby hot spots by province



1.1.6 HIV Prevention Activities

HIV prevention activities are not being implemented sufficiently, as shown in **Figure 20**.

Condom availability by province was extremely low in most provinces, as shown in **Figure 21**.

Figure 22 shows that availability of condoms on the day of the mapping exercise was also rare.

FIGURE 20. HIV prevention activities

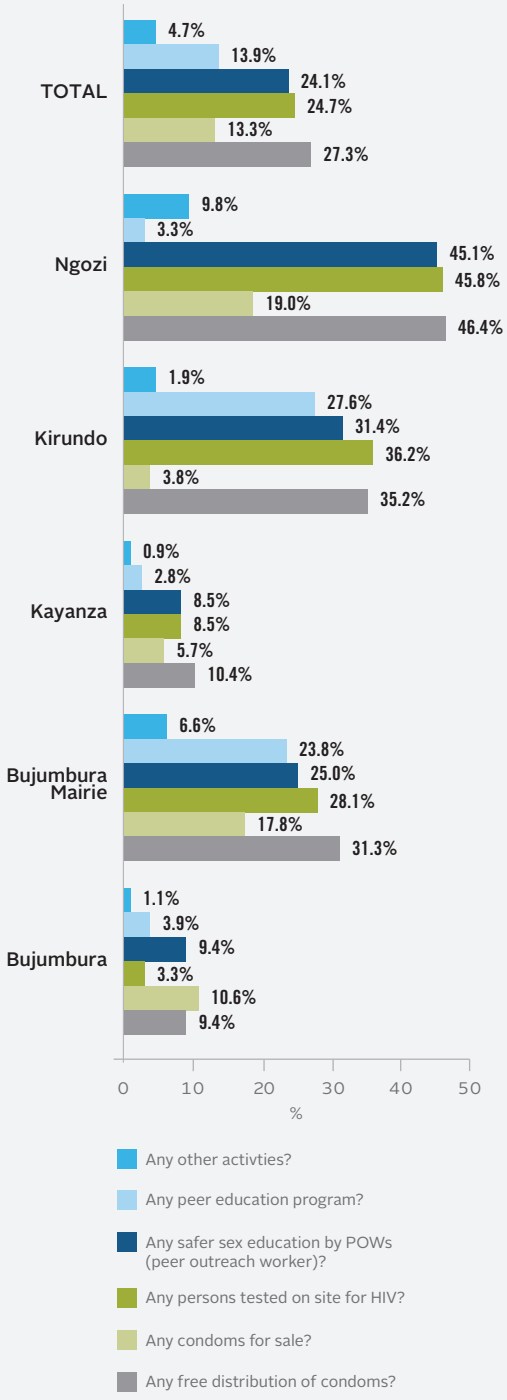


FIGURE 21. Availability of condoms by province

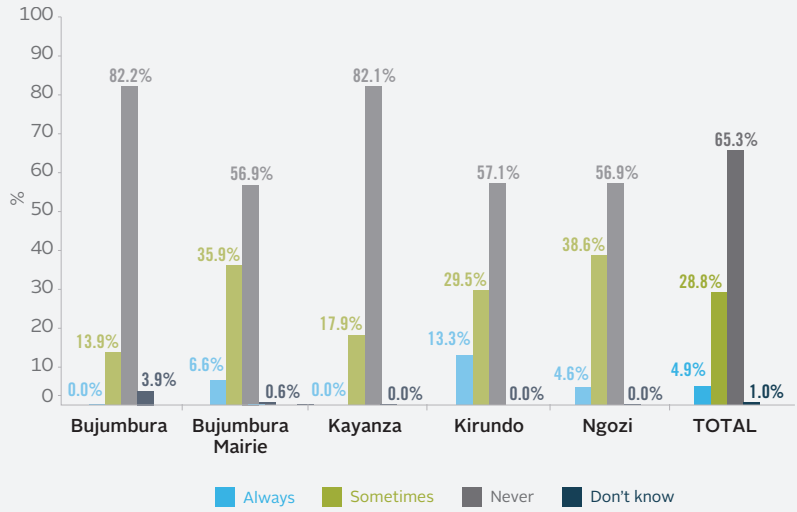


FIGURE 22. Availability of condoms

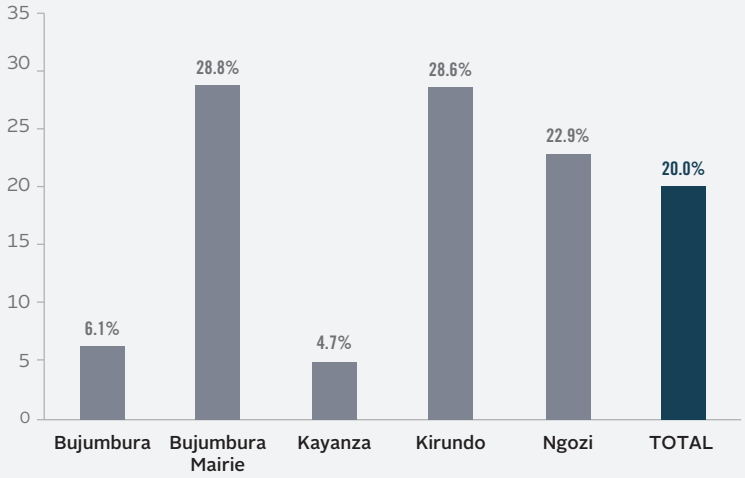
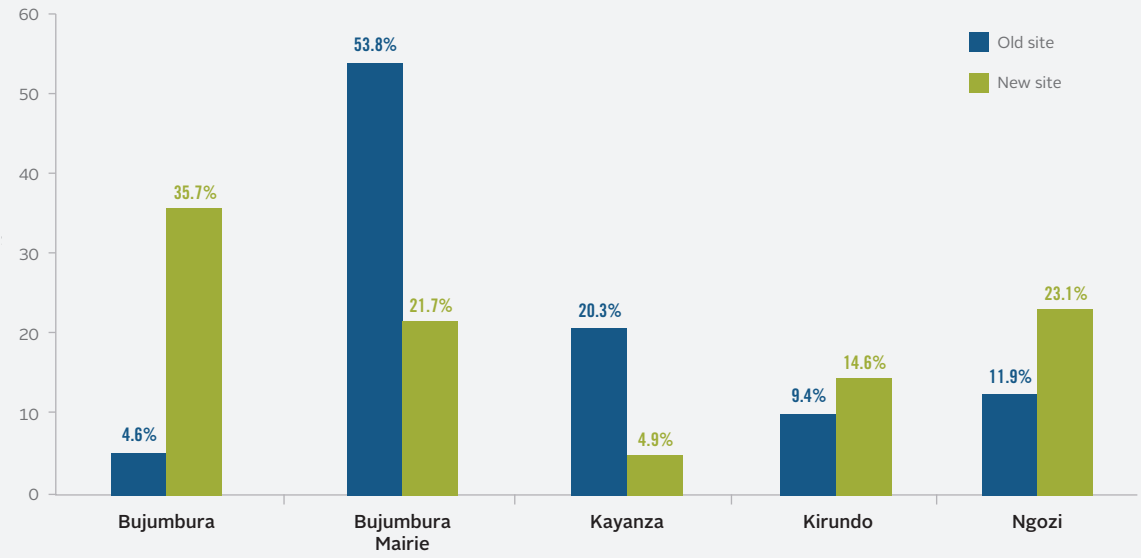


FIGURE 23. Old and new sites by province



1.1.7 Profile of New Sites

As part of the mapping exercise, surveyors asked key informant members if any new sites in the vicinity had recently opened. After recording new sites on the forms, the team visited all new sites listed (**Figure 23**). The team then used the data tool to complete information for the new sites.

