

Formative Assessment on the Feasibility of an Integrated Biological and Behavioral Survey among Key and Vulnerable Populations in Bhutan

Implementing Agency

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Executive Summary

A) Background

Based on the UNAIDS estimates, Bhutan is low HIV prevalence country with an estimated HIV prevalence in 2012 of 0.2% among adult aged 15-45 years. The HIV prevalence among male and female aged between 15-24 was 0.1% for both sex. Furthermore, the 2013's Annual Health Bulletin of the Ministry of Health in Bhutan revealed an increase of HIV cases detected from 38 in 2000 to 297 in 2012. Most of these HIV infections (~90%) were attributed to unsafe sexual practices. The current national surveillance system for HIV relies on passive case reporting from HIV Testing and Counseling (HTC) services at Health Information Service Centers (HISC) and antenatal care (ANC) clinics. HIV and STI rates among key populations (KP) i.e., men who have sex with men (MSM), transgender women, female sex workers (FSW), and people who inject drug (PWID), are not available in Bhutan, yet. A study, which examined the records of clients from 2009-2012 in the HISC in Thimphu and Phuntsholing, revealed that out of 7,894 clients about one-third (38%) were recorded as general population and two-third (63%) as key population. Among clients registered as key population at the two HISC, 0.7% was found HIV positive, and 1.2% tested positive for active syphilis. Among FSW (N =107), partners of PLHIV (N =100), and other KPs (N=128 including MSM, transgender women, and PWID), the HIV rates were 1.9%, 11%, and 0.8%, respectively. Given this situation, the National AIDS Control Program (NACP) under the Department of Public Health (DoPH), Ministry of Health (MOH), has planned in the GFATM national grant, the development of an IBBS survey among key and vulnerable populations in order to assess HIV and STI prevalence, sexual risk behaviors and vulnerability to HIV infection, and the coverage of interventions among these populations. However, before embarking on the development of this IBBS survey, the NACP, UNDP Asia Pacific Regional Center and their UN partners in Bhutan agreed to conduct a formative assessment to assess the feasibility and acceptability to conduct this IBBS survey. This activity was supported under the Multi-Country South Asia Global Fund Program (MSA) Round 9 that covers seven countries including Bhutan.

B) Methods

A cross sectional design with qualitative and quantitative methods was used for this formative assessment that was aimed at informing the development of the IBBS survey among key populations, i.e., FSW, MSM, transgender women, Drug Users (DU), and PWID, and vulnerable populations (High-risk women—HRW, truck and taxi drivers, and uniformed services) in priority sites in Bhutan. The specific objectives of this formative assessment were to propose operational definition for each key/vulnerable population that will be used for the IBBS survey; assess the acceptability of the IBBS survey procedures (e.g., recruitment procedures, type of location for interview and sample collection, sample collection procedures, and incentives) for each key and vulnerable population; identify priority sites to conduct the IBBS survey in Bhutan; identify barriers and facilitators for conducting the IBBS survey among key/vulnerable populations; and identify the feasibility of conducting random

sampling survey and the logistic procedures needed for conducting high quality IBBS survey. Based on the discussions held during the preparatory visit of the formative assessment, the team identified four urban cities in Bhutan for conducting the formative assessment: Thimphu, Phuntsholing, SamdrupJongkhar, and Gelephu. These cities were selected as they are the most populated cities with the highest number of reported HIV cases, and as well as outreach activities reaching key and vulnerable populations were implemented. The formative assessment planned to involve different populations: national stakeholders, health care providers, HIV program implementers, gatekeepers (owners/managers of entertainment establishments), key informants (male patrons of entertainment establishments), and key populations i.e., MSM, transgender women, Dug Users (DU), PWID, and FSW, and vulnerable populations i.e., high-risk women working in entertainment establishments and high risk men such as uniformed services and taxi and truck drivers. The explored dimensions and domains and the methods used for data collection are summarized in the below table.

Procedures for Data Collection of the Formative Assessment

Dimension	Domain	Population	Method
Acceptability	Priority needs	<ul style="list-style-type: none"> ▪ Stakeholders ▪ Program Implementers ▪ Health Care Providers 	<ul style="list-style-type: none"> ▪ FGD and KII ▪ Literature review
	Willingness to participate in IBBS survey	<ul style="list-style-type: none"> ▪ Key and vulnerable populations 	<ul style="list-style-type: none"> ▪ FGD and IDI
	Procedures of the IBBS	<ul style="list-style-type: none"> ▪ Key and vulnerable populations ▪ Peer Outreach Workers 	<ul style="list-style-type: none"> ▪ FGD and IDI ▪ Intercept survey
Feasibility	Sampling key and vulnerable populations	<ul style="list-style-type: none"> ▪ Key and vulnerable populations ▪ Gatekeepers ▪ Key Informants 	<ul style="list-style-type: none"> ▪ Program data review ▪ Literature review ▪ Intercept survey ▪ Mapping hotspots
	Availability of services	<ul style="list-style-type: none"> ▪ Stakeholders ▪ Program Implementers ▪ Health Care Providers 	<ul style="list-style-type: none"> ▪ Program data review ▪ Intercept survey ▪ FGD and KII
	Implementation of IBBS	<ul style="list-style-type: none"> ▪ Stakeholders ▪ Program Implementers ▪ Health Care Providers 	<ul style="list-style-type: none"> ▪ FGD and KII ▪ Program data review

FGD: Focus Group Discussion – KII: Key Informant Interview – IDI: In-depth Interview

The protocol, including tools and consent forms, was submitted to and approved by the Research Ethics Board of Health of Ministry of Health, Thimphu, Bhutan. All participants enrolled in the formative assessment were aged 18 or older. Prior starting any interview (KII or IDI) or discussion (FGD), informed consent was administered to all the participants.

C) Findings

➤ *Overview data collection*

Data were collected in 4 sites from 03 September to 08 November 2014. An average of 5 days per site was needed for the team to collect data. A total of five stakeholders, six program implementers, and three health care providers were interviewed in Thimphu. Across the four sites, 12 gatekeepers, 6 male patrons of entertainment establishments and 7 peer outreach workers accepted to contribute to the formative assessment. Pertaining to key populations, any eligible participant approached was proposed to participate to a FGD or IDI, and to the intercept survey. A total of 114 respondents were involved in the formative assessment: two MSM, six transgender women, 26 FSW, 79 DU, and 1 PWID (male). Out of 79 DU, 16 (20.3%) were female DU. Vulnerable populations were easier to contact and recruit compared to key populations. A total of 361 respondents from vulnerable populations were involved in the formative assessment: 151 HRW, 81 truck drivers, 73 taxi drivers, 56 uniformed services. Among taxi drivers interviewed, 3 (4.1%) were female respondents.

➤ *Acceptability*

Priority needs for the National Program: Stakeholders, program implementers and health care providers (the participantsⁱ) were in agreement with the need of IBBS survey among key and vulnerable populations in Bhutan. While they acknowledged that Bhutan is still classified as a low HIV prevalence country, the majority of them underscored critical gaps in data to understand the magnitude and the trends of the HIV/AIDS epidemic among these populations. They expressed a feeling of working blind and could not anticipate the real magnitude and dynamic of the HIV epidemic and the results or the effects of the interventions currently implemented in Bhutan. They were also in agreement on the pressing needs of developing an IBBS survey among key and vulnerable populations in Bhutan as the findings would help in strengthening the national program.

The most cited priority population during the discussions was HRW i.e., women working and frequenting entertainment establishments. Based on anecdotes from informal discussions between some of the participants and these women and empirical evidence from previous surveys in Bhutan, there are a substantial number of them engaged in transactional. Some of them mentioned that it would be also crucial to consider underage girls working or frequenting these establishments (about 15-18 years old girls), despite existing national laws prohibiting young under the age of 18 working and frequenting these establishments. Drug users, including young male and female, were also recognized as a priority group for the IBBS survey since drug use is very often associated with impaired decision-making and risk taking, particularly for young people. However, there were some questions about the existence of sizeable network of PWID in the country. The discussion on the priority of including MSM and transgender women in the IBBS survey remained limited. Most of the participants, except those who expressed a denial about the existence of these populations in Bhutan, expressed their concerns in terms of

ⁱ In this section, the term “participants” encompasses stakeholders and program implementers, unless otherwise stated

reaching these populations. While they acknowledged the relevance of including these populations in the IBBS survey, they tended focusing their discussion on the feasibility of identifying enough participants for the survey given the fact that rigorous sampling methodology would be required for the IBBS.

The majority of the participants spontaneously mentioned urban cities bordering the frontier with India (Phuntsholing, SamdrupJongkhar, and Gelephu) and the capital of Thimphu as priority sites to implement the IBBS survey because key and vulnerable populations would be more likely concentrated in these areas and because of the porous border with India allowing “uncontrolled” migration flows with a potentially significant presence of networks sex workers and drug users. The participants also stressed out, these sites are where the interventions supported by the GFATM are currently implemented including the establishment of DIC and HISC in some of these districts.

The main challenge mentioned by the participants was the feasibility of capturing a sizeable sample size of each key population such as MSM, transgender women, FSW, and PWID. This issue was repeatedly mentioned across all the topics discussed with the participants and seemed to be their major concern for the implementation of the IBBS survey.

Willingness to participate to the IBBS survey: Some clarifications were given on the purpose and procedures of the IBBS survey before exploring their acceptability in participating in the IBBS. Unanimously, the participants reported a high level of trust in the MoH and health professionals and consequently their willingness in participating in the IBBS survey. Other benefits mentioned by the participants were the access to health services including HTC services and as well as STI checkups for the participants, implying the need to include STI screening (syphilis and other STIs such as Chlamydia and gonorrhea) in IBBS survey, the development of targeted HIV interventions, and the promotion of research in the country. However, participants also shared their concerns about the risk of breach of confidentiality by the study team if the interviewers were not health care providers. DU also conveyed their concerns of being screened for drug during the specimen collection of the IBBS survey, as it is not an uncommon practice in Bhutan when the police authorities catch DU since drug use is illegal in Bhutan.

Procedures of IBBS survey: With regard to the interview, the majority of the participants were in favor of having a health care provider, gender matched, as an interviewer due to the sensitivity of the questions asked during data collection of the IBBS. They expressed a high level of comfort, truthfulness, and confidence towards health care providers compared to non-health workers. Face-to face interview was preferred compared to CASI. The main reason reported is their lack of computer skills and consequently their uncertainty in using correctly any ICT devices to answer correctly to the questions.

Pertaining specimen collection, the majority of the participants were also in favor of having a health care provider (gender matched) for the swab collection as they reported to be more confident in having a trained person to execute the procedure versus a self-collection. This was also true for the transgender women and MSM, although only few of them participated to these interviews, when talking about anal swab collection. Participants also expressed a strong preference for phlebotomy (venous blood draw) versus finger prick procedure, as the latter was perceived as more painful. When talking about oral-fluid test for HIV and syphilis testing, they

were more dubitative, as they did not understand how it could be possible to test the “saliva” for detecting HIV or STI. They perceived this method as unreliable.

For the site of data and specimen collection, Participants from key populations and HRW were more likely to mention HISC and hospitals to organize the site for the interview and specimen collection. In contrast, HRM (uniformed services and taxi and truck drivers), tended to favor data and specimen collection on-site (e.g., taxi and truck stands for drivers, and military or police units for uniformed services). The main reasons mentioned were the convenience of having the services coming on-site i.e., no need to go to other places (and pay for the transportation) or to request the authorization of authorities for the uniformed services, but also their time constraints due to their work.

