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Survey of Private Health Facilities in Uganda

September 2005

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Order No TE 073



Mission

Partners for Health Reformplus is USAID's flagship project for health policy and health system strengthening in developing and transitional countries. The five-year project (2000-2005) builds on the predecessor Partnerships for Health Reform Project, continuing PHR's focus on health policy, financing, and organization, with new emphasis on community participation, infectious disease surveillance, and information systems that support the management and delivery of appropriate health services. PHRplus will focus on the following results:

- ▲ *Implementation of appropriate health system reform.*
- ▲ *Generation of new financing for health care, as well as more effective use of existing funds.*
- ▲ *Design and implementation of health information systems for disease surveillance.*
- ▲ *Delivery of quality services by health workers.*
- ▲ *Availability and appropriate use of health commodities.*

September 2005

Recommended Citation

Mandelli, Andrea, Lennie Bazira Kyomuhangi, and Susan Scribner. September 2005. *Survey of Private Health Facilities in Uganda*. Bethesda, MD: The Partners for Health Reformplus Project, Abt Associates Inc.

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Contract/Project No.: HRN-C-00-00-00019-00

Submitted to: USAID/Uganda

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Bureau for Global Programs, Field Support and Research
United States Agency for International Development

Abstract

The Public Private Partnership in Health (PPPH) is an element of Uganda's Health Sector Strategic Plan II. The private sector includes not-for-profit providers, for-profit providers called private health practitioners (PHPs), and traditional and complementary medicine providers. The draft national policy on PPPH addresses all three sub-sectors and includes specific implementation guidelines for each sub-sector. Partners for Health Reform*plus* (PHR*plus*) has been working closely with PHPs in Uganda and recognized the lack of comprehensive or national-level data on these providers. The need for information on PHPs is acknowledged by the Ministry of Health PPPH Desk as essential to design and implement public-private partnerships and to advocate for the PPPH policy. Therefore, PHR*plus* and the PPPH Desk created a database of 2,154 PHP facilities in Uganda. A representative sample of facilities was selected and surveyed to provide in-depth information on PHP facilities, which could be extrapolated to the national database. The survey collected information from 359 facilities on facility ownership, human resources, staff employment in other facilities, infrastructure and equipment, health services provided including in-depth information on HIV/AIDS services, drug availability, health management information systems, financial management procedures, and registration and organizational affiliation. This report presents an overview of the database and analysis of the survey findings. The report makes an important contribution by presenting the first national-level data on PHP facilities in Uganda, and offering evidence for the important role PHPs play in providing health services and their potential to partner with government to deliver important public health services.

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Acronyms

AIDS	Acquired Immuno Deficiency Syndrome
ART	Antiretroviral therapy
CI	Confidence Interval
DDHS	District Director Health Services
HIV	Human Immunodeficiency virus
HMIS	Health Management Information System
HSSP II	Health Sector Strategic Plan II
MOH	Ministry of Health
PHP	Private [for-profit] Health Provider
PHR^{plus}	Partners for Health Reform ^{plus}
PMTCT	Prevention of Mother-to-Child Transmission
PNFP	Private Not-for-Profit
PPPH	Public Private Partnership in Health
STD	Sexually Transmitted Disease
USAID	United States Agency for International Development

Acknowledgments

The authors are grateful for the support of numerous people who participated in this database survey of private health providers in Uganda.

We are especially indebted to the database consultants Ms Cynthia Auma and Monica Luwedde, who helped us put the database together. We are grateful to the Public Private Partnership in Health Desk at the Ministry of Health for support and collaboration on this project.

We also extend our sincere thanks to the team from Abt Associates for their very helpful inputs. Special thanks go to K.P. Srinath, Catherine Connor, Melinda Ojermark, and Alison Mitchell.

Our appreciation goes to the registrars of the various councils of the Ministry of Health, District Directors Health Services, and all the health professional associations who provided us with lists of private health practitioners and facilities. We also thank all the data collectors in this exercise, namely: Asimwe Moses, Businge Fred, Byarugaba Angela, Kuzarwa Gladys, Nabulomi Walter, Okapes Joshua, Oloya Denis, Rwivanga Catherine, Isuba Simon, Babigumira Ambrose, Kaheru Charles, and Christine Lakop Ojur.

This study was made possible with funding from the United States Agency for International Development through the *PHRplus* Uganda Project.

Executive Summary

The size of the private sector in Uganda has been at the center of recent discussions of human resources for health and public–private partnerships that increase access to health services. The number of facilities in, and the volume of services produced and delivered by this sector have been subject to broad estimates, but no reliable estimates have been available. This information is important, however, because it underlies the vision of the Public Private Partnership in Health (PPPH) as outlined in the draft national policy and the Health Sector Strategic Plan II. Effective partnership between government and private [for-profit] health providers (PHPs) needs information on how many facilities exist, where they are located, what staff they employ, what services are offered, what equipment and infrastructure are available, and how they currently relate with the public sector (e.g., registration with professional councils, submission of health management information). Ideally, this information should be available to both public and private sector stakeholders.

To address this information gap, Partners for Health Reform*plus* (PHR*plus*) in collaboration with the PPPH Desk of the Ministry of Health has created a comprehensive database for PHPs. From the database, PHR*plus* selected a nationally representative sample of health facilities run by PHPs and surveyed them to provide a more in-depth picture of their number and distribution, the human resources they employ, and the services they offer. More specific objectives of the study were to:

1. Establish a comprehensive database of the PHP facilities in Uganda
2. Assess the types of ownership of the PHP facilities in Uganda
3. Gather information about human resources employed in the private health sector
4. Assess the scope of services offered by the PHP facilities, and obtain information on their equipment and information systems.

The information is intended to inform policy and programmatic decision, especially to enable informed debate on the potential scope and merit of public private partnerships for health.

The number of health facilities in Uganda is estimated at 4,639, of which 2,154 (46 percent) are PHPs. The majority (68 percent) of the PHPs are located in the Central Region; Kampala District alone accounts for 45 percent of the PHPs.

The estimated number of staff employed in the PHP sector nationwide is 12,775. Fifty-four percent of the doctors working in the private sector also work in the government sector, whereas more than 90 percent of private sector nurses, midwives, and nursing aides work only (full-time) in the private sector. A total of 9,500 health professionals are estimated to be working exclusively within the private sector, including more than 1,500 doctors and 3,500 nurses. More than 80 percent of the doctors are employed within the Central Region.

PHPs provide an array of important health services. Twenty-six percent of the PHPs surveyed provide inpatient services. Curative services are widely offered, whereas preventive services are more limited. The exception is family planning, which is offered by three-quarters of PHP facilities. While

more than 90 percent of PHP facilities offer treatment for malaria and sexually transmitted diseases, only 22 percent offer immunization services. About 40 percent of the PHPs provide maternity, post-abortion care, and adolescent reproductive health services. Across the population of PHP facilities, this translates into almost 900 private sector service delivery points for these priority services that can help address Uganda's high maternal mortality.

For HIV/AIDS services, about 60 percent of the PHPs surveyed offer voluntary counseling and distribute condoms, but only 29 percent have facilities for HIV testing. Prevention of mother-to-child transmission (PMTCT) and antiretroviral therapy (ART) are still limited within the PHP sector with just 12 percent and 2 percent offering these services respectively. Only 4 percent of the PHPs surveyed have been accredited by the Ministry of Health to offer ART. Eighty-one percent of facilities that offer PMCTC services have a doctor on staff, while 50 percent have a midwife. All facilities offering ART have a doctor.

From the results, 95 percent of the units surveyed were registered with different regulatory councils, but only 56 percent of these had renewed their licenses for the year 2005. An estimated 45 percent of the PHPs surveyed subscribe to a voluntary health professional association.

PHP facilities are more numerous than government or private not-for-profit facilities, although they are concentrated in the Central Region and urban areas. These facilities employ an average of nine staff people per facility, and 70 percent have a doctor. In total PHP facilities employ a large number of staff, many of whom work exclusively in the private sector. These facilities offer many critical health services. They also have the staff, equipment, and infrastructure to provide even more public health services. Public-private partnerships can encourage and enable PHPs to offer services through advocacy and dialogue, training, provision of drugs and supplies, and improved access to financing. PHP facilities are a key component of the health sector in Uganda and should be recognized for their contribution.

1. Introduction

The objective of Uganda’s National Policy on Public Private Partnership in Health (PPPH) is to “establish functional integration and to support the sustained operation of a pluralistic health care delivery system by optimizing the equitable use of available resources and investing in comparative advantage of the partners” (National Policy on Public Private Partnership in Health 2004). Although this policy, part of the country’s Health Sector Strategic Plan II (HSSP II), is still in draft, the Partners for Health Reform *plus* (PHR*plus*) in collaboration with the PPPH Desk of the Ministry of Health (MOH) decided to begin implementing aspects of the policy that are consistent with existing policies and legislation. To reach the objective stated above, it is necessary to understand what are available resources and the comparative advantages of different partners. PHR*plus* identified a significant gap in information on private for-profit health facilities, referred to in Uganda as private health practitioners (PHPs). Furthermore, several strategies contained in the Policy Implementation Guidelines for PHPs specifically related to the need for better data, including:

- ▲ Establish a database of all registered private providers
- ▲ Assess PHP needs for improved service delivery through sharing basic health data
- ▲ Build capacities of PHPs to manage data and participate in the District Health Planning process (Implementation Guidelines for Private Health Practitioners, March 2004)

The need to establish a comprehensive picture and to capture more information about the size and the scope of the private health sector services is a key strategy in the national health sector policy as outlined in the HSSP II (MOH 2005b, Paragraph 2.3.2: 23-24). Heretofore, this information existed only as broad estimates, not based on reliable data collection. The vision of partnership contained in the policy documents requires more specific, accurate information for planning and implementation. For example, effective partnership between government and PHPs needs information on how many facilities exist, where they are located, what staff they employ, what services are offered, what equipment and infrastructure are available, and how they currently relate with the public sector (e.g., registration with professional councils, submission of health management information). Ideally, this information should be available to both public and private sector stakeholders.