There were a total of 436 new sites, which were mainly located in Bujumbura and Ngozi. Kayanza had the least new sites (**Figure 24**).

Most of the new sites were FSW sites (**Figure 25**).

In Bujumbura, Kirundo, and Ngozi, the number of new sites identified during the LINKAGES mapping exercise was greater than the number of old sites identified in the 2013 PLACE study. **Table 9** shows the number of active former sites and new sites. The information reflects only the communes where the PLACE study was conducted.

FIGURE 24. New sites by province

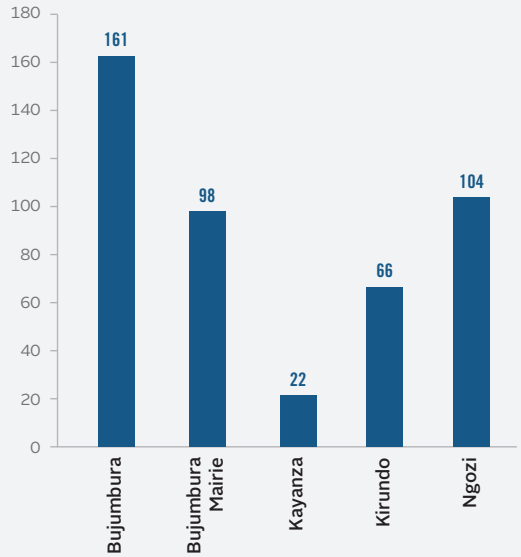


TABLE 9. Old and new active sites by commune

Province	Commune	Old Hot Spots Identified in PLACE Study That Are Still Active		New Hot Spots Identified Through LINKAGES Mapping Exercise		Total Existing Hot Spots	
		FSW	MSM	FSW	MSM	FSW	MSM
Bujumbura	Isare	0	0	9	1	9	1
	Kabezi	0	0	23	1	23	1
	Kanyosha	6	0	27	0	33	0
	Mubimbi	0	0	10	2	10	2
	Mugongomanga	0	0	30	0	30	0
	Mukike	0	0	5	0	5	0
	Mutambu	0	0	11	0	11	0
	Mutimbuzi	9	4	35	4	44	8
	Nyabiraba	0	0	3	0	3	0
Subtotal		15	4	153	8	168	12
Bujumbura Mairie	Muha	31	5	9	1	40	6
	Mukaza	49	15	19	4	68	19
	Ntahangwa	107	15	45	20	152	35
Subtotal		187	35	73	25	260	60
Kayanza	Butaganzwa	3	1	0	0	3	1
	Gahombo	17	1	0	0	17	1
	Gatara	4	1	0	0	4	1
	Kabarore	6	1	1	0	7	1
	Kayanza	24	6	6	2	30	8
	Matongo	2	0	4	2	6	2
	Muhanga	8	0	4	0	12	0
	Muruta	0	0	2	1	2	1
	Rango	10	0	0	0	10	0
Subtotal		74	10	17	5	91	15
Kirundo	Kirundo	8	0	13	2	21	2
	Bugabira	5	0	9	1	14	1
	Ntega	15	0	0	2	15	2
	Vumbi	9	0	14	2	23	2
	Bwambarangwe	0	0	14	7	14	7
	Gitobe	0	0	0	0	0	0
	Busoni	2	0	1	1	3	1
Subtotal		39	0	51	15	90	15
Ngozi	Busiga	0	0	25	2	25	2
	Gashikanwa	0	0	9	1	9	1
	Kiremba	12	0	0	0	12	0
	Marangara	11	0	0	0	11	0
	Mwumba	0	0	9	0	9	0
	Ngozi	20	1	25	4	45	5
	Nyamurenza	0	0	4	1	4	1
	Ruhororo	0	0	4	1	4	1
	Tangara	5	0	18	1	23	1
Subtotal		48	1	94	10	142	11
Total		**363**	**50**	**388**	**63**	**751**	**113**

The peak times at the new sites were during the evenings (69.4 percent) and afternoons (65.2 percent) (**Figure 26**). Only a few sites operated 24 hours a day.

The peak days of the week for new sites were from Friday to Sunday. Sunday was the busiest day of the week (**Figure 27**).

As was found at the old sites from the PLACE study, HIV prevention activities were not developed at the new sites. Distribution of condoms was 23.2 percent at the new sites. Peer education and condom availability were implemented in a minority of sites (**Figure 28**).

Although the availability of condoms was the most developed HIV prevention activity in the new sites, it was still low. Only 4.7 percent of sites had condoms permanently available (**Figure 29**).

Tables 10 and **11** show the KP size estimates for the new sites.