When asking questions about the need of providing incentives to compensate their time to the IBBS survey and to support the cost of the transportation, all participants unanimously agreed that it would not be necessary and they perceived that the IBBS survey would already give them some substantial personal benefits. Although monetary incentives were not perceived as a requirement for them, they suggested that some drinks (tea and water) should be available on-site and, if possible, additional health services could be organized to replace the incentives (e.g., general health check on site for all the participants or hearing and vision tests for taxi and truck drivers)

➤ **Feasibility**

Sampling key and vulnerable populations: Over the last decade, several behavioral and social studies were conducted in Bhutan. These studies confirmed the existence of networks or group of different key and vulnerable populations in Bhutan and revealed a high level of vulnerability for HIV and STI infection for these populations. However, most of these studies also underscored the difficulty of recruiting key populations, particularly MSM, transgender women and PWID. In order to assess the feasibility of sampling key and vulnerable populations for the IBBS survey, the team considered key factors influencing the choice between sampling approaches commonly used for key and vulnerable populations, such as the multiple stage and the Respondent Driven Sampling (RDS) approaches. These factors were mainly assessed during the mapping and the intercept survey and included: possibility to reach the concerned population, existence of sampling frame, existence of population size estimation, existence of peer networks, and willingness to refer peer friends for the survey. The below table summarizes the conclusion for sampling key and vulnerable populations for the IBBS survey in Bhutan.

Possible Sampling Approach for Key and Vulnerable Populations

Populations	Accessible and sizeable population	Existing sampling unit/frame	Existing population size estimation	Possibility of using chain-referral sampling	Options for sampling approach
MSM	No	No	No	N/A	No options
Transgender	No	No	No	N/A	No options
FSW	No	No	No	Yes	No options*
DU	Yes, in Thimphu and Gelephu	No	No	Yes	RDS
PWID	No	No	No	N/A	No options†
HRW	Yes in Thimphu and Phuntsholing	Entertainment establishments	No	Yes	RDS‡
Truck Drivers	Yes, except in Gelephu. Limited number in other cities§	Number of truck stands limited	No	Yes	RDS
Taxi Drivers	Yes, only in Thimphu and Phuntsholing but limited number§	Number of taxi stands limited	No	Yes	RDS
RBA	Yes in four cities**	Military camps/units	Yes but authorization would be needed	Yes, but not convenient for military personnel	Multi-Stage Sampling using PPS†† at first stage
RBP	Yes in Thimphu and Gelephu. Limited number in	Police stations/units§	Yes but authorization would be needed	Yes, but not convenient for police personnel	Multi-Stage Sampling using PPS†† at first stage

* Using HRW as proxy for FSWs and broaden operational definition of HRW to include FSW

† Broaden operational definition of DU to include PWID

‡ Multiple stage sampling could be also consider but may be difficult to plan/organize, particularly the second stage, due to the different types of hotspots, opening time, and availability of HRW. If used, a new mapping exercise should be conducted prior to the implementation of IBBS survey

§ Recommended to combine truck and taxi drivers together. Maybe be difficult to reach 300 or more for each population

** Review population size prior to design the survey

†† PPS: Probability Proportional to Size

Availability of services: Prevention interventions targeting key and vulnerable populations in the four cities surveyed are implemented under the Transitional Funding Mechanism (TFM) of the GFATM. However, these interventions are rather

new and technical assistance to strengthen these interventions is not provided consistently. The most reached populations by the national program are the uniformed services (RBA and RBP), DU, taxi and truck drivers, and HRW/FSW. However, the coverage of interventions reaching MSM and transgender women is extremely low and there is no available data related to PWID. The program data clearly indicates that the number of vulnerable populations reached through the interventions is much higher compared to key populations. However, the interventions reaching vulnerable populations described by the program implementers interviewed during the formative assessment, remains too conventional. Peer Outreach Workers (POW) interviewed shared their difficulty in reaching key populations particularly MSM, transgender women and PWID. They felt that the easier people to reach are DU and HRW, particularly in Thimphu and Phuntsholing. They also expressed the challenge in gaining trust and establishing a relationship with their peers.

HCT services are available in clinical services in the 4 sites surveyed such as hospitals, Basic Health Units (BHU—similar to health center) and antenatal clinics. HISC are now available in four cities targeted by the assessment. These latter centers are particularly dedicated to key populations and aimed at increasing uptake of HTC services by offering friendly services in a safe environment. HTC services are not available at drop-in centers except when there is a mobile team providing these services (not on regular basis). Routine tests (free of charge) include HIV, syphilis (TPHA and RPR for titer), and hepatitis B. Blood draw for the routine tests is done through phlebotomy (venous blood) procedure only. Clients who are tested with active syphilis and/or reporting STI symptoms (syndromic approach) are referred to hospital for further investigations and treatment. Referral system for clients to hospitals is well established and functioning, as well as for specimen referral from clinical services and HISC to National Public Health Laboratory.

The National Public Health Laboratory at the National Referral Hospital based in Thimphu provides the confirmatory HIV tests for all the HTC services nationwide. Specimens are shipped on regular basis (postal services). It takes an average of 5-7 days for a confirmation of HIV test. PCR for HIV viral load, HIV Genotype and HIV genotypic drug resistance are not available in Bhutan. Gram stain smear is used in the diagnosis of Chlamydia trachomatis and Neisseria gonorrhoea for female population only. Specimens are merely collected and tested at the national public health laboratory. There is a functioning machine for PCR at the laboratory but reagents for testing chlamydia and gonorrhoea and assays are not available. The laboratory technician also identified the need of technical assistance if chlamydia and gonorrhoea are tested through PCR for the respondents of the IBBS survey.

The Care and Treatment unit is based in Thimphu. All people tested HIV positive are registered by this unit. Free antiretroviral treatment is provided to the PLHIV living in Thimphu. For those living outside Thimphu, the Care and Treatment unit ships the treatment to the nearest health facility where the PLHIV live. It could be hospital or BHU. The MoH/NACP is currently reviewing the national guidelines for HIV testing and treatment that will also include new ARV regimens following the WHO recommendations.

Implementation of the IBBS survey: The findings of this section were identified through the analysis of discussions (FGD and KII) with stakeholders, program implementers, and health care providers and combined with the inputs of the

participants who attended the national consultation to discuss the preliminary findings of the formative assessment.

The MoH/NACP was mentioned by the majority of the participants as the leading agency for the implementation of the IBBS. However, concerns related to the in-house technical capacity and human resources were also raised. The following technical areas for technical assistance were identified: i) design of the IBBS (sampling methodology and sample size requirements), and protocol development; ii) development of curriculum and building the capacity (training and mentoring) of the IBBS field team (supervisors, data collectors, data entry clerks, counselors), and laboratory technicians; iii) monitoring the implementation of the IBBS; and iv) analyzing data and reporting. In terms of human resources, most of the participants suggested recruiting a national consultant that could i) help the coordination between the selected external agencies or the international consultant(s) and other key partners that will be involved in the implementation of the IBBS, and the NACP; and ii) manage the supervisors and field team of the IBBS survey

With regard to technical assistance for the implementation of the IBBS, most of the participants suggested selecting an international agency (either an INGO, an institution such as an university, or a consulting firm) to provide technical assistance to the NACP for the development of the IBBS.

Since the IBBS survey will involve data collection involving human participants, the protocol and tools of the IBBS should be submitted for a full review to the Research Ethics Board of Health (REHB) for ethical clearance to ensure the safety, rights, dignity and well-being of the participants and, as well as, those of the investigators.

D) Conclusions and Recommendations for the IBBS Survey

The formative assessment provided essential information in terms of acceptability and feasibility for the implementation of an IBBS survey among key and vulnerable populations in Bhutan, particularly in obtaining preliminary insight for the design of the IBBS survey, and in starting to gain the support of these populations for the development of the IBBS survey.

The formative assessment highlighted a high level of acceptability among stakeholders and key and vulnerable populations for the implementation of IBBS survey but also underscored critical issues for its feasibility particularly for reaching and sampling key populations. The implementation of IBBS among key populations, except for drug users, is too premature as there are no established networks for these populations hampering the feasibility of capturing a substantial number of individuals of each concerned key populations for sampling this population and obtaining unbiased estimates. However, there is a potential to implement the IBBS among vulnerable populations, who may be connected to interlinked sexual networks with key populations, and obtain relevant information to start strengthening the HIV and STI surveillance system and the national HIV program.

The MoH// NACP was also identified as the leading agency for the development of the IBBS survey in Bhutan. However, lack of in-house technical capacity and human resources should be also taken into consideration. It has been recommended that contracting an international agency (INGO or university) or a consulting firm with experience in implementing IBBS among key and vulnerable populations and with in-house expertise, would be the best option to provide technical assistance for the development of the IBBS. Furthermore, UNAIDS and

WHO could be also involved in the provision of technical assistance to the development of the IBBS but also to strengthen the national surveillance system in Bhutan.

➤ **Recommendations for the IBBS Survey**

Operational definitions: Operational definitions developed for this formative assessmentⁱⁱ were relevant. However, for the IBBS it may be recommended to adapt the operational definition for HRW to include “reporting commercial sex” to be able to capture identified independent individuals and networks of FSW. Similarly, the definition of DU should be adapted to include PWID, even though only few of them will be able to be reached and enrolled in the IBBS.

Populations and sites: Because of the cost of the IBBS and the possible limited budget allocated for the IBBS, the priority populations and sites to include in the IBBS would be HRW (as a proxy for sex workers, as well) and DU in Thimphu and Phuntsholing. If further funding could be allocated for the IBBS, other vulnerable populations such as unformed services and taxi and trucker drivers (combined) could be added in priority in Thimphu and Phuntsholing. Another possibility will be to plan IBBS among DU and HRW in these two priorities cities and only behavioral survey among HRM. Pertaining DU and HRW, it would be also crucial to also include underage participants (aged 16 or older) as it has been also reported young people for these populations.

Sampling approach: Since HRW, DU, and truck and taxi drivers reported quite large social networks and strong ties within these networks of peers, the RDS may be suitable for sampling these populations. For HRW, it is recommended to select seeds among HRW working in entertainment establishments but also among independent FSW groups and networks. Although uniformed services reported strong ties within their social network, the RDS may not be the most appropriate sampling approach for the IBBS. It is recommended to use a multi-stage sampling procedure using PPS for the first stage (selection of primary sampling units). Because of the difficulty of accessing data related to uniformed services either in terms of population size and number of police and military units it will be crucial to work closely with the NACP to obtain the data early in the process of the preparation of the IBBS. If the access of the data needed for the sampling approach is limited (information classified) the investigators will have the possibility to train a military and police focal point who could help in developing the sampling frame and the selection of the PSU. A formative assessment, including mapping, should be conducted prior to design the IBBS survey in order to identify seeds for the RDS and developing sampling frame if multiple stage sampling approach is considered. Since the situation is changing rapidly, the current data collected through this formative assessment may not be valid anymore at the time of the design of the IBBS.

Specimen collection: HIV and syphilis should be assessed in priority through the IBBS survey. Among key and vulnerable populations, there was a high-level of acceptability towards blood draw through phlebotomy compared to finger prick procedure, and a lack of trust in the oral-fluid test. PCR for Chlamydia and gonorrhoea could be considered if the budget allows it. In this case, the cost of reagents and essays and the capacity building of laboratory technicians need to be added in the budget. Key and vulnerable populations also expressed their desire of

ⁱⁱ See section 2.4.5

having health care providers to perform specimen collection including swab collection as opposed to swab self-collection.