To begin to fill this information gap, PHR*plus* and the PPPH Desk created a comprehensive database for PHP facilities. To capture in-depth information on resources available and services offered, PHR*plus* selected a representative sample from the database and conducted a survey of the facilities to provide a picture of the Ugandan private for-profit health sector. The data collected through this exercise and presented in this report are significant, because they offer the first national-level estimates of the size and scope of the PHP sector, issues that have been at the center of recent discussions of human resources for health and public–private partnerships that increase access to health services.

2. Purpose of the Study

The overall goal of the study was to begin to quantify the PHP contribution to the health sector. A survey conducted in a nationally representative sample of PHP facilities gathered information about the number of health facilities run by private health practitioners, the human resources they employ, and the services they offer. In addition to populating a database of PHP facilities, this information is intended to inform policy and programmatic decision making, especially to enable informed debate on the potential scope and merit of public–private partnerships for health. The database can serve as the foundation for future efforts to expand knowledge of the private sector and integration across sectors. This could include a comprehensive health management information system (HMIS) or an accreditation system.

2.1 Specific Objectives

The specific objectives of the study were:

1. To establish a comprehensive database of the PHP facilities in Uganda
2. To assess the types of ownership of the PHP facilities in Uganda
3. To gather information about human resources employed in the private health sector
4. To assess the scope of services offered by the PHP facilities and other information on equipment and information systems.

2.2 Methodology

This was a cross sectional study, covering information about the PHP facilities as of March–June 2005. The study was divided into two phases:

1. Compilation of a master list of 2,154 PHP facilities in Uganda (March–May 2005)
2. Detailed national survey conducted on a sample of 359 PHP facilities (May–July 2005).

2.2.1 First Phase: Creation of a master list of PHP facilities

Phase 1 was conducted over a period of two months between March and May 2005. This involved the identification of PHP facilities in all districts in Uganda. Information was collected from the Uganda Medical and Dental Practitioners Council, the Uganda Allied Health Professionals Council, the Uganda Nurses and Midwives Council, and from several Ugandan professional associations (Uganda Medical Association, Uganda Dental Association, Uganda Private Medical Practitioners Association, and Uganda Private Midwives Association). Additional information and data

validation was obtained from the District Directors of Health Services' (DDHS) offices through the MOH. The response from the DDHS offices was excellent, with 50 of 56 districts (89 percent) responding.

Through this approach, a total of 2,154 PHPs were identified and entered into an Access-based database. The database was used as the sampling frame for the selection of a sample of facilities to be surveyed during the second phase.

2.2.2 Second Phase: The survey

Phase 2 of the study, May–July 2005, involved conducting a survey of randomly selected facilities across the country. The survey provided more detailed and verified information on ownership of the PHP facilities, human resource capacity, infrastructure and equipment available, and services being provided including HIV/AIDS services.

The survey was conducted by 14 interviewers who received three days of training from PHR*plus* staff and the database designer. The interviews were conducted with facility personnel using a questionnaire designed to collect both quantitative and qualitative information. The questionnaire was divided into 10 sections: 1) generic information about the health facility, 2) type of ownership, 3) infrastructure and equipment, 4) type of services, 5) community-based and essential services, 6) HIV/AIDS services, 7) patient records keeping (HMIS), 8) financial management, 9) human resources, and 10) organizational affiliation and registration by Councils. The full questionnaire is provided in Annex A.

Because of time and resource limitations, data collection relied on interviews and did not include any provision to examine patient registers. Therefore, the survey does not provide information on the volume of services delivered through the PHP sector.

2.2.3 Sampling Design

A sample of 360 PHP facilities was selected from the database of 2,154 PHP facilities using a two-stage sampling design. If a simple random sampling of facilities was used, a sample of 329 facilities would yield estimates of population percentages for characteristics of interest with a margin of error of plus or minus five percentage points. Since the authors used a two-stage design with districts selected at the first stage, and facilities at the second stage, there is a design effect due to an increase in the standard errors of the estimates because of unequal probability sampling and clustering of facilities within districts. A design effect of 1.1 was assumed, and the sample size was increased from 327 to 360. It is expected that a sample of 360 facilities would give the same margin of error as a simple random sample of 327 facilities.

The total sample of 360 facilities was first allocated to each region in proportion to the number of facilities. Certain large districts were included in the sample with certainty in some regions. The non-certainty districts were selected with probability proportional to the number of facilities. For example, in the Western Region, the district of Mbarara was selected with certainty. A sample of 12 districts was selected at the first stage including certainty districts.

The districts selected for the survey included five from the Central Region (Kampala, Wakiso, Masaka, Mukono, and Mpigi), three from the Western Region (Mbarara, Kabarole and Ntungamo), two from the Eastern Region (Iganga and Mbale), and two from the Northern Region (Gulu and Lira).

The number of facilities to be selected in each region was allocated to selected districts in proportion to the number of facilities in the district. A systematic sample of facilities was selected in each district. Details of the sampling strategy used are given in Annex B.

The geographical representation of the selected facilities and districts was based on the actual distribution of facilities in the entire PHP facilities' population. The number of the selected facilities and their geographical distribution is presented in Table 1.

Table 1: Geographical Distribution of Selected PHP Facilities

Region	Number of Districts	Number of Facilities	Allocated Sample
North	9	174	29
East	14	201	34
West	15	314	52
Central	14	1,465	245
Total	52	2,154	360

3. Results

3.1 First Phase

The MOH Health Sector Annual Performance Report (MOH 2004: 91) estimates a total of 2,731 health facilities in Uganda: 1,855 government facilities, 600 private not-for-profit (PNFP) facilities, and 274 PHP facilities (Table 2). In contrast, results from the first phase of the current study reveal that there are 2,154 PHP facilities (Table 3), significantly more than previously estimated. Thus, based on study findings, there are an estimated 4,639 health facilities in Uganda, of which 46 percent are PHPs.

Table 2: Health Facility Distribution in Uganda according to MOH HSSP II (October 2004)

Government	PNFP	PHP	Total
1,885	600	274	2,731

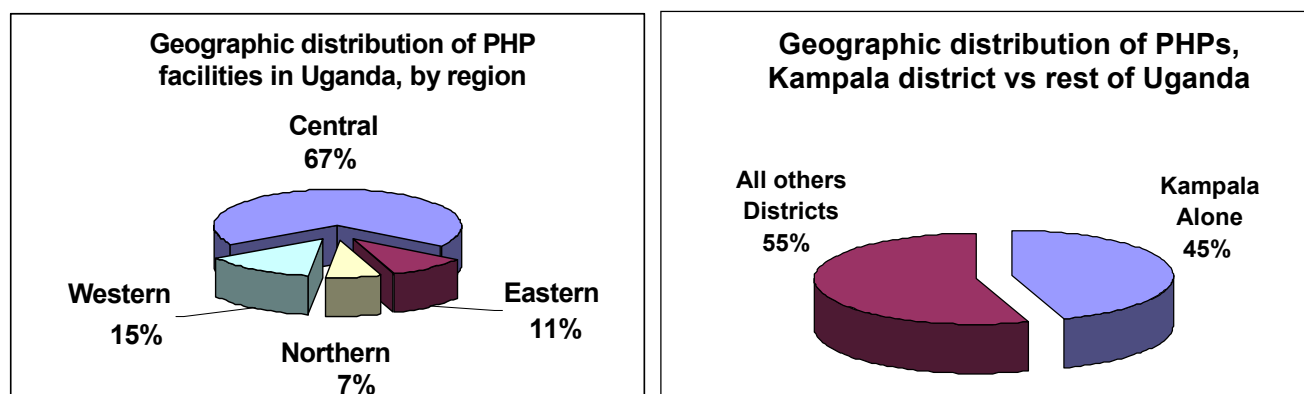
Source: MOH 2004c: 91

Table 3: Health Facility Distribution in Uganda updated by PHP Inventory (May 2005)

Government	PNFP	PHP	Total
1,885	600	2,154	4,639

Phase 1 results also show that the Central Region has the majority (68 percent) of the PHPs, followed by the Western Region (14 percent), Eastern Region (11 percent), and Northern Region (7 percent). Looking at the distribution by district, Kampala District alone accounts for about 45 percent of all PHPs and for 67 percent of the PHPs located in the Central Region. Figure 1 shows the geographic distribution of the PHPs.

Figure 1: Geographical Distribution of PHP Facilities in Uganda



3.2 Second Phase

For a number of reasons, not all the facilities pre-selected for the survey were actually surveyed. Substitutions had to be made to maintain the original sample size and distribution to ensure the validity of the sampling strategy. The final number of facilities surveyed was 359, with a decrement of only one unit from the set sampled size of 360. Substitutions were also made maintaining the original distribution of facilities in the selected districts, to minimize distortions in the sampled set. Table 4 shows the different reasons for the substitutions.