FIGURE 25. New sites by key population category

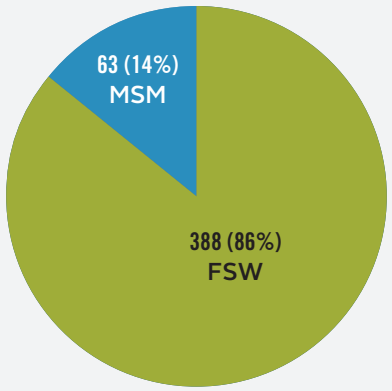


FIGURE 26. Peak times of day for new sites

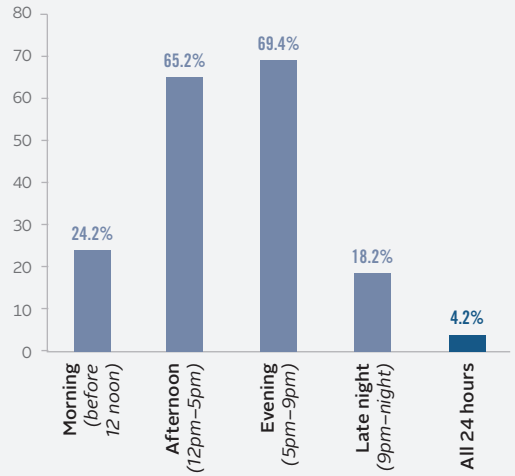


FIGURE 27. Peak days of week for new sites

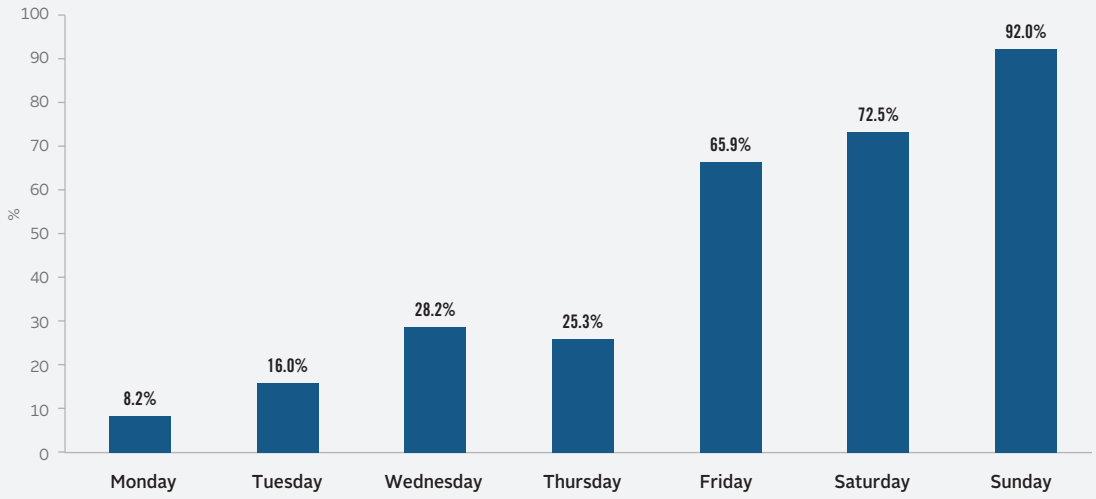


FIGURE 28. HIV and AIDS prevention activities in new sites

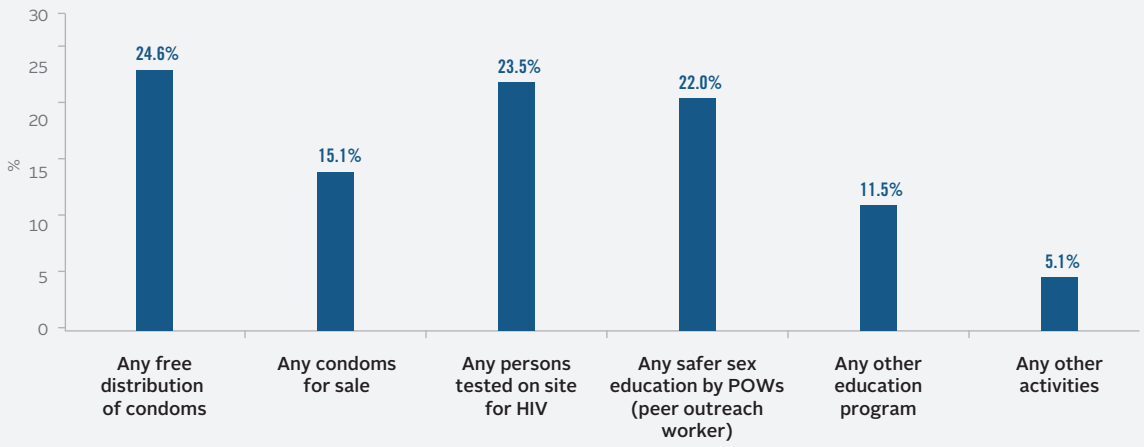


FIGURE 29. Availability of condoms in new sites

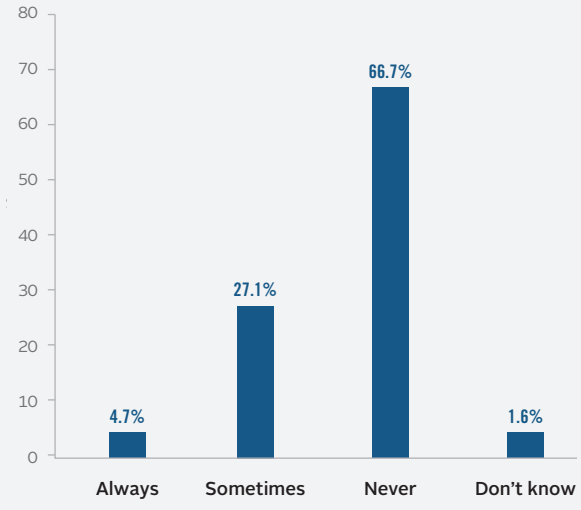


TABLE 10. Size of FSW population at new active hot spots

Items	Statistics	Bujumbura	Bujumbura Mairie	Kayanza	Kirundo	Ngozi	Total
Population size on typical day	Minimum	925	2620	548	348	1432	**5873**
	Maximum	1428	4543	868	700	2186	**9725**
	Average	**1177**	**3582**	**708**	**524**	**1809**	**7799**
Population size on peak day of the week	Minimum	1431	3343	742	542	1684	**7742**
	Maximum	1976	5520	1118	1149	2509	**12272**
	Average	**1704**	**4432**	**930**	**846**	**2097**	**10007**
Population size on special days	Minimum	2032	4711	1132	868	2221	**10964**
	Maximum	2733	7588	1722	1702	3162	**16907**
	Average	**2383**	**6150**	**1427**	**1285**	**2692**	**13936**
Size of population also working/ visiting other nearby hot spots	Minimum	422	1512	202	249	814	**3199**
	Maximum	695	2544	401	473	1232	**5345**
	Average	**559**	**2028**	**302**	**361**	**1023**	**4272**
Size of population coming from other nearby hot spots	Minimum	229	1095	113	194	598	**2229**
	Maximum	454	1990	235	401	958	**4038**
	Average	**342**	**1543**	**174**	**298**	**778**	**3134**
Size of population that transitioned out of the hot spot in the previous 3 months	Minimum	98	737	72	60	375	**1342**
	Maximum	179	1369	180	160	618	**2506**
	Average	**139**	**1053**	**126**	**110**	**497**	**1924**
Size of population new to the hot spot during the previous 3 months only	Minimum	172	710	75	70	341	**1368**
	Maximum	317	1355	159	167	629	**2627**
	Average	**245**	**1033**	**117**	**119**	**485**	**1998**
Size of population that also uses mobile phone for soliciting clients	Minimum	366	1189	218	171	255	**2199**
	Maximum	561	2188	394	409	453	**4005**
	Average	**464**	**1689**	**306**	**290**	**354**	**3102**
Size of population that also uses Internet for soliciting clients	Minimum	117	701	35	9	51	**913**
	Maximum	191	1410	98	36	96	**1831**
	Average	**154**	**1056**	**67**	**23**	**74**	**1372**
Size of population under age 25	Minimum	606	1020	289	127	444	**2486**
	Maximum	988	1930	604	314	812	**4648**
	Average	**797**	**1475**	**447**	**221**	**628**	**3567**

TABLE 11. Size of MSM population at new active hot spots

Items	Statistics	Bujumbura	Bujumbura Mairie	Kayanza	Kirundo	Ngozi	Total
Population size on typical day	Minimum	37	466	50	35	30	**618**
	Maximum	71	856	81	70	63	**1141**
	Average	54	661	66	53	47	**880**
Population size on peak day of the week	Minimum	58	653	88	49	58	**906**
	Maximum	102	970	118	79	93	**1362**
	Average	80	812	103		76	**1070**
Population size on special days	Minimum	94	1061	117	55	83	**1410**
	Maximum	135	1619	167	88	119	**2128**
	Average	115	1340	142	72	101	**1769**
Size of population also working/ visiting other nearby hot spots	Minimum	27	312	13	14	13	**379**
	Maximum	44	499	25	27	28	**623**
	Average	36	406	19	21	21	**501**
Size of population coming from other nearby hot spots	Minimum	7	243	11	4	6	**271**
	Maximum	16	426	19	15	20	**496**
	Average	12	335	15	10	13	**384**
Size of population that transitioned out of the hot spot in the previous 3 months	Minimum	1	128	1	0	6	**136**
	Maximum	6	240	8	4	20	**278**
	Average	4	184	5	2	13	**207**
Size of population new to the hot spot during the previous 3 months only	Minimum	1	173	0	0	9	**183**
	Maximum	2	321	1	9	21	**354**
	Average	2	247	1	5	15	**269**
Size of population that also uses mobile phone for soliciting clients	Minimum	28	409	31	8	13	**489**
	Maximum	53	648	50	21	31	**803**
	Average	41	529	41	15	22	**646**
Size of population that also uses Internet for soliciting clients	Minimum	0	298	1	2	1	**302**
	Maximum	0	454	4	6	5	**469**
	Average	0	376	3	4	3	**386**
Size of population under age 25	Minimum	34	212	29	14	20	**309**
	Maximum	66	477	51	31	37	**662**
	Average	50	345	40	23	29	**486**

Conclusions

The LINKAGES mapping exercise found a total of 864 active hot spots (751 for FSWs and 113 for MSM), which included old sites that were still active and new sites that were identified. This exercise aimed to validate the MSM and FSW hot spots found in the 2013 PLACE study and found that 876 (68 percent) of the hot spots from 2013 were no longer active in 2016. The closing of hot spots was likely triggered by the political crisis Burundi experienced at the end of April 2015, which deeply affected countless neighborhoods. However, a total of 451 (388 for FSWs and 63 for MSM) new sites were found.