Questionnaire: Face-to-face interview by health care providers was the preferred approach mentioned by key and vulnerable populations as opposed to CASI due to their low computer literacy reported through the intercept survey and their fear in being not able to use ICT devices. Because the lack of knowledge and understanding of sexual networks among key and vulnerable populations in Bhutan, it would be crucial that the questionnaires for any male populations (DU, taxi and truck drivers, and uniformed services) also include a set of questions related to same-sex behaviours (ever, past 12 months, anal sex in past 12 months, number of male partners, condom use at last anal sex). Furthermore, all the questionnaires (for any male and female populations surveyed) should also include a set of questions related to drug, including injecting drugs, and alcohol use, and exposure to current interventions implemented by the NACP and other partners, including HIV testing (ever and past 12 months, and place for the last HIV test). It is also recommended that for questionnaires for female populations to add questions related to anal sex practices (ever and past 12 months), and history of pregnancy and abortion.

Place for data collection: If RDS is used, hospital and HISC (available in 4 cities surveyed) are considered to set up the site for data collection. The team of investigators should ensure that these sites have enough space for the registration and waiting space and include separate rooms (with doors) for interview and specimen collection to respect the privacy of the participants. Pertaining, multi-stage sampling (recommended for uniformed services only), site for data collection could be identified in the military and police premises but the team should ensure that the privacy of the participants could be respected in the space provided by the military and police authorities.

Incentives: Participants interviewed during the formative assessment seemed to prefer extra-services (pap smear test for HRW and hearing and vision tests for taxi and trucks drivers) rather than monetary incentives to compensate their time for their participation to the IBBS survey and to support the cost for transportation to access the site for data collection. NACP should assess the possibility of adding these extra-services for the participants of the IBBS survey before initiating the bidding process for the selection of the international agency or consulting firm that will provide technical support for the implementation of the IBBS survey. It is noteworthy that for RDS the provision of incentives for successful referral is also a key component of the RDS design to increase recruitment. A combination of extra-services and incentives for RDS could be envisaged. For uniformed services personnel, non-monetary incentives (T-shirt or top-up card for mobile phone) could be considered.

Ethical considerations: As mentioned earlier, the protocol and the tools for the IBBS should be submitted for a full review to the Research Ethics Board of Health. Since it is also expected to include underage respondents for DU and HRW and that parental or guardian consent may not be possible to obtain for these populations, the submission should also include a waiver for enrolling young DU and HRW. Furthermore, in order to protect the respondents of the IBBS, who may be engaged in illegal behaviors, it would be also relevant to request a waiver for all populations included in the IBBS to use a verbal versus written informed consent that is requested by the REHB for key and vulnerable populations enrolled in any research. For both waivers, a clear justification would be needed.

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List of Abbreviations

AIDS	Acquired Immunodeficiency Syndrome
CASI	Computer-Assisted Self-Interview
CSO	Civil Society Organization
CST	Care, Support, and Treatment
DoPH	Department of Public Health
DU	Drug User
FGD	Focus Group Discussion
FSW	Female Sex Workers
GO	Governmental Organization
GFATM	Global Fund to Fight AIDS, TB and Malaria
HISC	Health Information Services Center
HIV	Human Immunodeficiency Virus
HRM	High-Risk Men
HRW	High Risk Women
HTC	HIV Testing and Counseling
INGO	International Non-Governmental Organization
ICT	Information and Communications Technologies
IDI	In-Depth Interview
IRB	Institutional Review Board
KII	Key Informant Interview
KP	Key Populations
MSM	Men who have Sex with Men
NACP	National AIDS Control Programme
NGO	Non-Governmental Organization
PLHIV	People Living with HIV
POW	Peer Outreach Worker
PWID	People Who Inject Drug
RDS	Respondent-Driven Sampling
RBA	Royal Bhutan Army
RBP	Royal Bhutan Police
REBH	Research Ethics Board of Health
RENEW	Respect, Educate, Nurture and Empower Women
RSTA	Road Safety and Transport Authority
STI	Sexually Transmitted Infections

UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Programme
UNODC	United Nations Office on Drugs and Crime
WHO	World Health Organization
YDF	Young Development Fund

1. Background & Rationale

Based on the UNAIDS estimates,¹ Bhutan is low HIV prevalence country with an estimated HIV prevalence in 2012 of 0.2% among adult aged 15-45 years. About 1,000 adults are living with HIV (~ 1,100 adults and children). The HIV prevalence among male and female aged between 15-24 was 0.1% for both sex. Furthermore, the 2013's Annual Health Bulletin of the Ministry of Health in Bhutan revealed an increase of HIV cases detected from 38 in 2000 to 297 in 2012. Most of these HIV infections (~90%) were attributed to unsafe sexual practices. STI rates among adults in Bhutan also remained low but were reported in an upward trend from 2010 to 2012: 10 per ten thousand in 2010, 12 per ten thousand in 2011, and 17 per ten thousand in 2012.²

The current national surveillance system for HIV relies on passive case reporting from HIV Testing and Counseling (HTC) services at Health Information Service Centers (HISC) and antenatal care (ANC) clinics. HIV and STI rates among key populations (KP) i.e., men who have sex with men (MSM), transgender women, female sex workers (FSW), and people who inject drug (PWID), are not available in Bhutan, yet. HTC services are generally included in general health services in Bhutan. However, in 2006 the Ministry of Health established two HISC, which also includes HCT services, in two largest cities in Bhutan (Thimphu and Phuntsholing). The development of these HISC was aimed at increasing uptake of HTC services among KPs by offering KP-friendly services in a safe environment. A recent published paper, which examined the records of clients from 2009-2012 in these two HISC, revealed that out of 7,894 clients about one-third (38%) were recorded as general population and two-third (63%) as key population.³ Among clients registered as key population at these two HISC, 0.7% was found HIV positive, and 1.2% tested positive for active syphilis. Among FSW (N =107), partners of PLHIV (N =100), and other KPs (N=128 including MSM, transgender women, and PWID), the HIV rates were 1.9%, 11%, and 0.8%, respectively.³ None of the clients of female sex workers (N =73) were tested HIV positive. However, active syphilis was found among 10.6% of FSW, 3.4% of clients of sex workers, and 1.3% of partner of PLHIV, whereas none of the other clients registered as key population were tested positive for syphilis. This study also highlighted that HIV and syphilis rates were significantly higher among clients of key populations who were tested at these two HISC, compared to clients of the general population.

Given this situation, the National AIDS Control Program (NACP) under the Department of Public Health (DoPH), Ministry of Health (MOH), has planned in the GFATM national grant, the development of an IBBS survey among key and vulnerable populations in order to assess HIV and STI prevalence, sexual risk behaviors and vulnerability to HIV infection, and the coverage of interventions among these populations. The findings will be also crucial to inform and monitor the development of targeted interventions^{4,5} for these populations in Bhutan. However, previous studies conducted among key and vulnerable populations in Bhutan⁶⁻¹¹ also identified critical obstacles to develop appropriate probability sampling approaches and obtain a proper sample size to make inferences about the populations studied. When surveying hard-to-reach populations for surveillance purpose, these challenges are not uncommon and are also crucial for quality surveillance. As described by Magnani and his

colleagues,¹² there are different, although limited, approaches that could be used for sampling these hard-to-reach or hidden populations. However, the determination of the approach for each population surveyed included the IBBS should also rely on formative research data to ensure an appropriate and relevant design for the population while remaining in line with the purpose and objectives of the IBBS survey.^{13,14}

Therefore, before embarking on the development of this IBBS survey, the NACP, UNDP Asia Pacific Regional Center and their UN partners in Bhutan agreed to conduct a formative assessment to assess the feasibility and acceptability to conduct this IBBS survey. This activity was supported under the Multi-Country South Asia Global Fund Program (MSA) Round 9 that covers seven countries including Bhutan.

2. Methods

2.1 Purpose and objectives

This formative assessment was aimed at informing the development of the IBBS survey among key populations, i.e., FSW, MSM, transgender women, Drug Users (DU), and PWID, and vulnerable populations (High-risk women—HRW, truck and taxi drivers, and uniformed services) in priority sites in Bhutan. The specific objectives of this formative assessment were:

- Propose operational definition for each key/vulnerable population that will be used for the IBBS survey
- Assess the acceptability of the IBBS survey procedures (e.g., recruitment procedures, type of location for interview and sample collection, sample collection procedures, and incentives) for each key and vulnerable population
- Identify priority sites to conduct the IBBS survey in Bhutan
- Identify barriers and facilitators for conducting the IBBS survey among key/vulnerable populations
- Identify the feasibility of conducting random sampling survey
- Identify logistic procedures needed for conducting high quality IBBS survey

2.2 Study design

A cross sectional design with qualitative and quantitative methods was used for this formative assessment.

2.3 Study sites

Based on the discussions held during the preparatory visit of the formative assessment, the team identified four urban cities in Bhutan for conducting the

formative assessment: Thimphu, Phuntsholing, SamdrupJongkhar, and Gelephu (Figure 1). These cities were selected as they are the most populated cities (classified as *Thrombe A* in Bhutan) with the highest number of reported HIV cases, and as well as outreach activities reaching key and vulnerable populations were implemented.

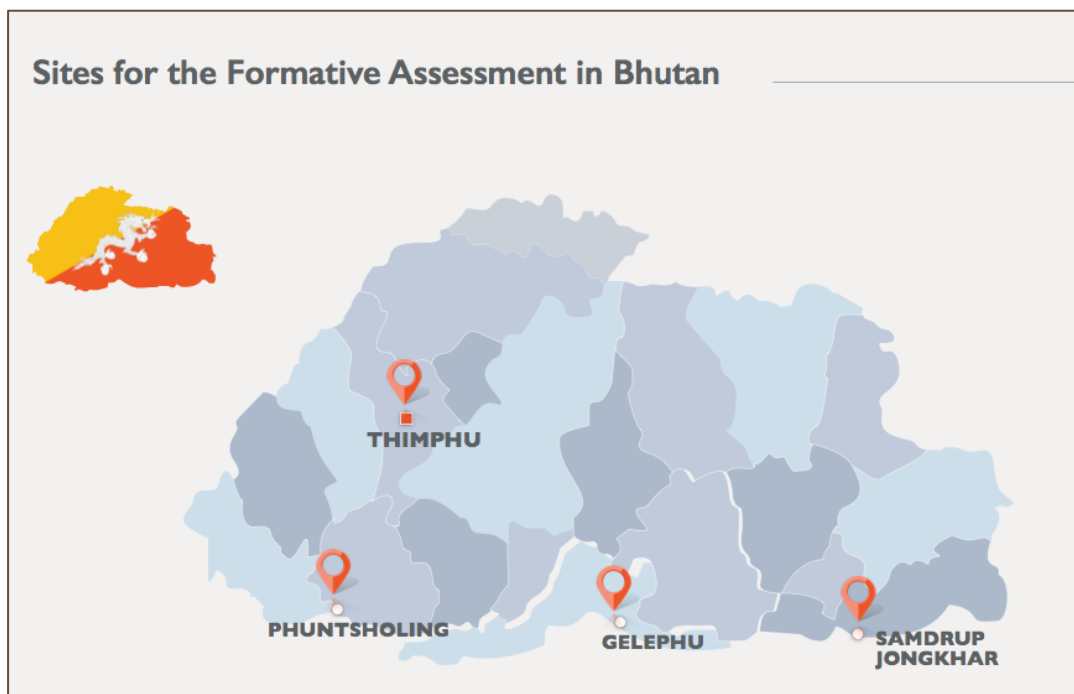


Figure 1: Selected Sites of the Formative Assessment

Although the exploration of other sites would be also interesting, as there may be variations in terms of behavioral risks and HIV and STI prevalence across the different districts (urban vs. rural areas) in Bhutan, the team decided to select only sites where HIV prevention interventions reaching key and vulnerable populations were implemented. Other districts were not considered because the team foresaw critical challenges for recruiting respondents.