Table 4: Reasons for Facility Substitutions and Actual Number of Facilities Surveyed

	Total fixed no.	Untraceable	Changed names	Changed location	Negative responses	Closed down	Total	Substitution	Difference	Actual number surveyed
Central	245	31	5	4	15	4	59	55	-4	241
East	34	2	0	0	5	2	9	10	1	35
North	29	0	0	0	2	0	2	2	0	29
West	52	2	1	1	0	0	4	6	2	54
Totals	360	35	6	5	22	6	74	72	-1	359

Since the sample was representative of the national database, survey results have been extrapolated to the entire database, using relative weights derived from the sampled facilities. The weights are based on the number of facilities surveyed in a given region and the total number of facilities in that region. This report discusses regional findings that are applicable to the national PHP database.

3.2.1 Type of Ownership

All the PHP facilities surveyed reported their type of ownership. Table 5 shows the distribution of the five main categories of owners.

Table 5: Top Five Ownership Designations (n=359)

Ownership designation	Medical doctors	Nurses, midwives, nursing assistants	Clinical officer	Others	Businessmen/women
%	48%	30%	10%	8%	4%

Eighty percent of facilities are singly owned, while 20 percent are owned by two or more partners. Figure 2 offers a geographical distribution of these two ownership types.

Medical doctors own the largest share (48 percent) of PHP facilities, followed by the nursing cadres (nurse/midwife/nursing aides and assistants), which own 30 percent. "Others," with 23 facilities (8 percent), includes orthopedic officers, pharmacists, and others (not specified).

Figure 2: Type of PHP Facility Ownership by Region (n=359)

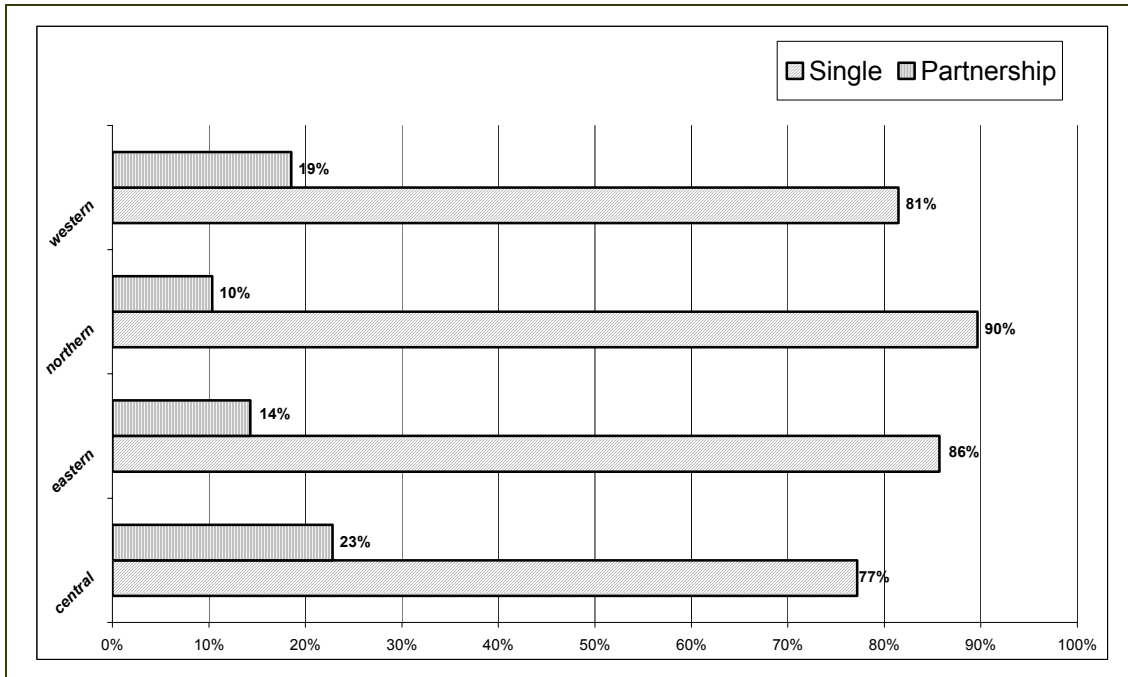
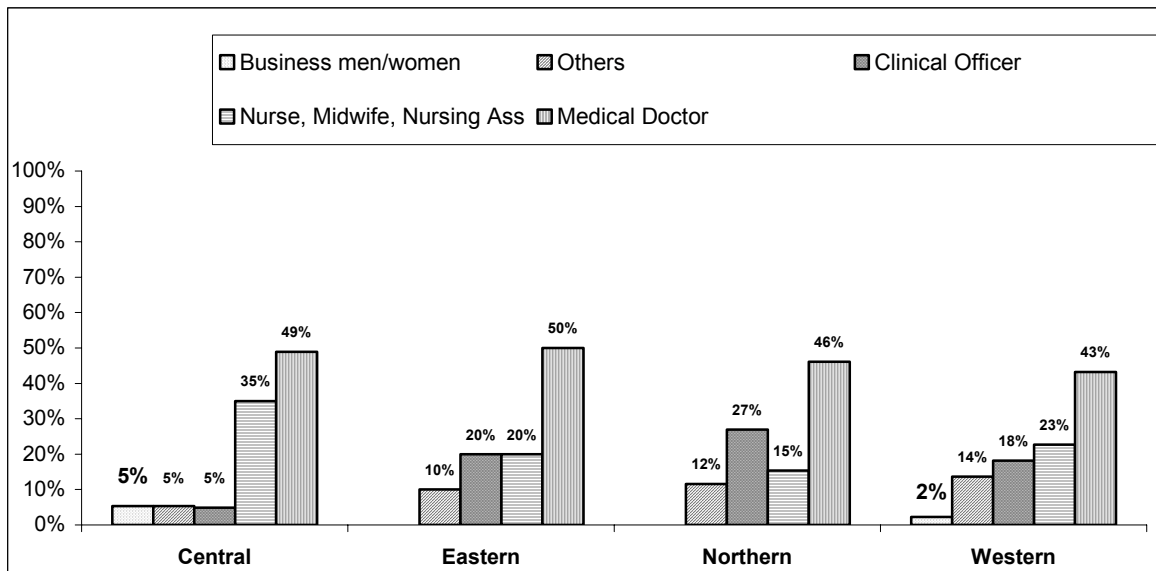


Figure 3 presents the regional distribution of the top five ownership types by designation and by region. In all four regions about half of facilities are owned by medical doctors. Nursing cadres own the second largest share of facilities, except in the Northern Region, where there is a higher percentage of facilities owned by clinical officers (27 percent).

Figure 3: Regional Distribution of PHP Facilities by Top Five Owner Designations (N=359)



The most common type of PHP facility partnership reported (79 percent) was among doctors/medical professionals. Health professionals in partnership with a business person accounted for 21 percent. The facilities reporting this latter type of partnership were all found in urban settings where businesses are more developed, mostly in the Central Region (73 percent) and the Western Region (27 percent).

3.2.2 Human Resources

The study also collected information about the human resources employed in PHP facilities by the various health workers' cadres and by region. The total number of staff employed in the facilities surveyed was 2,707. When extrapolated across the population of PHP facilities, it is estimated that PHP facilities employ 12,775 staff.

Distribution by Staff Cadre and Region

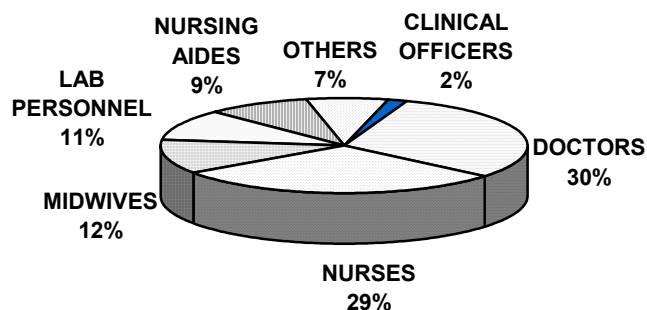
PHP facilities employ a median of nine staff members per facility (Table 6). The mean value is higher because a small number of facilities with many employees skew the distribution. Figure 4 presents the distribution of staff per cadre as a percentage of the total number of staff employed (n=2,707) in the surveyed facilities.

Table 6: Number of PHP Employees per Facility by Cadre (mean and median values)

Cadre	Mean in PHP facilities	Median in PHP facilities
Doctors	3	1
Nurses	3	2
Midwives	2	1
Laboratory personnel	2	1
Nursing aides	2	1
Clinical officers	1	1
Others	3	2
Total employees	16	9

Note: Includes full- and part-time staff

Figure 4: Distribution of Top Seven Cadres Employed in PHP Facilities (n=2,707)



The broad “doctors” category comprises professionals like dentists, ophthalmologists, radiologists, surgeons, and visiting consultants. The nursing aides category includes nursing assistants. The “others” category comprises records officers, dispensers, pharmacists, dental assistants, counselors, physiotherapists, and radiographers.

The analysis also provided information about the distribution of the top seven cadres relative to the total number of staff employed in each region. Figure 5 presents the findings. Looking at the geographical distribution, the high percentages of clinical officers in Northern and Western Regions compensate for the scarcity of doctors. This is most pronounced in the Northern Region, where higher cadre health professionals may be reluctant to be deployed due to the current lack of security in that part of the country. The trend is the same for nurses and midwives, whose percentages are relatively low compared to nursing aides/assistants in same regions.