The FSW population was estimated at 16,907, and the MSM population was estimated at 2,128. The mapping showed great mobility of KP members with respect to hot spots visited, with over 54 percent of FSWs and 61 percent of MSM moving between nearby sites on a regular basis. A large proportion also transitioned out of sites during the previous three months for several reasons, including migration and stopping sex work. Up to 20 percent of FSWs and 24 percent of MSM had transitioned out of hot spots. Related to this, a similar proportion had entered the sites in the previous three months, with up to 22 percent of FSWs and 20 percent of MSM newly soliciting in the hot spots.

The mapping and size estimation exercise also revealed the difficult environment for program implementation among MSM and FSWs. The team could not fully disclose the nature of the study during the interviews at the sites for fear of negative consequences.

The LINKAGES project activities in Burundi should consider these two realities: the mobility of KPs and the societal hostility directed toward them. However, at the national political level, there is clear awareness that the inclusion of KPs in HIV programming is an essential criterion in the control of the HIV epidemic. This is already reflected in the existence of plans for specific activities at the national programmatic level. The LINKAGES project will use the information generated through this mapping exercise to inform program planning. The information is also expected to be useful to other implementers and for national program planning for KPs in Burundi.

Annexes

Annex A. Number of Sites by Commune

TABLE 12. Number of sites by commune

Commune	Type of KP		Total
	FSW	MSM	
Bujumbura			
Isare	9	1	10
Kabezi	23	1	24
Kanyosha	33	0	33
Mubimbi	10	2	12
Mugongomanga	30	0	30
Mukike	5	0	5
Mutambu	11	0	11
Mutimbuzi	44	8	52
Nyabiraba	3	0	3
Subtotal	*168*	*12*	*180*
Bujumbura Mairie			
Muha	40	6	46
Mukaza	68	19	87
Ntahangwa	152	35	187
Subtotal	*260*	*60*	*320*
Kayanza			
Butaganzwa	3	1	4
Gahombo	17	1	18
Gatara	4	1	5
Kabarore	7	1	8
Kayanza	30	8	38
Matongo	6	2	8
Muhanga	12	0	12
Muruta	2	1	3
Rango	10	0	10
Subtotal	*91*	*15*	*106*

Commune	Type of KP		Total
	FSW	MSM	
Kirundo			
Kirundo	21	2	21
Bugabira	14	1	14
Ntega	15	2	15
Vumbi	23	1	23
Bwambarangwe	14	7	14
Busoni	3	1	3
Subtotal	*90*	*14*	*107*
Ngozi			
Busiga	25	2	27
Gashikanwa	9	1	10
Kiremba	12	0	12
Marangara	11	0	11
Mwumba	9	0	9
Ngozi	45	5	50
Nyamurenza	4	1	5
Ruhororo	4	1	5
Tangara	23	1	24
Subtotal	*142*	*11*	*153*
Total	**751**	**113**	**864**

Annex B. FSW Size Estimation Data

TABLE 13. Size estimation of FSWs by commune

Province	Commune	General/ Typical day population size		Peak day population size of the week		Population size work/visit hotspot on that special day		Population size who also work/visit other nearby hotspots		Population size who come from other nearby hotspots?		Population size who transitioned out from the hotspot in the last 3 months?		Population size who are new for soliciting in the hotspot during the last 3 months		Population size who also use mobile phone for soliciting		Population size who also use internet for soliciting clients		Population size who are aged below 25 years	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
Bujumbura	Isare	26	48	43	64	67	92	29	36	3	8	1	2	3	4	8	16	0	0	27	43
	Kabezi	177	246	217	293	280	380	94	143	34	60	9	19	17	37	44	60	12	18	102	154
	Kanyosha	170	272	294	407	427	542	64	116	42	95	23	41	29	50	32	62	6	17	102	187
	Mubimbi	42	68	76	103	103	144	17	33	12	26	6	19	6	12	22	32	13	22	7	19
	Mugongomanga	93	172	186	253	292	392	52	88	40	82	5	9	41	71	55	88	2	3	95	144
	Mukike	88	115	101	132	112	150	25	42	4	7	15	20	10	15	0	0	0	0	58	105
	Mutambu	22	48	48	78	85	116	6	16	6	17	9	13	10	18	25	39	2	4	20	31
	Mutimbuzi	296	443	449	623	641	886	131	212	83	151	28	54	56	110	171	250	82	127	186	288
	Nyabiraba	11	16	17	23	25	31	4	9	5	8	2	2	0	0	9	14	0	0	9	17
	Total 1	**925**	**1428**	**1431**	**1976**	**2032**	**2733**	**422**	**695**	**229**	**454**	**98**	**179**	**172**	**317**	**366**	**561**	**117**	**191**	**606**	**988**
Bujumbura Mairie	Muha	365	537	489	706	681	988	224	343	155	257	61	125	121	201	190	279	133	194	152	225
	Mukaza	608	1048	858	1313	1229	1943	364	609	243	461	155	279	122	258	271	514	183	343	244	443
	Ntahangwa	1647	2958	1996	3501	2801	4657	924	1592	697	1272	521	965	467	896	728	1398	385	873	624	1262
	Total 2	**2620**	**4543**	**3343**	**5520**	**4711**	**7588**	**1512**	**2544**	**1095**	**1990**	**737**	**1369**	**710**	**1355**	**1189**	**2188**	**701**	**1410**	**1020**	**1930**
Kayanza	Butaganzwa	28	37	35	42	45	53	7	12	6	8	3	6	1	2	14	22	0	0	23	30
	Gahombo	106	172	146	216	198	294	30	66	14	32	10	29	8	18	17	38	1	2	48	189
	Gatara	29	49	46	57	65	75	9	15	4	8	0	1	3	8	2	7	4	6	28	40
	Kabarore	31	51	41	63	76	101	20	34	5	9	8	19	7	10	12	25	3	6	13	29
	Kayanza	180	281	232	362	364	522	70	135	41	88	25	63	41	80	107	183	22	64	82	155
	Matongo	17	34	31	52	56	76	11	22	10	17	3	8	1	5	12	25	0	2	6	15
	Muhanga	53	100	85	138	150	338	30	68	20	44	16	39	5	13	26	50	5	18	28	53
	Muruta	8	13	11	16	19	23	4	7	3	5	0	0	0	1	3	7	0	0	4	8
	Rango	96	131	115	172	159	240	21	42	10	24	7	15	9	22	25	37	0	0	57	85
	Total 3	**548**	**868**	**742**	**1118**	**1132**	**1722**	**202**	**401**	**113**	**235**	**72**	**180**	**75**	**159**	**218**	**394**	**35**	**98**	**289**	**604**
Kirundo	Kirundo	96	193	132	361	217	434	61	121	55	118	19	54	26	63	43	106	6	20	42	94
	Bugabira	47	93	83	163	160	292	33	60	35	64	4	11	6	20	14	38	0	1	4	10
	Ntega	76	144	108	201	164	297	52	92	39	76	7	31	8	23	35	77	0	0	29	66
	Vumbi	59	128	93	187	126	266	48	89	31	60	16	33	9	19	31	78	3	6	26	70
	Bwambarangwe	55	117	99	189	166	336	49	101	27	69	14	31	18	37	38	93	0	7	21	62
	Busoni	15	25	27	48	35	77	6	10	7	14	0	0	3	5	10	17	0	2	5	12
	Total 4	**348**	**700**	**542**	**1149**	**868**	**1702**	**249**	**473**	**194**	**665**	**139**	**355**	**154**	**349**	**417**	**847**	**44**	**134**	**477**	**1011**
Ngozi	Busiga	283	404	362	498	452	584	167	243	115	181	82	137	62	124	16	20	0	0	126	178
	Gashikanwa	69	111	69	111	78	126	34	55	26	45	10	19	12	20	15	30	3	7	16	113
	Kiremba	67	113	67	113	68	114	20	38	18	34	13	25	6	12	20	35	5	10	19	33
	Marangara	63	108	63	108	72	113	21	35	23	37	13	25	8	17	9	17	0	0	19	35
	Mwumba	59	88	83	115	111	150	27	45	20	36	19	31	14	35	0	0	0	0	24	30
	Ngozi	535	819	655	977	945	1380	347	525	271	424	143	232	171	291	179	317	43	79	144	256
	Nyamurenza	74	83	47	83	96	108	48	55	31	38	22	26	16	21	0	0	0	0	6	10
	Ruhororo	53	87	53	87	61	87	24	37	8	18	7	16	5	11	5	14	0	0	16	31
	Tangara	229	373	258	417	338	500	126	199	86	145	66	107	47	98	11	20	0	0	74	126
	Total 5	**1432**	**2186**	**1684**	**2509**	**2221**	**3162**	**814**	**1232**	**598**	**958**	**375**	**618**	**341**	**629**	**255**	**453**	**51**	**96**	**444**	**812**
Total General		**5873**	**9725**	**7742**	**12272**	**10964**	**16907**	**3199**	**5345**	**2229**	**4302**	**1421**	**2701**	**1452**	**2809**	**2445**	**4443**	**948**	**1929**	**2836**	**5345**