2.4 Study populations

This formative assessment planned to involve different populations:

2.4.1 Stakeholders

Stakeholders based in Bhutan including representatives of the DoPH of the MoH, NACP, UNDP program manager (focal point on HIV/AIDS), University of Medical Sciences of Bhutan (UMSB), and the National Statistic Bureau (NSB) were involved in the formative assessment. Additionally, key stakeholders based abroad were also expected to be interviewed: UNAIDS Representative for Bhutan based in Kathmandu (Nepal); the GFATM Portfolio Manager for Bhutan based in Geneva (Switzerland); and the Policy Advisor and Strategic Information Advisor of UNDP APRC based in Bangkok (Thailand) to manage and monitor the implementation of the GFATM regional grant.

2.4.2 Health Care Providers

Counselors from HTC services in selected sites, and representative of Care and Treatment Unit and National Public Health Laboratory in Thimphu were also contacted and invited to participate to the formative assessment.

2.4.3 HIV Program Implementers

Representative or focal point of HIV program implementers:

- **Governmental Organizations (GO):** NACP, Community Health Program (HISC), the Care and treatment unit, and the Road Safety and Transport Authority (RSTA)
- **Armed forces:** Royal Bhutan Police (RBP) and Royal Bhutan Army (RBA)
- **Civil Society Organizations (CSO):** Lhaksam working with PLHIV, RENEW working with vulnerable girls and women, and YDF working with substance use people including drug users and PWID.

2.4.4 Gatekeepers and key informants

- **Owners or managers of entertainment establishments** (Bar, discos, Drayang,iii Hotels, etc.) identified as hotspots
- **Peer Outreach Workers (POW)** reaching key populations and other vulnerable populations for HIV prevention in selected sites
- **Male patrons of entertainment establishments** reporting more than 2 visits in the past three months in any entertainment establishments (identified as hotspots) in the city.

2.4.5 Key and vulnerable populations

For this formative assessment, Bhutanese key and vulnerable populations aged 18 years or over and living in their respective selected city for at least one year, were recruited for the formative assessment. The following operational definitions were used for the recruitment:

2.4.5.1 Key populations

- **Men who have sex with men (MSM)**

Bhutanese male, who reported anal or oral sex with another male in the past year, regardless their motivation(s), sexual orientation, and gender identity, was classified as MSM. However, those who identified themselves as “transgender” or “women” were defined as transgender women.

- **Transgender Women (male-to-female transgender)**

Bhutanese biological male who self-identified as a “transgender” or “woman”, and reported anal or oral sex with another male in the past year was classified as transgender woman. These transgender women may or not have

ⁱⁱⁱ Dance bars in Bhutan: women/girls are working in these establishments as waitress and singer. Men gather to drink and listening songs.

undergone a sex reassignment, breast augmentation, or facial implants, and may or not be dressed with women's clothes all the time

- ***Drug Users (DU)***

Bhutanese male or female who reported swallowing, snorting, or smoking illicit drug use in the past year was classified as a DU. Illicit drug use included the use of illegal drugs or the misuse of prescription medications or household substances for fun/pleasure or any other non-medical purpose. However, those who reported injecting illicit drugs either as the only route of drug administration or in combination with another route (swallowing, snorting, and smoking) were defined as people who inject drug.

- ***People who Inject Drug (PWID)***

Bhutanese male or female who reported injecting illicit drug use in past year was classified as PWID. Illicit drug use included the use of illegal drugs or the misuse of prescription medications for fun/pleasure or any other non-medical purpose.

- ***Female Sex Workers (FSWs)***

Bhutanese female who reported exchanging money or goods for sexual services in the past year was classified as FSW regardless the place of selling services and whether it was direct or indirect sex work.

2.4.5.2 Vulnerable Populations

- ***High-risk Women (HRW)***

Bhutanese female who work at identified hotspots and reported more than one casual sex partner in past 12 months was classified as HRW.

- ***High-risk Men (HRM)***

HRM in Bhutan have been already identified and surveyed in the behavioral survey in 2008,⁷ and includes armed forces (RBP and RBA) and taxi and truck drivers.

2.5 Conceptual Framework of the Formative Assessment

This formative assessment explored two key interlinked dimensions for the implementation of the IBBS survey among key and vulnerable populations in Bhutan: the **acceptability** and **feasibility**. As depicted in Figure 2, for each of these two dimensions, different domains and linked sub-domains were explored either through interviews with stakeholders, program implementers, and health care providers or with key and vulnerable populations.

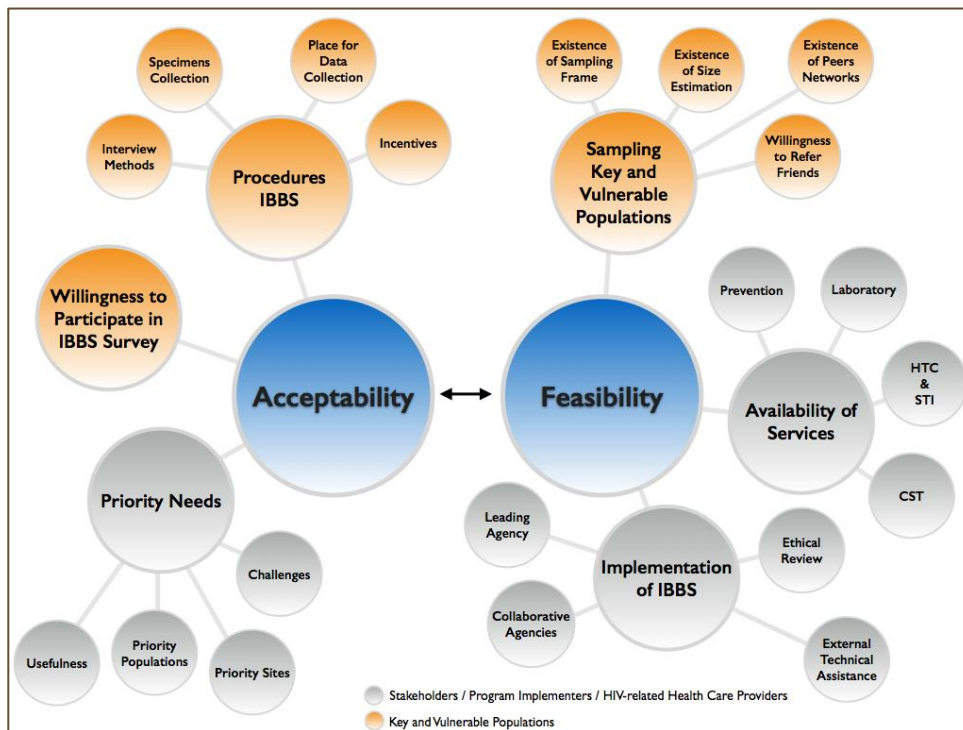


Figure 2: Conceptual Framework of the Formative Assessment

2.6 Data Collection

Based on the conceptual framework, different methods were used for collecting data (Table 1):

- Literature and program data review
- Qualitative data: focus group discussions (FGD), key informant interviews (KII), and in-depth interviews (IDI)
- Quantitative data: brief intercept survey
- Ethnographic mapping of hotspots and MSM-related social media
- Consultation on preliminary findings

2.6.1 Literature and program data review

This activity was aimed at documenting what is known about the characteristics and behaviors of key populations and other vulnerable populations; previous experience in involving these populations in study or research; program data particularly coverage of current interventions to gauge the magnitude of the networks for these populations and population size estimations; existence of HIV-related services; and the current cost of laboratory tests (HIV and other key STI test available in Bhutan)

Table 1: Procedures for Data Collection of the Formative Assessment

Dimension	Domain	Population	Method
Acceptability	Priority needs	<ul style="list-style-type: none"> ▪ Stakeholders ▪ Program Implementers ▪ Health Care Providers 	<ul style="list-style-type: none"> ▪ FGD and KII ▪ Literature review
	Willingness to participate in IBBS survey	<ul style="list-style-type: none"> ▪ Key and vulnerable populations 	<ul style="list-style-type: none"> ▪ FGD and IDI
	Procedures of the IBBS	<ul style="list-style-type: none"> ▪ Key and vulnerable populations ▪ Peer Outreach Workers 	<ul style="list-style-type: none"> ▪ FGD and IDI ▪ Intercept survey
Feasibility	Sampling key and vulnerable populations	<ul style="list-style-type: none"> ▪ Key and vulnerable populations ▪ Gatekeepers ▪ Key Informants 	<ul style="list-style-type: none"> ▪ Program data review ▪ Literature review ▪ Intercept survey ▪ Mapping hotspots
	Availability of services	<ul style="list-style-type: none"> ▪ Stakeholders ▪ Program Implementers ▪ Health Care Providers 	<ul style="list-style-type: none"> ▪ Program data review ▪ Intercept survey ▪ FGD and KII
	Implementation of IBBS	<ul style="list-style-type: none"> ▪ Stakeholders ▪ Program Implementers ▪ Health Care Providers 	<ul style="list-style-type: none"> ▪ FGD and KII ▪ Program data review

FGD: Focus Group Discussion – KII: Key Informant Interview – IDI: In-depth Interview

2.6.2 Qualitative data

Focus group discussions, in-depth interviews, and key informant interviews were conducted using topics guide and were tape-recorded. Interviews were semi-structured using open-ended probing questions and anecdotes to enhance the collection of the qualitative data.

2.6.3 Ethnographic mapping of hotspots and MSM-related social media

In order to identify physical venues (i.e., hotspots where key and vulnerable populations gather), and virtual channels (i.e., social media channel used by MSM in Bhutan for identifying sexual partners or also friends), and roughly gauge the number of key and vulnerable in these different venues and channels, the team conducted a mapping of these physical venues and virtual channels (only for MSM in Thimphu). The purpose was not to conduct a size estimation exercise but rather to identify hotspots and assessing whether these locations or channels could be used for the recruitment of participants for the IBBS through specific sampling approaches.

- Mapping and observation of hotspots: bars, *Drayangs*, discos, open public places (streets and parks); and truck and taxi stands
- MSM-related social media: *Grindr*, *Planet Romeo*, *Hornet*, *Manjam*, and *Jack'D*) assessed from Thimphu to identify people online and located within a 30-kilometer (18.6-mile) radius; and existing Facebook pages for LGBT in Bhutan

2.6.4 Quantitative data: Brief intercept survey

Using an opportunistic sampling approach, the brief intercept survey was aimed at gauging the number of key and other vulnerable populations that the survey team can reach during their fieldwork; describing briefly their socio-demographic characteristics (e.g., age, sex, key or vulnerable population); assessing the frequency of frequenting hotspots; assessing coverage to key HIV interventions; assessing level of computer skills for using computer-assisted self-interview (CASI) as a method for interview during the IBBS survey; and assessing the magnitude of their social networks. In any case, this brief intercept survey attempted to capture a representative sample of these populations.

2.6.5 Consultation on preliminary findings

The consultation on preliminary findings of the formative assessment was held in Thimphu with selected stakeholders, program implementers, and health care providers. This consultation was aimed at discussing the preliminary findings and identifying recommendations for the implementation of the IBBS survey among key and vulnerable populations in Bhutan. The recommendations validated through the consultation were included in the section “conclusions and recommendations” of this report.