Figure 5: Distribution of Top Seven Cadres in PHP Facilities, by Region (n=2,707)

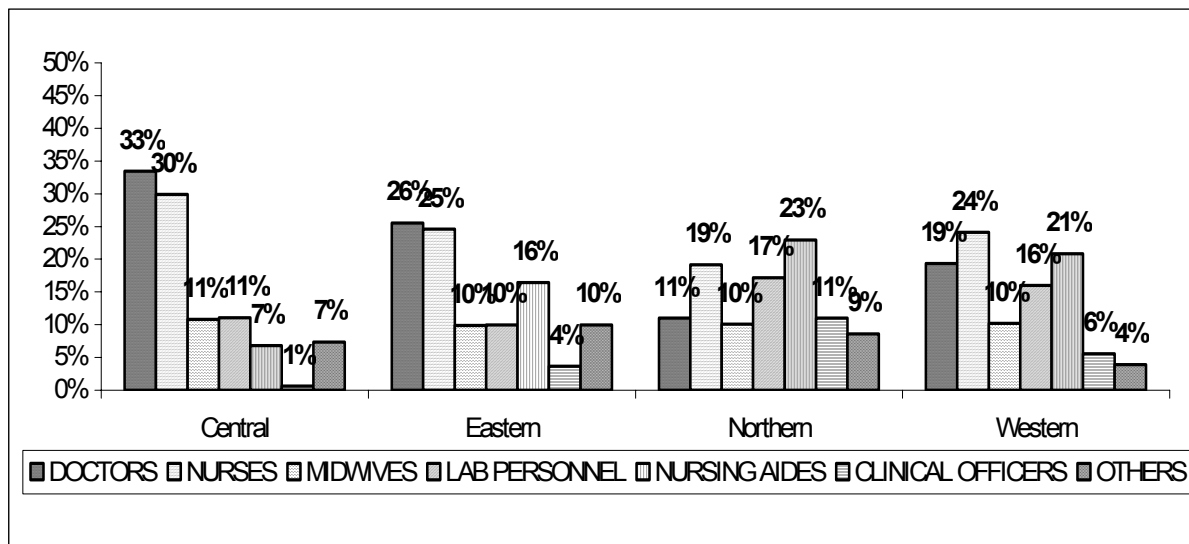


Table 7 presents the percentage of PHP facilities employing different cadres by region. Sixty-nine percent of PHP facilities employ a doctor; by definition, therefore, 31 percent of PHP facilities operate without a doctor. The Western and Northern regions have the greatest number of facilities without doctors. In the Northern Region, this lack of doctors is offset somewhat by the higher number of facilities staffed with clinical officers.

Table 7: Percentage of PHP Facilities Employing Different Cadres, by Region (n=359)

	Doctors	Nurses	Midwives	Laboratory personnel	Nursing aides	Clinical officers	Others
Central	82%	73%	41%	44%	39%	5%	33%
Eastern	77%	75%	57%	51%	57%	17%	34%
Northern	61%	60%	29%	90%	86%	62%	32%
Western	57%	60%	42%	64%	74%	30%	9%
National weighted average	69%	67%	42%	62%	64%	29%	27%

Only 4 percent (n=13) of PHP facilities operate without a doctor, nurse, or midwife, and in all these facilities there is either a nursing aide or clinical officer. Three-quarters of these facilities employ both a nursing aide and a clinical officer. The regional distribution in this case is consistent with the trends described above.

Distribution by Full- and Part-time Employment Status

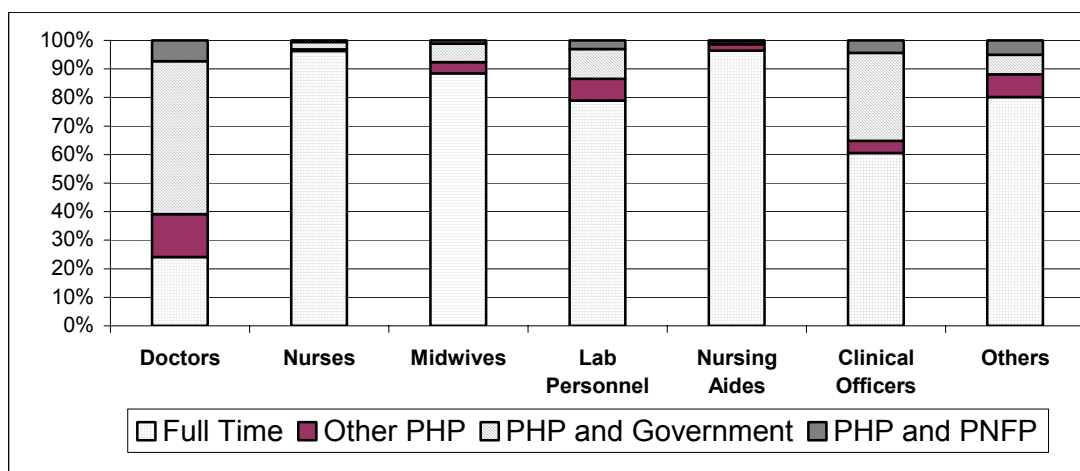
The questionnaire asked health professionals to provide information about whether they were employed on a full-time or a part-time basis. Full-time was defined as “the employee works only in the facility where the interview had taken place.” Part-time was defined as dual employment (more than one job). The questionnaire then asked whether the part-time employee worked in one of three other places: 1) another PHP health facility, 2) a government-owned health facility, or 3) a PNFP-owned health facility. The results are summarized in Table 8 and Figure 6.

Eighty-nine percent of the midwives, 95 percent of the nurses and 97 percent of the nursing aides reported to be employed full-time in the PHP facility they worked in. The majority of doctors working in a PHP facility are also employed in the government sector. Very little exchange of staff takes place between PHP and PNFP facilities.

Table 8: Employment Type, by Cadre (n=1,842)

Cadre	Full-time (n=1,278)	Other PHP (n=142)	PHP and government (n=363)	PHP and PNFP (n=59)
Doctors (n=494)	24%	15%	54%	7%
Nurses (n=503)	95%	1%	3%	1%
Midwives (n=200)	89%	4%	6%	1%
Laboratory personnel (n=237)	79%	8%	10%	3%
Nursing aides (n=197)	97%	2%	1%	0%
Clinical officers (n=46)	61%	4%	31%	4%
Others (n=165)	80%	8%	7%	5%

Figure 6: Employment Type, by Cadre



Using the available information from the type of employment (full-time or dual) combined with the findings about the distribution of employees by cadre and the total projected number of staff in the population of PHP facilities, it was possible to extrapolate the total number of staff who are exclusively employed by the PHP sector, either on full-time basis or in two or more PHP facilities. As shown in Table 9, this figure is estimated to be more than 9,500 employees. The current estimate of the national health workforce is 32,348, but only includes staff at government and PNFP facilities (MOH 2005b). The estimated 9,547 health workers in PHP facilities increase the national human resources for health by 30 percent.

Table 9: Availability of Cadres Operating in PHP Facilities Nationally

CADRES	Full Time	Other PHP	TOTAL
Doctors	930	581	1,511
Nurses	3,519	37	3,557
Midwives	1,317	59	1,377
Lab Personnel	1,063	108	1,171
Nursing Aides	1,123	23	1,146
Others	559	37	596
Clinical Officers	173	17	190
Totals	8,685	862	9,547

3.2.3 Infrastructure and Equipment

Infrastructure, the number of rooms and beds in facilities, was assessed based on whether the facility offers only outpatient or both inpatient and outpatient services. All PHP facilities offer outpatient services, while 26 percent also provide inpatient services. Table 10 presents the average size of PHP facilities offering outpatient services (n=359), in terms of number of rooms. The vast majority of outpatient facilities (95 percent) have three rooms. The biggest facility offering only

outpatient services has 18 rooms. PHP facilities offering outpatient services operate an average of 16 hours per day on weekdays and 15 hours per day on weekends.

Table 10: Average PHP Facility Size Offering Outpatient Services (n=359)

	Mean	SD	SE	95% CI of Mean	Median	IQR	95% CI of Median
Rooms	3	2.0546	0.1558	3.020 to 3.635	3	2.000	3.000 to 3.000

As noted above, 26 percent of PHP facilities (n=145) offer inpatient services in addition to outpatient services. Table 11 presents a statistical summary of the size (number of rooms and beds) of these facilities. The median number of rooms is six and of beds is also six. There is a wide variation in the number of rooms and beds in inpatient facilities: the biggest facility has 48 rooms and 100 beds, while the smallest has one room with two beds. About 12 percent of PHP facilities have more than 10 rooms and 15 beds, while 50 percent have five or six rooms and between four and seven beds (median values six rooms and six beds).

Table 11: Average PHP Facility Size (Rooms and Beds) Offering Inpatient services (N=145)

	Mean	SD	SE	95% CI of Mean	Median	IQR	95% CI of Median
Rooms	8.11	7.66	0.65	6.83 9.39	6.00	6.00	5.00 6.00
Beds	9.96	12.75	1.07	7.85 12.08	6.00	7.00	4.00 7.00

Twenty-nine percent of all PHP facilities have a functioning operating theater (20 percent classified for “minor” surgeries, 9 percent for “major and minor” surgeries). Forty-six percent (46 percent) of the facilities with an operating theater use it only for surgeries that do not require hospitalization, as they are facilities that offer only outpatient care.