Annex C. MSM Size Estimation Data

TABLE 14. Size estimation of MSM by commune

Province	Commune	General/ Typical day population size		Peak day population size of the week		Population size work/ visit hotspot on that special day		Population size who also work/visit other nearby hotspots		Population size who come from other nearby hotspots?		Population size who transitioned out from the hotspot in the last 3 months?		Population size who are new for soliciting in the hotspot during the last 3 months		Population size who also use mobile phone for soliciting		Population size who also use internet for soliciting clients		Population size who are aged below 25 years	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
Bujumbura	Isare	1	8	1	8	6	8	1	4	0	0	0	1	0	0	0	0	0	0	0	5
	Kabezi	1	5	1	5	5	7	2	4	1	2	0	0	0	0	1	5	0	0	1	5
	Mubimbi	3	7	6	11	9	17	3	6	1	4	0	1	0	0	2	4	0	0	4	8
	Mutimbuzi	32	51	50	78	74	103	21	30	5	10	1	4	1	2	25	44	0	0	29	48
	Total 1	**37**	**71**	**58**	**102**	**94**	**135**	**27**	**44**	**7**	**16**	**1**	**6**	**1**	**2**	**58**	**53**	**0**	**0**	**34**	**66**
Bujumbura Mairie	Muha	52	84	69	107	92	129	39	66	27	50	16	32	22	40	45	69	39	49	35	60
	Mukaza	188	274	247	331	397	554	96	136	76	119	52	78	39	64	136	208	129	163	56	89
	Ntahangwa	226	498	337	532	572	936	177	297	140	257	60	130	112	217	228	371	130	242	121	328
	Total 3	**466**	**856**	**653**	**970**	**1061**	**1619**	**312**	**499**	**243**	**426**	**128**	**240**	**173**	**321**	**409**	**648**	**298**	**454**	**212**	**477**
Kayanza	Butaganzwa	6	8	9	10	10	14	0	0	0	0	0	0	0	0	0	0	0	0	3	4
	Gahombo	4	6	9	10	8	16	0	0	0	0	0	0	0	0	3	4	0	0	4	6
	Gatara	2	4	4	6	7	8	0	0	0	0	0	0	0	0	2	4	0	0	1	2
	Kabarore	2	4	4	6	2	4	0	0	1	2	0	0	0	0	0	0	0	0	1	2
	Kayanza	29	43	44	63	62	89	7	15	3	6	1	7	0	1	25	39	1	4	19	33
	Matongo	4	8	10	13	17	23	4	6	5	8	0	1	0	0	0	0	0	0	0	1
	Muruta	3	8	8	10	11	13	2	4	2	3	0	0	0	0	1	3	0	0	1	3
	Total 3	**50**	**81**	**88**	**118**	**117**	**167**	**13**	**25**	**11**	**19**	**1**	**8**	**0**	**1**	**31**	**50**	**1**	**4**	**29**	**51**
Kirundo	Kirundo	5	13	8	17	13	24	7	15	0	0	0	0	0	0	0	3	0	0	6	9
	Bugabira	8	10	9	10	8	10	0	0	0	2	0	0	0	1	4	5	0	0	2	4
	Ntega	4	9	7	12	7	12	1	2	4	5	0	2	0	2	0	0	0	0	0	2
	Vumbi	6	10	7	11	9	12	6	9	0	1	0	1	0	0	3	5	2	4	3	5
	Bwambarangwe	11	25	16	26	17	27	0	1	0	6	0	1	0	6	1	7	0	2	3	10
	Busoni	1	3	2	3	1	3	0	0	0	1	0	0	0	0	0	1	0	0	0	1
	Total 4	**35**	**70**	**49**	**79**	**55**	**88**	**14**	**27**	**4**	**15**	**0**	**4**	**0**	**9**	**8**	**21**	**2**	**6**	**14**	**31**
Ngozi	Busiga	5	9	8	14	12	17	1	3	1	4	1	3	1	3	1	3	0	1	3	6
	Gashikanwa	2	3	3	5	6	7	1	2	0	1	0	1	0	1	1	2	0	1	1	2
	Ngozi	21	38	39	57	53	71	10	21	5	13	4	14	8	16	10	22	1	3	13	23
	Nyamurenza	1	4	4	6	6	9	1	2	0	1	1	2	0	0	0	1	0	0	0	2
	Ruhororo	1	5	2	6	3	8	0	0	0	0	0	0	0	0	0	1	0	0	0	2
	Tangara	0	4	2	5	3	7	0	0	0	1	0	0	0	1	1	2	0	0	0	2
	Total 5	**30**	**63**	**58**	**93**	**83**	**119**	**13**	**28**	**6**	**20**	**6**	**20**	**9**	**21**	**13**	**31**	**1**	**5**	**20**	**37**
Total General		**618**	**1141**	**906**	**1362**	**1410**	**2128**	**379**	**623**	**271**	**496**	**136**	**278**	**183**	**354**	**489**	**803**	**302**	**469**	**309**	**662**

Annex D. Mapping Statement of Work

VALIDATING AND ESTIMATING THE NUMBER OF KEY POPULATION INDIVIDUALS AT THE HOT SPOT LEVEL IN BURUNDI

1. Introduction

Burundi is a densely populated country in sub-Saharan Africa with a 2016 population estimate of 11.5 million.[1] The country's history of civil war from 1993 to 2010 and the recent violence in 2015 have weakened the health system and donor/private sector support. The country has a generalized HIV epidemic with higher prevalence among key populations (KPs). Surveys conducted in 2011 indicated that the prevalence rate of HIV among sex workers was 19.8 percent [CI 95 percent: 17.5 percent–22.0 percent] and 2.4 percent among men who have sex with men (MSM) [CI 95 percent: 0.9 percent–3.9 percent]. The Demographic and Health Survey (DHS) report published in 2012 showed a decrease of HIV prevalence in the general population from about 3 percent in 2007 to 1.4 percent in 2010 (1.0 percent in men and 1.7 percent in women, 4.1 percent in urban areas and 1.0 percent in rural areas). However, the persistence of risky behaviors remains a reality, and results indicated that 3.2 percent of men had had two or more sexual partners over the previous 12 months, and only 14.5 percent reported using a condom during last sexual intercourse. The Burundi HIV National Strategic Plan (NSP), 2014–2017, promotes comprehensive prevention, care, treatment, and support for KPs, including sex workers (SWs) and MSM.[2]