2.7 Recruitment of participants and sample size

Stakeholders, program implementers and health care providers were invited through formal invitation issued by the NACP. The team aimed to recruit up to 14 stakeholders (10 based in Thimphu and 4 based abroad), 10 program implementers, and 12 health care providers. These respondents from Thimphu were also invited to the consultation for discussing the preliminary findings and identify the recommendations.

The recruitment of key and vulnerable populations for the IDIs or FGDs and the intercept survey was done through mix of chain-referral (snowball) and opportunistic sampling techniques.¹⁵ Given the sociocultural and legal context and the status of the current interventions reaching key and vulnerable populations in Bhutan, it was expected that the team would face some critical challenges to enroll a sizeable number of respondents from each key and vulnerable populations. Indeed, based on available program data, the number of people from key and vulnerable populations reached by prevention interventions is relatively low particularly for FSWs, MSM, transgender women, and PWID. Additionally, it was expected that some of the potential participants will refuse to gather in small group for participating to the FGD and the team had the possibility to propose to these participants a face-to-face interview (IDI). The team aimed to recruit up to 296 key and vulnerable populations in the 4

sites including 196 respondents for FGD/ID(and intercept survey and 100 respondents for intercept survey only.

Gatekeepers (owners/managers of entertainment establishments) and key informants (male patrons of entertainment establishments) were identified and recruited through opportunistic sampling during the mapping exercise. The team expected to recruit up to 30 gatekeepers and 40 key informants.

2.8 Formative assessment team and training

The formative assessment team included the following persons:

- A national Consultant: team leader and interviewer/facilitator
- An international consultant: interviewer/facilitator for the interview of stakeholders, health care providers and program implementers.
- Field Interviewers/facilitator and POWs: Three interviewers were selected from NACP and paired with POWs of program implementers (YDF, HISC, Lhaksam, and RENEW) in selected sites. The interviewers/facilitators traveled to the different selected sites for data collection, whereas POWs were recruited locally (3 per site) and assisted, in their respective city, the interviewers/facilitators for the recruitment of the respondents.
- A data entry clerk

All the members of the team attended a 3-day training course in Thimphu to review the procedures and tools of the formative assessment, and to practice interview and group facilitation skills. Furthermore, the participants were also sensitized on gender and sexuality and research ethics. The national and international consultants facilitated the training.

2.9 Data management and analysis

2.9.1 FGD, IDI and KII

All these interviews/discussions were tape-recorded and notes were taken by the interviewers/facilitator. Qualitative data were manually analyzed using thematic analysis methods based on the conceptual framework of the formative assessment

2.9.2 Intercept Survey

The data clerk used Microsoft Access to entry data. The dataset was then exported to STATA 11 software package^{iv} for data cleaning and management. Only a descriptive analysis of key variables was performed

2.9.3 Consultation

During the consultation, the preliminary findings of the formative assessment were presented and discussed. These inputs and recommendations from the stakeholders during the consultation were organized by explored domains and integrated in the final report (conclusions and recommendations section).

^{iv} StataCorp. 2009. *STATA Statistical Software: Release 11*. College Station, TX: StataCorp LP.

2.10 Ethical Considerations

The protocol, including tools and consent forms, was submitted to and approved by the Research Ethics Board of Health of Ministry of Health, Thimphu, Bhutan (appendix # 1)

All participants enrolled in the formative assessment were aged 18 or older. Prior starting any interview (KII or IDI) or discussion (FGD), informed consent was administered to all the participants. For illiterate key and vulnerable populations, gatekeepers and key informants, the informed consent included a witness to sign the inform consent form on behalf of the respondent. All interviews and discussions were anonymous i.e., no name or other identifiers were asked to the participants, and an identification number was attributed to each participant and recorded on the different tools used for the formative assessment.

3. Findings

3.1 Overview of the data collection in 4 sites

Data were collected in 4 sites from 03 September to 08 November 2014. An average of 5 days per site was needed for the team to collect data. Unfortunately, 7 out of 12 trained peer outreach workers (2 in Thimphu, 1 in Gelephu, 2 in Samdrup Jongkhar, and 2 in Phuntsholing) did not show up when the team arrived on the site and during the data collection leaving the interviewers team (travelling from Thimphu) without guidance to identify hotspots and recruiting key populations.

The data collection started with the interview of stakeholders, program implementers and health care providers based in Thimphu. The Table 2 shows the number of participants from these populations who were enrolled in the FGD or IDI. Only one stakeholder, who is based outside Bhutan, was interviewed via Skype.

Table 2: Stakeholders, Program Implementers and Health Care Providers Interviewed

Method	Participant	Thimphu	Abroad*	Total
FGD/IDI	Stakeholders	4	1	5
	Program Implementers	6	-	6
	Health care Providers	3	-	3

* Via Skype

Field data collection started in the beginning of October 2014. The Table 3 shows the number of gatekeepers (owners or managers of entertainment establishments), key informants (male patrons of entertainment establishments), and POWs interviewed during the formative assessment.

Table 3: Gatekeepers, Key Informants and Peer Outreach Workers Interviewed

Method	Participant	Thimphu	Phuntsholing	S/Jongkhar	Gelephu	Total
FGD/IDI	Gatekeepers	6	4	-	2	12
	Key Informants	3*	1*	-	2†	6
	POWs	3	2	1	1	7

* Male patrons of Drayangs - † Male patrons of hotels

Despite the absence of POW in some sites, the team managed to reach and enrolled a significant number of key and vulnerable populations. However, due to the lack of POW in the field, which also caused some logistics and planning issues for the data collection, the daily log form developed for the POWs to assess the number of people approached and enrolled in the formative assessment, was not used consistently during the data collection. Consequently, the refusal rate by population was not possible to assess.

Pertaining to key populations, any eligible participant approached was proposed to participate to a FGD or IDI, and to the intercept survey. A total of 114 respondents were involved in the formative assessment: 2 MSM, 6 transgender women, 26 FSW, 79 DU, and 1 PWID (male). All but three respondents (1 MSM, 1 FSW, and 1 PWID) participated to both the FGD/IDI and the intercept survey (Table 4). Out of 79 DU, 16 (20.3%) were female DU.

Table 4: Key Populations Interviewed

Method	Participant	Thimphu	Phuntsholing	S/Jongkhar	Gelephu	Total
FGD/IDI only*	MSM	1	-	-	-	1
	Transgender	1	-	-	-	1
	FSW	0	-	-	-	-
	DU	1	-	-	-	1
	PWID	-	-	-	-	-
FGD/IDI and Intercept Survey	MSM	1	-	-	-	1
	Transgender	5	-	-	-	5
	FSW	14	3	2	7	26
	DU	35	7	1	35	78
	PWID	-	-	-	1	1

* Participants who accepted the FGD/IDI and declined the intercept survey

A total of 361 respondents from vulnerable populations were involved in the formative assessment (Table 5).

Table 5: Vulnerable Populations Interviewed

Method	Participant	Thimphu	Phuntsholing	S/Jongkhar	Gelephu	Total
FGD/IDI and Intercept Survey	HRW	79	58	10	4	151
	Truck Driver	7	30	10	34	81
	Taxi Driver	18	25	4	26	73*
	RBA	-	7	6	8	21
	RBP	-	7	5	23	35

* Among 73 taxi drivers interviewed, 3 (4.1%) were female respondents

All respondents from vulnerable populations participated to FGD/IDI and the intercept survey. Due to logistic issues, the authorization for interviewing uniformed services (RBA and RBP) was not obtained on time particularly for Thimphu.

3.2 Acceptability

3.2.1 Priority Needs for the National Program

3.2.1.1 Usefulness of IBBS survey

Stakeholders, program implementers and health care providers (the participants^v) were in agreement with the need of IBBS survey among key and vulnerable populations in Bhutan. While they acknowledged that Bhutan is still classified as a low HIV prevalence country, the majority of them underscored critical gaps in data to understand the magnitude and the trends of the HIV/AIDS epidemic among these populations. A few participants mentioned that all discussions related to the HIV epidemic and the development of HIV interventions reaching key and vulnerable populations in Bhutan are based only on assumptions, but not supported by research and surveillance-based data. Only few surveys were done and included behavioral studies among key and vulnerable populations and a national survey to assess the HIV and AIDS awareness among general populations. Clearly, the majority of the participants expressed a feeling of working blind and could not anticipate the real magnitude and dynamic of the HIV epidemic and the results or the effects of the interventions currently implemented in Bhutan.

“ We still don’t know what are the populations affected by HIV in our country. We are only speculating on the dynamic of this epidemic and the national program is only based on these speculations”

Stakeholder in Thimphu

The majority of the participants were also in agreement on the pressing needs of developing an IBBS survey among key and vulnerable populations in Bhutan as the findings would help in strengthening the national program such as identifying priority populations and sites i.e., more targeted interventions; informing the development of the interventions i.e., identifying evidence-based interventions for priority populations to keep the country with low HIV prevalence; identifying capacity and technical assistance needs for medical and public health officers; enhancing forecasting and procurement planning for ARV drugs and HIV test essays; and improving the national surveillance system. Furthermore, as expressed by the participants, the findings of the IBBS would also be crucial for advocacy purpose with policy makers for supporting the development of new or amend current laws and policies to create an enabling environment and support the implementation of interventions reaching key and vulnerable populations, and with national and international stakeholders for resources mobilization to scale-up the program.

^v In this section, the term “participants” encompasses stakeholders and program implementers, unless otherwise stated

One of the participants also shared concerns about the willingness of the government and implementing agencies in accepting the findings of the IBBS survey. Indeed, the findings may reveal a certain level of HIV and STI prevalence that could reflect the failure of the interventions currently supported by the GFATM and also the existence of substantial key populations networks. Due to the existing high-level of denial and stigma surrounding key populations in Bhutan, the participant expressed uncertainties about these agencies in accepting and using the findings for further actions.

“The findings [of the IBBS survey] should be accepted by the Government of Bhutan and the implementing agencies working on HIV /AIDS prevention (...) If these findings showed failure of the program and the existence of key populations in our country, actions should be taken accordingly and findings should not be ignored”

Program Implementer in Thimphu

Among these participants another person had a weighted opinion towards the priority of implementing an IBBS survey in Bhutan. Acknowledging the needs of the IBBS survey to obtain a better understanding of the magnitude and dynamic of the HIV and STI epidemic and the level of HIV/STI risk behaviors among key and vulnerable populations in Bhutan, this person thought that the priority would be first to identify and define populations with high-risk behaviors through the support and the development of operational research (including quantitative and qualitative methods) among different segments of the populations, particularly among young male and female segments, working or gathering in identified hotspots and on the Internet. Lack of understanding and clear definition of the populations, which would be enrolled in the IBBS survey, could jeopardize the validity of the findings as the implementation of the IBBS survey requires rigorous methodology and a substantial sample size of each population surveyed. This participant also challenged the feasibility of implementing the IBBS survey taking in consideration the current achievement of the national program in reaching key and vulnerable populations. Most of the other participants interviewed raised this issue of feasibility, particularly the feasibility of enrolling through rigorous methodology key populations such as MSM, transgender women, FSW, and PWID for the IBBS survey. Undeniably, there was a common agreement that these populations are hard-to-reach populations for interventions because they tend to be isolated or organized in small groups rather than networks and it would be more challenging to reach and randomly enroll a sufficient number of respondents of these populations in any research including the IBBS survey.