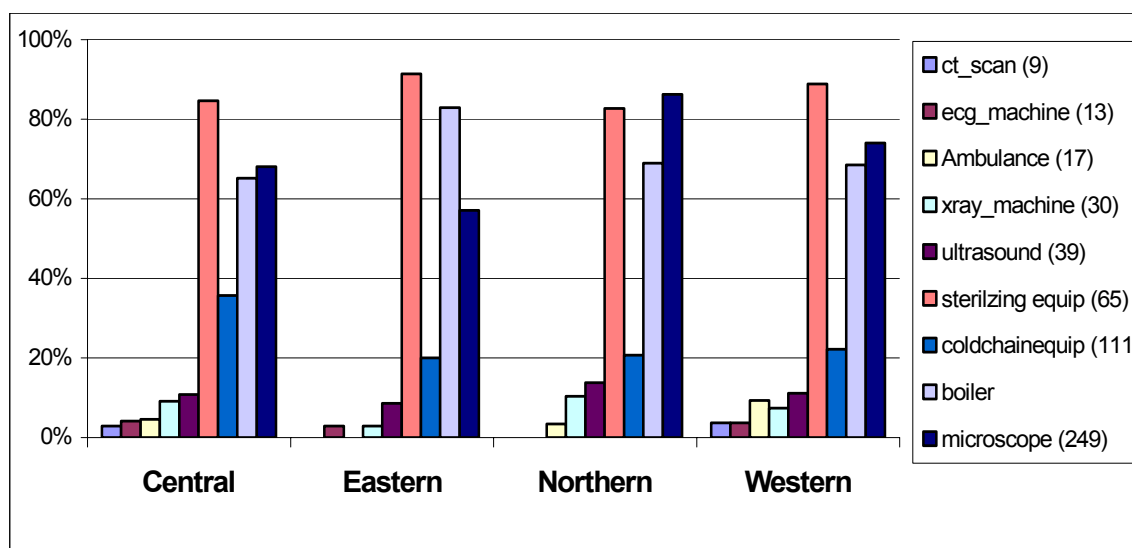
An assessment of equipment at PHP facilities looked at the availability of eight different types of equipment. Table 12 presents the findings relative to all PHP facilities. Some basic equipment (microscope and sterilizing equipment) are available in most facilities. The survey questionnaire asked whether the facility had the capacity to use the diagnostic equipment found on the premises. It was found that most of the facilities where diagnostic equipment are available can operate the equipment and interpret the output for diagnosis (e.g., CT scan image, ultrasound scan image, laboratory tests, and X-ray films). Only in the case of ECG were results sent elsewhere to be analyzed.

Table 12: Equipment Available at PHP Health Facilities (relative to total number of PHP facilities)

Equipment available	CT scan	ECG machine	Ambulance	X-ray machine	Ultra-sound	Sterilizing equipment	Cold chain equipment	Microscope
%	3%	4%	5%	8%	11%	86%	31%	69%

Figure 7 presents a geographic distribution of the available equipment by region. Microscopes and sterilizing equipment are widely available in all regions. The Northern Region has the highest percentage of facilities with microscopes. Most advanced types of equipment are only available in the Central Region. No ECG machines are available in the Northern Region.

Figure 7: Regional Distribution of Equipment Available at PHP Facilities



3.2.4 Health Services Provided

The services included in the PHP survey were selected based on their inclusion as key services in the Uganda National Minimum Health Care Package (UNMHCP). The National Health Policy stipulates different service standards for the UNMHCP services according to the type of facility (e.g. hospital versus health center). Because there is not an agreed upon classification of levels or types of PHP facility, all 359 facilities surveyed were considered the same level for purposes of analysis. Further analysis looks at different type of services offered and the employment of relevant medical cadres.

Figure 8 presents the percentage of PHP facilities surveyed that offer each type of service. Table 13 shows availability of services. Curative services clearly are offered more than prevention services. The exception to this is family planning counseling and products; family planning counseling is offered quite uniformly in all regions as is family planning products, though the latter are slightly more available in the Central Region. Prevention services like health education and promotion, and immunization are not widely offered. In contrast, treatments for malaria, sexually transmitted diseases (STDs), and childhood diseases are fairly widely available.

Sexual and reproductive health services – adolescent reproductive health services (ARH), post-abortion care (PAC), and maternity services – are offered on average in 40 percent of PHP facilities in the Central, Eastern, and Western regions. In the Northern Region, adolescent reproductive health services and post-abortion care are more common, offered in almost 60 percent of the facilities, but maternity services there are available in only 17 percent of facilities.

Figure 8: Type of Services Offered at PHP Facilities (n=359)

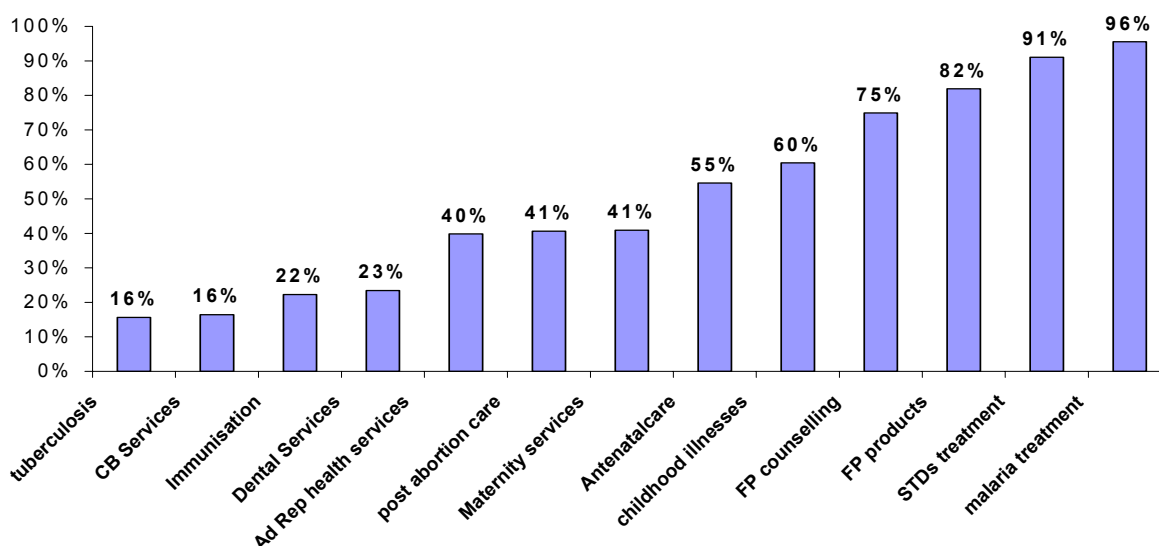


Table 13: Distribution of Services Offered at PHP Facilities, by Region

Services offered	Central n=241	Eastern =35	Northern n=29	Western n=54	Total number offering service
Tuberculosis	17%	26%	3%	7%	56
Community-based services	20%	17%	10%	6%	58
Immunization	28%	14%	10%	7%	79
Dental services	28%	29%	3%	9%	83
Adolescent reproductive health services	41%	40%	59%	24%	143
Post-abortion care	37%	49%	62%	39%	145
Maternity services	43%	54%	17%	35%	147
Antenatal care	56%	60%	24%	59%	196
Childhood illnesses	62%	74%	55%	46%	215
Family planning counseling	76%	69%	72%	76%	269
Family planning products	85%	74%	79%	76%	294
STD treatment	90%	94%	90%	96%	327
Malaria treatment	96%	94%	93%	96%	344

Multi-variate analysis compared different levels of services offered at PHP facilities and the availability of medical cadres that are deemed essential for specified services. The analysis showed that 24 percent of facilities offering only outpatient services have no doctor on staff while 28 percent have no nurse. Sixteen percent of PHP facilities offering outpatient services have no doctor or nurse. Of these facilities, 70 percent are staffed with nursing aides and 36 percent with clinical officers.

Of the 145 facilities offering inpatient services, 23 percent do not employ a doctor on staff and 28 percent have no nurse. Twenty facilities offering inpatient services have no doctor or nurse on staff. Of these 20, six employ a nursing aide and two have a clinical officer on staff.

For maternity services, the analysis revealed that 27 percent of the facilities perform deliveries without supervision of a midwife, but with a nurse on the staff. Thirteen percent perform deliveries without a midwife or a nurse. In the facilities with neither a midwife nor a nurse, 50 percent have a nursing aide on staff.

Overall survey results indicate that a number of PHP facilities offer services without appropriate qualified personnel on staff. While these facilities represent a small percentage of PHP facilities, they indicate a need for greater supervision of the PHP sector and the need for interventions that encourage employment of more and higher caliber personnel by PHP facilities.

3.2.5 HIV/AIDS Services Provided

HIV/AIDS services were looked at separately as they present a specialized service category that needed special attention. Respondents were asked about HIV/AIDS services offered, technical resources available, and opportunities and challenges for expansion of services. A smaller sample of facilities responded to the HIV/AIDS section of the questionnaire (n=318). The findings have been extrapolated to the whole database applying relative weights derived from the sample of facilities that responded.

Table 14 summarizes responses on HIV/AIDS services offered, both the national average and by region. The proportion of PHP facilities offering voluntary testing is less than that offering voluntary counseling. This is due to the fact that some of the smaller clinics had no facilities for carrying out the HIV tests but the providers were counseling the patients and referring them to the nearest facilities with the testing facilities.

Table 14: Regional Distribution of HIV/AIDS Services Offered at PHP Facilities (n=318)

HIV/AIDS services	Central n=206	Eastern n=31	Northern n=28	Western n=53	Weighted national average
Voluntary counseling	59%	60%	62%	58%	60%
Voluntary testing	37%	26%	40%	14%	29%
Condom distribution	68%	57%	59%	64%	62%
PMTCT	17%	20%	5%	7%	12%
Post-test services	16%	15%	13%	6%	12%
Home-based care	21%	14%	15%	6%	14%
ART provision	5%	0%	0%	3%	2%

Some variability in the regional distribution of the various types of HIV/AIDS services is apparent. The distribution of the different services across regions appears consistent except for voluntary testing and the two relatively new services for which the facilities need to MOH accreditation, prevention of mother-to-child transmission (PMTCT) and antiretroviral therapy (ART).

Voluntary testing services are offered more frequently in the Central and Northern regions than in Eastern and Western regions.