2. Rationale for programmatic mapping of key population hot spots

The PLACE study conducted in 2013[3] in Burundi generated detailed venue information for female sex workers (FSWs), MSM, and people who inject drugs (PWID). In the study, site informants reported that women came to solicit customers at half of the 2,300 venues visited, and at approximately 75 percent of venues sampled for individual interviews, at least one woman reported having received money in exchange for sex. There were an estimated 59,225 FSWs in Burundi: 15,059 in Bujumbura, 12,266 in other urban areas, and 31,899 in rural areas. The national estimate was approximately 2.7 percent of the adult female population (ages 15–49). Among women at venues, about 30 percent had ever received money in exchange for sex. The prevalence of HIV infection was higher among FSWs than any other risk population: 21 percent among women who had exchanged money for sex in the past year. Less than half of FSWs used a condom at last intercourse, and approximately 40 percent had been tested for HIV in the previous year. Regarding MSM, site informants reported that men met sex partners at only 2 percent of the venues visited. Those venues were oversampled to obtain more robust estimates of HIV prevalence and sexual behaviors among the population, and at least one man reporting sex with other men was interviewed at 44 percent of venues. Based on site informant interviews, it was estimated that 12,716 MSM were living in Burundi (6,176 in Bujumbura, 3,322 in other rural areas, and 3,218 in rural areas). In addition to the MSM interviewed at venues, an additional 150 men were recruited, for a final sample of 290. The HIV prevalence among those men was 4.8 percent, compared to 2.9 percent among men who reported

1 United Nations, Department of Economic and Social Affairs, Population Division. World population prospects: the 2015 revision, key findings, and advance tables. New York: United Nations;2015.

2 Conseil National de Lutte Contre le SIDA (CNLS). Plan stratégique National de Lutte Contre le SIDA 2014-2017. Burundi: CNLS;2014.

3 MEASURE Evaluation. Burundi PLACE report: priorities for local AIDS control efforts. Chapel Hill, NC, USA: MEASURE Evaluation; 2014.

no sex with men. Only 32 percent of MSM had been tested for HIV in the previous year, and approximately half had used a condom at last anal intercourse. The table below shows estimates of population size for FSWs and MSM in Burundi.[4]

The LINKAGES project in Burundi will use these estimates when conducting the programmatic mapping exercise in five provinces: Bujumbura Mairie, Bujumbura, Kirundo, Ngozi, and Kayanza.

The programmatic mapping of key populations is a special data collection exercise, a systematic identification of the locations of public sites where KPs congregate and can be reached with services. It includes an assessment of service availability near these sites and provides information on how many KP individuals there are, the types of individuals, and the times when they are present. This exercise will help in planning interventions to improve program coverage among KPs.

The exercise will also help build scientific evidence for resource allocation and for planning targeted interventions. The information generated will help inform program planners about types and numbers of services to place where, and what their staffing and infrastructure (e.g., clinics, drop-in centers) footprint should be.[5] This exercise is expected to produce estimates at the level of a particular location or hot spot, adjust numbers for duplication between spots and within geographical subunits, and aggregated to a citywide estimate.

4 President's Emergency Plan for AIDS Relief (PEPFAR), USAID, Measure Evaluation at University of North Carolina-Chapel Hill. Burundi PLACE report: priorities for local AIDS control efforts. Chapel Hill, NC: Carolina Population Center; 2013.

5 World Health Organization, United Nations Population Fund, Joint United Nations Programme on HIV/AIDS, Global Network of Sex Work Projects, The World Bank. Implementing comprehensive HIV/STI programmes with sex workers: practical approaches from collaborative interventions. Geneva: World Health Organization; 2013.

3. Basic Principles of Programmatic Mapping

Validation uses the principles of geographical mapping. The validation exercise is aimed at developing a comprehensive and updated list of "hot spots" where KP individuals solicit customers or congregate. There is a need for validation and updating hot spots due to the dynamic nature of sex work and the subpopulation involved. A systematic approach will be used to gather data on the geographical locations and size of KPs. As in any geographical mapping, the current exercise will address the following aspects:

- Location of hot spots (verify and document if any change)
- Type of KP and its subgroups
- Estimated numbers of KPs in hot spots
- When KP individuals are at hot spots (operation days and times; peak days and lean days)
- Operational dynamics (mobility, migration)
- New KP members soliciting at hot spots
- KP members in the age group 18–25 years
- KPs soliciting clients using mobile phone and Internet, including social media
- Characteristics, typologies, and operational characteristics of KPs at these sites/hot spots
- Estimate size of key populations in selected areas in the target districts

The programmatic mapping success depends on meaningful engagement of key populations throughout the process of identification and data collection. Ensuring that all KP members are treated with respect is also necessary to involve KP members at the mapping level, ensuring robust, reliable data for each hot spot.

4. Methodology

a. Geographic areas

The mapping exercise will be conducted in the following districts in Burundi:

Province	Adult Population (15–49)	
	Male	Female
Bujumbura Mairie	209,039	149,170
Bujumbura	169,832	168,434
Ngozi	189,255	202,317
Kayanza	162,012	180,975
Kirundo	174,718	188,775
Total	**904,856**	**889,671**

The table below shows population by district in the five provinces.

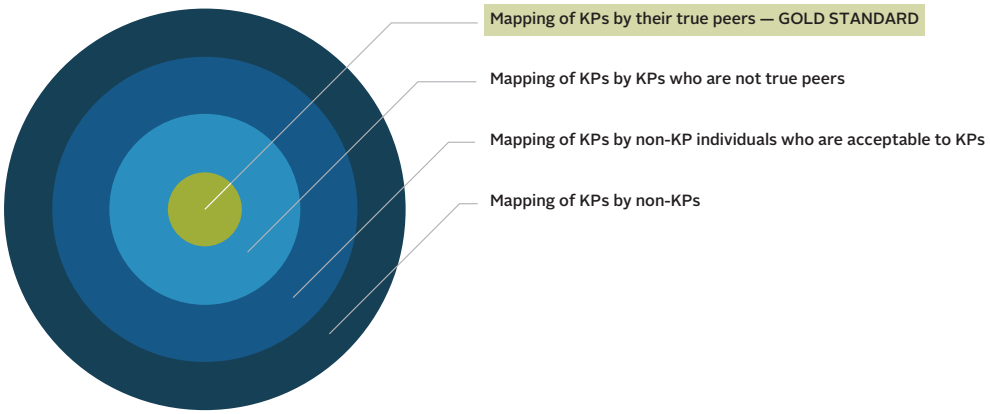
Province	District	Pop 2015	Adult Population (15–49)	Male	Female
Bujumbura Mairie	Nord	293,867	69,646	34,288	35,358
	Centre	200,543	47,529	23,399	24,129
	Sud	147,380	34,929	17,196	17,733
Bujumbura	Kabezi	217,178	51,471	25 ,340	26,131
	Rwibaga	121,836	28,875	14,216	14,659
	Isale	317,316	75,204	37,024	38,180
Kayanza	Kayanza	256,711	60,841	29,953	30,888
	Musema	235,816	55,888	27,515	28,374
	Gohombo	198,605	47,069	23,173	23,896
Kirundo	Kirundo	215,303	51,027	25,121	25,906
	Mukenke	146,561	34,735	17,101	17,634
	Vumbi	208,163	49,335	24,288	25,046
	Busoni	171,686	40,690	20,032	20,657
Ngozi	Ngozi	292,830	69,401	34,167	35,234
	Kiremba	279,574	66,259	32,620	33,639
	Buye	207,633	49,209	24,226	24,983
Total		**3,511,003**	**832,108**	**409,660**	**422,447**