“How would it be possible to reach and recruit these people either for prevention activities or for the study [the IBBS survey] since there are not organized in networks and any of the interventions currently implemented in Bhutan has focused in establishing these networks? (...) The priority is to establish first a network of peer educators who can step by step build and mobilize these networks. Then we can talk about the IBBS by using these peer educators to recruit their peers through their networks”

Program Implementer in Thimphu

Interestingly, only a few participants shared a more conservative opinion highlighting a certain level of denial towards the existence of key populations, particularly for MSM and transgender women, in Bhutan. They basically questioned the real presence of these populations, as their behaviors do not conform to the social and cultural norms and values of the country.

3.2.1.2 Priority populations

The most cited priority populations during the discussions was HRW i.e., women working and frequenting entertainment establishments. Based on anecdotes from informal discussions between some of the participants and these women and empirical evidence from previous surveys in Bhutan,^{vi} there are a substantial number of them engaged in transactional sex. Furthermore, due to their lack of knowledge and skills on HIV prevention including condom negotiation skills, to avoid or reduce high-risk behaviors for HIV and other STI infections, there is a high probability that these women engage in unsafe sex behaviors with their male clients. Few participants mentioned that it would be also crucial to consider underage girls working or frequenting these establishments (about 15-18 years old girls), despite existing national laws prohibiting young under the age of 18 working and frequenting these establishments.

Drug users, including young male and female, were also recognized as a priority group for the IBBS survey since drug use is very often associated with impaired decision-making and risk taking, particularly for young people. However, there were some questions about the existence of sizeable network of PWID in the country. A representative of an organization working directly with drug users confirmed that they were reaching only few PWID in their program in Bhutan corroborating findings of previous surveys mentioned earlier.

Due to their high mobility likely associated with high-risk behaviors, taxi and truck drivers and uniformed services (armed forces and police) were also mentioned as possible priority populations for the IBBS. One of the patients also mentioned that that they may also be appropriate key informants to identify networks of sex workers.

^{vi} As mentioned earlier, this population was also thoughtfully included in the previous behavioral survey in Bhutan (2006) as a proxy for female sex workers.

Apparently, the discussion on the priority of including MSM and transgender women in the IBBS survey remained limited. Most of the participants, except those who expressed a denial about the existence of these populations in Bhutan, expressed their concerns in terms of reaching these populations. While they acknowledged the relevance of including these populations in the IBBS survey, they tended focusing their discussion on the feasibility of identifying enough participants for the survey given the fact that rigorous sampling methodology would be required for the IBBS. They were unanimous in saying that these populations may prefer to remain 'invisible' due to the stigma surrounding male-to-male sexual behavior in Bhutan. A participant with experience in research shared her thoughts about the existence of relevant methodology for sampling these populations that can respond to the situation of MSM and transgender women in Bhutan. One participant also mentioned using prisoners as a proxy for MSM implying that male-to-male sexual behavior seems to be common in prisons in Bhutan. However, other participants were concerned that this population may not be representative of the MSM and transgender populations despite their behavior in close settings.

3.2.1.3 Priority sites

The majority of the participants spontaneously mentioned urban cities bordering the frontier with India (Phuntsholing, SamdrupJongkhar, and Gelephu) and the capital of Thimphu as priority sites to implement the IBBS survey because key and vulnerable populations would be more likely concentrated in these areas and because of the porous border with India allowing "uncontrolled" migration flows with a potentially significant presence of networks sex workers and drug users. The participants also stressed out, these sites are where the interventions supported by the GFATM are currently implemented including the establishment of DIC and HISC in some of these districts. Furthermore, these cities, which are classified as *Thrombe A*, represent the most populated sites in Bhutan and were also selected for this formative assessment. Some participants also mentioned cities where migrants are working on the construction of hydropower projects (e.g., Phunatshangchu Hydropower Project in Wandue Phodrang and Mandechu Hydropower Project in Trongsa Dzongkhag) as potential sites to target for recruiting migrants and networks of sex workers and drug users. Although there was a common agreement among the participants to support the fact that it could be also interesting to recruit key and vulnerable populations from rural areas to obtain a representative sample of each of the population surveyed in Bhutan, they thought that it could be too challenging to capture a sizeable sample of these populations since their networks or groups may be too small or not existing for some of these populations in these areas.

3.2.1.4 Challenges

The main challenge mentioned by the participants was the feasibility of capturing a sizeable sample size of each key population such as MSM, transgender women, FSW, and PWID. This issue was repeatedly mentioned across all the topics discussed with the participants and seemed to be their major concern for the implementation of the IBBS survey. Most of the participants tended to recommend focusing on the most visible populations i.e., vulnerable populations, for the IBBS survey rather than trying to "capture"

these invisible populations. After probing, it was obvious that for the majority of them it was not a problem of denial of existence of these key populations, although few of them did when discussing previous topics, but rather an issue of reaching and sampling these populations.

“Why investing money in groups that are not visible such as MSM or transgender women? Better involving those who are at risk such as the girls in the Drayang [entertainment establishment] and migrants ”

Program Implementer in Thimphu

The second challenge that came-up during the discussions was the limited in-country experience in implementing IBBS survey. Participants realized the complexity of such a survey (e.g., sampling key populations; developing the protocol; and analyzing data) and underscored the needs of technical assistance. While there are two key institutions involved in research in Bhutan—the Health Research Unit of the Ministry of Health and the National Statistic Bureau (autonomous agency)— none of them has been involved in any research with key populations.

Program implementers from uniformed services (RBA and RBP), who were interviewed separately through KII, also mentioned the potential issue of disseminating to the public the findings of the IBBS survey if high level of HIV and STI rates are found among these populations. They thought that it could be a challenge as it might be interpreted as a threat to the national security and depict a negative picture of the uniformed services in Bhutan. They recommended that the planning of the implementation and dissemination of the findings of the IBBS survey should be done in close collaboration with the armed and police force authorities and findings may be discussed with them prior to the dissemination to public. However, they agreed that the findings would be useful for them as they will be able to strengthen their HIV prevention activities.

Finally few participants shared their concerns about the endorsement of the findings of the IBBS survey by the MoH if these findings were not supporting the effectiveness either in term of coverage or change in risk behaviors, of the current interventions implemented by the NACP and other partners. Whatever the findings of the IBBS survey, they would like the MoH to share these findings with all partners and use these evidences to make decisions for programing and policy development or change.

3.2.2 Willingness to participate to the IBBS survey

Individuals of key and vulnerable populations had the choice to be interviewed either through in-depth interview or to participate to focus group discussions. The majority of the participants from key and vulnerable populations (the participants^{vii}) shared their experience related to their participation in previous researches particularly in the household survey. However, they were not able to

^{vii} In this section, the term “participants” encompasses participants of key or vulnerable populations for all sites, unless otherwise stated.

identify any benefits for participating in research study. After explaining the planned project of the MoH and NACP in conducting the IBBS among key and vulnerable populations in Bhutan, most of them admitted that they thought that HIV research was only conducted for PLHIV.

“HIV research I think is only done for the benefit of HIV people, I don’t see how it could benefit other population”

21 year old HRW in Thimphu

Some clarifications were given on the purpose and procedures of the IBBS survey before exploring their acceptability in participating in the IBBS. Unanimously, the participants reported a high level of trust in the MoH and health professionals and consequently their willingness in participating in the IBBS survey.

“If the ministry is doing the research then I am sure it will be for the benefit of the people and the country ”

34 year old taxi driver in Phuntsholing

Other benefits mentioned by the participants were the access to health services including HTC services and as well as STI checkups for participants, implying the need to include STI screening (syphilis and other STIs such as Chlamydia and gonorrhoea) in IBBS survey, the development of targeted HIV interventions (prevention, care and support, and treatment), and the promotion of research in the country.

However, about two-thirds of participants also shared their concerns about the risk of breach of confidentiality by the study team if the interviewers were not health care providers. As mentioned earlier, the participants expressed their trust towards the MoH and based on the discussions it seemed that they would be willing to participate to the IBBS and feel more confident if the interviewers were health care providers.

Another concern commonly mentioned by the participants was about the delay for further testing and receiving confirmation of the test(s) if found positive for HIV or any other STIs, and the cost of the treatment.

Interestingly, one-third of DU also conveyed their concerns about being tested during the IBBS due to fear of drug screening in urine as they have either experienced or heard about this screening done by the police authorities since drug use is illegal in Bhutan. They thought that the data (or specimen) could be also shared with the police and other authorities.

Truck and taxi drivers were more worried about the timing and the data collection site since they are not always in standby at the truck or taxi stand,

particularly for truck drivers and to a lesser extent for taxi drivers who need to travel to other cities or districts for several days.

HRW, working in entertainment establishments, recommended coordinating with the owner of the establishment prior to come to the site for the data collection as it may ease the logistic and help for the organization of the data collection for the IBBS survey in these establishments.

3.2.3. Procedures of IBBS survey

3.2.3.1 Interview methods

The participants were probed on their preference for the interview, including the venue, the characteristic of the interviewers, and the method used for the interview i.e., face-to-face or CASI. Examples of questions, including questions related to sexual behaviors, usually explored for IBBS survey were explained to the participants to enable them to gauge the level of sensitivity of the questionnaire and guide their choice for the interview methods.

The majority of the participants were in favor of having a health care provider, gender matched, as an interviewer due to the sensitivity of the questions asked during data collection of the IBBS. They expressed a high level of comfort, truthfulness, and confidence towards health care providers compared to non-health workers.

“With health worker we will provide honest answers because we don’t want to have problem with the diagnosis and moreover I think they are aware of causes and I don’t have to explain”

25 year old FSW in Phuntsholing

Face-to face interview was preferred compared to CASI. The main reason reported is their lack of computer skills and consequently their uncertainty in using correctly any ICT devices to answer correctly to the questions. This finding was consistent with the intercept survey where 90.8% of the respondents from key and vulnerable populations reported either none or basic computer skills (ranged from 77.6% among DU to 96.3% among truck drivers). They also suggested that the questionnaire should be short and simple i.e., no medical terminology used or if used it should be clearly explained by the interviewer, and that the interview should take place in a private room where privacy of the respondent could be respected. Only few of the participants proposed the option of self-administered questionnaire for the IBBS survey.

3.2.3.2 Specimen collection

Before exploring this topic, participants were explained the different tests commonly assessed under an IBBS survey (e.g., HIV, syphilis, hepatitis B, Chlamydia and Gonorrhoea) and also the different methods that could be used for specimen collection according to the test (e.g., blood or oral-fluid based for HIV and syphilis; vaginal swab and anal swab collected by health care provider or self-collect to assess Chlamydia an gonorrhoea among female and MSM and transgender participants, respectively, etc.)

All the participants were also in favor of having a health care provider (gender matched) for the swab collection as they reported to be more confident in having a trained person to execute the procedure versus a self-collection. This was also true for the transgender women and MSM, although only few of them participated to these interviews, when talking about anal swab collection. They also reported that self-collection for the swab may be uncomfortable and they also expressed their fear of mistake in the procedure that may have some consequences on the accuracy of the results of the test.

“Collecting specimen properly is important for the diagnosis so if I made mistake then that would give the wrong diagnosis. The only specimen I have collected myself is the urine and stool and that we can’t go wrong”

27 year old HRW in Phuntsholing

Participants also expressed a strong preference for phlebotomy (venous blood draw) versus finger prick procedure, as the latter was perceived as more painful. Some participants shared their experience in having blood collection through finger prick for blood group typing and they voiced the sensitivity and pain of having blood collected from finger prick procedure. When talking about oral-fluid test for HIV and syphilis testing, they were more dubitative, as they did not understand how it could be possible to test the “saliva” for detecting HIV or STI. They perceived this method as unreliable and again expressed their preference for the phlebotomy, as it would be also possible to test other STI or other parameters, if needed.