The analysis also compared the availability of qualified staff and the HIV/AIDS services provided. Of facilities that offer PMTCT services, 81 percent have a doctor in the establishment while 50 percent have a midwife on staff. All facilities offering ART have a doctor.

PHP facilities also were asked about their compliance with MOH guidelines on HIV/AIDS services, whether any facility staff had been trained to provide HIV/AIDS and/or ART services, and if they had been accredited by the MOH to provide ART. Table 15 presents the analysis of responses. PHP compliance with MOH guidelines and formal training is relatively uniform across the regions, except for the Western Region, where fewer facilities follow MOH guidelines, and for the Eastern Region, where the percentage of facilities with staff with formal training is relatively low. Very few PHPs have been accredited by the MOH to offer ART services. However, a high percentage (less in the Central Region) perceive the need for accreditation and the need to expand the scope of HIV/AIDS services.

Table 15: PHP Facility Compliance of with MOH Guidelines, Formal Training and Accreditation, by Region (n=318)

Compliance indicators	Central n=206	Eastern n=31	Northern n=28	Western n=53	Weighted national average
Follow MOH guidelines on HIV/AIDS treatment	54%	52%	54%	22%	45%
Training in ART	55%	20%	46%	42%	41%
Accredited to provide ART	3%	0%	0%	2%	1%
Interested in being accredited	67%	83%	77%	80%	77%
Interested in expanding HIV services	54%	86%	84%	90%	78%

3.2.6 Availability of Drugs

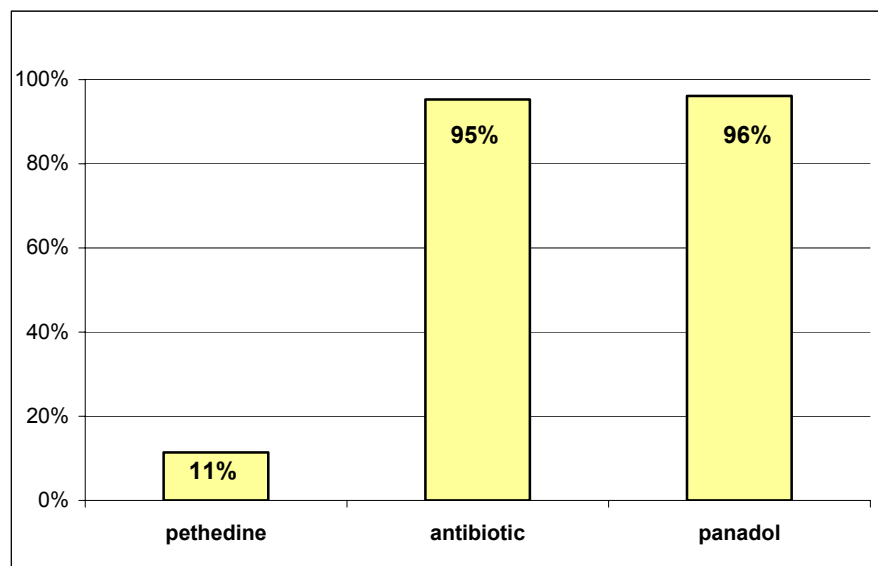
The survey asked about availability at PHP facilities of the three main classes of drugs: Panadol (class C), Ampicillin or similar antibiotic (Class B), and Pethidine (Class A). Table 16 and Figure 9 present results, with a regional breakdown in absolute terms.

Broad-spectrum antibiotics (represented by ampicillin) and simple analgesics (represented by Panadol) are widely available (in 95/96 percent of the PHP facilities), while class A drugs (represented by Pethidine) are available in far fewer facilities (11 percent). Pethidine is restricted because of its addictive properties. Regarding the distribution across regions, class B and C drugs have similar availability; class A drugs are slightly more prevalent in the Central Region. In the Northern Region, drugs (all three classes) are relatively scarcer than in the other three regions.

Table 16: Availability of Drugs in PHP Facilities (n=359)

Type of Drugs	Central	Eastern	Northern	Western
Pethidine	13%	9%	3%	9%
Antibiotic	95%	97%	86%	98%
Panadol	97%	97%	86%	98%

Figure 9: Availability of Drugs in PHP Facilities (n=359)



3.2.7 Health Management Information System

Analysis of information about use and availability of HMIS instruments by region is presented in Table 17. Of the units that offer outpatient services (n=359), 94 percent report using outpatient registers, 29 percent collect routine HMIS data, and 24 percent submit HMIS reports. Of the units offering inpatient services (n=145), 93 percent use inpatient registers, 40 percent collect routine HMIS data, and 34 percent submit HMIS reports to District Directors of Health Services.

Although the MOH expects PHP facilities to submit HMIS data, less than a third of PHPs have access to HMIS forms. About one-quarter of PHPs collect HMIS data. These variables are evenly distributed across regions, with the exception of PHP facilities in the Northern Region, which have less access to HMIS tools and use them less often. Overall, less than 25 percent of the PHP facilities submit HMIS data to the districts. This underlines the information gap that exists in the national health information system and national health statistics.

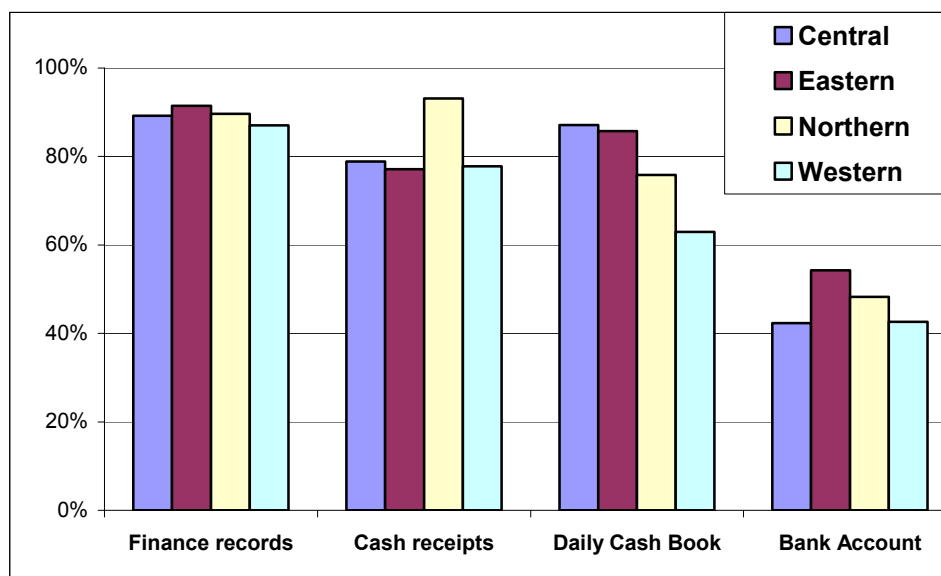
Table 17: Availability and Use of HMIS Tools by Region (n=359)

HMIS	Central	Eastern	Northern	Western
Outpatient registers	93%	89%	97%	98%
HMIS forms available	32%	37%	10%	17%
HMIS data collected	29%	40%	10%	33%
HMIS data submitted	24%	29%	10%	26%

3.2.8 Financial Management

The survey examined the use of financial management procedures, including the availability of books of accounts and dedicated bank accounts for PHP facilities. The findings are summarized in Figure 10. Basic financial management procedures are widely established across PHP facilities (always above 60 percent), while the existence of dedicated bank accounts is not yet common practice (on average in 45 percent of all facilities, ranging from 42 to 54 percent).

Figure 10: Availability and Use of Financial Management Procedures, by Region (n=359)



3.2.9 Organizational Affiliation

The survey collected information on registration with the various regulating bodies, date of most recent registration, and affiliation of PHP owners and staff to the voluntary professional associations. From the analysis, 95 percent of the facilities are registered with different professional councils, while only 56 percent of the facilities have renewed their licenses for the year 2005. About 45 percent subscribe to a voluntary association.

4. Comments Received during Data Collection Exercise

At the end of the interviews, respondents were asked if they had any additional comments related to the questionnaire. Most of the comments concerned financial help to expand services provided, acquire medical equipment and drugs, increase staffing, and expand the premises. The following are representative of the comments received:

- ▲ Government should provide loans at reduced rates to help private providers acquire medical equipment
- ▲ There is need for continuous medical education of medical personnel
- ▲ Need to subsidize fees charges
- ▲ Capacity building to lessen congestion at main hospitals
- ▲ Provision of effective drugs at subsidized rate
- ▲ Costly license. Doesn't pay license to Allied Health Professionals Council because local government also collects "operational fees."
- ▲ Very few qualified medical personnel especially in rural areas
- ▲ MOH should open up space on provision/management of HIV/AIDS cases
- ▲ Facility needs help considering the facility is able to help war victims that have been maimed
- ▲ General facilitation for outreach programs and fabrication of prosthesis
- ▲ Double registration fees since regulating body and district collect fees.
- ▲ Hope the survey will be an eye-opener to services being provided and providers will be assisted as appropriate
- ▲ Drugs should be supplied at cheaper costs so that providers can reduce costs
- ▲ Collaboration needed especially in acquiring drugs and other utilities
- ▲ Provision of upgrade courses since nursing aides aren't allowed to work in government hospitals.
- ▲ Palliative courses for management of terminally ill patients
- ▲ Private practitioners should be facilitated in terms of drugs, finances and human resources

- ▲ MOH should support private practitioners since they provide important services to the community
- ▲ There is need for regular monitoring of private facilities by MOH
- ▲ Private providers are always left out when it comes to seminars, workshops, refresher courses. This is especially so for rural-based providers and full-time private practitioners

5. Discussions, Policy Implications, and Conclusions

The results of the current survey show that the number of PHP facilities (2,154) recorded in the database is higher than either the estimated private non-for-profit facilities (600) or reported government facilities (1,885), accounting for about 46 percent of total health facilities (4,639). The high number of PHP facilities argues that these providers should be a close partner with the government. The geographic distribution of PHPs is skewed, with most concentrated in the Central Region (67 percent), and Kampala District alone accounting for 45 percent. This has implications for the potential to implement public-private partnerships, such as contracting to the private sector. Since there are numerous potential private sector partners in the Central Region but fewer in other areas of the country, partnerships may be limited to regions that have sufficient coverage by private health practitioners.