b. Programmatic Mapping Preparation

1. Clarity on where the mapping will be conducted (geographical areas and hot spots)
2. Information on what will be asked during the mapping (data collection tools)
3. Defining methods to be used
4. Timeline for implementation
5. Clear identification of the program implementation area, including its specific boundaries and zones within the area that will be used to ensure that the entire area is mapped
6. Meaningful and appropriate definitions of each KP and subgroup
7. Determination of whether each KP will be mapped separately or whether mapping can be implemented for several groups concurrently
8. Commitment to systematic and complete mapping of all spots in each zone in each program implementation area
9. Analysis plan, including table shells, maps, graphs
10. Identification of who will do the mapping (organizations, KP representatives, respondents)
11. Training materials for data collectors, supervisors, and data entry personnel
12. Protocols for data quality, data entry, data storage, data sharing, and maintenance of data confidentiality, including confidentiality of spot names and locations

c. Mapping of Hot Spots

All the hot spots will be mapped using a systematic mapping approach. It is believed that mapping implementers who are true peers of KPs will find the safest space and best time to facilitate mapping activities with high-risk groups. They also have the necessary acceptability and credibility among KPs to effectively mobilize them and generate in-depth,



accurate information for project design. Therefore, it is proposed to involve peers from the KPs as community consultants in the current exercise.

The mapping exercise will be conducted at all the hot spots identified by the PLACE study and at newly identified ones that were not part of the original list. Key informant interviews will be conducted among secondary and primary key informants (who are KPs) to gather information. The mapping team should also know the locations of hot spots (addresses) and how to reach them, as well as potential key informants at the hot spots. The team will carry the hot spot information form (HIF),[6] chart paper, and colored pens for drawing the geographical maps. The possible types of key informants to be consulted during the mapping are as follows:

Types of KIIs	Key Informants	Fieldwork Stage
Tertiary	Partners who are implementing the KP program National AIDS Council (NAC) officials	National- and district-level consultations
Secondary	Pimps, taxi drivers, tea vendors, petty shop owners, security agents, bar owners, mobile hawker, student, street sweeper, bikers, etc.1	Mapping of all hot spots
Primary	KP members (FSWs, MSM, transgender people, PWID)	Mapping of identified hot spots (listed and new) and validation of existing hot spots

6 The HIF will be developed in consultation with partners to include the information required. For basic HIF, please refer to the programmatic monitoring toolkit.

d. **Fieldwork Implementation**

A fresh mapping exercise will be conducted at all the hot spots. Mapping will be conducted at the hot spot by interviewing four to five **key informants who are members of a KP**. While some community consultants conduct interviews, a fieldworker will fill in the hot spot information form during the fieldwork. The field assessment team will also carry chart papers and colored pens to draw maps, boundaries, and landmarks.

The following process will be followed in mapping all the identified hot spots:

- All hot spots should be visited by the team, including the community consultant, at different times/days to capture the information comprehensively.
- Build background about the sites.
- Conduct interviews among key informants (KIs) who are KP members from the hot spots. Secondary key informants (such as pimps, taxi drivers) will be interviewed only if the primary key informants (KP members) are not available to interview.
- Community members in the spot will play a very crucial role in providing information.
- All questions listed in the hot spot information form (HIF) will be filled out during the mapping and validation.

- Spot visits: "Seeing is believing" will be the driving principle of site visits. All the spots should be visited. Site visits are also essential to access the respondents and see the STI/HIV/AIDS services (such as HIV testing ART, STI clinics) available in the community. During the visit, characteristics of the spot are obtained, including the number of KP members visiting the spot and whether the spot is currently receiving outreach services.
- If the information is not found in the first visit, then the field team should visit at least three to four times to complete the information. If, after those visits, the required information is not obtained, that hot spot can be dropped as "inactive."

e. **Recruitment of Community Consultants**

Because several locations had to be assessed, a number of community consultants will be required to conduct the fieldwork. The role of community consultants is to gain access to the community, in general, and to KP groups, in particular. Community consultants should be identified with the help of local partners. The community consultants may already be working with the LINKAGES project or with existing HIV and AIDS projects.

5. Ethical Issues with Mapping

As with all data on KPs, the mapping data and mapping activities must be handled with sensitivity to issues of confidentiality and ethics for the KPs. The following list contains some of the issues to keep in mind for any data collection exercise with KPs and should be augmented to include issues that KP community members identify as important:

- Meaningful engagement of KPs is important and includes deciding whether it is safe to do any data collection, formative design, and determining adequate protections during data collection, data storage, and data use.
- In addition to consulting KP communities, an assessment of the risks and benefits of programmatic mapping should be conducted, and if the decision is made to move forward, a written strategy should be negotiated describing reasonable and appropriate safeguards developed in collaboration with KPs and national agencies or others who will use the data.
- A standard operating procedure (SOP) should be written that describes the mapping exercise, the function it will have for the program, how data will be stored, and who will have access to data.
- A procedure for obtaining informed consent for participation should be incorporated into all data collection protocols, regardless of how formal the study, monitoring exercise, or program planning method.

Mapping data should be treated with care, especially when individuals and locations are being identified. Size estimates, especially location information, should be protected and not be given to the media and, in some situations, not to government departments, as dissemination or publication of figures may result in unintended political or law enforcement action. This would push KPs further underground, increasing their vulnerability to HIV. These estimates should instead be shared at appropriate fora for policy and advocacy purposes.

Population Size Estimates Burundi, PLACE Assessment, 2013					
Type of KPs	**Bujumbura**	**Other Urban Areas**	**Rural**	**Total**	**Percent of Male/Female Adult Population***
FSWs	15,060	12,266	31,899	59,225	2.7
MSM	6,176	3,322	3,218	12,716	0.6

**Ages 15–49 as per the UNAIDS instructions for the Modes of Transmission study*

6. Steps to Keep in Mind While Planning the Programmatic Mapping Exercise

1. Guideline finalization
2. Pretesting of the tool to ensure it is appropriate for the local context
3. Development of the field manual
4. Development of the training plan and training of field team members
5. Fieldwork plan
6. Clear plan for security, coding, and data entry
7. Data Analysis Plan

   Information to collect for each spot includes:

   - Spot name and address
   - Spot code
   - Frequency of mention (each time a spot is mentioned by a KI)
   - Spot timing (hours of operation)
   - Minimum estimates (average of all minimum values provided by various KIs)
   - Maximum estimates (average of all maximum values provided by various KIs)
   - Typologies of the populations

7. Deliverables

- Full guidelines written, including questionnaires and field documentation forms. Document will cover the following:
  - Community informant interviews: number and characteristics
  - Site/event verification visit interviews
  - Data entry
  - Fieldwork documentation
  - Data management
  - Reporting
    - Schedule for data collection for implementing the mapping SOW study in the five provinces identified (urban and rural areas)
    - Fieldwork report and venue and event visits for each province
    - Provide all data and supporting fieldwork documentation including all datasets from interviews with patrons and workers and provide all training documents
    - Final report of results and all final data and documentation

8. Human Resources Requirement

Personnel	Number
Study coordinator for all five districts	1
Per district (for all four or five districts)	
Supervisor	1
Data entry person	1
Community consultants per district*	6–8

*If our community consultants are illiterate, we may have to create a fieldworker position in each district.

Annex I: **Target Key Populations with Operational Definitions**[7]

Sex workers (SWs): includes female, male, and transgender adults (18 years of age and above) who receive money or goods in exchange for sexual services, either regularly or occasionally. Sex work is consensual sex between adults, can take many forms, and varies between and within countries and communities. Sex work also varies in the degree to which it is more or less "formal," or organized. As defined in the Convention on the Rights of the Child (CRC), children and adolescents under the age of 18 who exchange sex for money, goods, or favors are "sexually exploited" and not defined as sex workers. Only female sex workers will be recruited for this study.