“With blood we will be more confident of the results and we will know for sure whether we have the disease or not. The mouth swab may get contaminated by “doma” [betel nut] and food”

28 year old HRW in Thimphu

For any specimen collection, they also suggested to have a private room (with a door) respecting the privacy of the participants, well ventilated, and with access on the site to bathrooms with water and toilet paper.

3.2.3.3 Site for the IBBS: data and specimen collection

For this topic, key and vulnerable populations had contrasting opinions for preference of the site for data and specimen collection. Participants from key populations and HRW were more likely to mention HISC and hospitals to organize the site for the interview and specimen collection. For the hospital, they suggested a dedicated space for the IBBS survey, with directional and way-findings signs to spot the facility. HISC and hospital, which are both available in the four sites surveyed, are centrally located and the participants thought that it would be more convenient for them to access these facilities. Since the HISC are dedicated for key populations, the participants from key populations felt that it could be a relevant location as they are familiar with the staff.

In contrast, HRM (uniformed services and taxi and truck drivers), tended to favor data and specimen collection on-site (e.g., taxi and truck stands for drivers, and military or police units for uniformed services). The main reasons mentioned were the convenience of having the services coming on-site i.e., no need to go to other places (and pay for the transportation) or to request the authorization of authorities for the uniformed services, but also their time constraints due to their work.

3.2.3.4 Incentives

When asking questions about the need of providing incentives to compensate their time to the IBBS survey and to support the cost of the transportation, all participants unanimously agreed that it would not be necessary and they perceived that the IBBS survey would already give them some substantial personal benefits in terms of health (having HIV and STI tested and receiving information about HIV/STI prevention) but also for the population at large as it would help to strengthen the national program for HIV and STI prevention. Although monetary incentives were not perceived as a requirement for them, they suggested that some drinks (tea and water) should be available on-site and, if possible, additional health services could be organized to replace the incentives:

- General health check on site for all the participants
- Female participants proposed the possibility of having a pap smear test during the specimen collection under the IBBS survey
- Trucker and taxi drivers proposed hearing and vision tests

3.2.3.5 Other issues observed/identified during the field visit

→ HRW and FSW

- Low level of knowledge on HIV/STI prevention was observed among HRW and FSW participating to the formative assessment. Most were not aware of the modes of HIV and STI transmission.
- Majority (three-fourths) of the girls working in Drayang were illiterate and about one-third were single mothers.
- Access to condoms in hotspots was limited and some owners of hotels, where some FSW were operating, were not willing to display condom box because of fear of being spotted by police and having their establishment closed.
- Low perceived risk of HIV/STI infection from unprotected sex with Bhutanese compared to non-Bhutanese men.
- Condom negotiation is not a common practice due to social stigma and lack of skills.

- Carrying condom by female is considered taboo. Majority of the female HRW and FSW participants do not carry due to perceived social stigma: “improper for a women to carry condom.”
- High level of concurrent multiple sexual partners were also reported during informal discussions with both HRW and FSW.

→ Drug Users

- Awareness on the services provided at DIC is limited.
- Most of DU don't dare to access DIC, which are well known as a facility dedicated for DU, due to fear of getting caught or identified by the police or spotted by relatives and friends.
- The hotspots for DU change from time to time to avoid staying always as the same place and being caught by police authorities
- Majority of DU expressed lack of social support from their family as a barrier to recovery and rehabilitation.
- Most of the DU were well aware of the illegal implications of using illicit drugs in Bhutan.
- Some of the DU are also mobile and need to travel to other districts for harvesting marijuana.
- Most of them did not know any PWID in Bhutan.
- Self-perception of risk for HIV/STI infection was low among DU .

3.3 Feasibility

3.3.1 Sampling key and vulnerable populations

3.3.1.1 Evidences supporting the existence of key populations in Bhutan

Over the last decade, several behavioral and social studies were conducted in Bhutan. These studies confirmed the existence of networks or group of different key and vulnerable populations in Bhutan and revealed a high level of vulnerability for HIV and STI infection for these populations. However, most of these studies also underscored the difficulty of recruiting key populations, particularly MSM, transgender women and PWID. These key surveys include: the behavioral survey among the general population in Bhutan in 2006;⁶ the behavioral survey among PWID, FSWs, and males with high-risk behavior (army, police, taxi drivers, and truck drivers) in 2008;⁷ the baseline assessment of drugs and controlled substance use in Bhutan in 2009;⁸ the rapid assessment on sexual behaviors and networks in Bhutan in 2009;⁹ and the formative assessment on stigma and discrimination among MSM and transgender women in health facilities in 2013.¹⁰ A size estimation exercise of MSM and transgender women was also conducted in 2013, but at the time this report is developed, the findings are not public, yet.

With regard to PWID, the behavioral survey among general population in 2006 revealed that 1.7% of male and 0.1% of female in urban area, and 0.37% of male and none female in rural area ever had injected drugs. The 2008's survey among key and vulnerable populations involved 115 drugs users in Thimphu among whom 17 respondents (15%) had ever injected drugs. All of them were male and six out of 17 (35%) had injected drugs in the past 6 months prior to the interview. Additionally, taxi drivers (0.5%) and truckers (1%) in Thimphu reported having injected drugs in past 12 months prior to the interview. In 2009, the baseline assessment of drugs conducted enrolled 917 drug users from 14 districts among whom 98 respondents (11%) reported ever injecting drugs (including one female respondent only). Among those who had ever injected drug, 31 (32%) reported drug injection in the past month prior to the interview and 6 of them (19%) ever shared needles/syringes with one or more persons. Most of them (90%) reported sexual intercourse in the past 12 months prior to the interview. The highest number of PWID, who were current "injectors" at the time of the survey, was in Samtse (22), Paro (16), and Thimphu (10). The 2009's rapid assessment on sexual behaviors and networks in Bhutan revealed that 30% of the respondents in Thimphu reported having ever taken drugs by swallowing, sniffing or smoking for recreational purpose, and 2% have reported having ever injected drugs. Most of those who have ever injected drugs reported injection practices in-group and about 30% reported sharing of needles.

Pertaining to male-to-male sexual behavior, the survey among the general population in 2006 revealed that 2.3% of the married and 0.1% of unmarried men reported same-sex sexual behavior in the past 12 months prior to the interview. Unfortunately, data on male-to-male sexual behavior and anal sex among male respondents of the behavioral survey among key populations (male PWID) and high-risk men (taxi drivers, truckers, uniformed services)

were not available. Interestingly, in the study among drug users in 2009, out of a total of 917 male respondents 29 (3%) reported same-sex behavior. In the same year, the rapid assessment on sexual behaviors and networks in Bhutan indicated that about 2% of male respondents reported anal sex with another male in past year, and about 5% of respondents in Thimphu and 19% in Phuntsholing affirmed that they know at least one MSM. Male respondents were more likely to know MSM as opposed to female respondents: 12% and 9% respectively. In 2013, the formative assessment on stigma and discrimination among MSM and transgender women highlighted the difficulty to recruit MSM for their study and the non-existence of specific locations where MSM and transgender women gather. The findings also revealed a significant level of stigma towards MSM and transgender women in health facilities and also internalized sexual stigma, particularly for MSM as opposed to transgender women. MSM are not organized in networks but rather in small groups and tended to report only few MSM friends in their social network. Same-sex behaviors in Bhutan seem to be less marked and more diffuse, and are not expressions of belonging to a “gay community.” Most of MSM are sexually involved with women as well as with men, and aim to fulfill the expectations of mainstream society and family that they get married and establish a family. Transgender women, in contrast, tend to have exclusively male partners are relatively more visible and somewhat organized in network.

The behavioral survey among general population in 2006 discovered that a significant proportion of male respondents living in urban area reported sexual intercourse with female sex workers in past 12 months prior to the survey: 13.8% of married and 15.3% of unmarried males. These proportions were lower in rural area: 1.4% and 3.1%, respectively. Female employees working as waitresses, singers or helpers in Drayangs and bars were enrolled in the behavioral survey among key and vulnerable populations in 2008 as a proxy for female sex workers. A total of 77 female respondents were recruited in Thimphu and only 25 in Phuntsholing. Most of the female respondents in Thimphu were singer (90%) while in Phuntsholing the majority was waitress. A high proportion of female respondents reported to be sexually active: 79% in Thimphu and 68% in Phuntsholing. Among those who reported to be sexual active, 41% in Thimphu and 76.5% in Phuntsholing had received cash or gift from a sexual partners in the past month prior to the interview. The sexual behaviors and networks study in 2008, estimated a total of 288 (231-346) venue-based FSW through a mapping exercise in Thimphu and Phuntsholing. About 54% of these FSW were working in Thimphu. About 23% of male and female respondents of this study revealed either ever paid or received cash or gift in exchange of sex: 22.7% in Thimphu and 23.0% in Phuntsholing. Male respondents were more likely to give than receive cash or gift for sex: 32.5% and 3.5%, respectively. In the contrary female respondents were more likely to receive than give cash or gift for sex: 8.2% and 1.5%, respectively. The most common reported locations where male respondents met with FSW were bar and restaurant (51%), karaoke and disco (44%), and public places (26%). Similar patterns were founds in both cities. A more recent qualitative study also underscored the growing appearance of transactional sex occurring in Drayangs in Thimphu.¹¹

3.3.1.2 Sampling approach for the IBBS survey

In order to assess the feasibility of sampling key and vulnerable populations for the IBBS survey, the team considered key factors influencing the choice between sampling approaches commonly used for key and vulnerable populations,¹² such as the multiple stage sampling (e.g., Venue-Based Sampling or Time Location Sampling,^{viii} and Facility-based sampling) and the Respondent Driven Sampling (RDS).^{ix} These factors were:

- Reaching population
- Existence of sampling frame
- Existence of population size estimation
- Existence of peer networks
- Willingness to refer peer friends for the survey

To be able to determine a threshold for the factor “reaching population” considered by the team for this formative assessment, a sample size common to each concerned population was also estimated using the formula for repeated surveys. The estimation was based on a key behavioral indicator “*condom use at last penetrative sex with any partners excluding the spouse*” with a baseline at 0.5 at round 1 of the IBBS survey. A sample size of ~ 300 respondents will be enough to be able to detect a magnitude of change of 0.15 with a statistical power of 80% between the two rounds of the IBBS survey. The details of the calculation of this sample size are developed in Appendix # 2

The intercept survey was used to gauge the number of key and vulnerable populations that the data collection team could reach during their field visit (about 5-6 days by site). The Table 6 shows that key populations were the most difficult populations to reach during the field visit, taking in consideration that in some sites the interviewers did not have POW to help them to identify and recruit eligible participants. Only drug users were easier to reach in two cities (Thimphu and Gelephu). Out of 78 DU interviewed 16 (20.5%) were female DU. As opposed to key populations, vulnerable populations were easier to reach either for HRW and HRM (taxi and truck drivers and uniformed services). It is noteworthy that for the RBA and RBP, the team did not get the authorization on time to reach RBA and RBP personnel in Thimphu and obtained the authorization at the last minute for the other cities, explaining the smaller number of people interviewed for the intercept survey. Among all the taxi drivers enrolled in the intercept survey (n = 73), 3 of them (4.1%) were female taxi drivers. Only few respondents reported overlapping high-risk behaviors such as 3 of FSWs self-reported also using drugs (see note Table 6). Surprisingly, only 2 HRW reported also selling sex during the intercept survey.