A number of facilities that were included on the registers from the councils could not be traced as some had closed, or changed premises/names or ownership. The different councils should explore means of making sure that their registers are regularly updated. There is also need for monitoring at the district level and feedback to the councils' registrars to make sure that the PHP facilities on their registers actually exist.

The majority (80 percent) of PHP facilities are singly owned, and many could be considered small-scale enterprises. To strengthen and expand the PHP sector, government or development partners could provide financial support such as bank loans or government grants. These PHP facilities would also benefit from business skills training programs, especially those tailored to PHP professionals such as those offered by the U.S. Agency for International Development-funded *PHRplus* and Commercial Market Strategies projects.

The study estimates the human resources employed in the PHP sector nationwide at 12,775, of which 9,547 are employed exclusively in PHP facilities. According to the MOH HSSP II report, March 2005, the estimated number of human resources employed within public and PNFP facilities is estimated at 30,000. This implies that PHP sector employees increase the total human resources for health in Uganda by 30 percent. It also indicates that the PHP sector may be more efficient. In terms of number of staff per facility, there are approximately six employees per facility in the PHP sector ($12,775/2,154$) compared to 12 in the public and PNFP sectors combined ($30,000/(1885+600)$). In comparison to the public sector, as reported by the MOH (2005b), there is a more inequitable geographic distribution of the health professionals in the PHP sector and an inappropriate skills mix with the majority of the higher cadre professionals (doctors, midwives) concentrated in the Central Region.

PHP facilities in Uganda currently offer a number of the services in the Minimum Health Care Package, but they tend to offer more curative than preventive services. For example, only 22 percent of the PHPs offer immunization services and only 16 percent offer community outreach. The exception is prevention of unplanned pregnancies. Family planning products are available at 82 percent of PHP facilities and family planning counseling at 75 percent. Antenatal care, while not as

widespread as family planning, is available in 55 percent of PHP facilities. More than 90 percent of the PHP facilities in all four regions offer malaria and STD treatment.

Maternity, adolescent reproductive health, and post-abortion care services are available at 40 percent of PHP facilities, but these averages mask substantial regional variation. Of PHP facilities in the Northern Region, for example, around 60 percent offer adolescent reproductive health and post-abortion care services but only 17 percent offer maternity services. In the Western Region, only 24 percent offer adolescent reproductive health services. Regions where priority service availability in PHP facilities is lower than the national average may indicate opportunities for targeted interventions that encourage delivery of specific services by PHP facilities.

Among HIV/AIDS services, a good proportion of the PHP facilities surveyed offer voluntary counseling (60 percent) and condom distribution (62 percent), whereas only 29 percent offer voluntary testing. Just 12 percent of PHP facilities provide PMTCT and only 2 percent offer ART services. Limited HIV/AIDS service availability in PHP facilities may reduce access, since studies have shown that patients prefer PHP providers for services requiring high levels of confidentiality such as HIV/AIDS (Walker et al., 2001). Therefore, there is a need to support expanded availability of HIV/AIDS services in PHP facilities.

PHP facilities are faced with various constraints such as lack of continuous training, lack of access to adequate finances, and lack of discounted drugs. The government and development partners should work together with PHPs to address these challenges. The draft Public Private Partnership in Health Policy will address some of these issues, but it is not yet approved or implemented.

This survey covered a proportion of the PHP facilities in the country (about 17 percent). Because the sampling strategy used ensured that the sample was representative of the PHP population, study findings can be extrapolated to the whole population of PHP facilities. However, there is still a need for comprehensive information on all PHP facilities in the country to implement improvements in regulation, health information systems, and quality assurance, and to facilitate donor or government efforts to leverage the PHP sector. This would not only provide more accurate documentation on PHPs, but also highlight specific opportunities and needs for public-private partnership.

The information provided by this study will contribute to decision making for public-private partnerships for health and encourage government and donor support to and collaboration with the private health sector in Uganda.

Previous information on the national health system did not portray the PHP health sector in terms of type of services provided and number and cadre of staff employed. This study provides this information and confirms the significant scope of the private for-profit health sector. However, this study is not able to answer all the necessary questions. It should be complemented by information on average numbers of patients and services provided to better estimate the volume of services delivered. This would be enhanced with more effort to improve the routine reporting by the PHP sector. Ideally, information gathered in the future will be incorporated into the PHP database to clarify the status of PHP facilities in Uganda and facilitate public-private partnership in health.

Annex A. Questionnaire for Inventory of Private For-Profit Health Facilities in Uganda

Introduction and purpose of the inventory

This inventory will collect information on private health facilities. It is being conducted through a collaborative effort of the Ministry of Health's Public Private Partnership for Health Desk, Uganda Private Medical Practitioners Association, Uganda Private Midwives Association, and the Partnership for Health Reformplus Project, which is a USAID-funded project that is working to strengthen cooperation between the public and private sectors in health. The inventory will be used to create a database of private health facilities. Information in the database will facilitate public private partnership because it will show where private facilities are located, what services they offer, and what capacity they have including human resources, infrastructure and equipment. This is a key strategy outlined in the Public Private Partnership for Health Policy. This information will be used to advocate for recognition of the private sector's contribution to delivering priority public health services and identify opportunities for support and partnership.

For any inquiries please contact Dr. Lennie Kyomuhangi on +256 41 235147 or +256 78 302625.

Thank you for your cooperation.

NOTES TO INTERVIEWER ONLY:

PRIOR TO THE INTERVIEW, REMEMBER TO:

1. EXPLAIN THE PURPOSE OF THE SURVEY
2. EXPLAIN CONFIDENTIALITY

AT THE END OF THE INTERVIEW

1. 1. ASK IF THERE ARE ANY QUESTIONS
2. 2. ASK IF THERE IS ANYONE ELSE THE INTERVIEWEE FEELS IT WOULD BE GOOD FOR US TO TALK WITH AND GET THE PERSON'S CONTACTS.

1. Unit Information

Name of Unit _____
Name of Owner _____
Location _____
Parish _____
Sub-County _____
District _____
Postal Address _____
Email _____
Telephone Number: Mobile _____
Landline _____
Hours of Operation: Weekdays _____
Weekends _____

2. Person Interviewed

Name of Interviewee _____
Position of Interviewee _____

3. Ownership of Facility

- a. Single _____ Partnership _____
- b. If single, what is the professional designation of the owner
 - a. Medical Doctor _____
 - b. Clinical Officer _____
 - c. Nurse _____
 - d. Midwife _____
 - e. Pharmacy/Pharmacy Assistant _____
 - f. Laboratory Personnel (technologist, lab asst) _____
 - g. Nursing Assistant _____
 - h. Other Health Profession _____
 - i. Businessman/Woman _____
 - j. Other Profession (please specify) _____
- c. If partnership, list number of partners according to the professional designations below
 - a. Medical Doctor _____
 - b. Clinical Officer _____
 - c. Nurse _____
 - d. Midwife _____
 - e. Pharmacy/Pharmacy Asst _____
 - f. Laboratory Personnel _____
 - g. Nursing Assistant _____
 - h. Other Health Professional _____
 - i. Businessman/Woman _____
 - j. Other Profession _____

4. Infrastructure and Equipment (tick all that apply)

Ambulance _____
 Cold Chain Equipment [Fridge] _____
 Microscope _____
 Ultrasound Machine _____
 CT Scan machine _____
 Sterilizer : Boiler _____ Autoclave _____
 ECG Machine _____
 X-Ray Machine _____
 Operating Theatre _____
 If yes above, please specify whether Minor _____ Major _____ Both _____
 Does the facility provide outpatient services? Yes _____ No _____
 Provides inpatient services, has admission beds? Yes _____ No _____
 No of rooms _____
 No of beds _____

5. Human Resource Capacity

Cadre	No.	Days (per wk)	Hrs (per day)	FACILITIES WORKED IN			
				Full-time	PHP/ PNFP	PHP/ PUB	PHP/ PHP
Visiting Consultants							
Doctor							
Dentist							
Pharmacist							
Pharmacist Tech/ Dispenser							
Radiologist							
Radiographer							
Nurses							
Midwives							
Counselors							
Nursing Aides							
Lab Technologist							
Lab Assistant							
Physiotherapist							
Records Assistant							

6. Services Offered

a. Facility-based Services (tick all that are functional)

Treatment of Malaria Yes _____ No _____
Treatment of STDs Yes _____ No _____
Treatment of Tuberculosis Yes _____ No _____
Integrated Management of Childhood Illness Yes _____ No _____
Family Planning Products Yes _____ No _____
Family Planning Counseling Yes _____ No _____
Antenatal Care Yes _____ No _____
Maternity Services Yes _____ No _____
Post-Abortion Care Yes _____ No _____
Adolescent Reproductive Health Services Yes _____ No _____
Immunization Yes _____ No _____
Dental Services Yes _____ No _____

b. Essential Support Services (tick all that are functional)

Laboratory Diagnosis _____
Anesthesia _____
X-Ray _____
Ultrasound _____
CT Scans _____
Ambulance Services _____
Other Support Services (please specify) _____

c. Community-based Services

This includes outreach, environmental health, health education and promotion, school health, epidemic and disaster preparedness and response, nutrition and interventions against diseases targeted for elimination or eradication (e.g. guinea worm, polio, leprosy)

Any community-based services Yes _____ No _____
Please specify _____

d. Availability of Drugs

Pethidine Yes _____ No _____
Ampicillin or other broad-spectrum antibiotic Yes _____ No _____
Panadol Yes _____ No _____

6 B. HIV/AIDS Services

a) Services Offered (tick all that apply)

Voluntary counseling _____
Voluntary testing _____
Condom distribution _____
Preventing mother-to-child transmission (PMTCT) _____

Social support/Post-test services for HIV+ & family _____
Home-based care for HIV/AIDS patients _____
Antiretroviral therapy (ART) _____
Other HIV services offered (Please specify) _____

Please give the charges for each of the services ticked above

If free HIV/AIDS services, does the facility get any financial assistance from the government/MOH, district office or any other NGO/donor? Please specify.