Men who have sex with men (MSM): refers to all men who engage in sexual and/or romantic relations with other men. The words "men" and "sex" are interpreted differently in diverse cultures and societies and by the individuals involved. Therefore, the term encompasses the large variety of settings and contexts in which male-to-male sex takes place, regardless of multiple motivations for engaging in sex, self-determined sexual and gender identities, and various identifications with any particular community or social group.

People who inject drugs (PWID): refers to men or women who inject psychotropic (or psychoactive) substances for nonmedical purposes. These drugs include, but are not limited to, opioids, amphetamine-type stimulants, cocaine, hypno-sedatives, and hallucinogens. Injection may be through intravenous, intramuscular, subcutaneous, or other injectable routes. People who self-inject medicines for medical purposes — referred to as "therapeutic injection" — are not included in this definition. The definition also does not include individuals who self-inject nonpsychotropic substances, such as steroids or other hormones, for body shaping or improving athletic performance. While these guidelines focus on people who inject drugs because of their specific risk of HIV transmission due to the sharing of blood-contaminated injection equipment, much of this guidance is relevant also for people who inject other substances.

Transgender person: an umbrella term for people whose gender identity and expression does not conform to the norms and expectations traditionally associated with the sex assigned to them at birth; it includes people who are transsexual, transgender, or otherwise gender nonconforming. Transgender people may self-identify as transgender, female, male, transwoman or transman, trans-sexual or, in specific cultures, as *hijra* (India), *kathoey* (Thailand), *waria* (Indonesia), or one of many other transgender identities. They may express their genders in a variety of masculine, feminine, and/or androgynous ways. The high vulnerability and specific health needs of transgender people necessitate a distinct and independent status in the global HIV response.

7 World Health Organization (WHO). Consolidated guidelines on HIV prevention, diagnosis, treatment, and care for key populations. Geneva: WHO;2014.

Annex E. Data Collection Instruments

HOT SPOT INFORMATION FORM (HIF)

Name of Hot Spot		Hot Spot Type[2]	
Location		District	
Type of KP	1=FSW 2=MSM 3=TG 4=PWID	Respondent	1=KP 2=Others 3=None
Nature of Hot Spot	1=Active 2=Inactive 3= Temporarily Closed		
Mapping Team	_____ 2. _____		
Date of visit 1 (DD/MM/YY):____/_____/_____		Date of visit 2 (DD/MM/YY) :____/_____/_____	

Sl. No.	HOT SPOT PROFILE		
1	How many **KPs** work/visit this hot spot on a usual/typical day?	MIN	MAX
2	What is the **peak time** of the day when we find the maximum number of KPs at the hot spot? **CIRCLE AS APPLICABLE** **(Multiple responses possible)**	MORNING (BEFORE 12 NOON) .....A AFTERNOON (12 PM–5 PM) .....B EVENING (5 PM–9 PM) .....C NIGHT (9 PM–LATE NIGHT) .....D All 24 hours .....E	
3	What day of the week we find the maximum number of KPs at the hot spot (**Peak Day**)? **CIRCLE AS APPLICABLE** (Multiple responses possible)	MONDAY.....A TUESDAY.....B WEDNESDAY.....C THURSDAY.....D FRIDAY .....E SATURDAY.....F SUNDAY .....G	
4	On a **peak day** of the week, **how many** KPs work/visit this hot spot (min – max)?	MIN	MAX
5	Name any **special day/period** (if any) when the **number of KPs is higher than the normal** time.		
6	If so, **how many KPs** work/visit this hot spot (min – max) on that **special day?**	MIN	MAX
7	What is the number of KPs (min – max) who also work/visit other **nearby hot spots**?	MIN	MAX
8	What is the number of KPs (min – max) who **come from other** nearby hot spots?	MIN	MAX
9	What is the number of KPs (min – max) who **transitioned out** (migration, stopping sex work due to other reasons) from the hot spot in the last **3 months**?	MIN	MAX
10	What is the number of KPs (min – max) who are new for soliciting in the hot spot during the **last 3 months only**?	MIN	MAX

11	What is the number of KPs (min – max) who also use **mobile** for soliciting?	MIN MAX			
12	What is the number of KPs (min – max) who also use **Internet** for soliciting clients?	MIN MAX			
13	What is the number of KPs (min – max) who are aged **below 25 years**?	MIN MAX			
14	Were any of the following HIV/AIDS prevention and care activities conducted in this site during last 12 months? 1. Yes 2. No 9. Don't Know		1	2	9
		A. Any free distribution of condoms?			
		B. Any condoms for sale?			
		C. Any persons tested onsite for HIV?			
		D. Any safer sex education by POWs (peer outreach workers)?			
		E. Any peer education program?			
		F. Any other activities?			
15	In the past 12 months, how often have condoms been available here?	ALWAYS.....1 SOMETIMES.....2 NEVER.....3 DON'T KNOW.....9			
16	Are there condoms here now?	YES 1 NO 2			
17	Any NGO/CSO working for HIV in this hot spot currently?	YES 1 NO 2 If Yes, Name:			
18	From **where** do **clients** come from? (mention names of **locations**)				

Sr. No	INFORMATION ON OTHER SPOTS	
	Do you know any other place like this in this city/village/commune, where KPs work/visit? YES NO	
	HOT SPOT NAME/ADDRESS	**TYPE OF HOT SPOT[3]**
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

1 People who can provide information and are stationary at the hot spot.

2, 3 Codes for type of hot spot: 1=Brothel, 2=Home, 3=Bar/parlor/Nightclub/Disco, 4=Lodge/dhaba/hotel, 5=Street, 6=Railway station, 7=Bus stand, 8=Park, 9=Market place, 10=Cinema hall, 11=Abandoned area, 12=Under the bridge, 13=Public toilet, 14=Overnight truck stop, 15=Local video/TV rooms, 16=Others_____ (Specify)

Annex F. Team Members

(consultants, field coordinators, and community consultants)

RESEARCH TEAM

1. Diane Mpinganzima, Burundi Principal Investigator; CADSAO, Bujumbura, Burundi
2. André Bizoza, Biostatistician, CADSAO
3. Mandar Mainkar, Consultant

FIELD COORDINATORS

1. Arsène Ntwari
2. Richard Manirankunda
3. Annick Irakoze
4. Ignace Niyonzima
5. Emmanuel

INVESTIGATORS

Last name, first name

1. MUKEZE Leila
2. NDUWIMANA Elisabethe
3. AHISHAKIYE Bahati
4. KABURA Esperence
5. UWIMANA Sefu
6. SAMVURA Noela
7. HASSAN Radjabu
8. NDIKUMANA Pascaline Pamella
9. UWIMANA Abdul
10. RWAMUCO Elvis
11. NGENDAKUMANA Jessy
12. BUKURU Aline
13. KWIZERA Bella
14. BIRORIMANA Anastasie
15. BUZUNGU Diane
16. AKIMANA Charlotte
17. NKURUNZIZA Aboubakar
18. NIBIGIRA Boris Landry
19. NISHIMWE Micheline
20. NSHIMIRIMANA Alaine
21. INGABIRE Brice Maya
22. NIYOMBIZEZA Collona
23. NIYIMBONA Alexis
24. NDAYIZIGIYE Dative
25. NJONI Philippe
26. NSHIMIRIMANA Bélyse
27. ITANGISHAKA Pilly
28. MUKAMANA Séraphine
29. NIYORUGIRA J Baptiste
30. NZITONDA Latifa