Does facility follow MOH guidelines for HIV service provision Yes _____ No _____
If not currently offering ART, are patients requesting ART Yes _____ No _____
If requesting for ARVs, patients are: (tick where applicable)
Willing to pay for them _____ Asking for free ARVs? _____

b) Technical and Resource Constraints Faced

Any facility personnel received training for ART provision? Yes _____ No _____
Have any facility personnel been trained to provide HIV/AIDS care? Yes _____ No _____
If yes, specify trainer (government, development partner or other) _____ -

Where do patients access HIV tests? _____
Where do patients on ART access monitoring tests (CD4 counts, viral load) etc? _____

Where are complicated HIV/AIDS cases referred?

c) Opportunities for Expanding and Improving Quality of Services delivered

Is the facility interested in expanding the HIV/AIDS services being provided?
Yes _____ No _____

Has the facility been accredited for the provision of ART services? Yes _____ No _____

Is the facility interested in being accredited by the MOH for ART services?
Yes _____ No _____

What areas of assistance/support or collaboration should be explored? (Outline please)

7. Patient Record Keeping (Tick all that applies)

Outpatient Register Yes _____ No _____
Inpatient Register: Yes _____ No _____
MOH HMIS forms Yes _____ No _____
Is HMIS data compiled? Yes _____ No _____
Is HMIS data submitted to DDHS? Yes _____ No _____

8. Financial Management (Please tick all that are used)

Financial record keeping Yes _____ No _____
Cash receipts Yes _____ No _____
Daily cash record book (income and expenditures) Yes _____ No _____
Bank account for facility Yes _____ No _____

9. Organization Affiliation

Which regulating body does the facility belong to?
The Uganda Medical and Dental Practitioners Council _____
The Allied Health Professionals Council _____
The Nurses and Midwives Council _____
Year of last renewal _____
To which other professional body is the facility affiliated:
Uganda Private Medical Practitioners Association (UPMPA) _____
Uganda Private Midwives Association (UPMA) _____
Uganda Medical Association (UMA) _____
Uganda Dental Association (UDA) _____
Uganda Nurses and Midwives Association (UNAMA) _____
Uganda Private Health Units Association (UPHUA) _____

THE END

COMMENTS:

THANK YOU

Annex B: Sampling Plan for the Selection of Health Facilities in Uganda

There are 2,154 facilities on the list of health facilities in Uganda. The list shows the district and the region in which each facility is located. We will use this list as the sampling frame for the selection of health facilities.

Sample Size

There are two approaches to determining the sample size. The first is based on the desired precision of the estimates from the survey. The second approach depends on the cost of collecting data from each facility and the total budget available for the survey.

We will determine the sample size based on assumed precision and then examine whether it is feasible to collect data from this sample size. If we assume that we are selecting simple random samples of facilities, and we want to estimate population percentages with a margin of error of plus or minus 5 percentage points, then we need a sample of 327 facilities from a population of 2,154 facilities. The following table shows samples sizes for different margins of error (half-width of a 95 percent confidence interval) of the sample percentage.

Table B-1: Sample Size for Estimating Population Percentage

Margin of Error	Sample Size (Number of Facilities) Under Simple Random Sampling
± 4 percentage points	470
± 5 percentage points	327
± 6 percentage points	238

If it is considered that the margin of error of plus or 5 percentage points is a reasonable precision for the sample percentage, then we can go with 327 facilities. Since the sample of facilities is not a simple random sample but is selected through a two-stage design with the selection of districts at the first stage and facilities at the second stage from the selected districts, there is a design effect. This means that we expect the sampling variance of the sample proportion to be larger than what we would get under simple random sampling. This is due to clustering of facilities within districts creating some kind of homogeneity with regard to facility characteristics of interest within each district. This increase in the variance is called design effect. But due to stratification of districts by regions, selecting certain large districts with certainty and selecting the remaining districts with probability proportional to the number of facilities may make the design more efficient than simple random sampling. Therefore, it is reasonable to assume that the design effect may not be large. We will assume a design effect of 1.1. Therefore, the increase in sample size is $327 \times 1.1 = 360$ facilities.

We will select 360 facilities if the budget permits data collection from this sample.

Sample Allocation and Selection

We first allocate this total sample to the regions in proportion to the number of facilities in the population in each region. The following table shows the number of districts and the number of facilities in each region and also the allocated sample size. The sample is allocated in proportion to the number of facilities in the region. The numbers given below are approximate and may not exactly agree with the tabulations from the list. But the discrepancies are minor.

Table B-2: Sample Allocation to Regions

Region	Number of Districts	Number of Facilities	Allocated Sample
North	9	174	29
East	14	201	34
West	15	314	52
Central	14	1,465	245
Total	52	2,154	360

In two of the regions, we will designate certain large districts as certainty districts in the sample. This means we include these districts in the sample with certainty. Based on the number of facilities, the following districts will be included in the sample with certainty.

Table B-3: Certainty Districts

Region	Certainty Districts
North	1 Lira
East	0
West	1 Mbarara
Central	4 Kampala, Wakiso, Mukono, Masaka

This means there will be 6 districts included in the sample with certainty. These districts account for 1,446 facilities out of 2,154. These 6 districts cover 67 percent of the total facilities in the population.

We select a sample of districts from the remaining non-certainty districts as follows.

Table B-4: Number of Non-Certainty Districts Selected

Region	Number in the Population	Proposed Number in the Sample
North	8	1
East	14	2
West	14	2
Central	10	1
Total	46	6

The non-certainty districts will be selected with probability proportional to the number of facilities in the district. For example, there are 201 facilities in the East region. We want to select 2 facilities. The probability of selecting Iganga is $2 \times 36 / 201 = 0.358$, whereas the probability of selecting a small district, say Kamuli, is $2 \times 5 / 201 = 0.0497$.

Similarly, in the Central region, we will be selecting one district out of the remaining districts after removing 4 certainty districts. For example, the probability of selecting Luwero is $26 / 160 = 0.1625$. There are only 160 facilities left in the population after the removal of 4 big districts in the Central region.

Allocation of the Sample of Facilities in Each Region to Selected Districts

In the Central region we have 4 certainty districts and one non-certainty district selected with probability proportional to size. Assume that we have Luweero selected. We need to select 245 facilities from this region. We allocate the sample to the selected districts in proportion to the number of facilities in the district.

Table B-5: Allocation of the Sample to Districts (Central)

District	Number of Facilities in the Population	Number in the Sample
Kampala	960	177
Wakiso	160	29
Mukono	106	20
Masaka	79	14
Luweero	26	5
Total	1331	245

The overall probability of selecting a facility in Kampala is the product of the probability of selecting Kampala and the probability of selecting a facility in Kampala given that Kampala was selected. Since Kampala is a certainty district, the probability of selecting Kampala is 1.0 and the probability of selecting a facility in Kampala is $177 / 960 = 0.1843$. The overall probability is 0.1843. Therefore the base sampling weight for a facility selected in Kampala is $1 / 0.1843 = 5.426$.

Selection of Facilities in Selected Districts

It is suggested that we select a systematic sample of facilities from the list in each district. The list can be sorted by some characteristics like size or ownership and then sample selected using systematic sampling. For example, in Kampala, every 5th or 6th facility is selected.

Selection of Districts in the Four Regions

The following table shows the districts selected in each region. It also shows the number of facilities to be selected from each district.

Table B-6: Distribution of the Sample by Districts**Region: North**

Districts Selected	Probability of Selection	Number of Facilities to be Selected in the Sample
Lira	1.0000	18
Gulu	0.3423	11
Total		29

Region: East

Districts Selected	Probability of Selection	Number of Facilities to be Selected in the Sample
Iganga	0.3582	17
Mbala	0.3582	17
Total		34

Region: West

Districts Selected	Probability of Selection	Number of Facilities to be Selected in the Sample
Mbarara	1.0000	29
Kabarole	0.3813	16
Ntungamo	0.1695	7
Total		52

Region: Central

Districts Selected	Probability of Selection	Number of Facilities to be Selected in the Sample
Kampala	1.0000	176
Wakiso	1.0000	30
Mukono	1.0000	19
Masaka	1.0000	14
Mpigi	0.2038	6
Total		245

Selection of Facilities in the Selected Districts

As indicated earlier, select a systematic sample of facilities from the list in each district.

Sort the list of facilities by ownership and size before sample selection.

For example, in Kampala, if we assume that there are 1,012 facilities and we want to select 176 facilities, the sampling interval for the selection using systematic sampling is $1012 / 176 = 5.75$

Every 5th or 6th facility on the list will get selected.

Annex C: References

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