^{viii} The Venue-Based Sampling or Time Location Sampling is a form of cluster sampling that contains both time and location dimensions

^{ix} RDS is a method that combines “snowball sampling” with a mathematical model that weights the sample to compensate for the fact that the sample was collected in a non-random way. The RDS process starts with the recruitment of the initial seeds each of whom recruits a maximum of two to three members from their population group (peers)

Table 6: Number of People Reached through the Intercept Survey

N = 491	Thimphu	Phuntsholing	S/Jongkhar	Gelephu	Total
MSM	1	0	0	0	1
TG	5	0	0	0	5
FSW	14	3	2	7	26*
DU	35	7	1	35	78
PWID	0	0	0	1	1
HRW	79	58	10	4	15†
Taxi Drivers	18	25	4	26	73‡
Truck Drivers	7	30	10	34	81
RBA	0	7	6	8	21
RBP	0	7	5	23	35

* 3 FSW also reported using drug (non-injecting)

† 2 HRW also reported selling sex and 1 using drug (non-injecting)

‡ 1 Taxi Driver also reported using drug (non-injecting)

The mapping was used for assessing whether these hotspots could be used as sampling units or elements to develop the sampling frame for the IBBS. The Table 7 shows the number of hotspots identified in each city.

Table 7: Hotspots Identified during the Formative Assessment

Hotspots	Thimphu	Phuntsholing	S/Jongkhar	Gelephu	Total
Drayangs	13	8	0	0	21
Disco	2	0	0	0	2
Bar	8	11	4	3	26
Karaoke	2	2	0	0	4
Street	4	3	1	2	4
Taxi/Truck Stand	2	2	2	2	8
Hotel	3	3	2	2	10
Other	0	0	1*	0	1

* Open are at mining site

Based on the discussion with the owners of the Drayang, the Drayangs are perceived as a place where people come to enjoy dancing and singing. The number of staff in the Drayangs ranges from 6-19 persons with an average of 8 in Thimphu and Phuntsholing. In Gelephu and S/Jongkhra, the team did not identify any Drayang. Usually, peaks days are during the weekend starting from Friday to Sunday and peak time is from 9-11 p.m. The Drayang are usually close on Tuesday. The majority of the clients are male customers (mixed blue and white collar) but all the owners were not aware whether MSM or transgender women were also customers of their establishment. However, they acknowledged that some of the customers were also using drug (mainly ganja). Owners were also supportive for the IBBS survey among their staff (HRW) in their establishments if their business does not get disrupted. Out of the six male patrons interviewed, only one of them was aware through his friends about the existence of indirect female sex workers in these establishments. He explained that some of the “*Drayang girls*” have regular clients called “*sponsors*” with whom they may also engage in transactional sex. Other male patrons considered these establishments as recreational

locations where they can enjoy music, drinks, and also flirting with “beautiful girls” but not really a place for seeking transactional sex.

During the field visit, the team also identified hotels connected with network of FSW (independent). The owner or the manager of these hotels has the contact of 3-5 regular FSW that they can call if there is a request from a client. These FSW are not based in the hotel but available upon request only. It seemed that only few of these hotel owners/managers were acting as a pimp. In Gelephu and Phuntsholing, it was mentioned that clients of FSW are mainly from India and to a lesser extent Bhutanese visitors.

Bars were small dingy establishments that are usually located in small and dark alleys. In Thimphu and Phuntsholing, these locations seemed to be a place to pick up FSW and also where drug transaction could also happen. These bars were also identified during another mapping conducted by the NACP for program purpose. Middle-aged men and women generally frequent these small bars seeking for transactional sex with non-regular partners. In Phuntsholing there is a row of small bars in the *Deki* line area, mostly frequented by travellers to pick up FSW. Few of the bars owners interviewed during the assessment confessed that they occasionally help in contacting and finding FSW for their customers who are mainly visitors from India or other districts in Bhutan. All these bars identified during the assessment were small bars with a capacity to seat 10-15 people with 1-2 staff to serve the customers. These bars are open every day and somewhat located at the outskirts of town.

The four karaoke identified in the study are commonly frequented by HRW during their day off (usually in Tuesday) and taxi drivers and truckers drivers with influx of Indian businessmen during weekend. These hotspots are also commonly used by the HRW to pick up clients.

The team also mapped MSM-targeted social media used by MSM (Grindr, Gay Romeo, Jack'D, Hornet, and Manjam) either through smartphone or website. This mapping was done over 7 consecutive days (including weekend) and at different time of the day (afternoon and late evening: 14:00 to 23:00). The number of MSM online within a 30-km (~18.6 miles) radius from Thimphu (downtown) was very low: an average of 1-2 Bhutanese MSM were online by timeslot (2-hour timeslot) observed. The most used social media was Gay Romeo, and to a lesser extent Grindr. With regard to other social media (Jack'D, Manjam, and Hornet) all of the persons online were foreigners (visitors or working in the area). There are currently two Facebook page related to MSM (LGBT^x Bhutan and Gay in Bhutan) available. In November 2014, LGBT Bhutan had 767 total “page likes” while Gay in Bhutan had 1,091. However, it is impossible to access and contact directly the fans of a Facebook page, except for the mutual friends, when you are not the owner of the page. Furthermore, it may also be difficult for the owner of the page to see all his/fan if the privacy settings of the fans does not allowing it. During the preparation of the formative assessment, the team informally met with the owner of one of the Facebook page. After explaining the purpose and the

^x Lesbian, Gay, Bisexual, and Transgender

objectives of the formative assessment and the needs to met with and interview Bhutanese MSM, he confessed that due to fear of being recognized as and stigma associated with MSM in Bhutan, he did not feel comfortable referring MSM fans of his Facebook page or any other MSM friends to the team. He also declined the participation to the IDI or the intercept survey planned for the formative assessment. He also explained that he knew only few of his fans and was not sure whether he could be able to estimate how many of his followers were Bhutanese MSM. The other owner was studying in India and was not available for a meeting.

The intercept survey also included questions assessing the magnitude of the social network (among their peer friends^{xi}), the number of peer friends that they would be able to refer to the interview, and as well as the number of peer friends they met for socializing during the last week. These questions were asked to assess the possibility of using chain-referral sampling such as respondent-driven sampling (RDS).^{12,16,17} Except for HRW, vulnerable populations reached through the intercept survey were older than key populations (Table 8). More than two-thirds of the DU and HRW and about half of the FSW were below 25 years old. Pertaining social networks, the size of the social network was somewhat higher among male populations from vulnerable populations (truck and taxi drivers and uniformed services) compared to HRW and key populations (DU and FSW). Similar patterns were found for the number of peer friends that they could refer and the number of peer friends that they met in the past week. Nevertheless, the average number of peer friends in their social network and number of peers friends that could be referred for interview are sizable across all the populations and suggesting the possibility of using a social network strategy (or chain-referral sampling) as a sampling approach (RDS), particularly for DU and HRW.

^{xi} Defined as a person from the same population and living in the same area, knowing each other, and possible to easily contact him/her.

Table 8: Social Network Size of the Respondents of the Intercept Survey

Population	Age	Aged below 25	Peer Networks	Referring Peer Friends	Peer Friends met last week
	Mean (SD)	n (%)	Mean* (SD†)	Mean* (SD†)	Mean* (SD†)
	[N]	[N]	[N]	[N]	[N]
MSM	N/A‡	N/A‡	N/A‡	N/A‡	N/A‡
Transgender	N/A‡	N/A‡	N/A‡	N/A‡	N/A‡
FSW	25.1 (5.8) [26]	14 (53.9) [26]	6.4 (7.4) [23]	3.0 (4.1) [24]	2.2 (2.2) [18]
DU	23.0 (3.1) [77]	54 (70.1) [77]	8.7 (6.9) [75]	3.1 (2.1) [70]	5.6 (4.2) [73]
PWID	N/A‡	N/A‡	N/A‡	N/A‡	N/A‡
HRW	23.5 (4.3) [151]	104 (68.9) [151]	7.0 (5.9) [146]	3.9 (3.3) [137]	4.7 (4.0) [137]
Truck Drivers	33.0 (7.6) [81]	9 (11.1) [81]	9.4 (6.6) [78]	4.5 (2.9) [79]	4.7 (2.7) [70]
Taxi Drivers	34.4 (7.8) [73]	5 (6.9) [73]	8.9 (7.5) [70]	5.6 (4.1) [70]	5.1 (3.7) [58]
RBA	40.6 (7.3) [21]	0 [21]	10.9 (5.4) [19]	6.9 (3.0) [18]	8.45 (6.1) [20]
RBP	37.7 (7.7) [35]	2 (5.7) [35]	8.8 (7.4) [19]	7.8 (5.6) [23]	6.1 (6.5) [8]

* Values that were substantially shifted up (outliers) compared to other values were excluded from the analysis

† Standard Deviation

‡ Not Available: sample size was too small

Taking in consideration the previous findings, the Table 9 summarizes the findings for each factor considered for the selection of the sampling approach, and suggests the preferable option for the sampling approach. Manifestly, among key populations only DU particularly in Thimphu and Gelephu were found with an accessible and sizeable population and with an option for a sampling approach. Pertaining vulnerable populations, the findings suggest that all these populations are accessible and large enough for sampling. However, HRW could be sampled only in two cities (Thimphu and Phuntsholing) and taxi drivers in three cities (Thimphu, Phuntsholing, and Gelephu). All other vulnerable populations (uniformed services and truck

drivers) could be sampled in 4 cities surveyed. The data related to social networks (Table 8) of the respondents of the intercept survey highlights the possibility of using a sampling approach based on chain-referral such as the RDS, for DU, HRW, taxi and truck drivers, and uniformed services. However, for the uniformed services, the RDS does not seem to be the best option, as it may not be convenient for military and police personnel to go outside their units for participating to the IBBS survey: timing may not be appropriate with their daily duty and they need to request authorization to go out. A multi-stage sampling using probability proportional to size (PPS) may be more relevant for sampling these populations for the IBBS survey. Population size (obtained informally) of RBA in the four cities surveys will allow capturing the required sample size for the IBBS. However, for RPB the number of police officers in Phutshuling and S. Jonkhar appears to be quite low. It would be important to re-assess through formal channel the population size for both RBP and RBA before designing the IBBS survey in order to identify the city where it would be possible to capture enough respondents from both populations. The number of units for RBA and RBP is sizeable, particularly in Thimphu and Phuntsholing, but these units have different size and consequently the number of personnel in each unit may substantially differ from a unit to another, suggesting the use of PPS at the first stage.

Pertaining to taxi and trucks drivers, the existence of truck and taxi stands is also in favor of recommending a multiple stage sample. However, the number of stands identified through the mapping during the formative assessment is somewhat limited suggesting that it may not be the best sampling approach. Fortunately, during the intercept survey the taxi and truck drivers reported a good-sized social network of peers and their willingness to refer their peer friends for research. Consequently, the RDS may be a pertinent option for sampling taxi and truck drivers, particularly in Thimphu, Phuntsholing, and Gelephu. It may not possible to capture 300 respondents from taxi drivers and truck drivers in these two cities. However, the possibilities of combining both populations may help in reaching the sample size required for the IBBS survey.

With regard to HRW, the existence of hotspots (e.g., Drayangs and bars) is also suggesting that a multiple stage sampling approach would be relevant for the IBBS survey. However, findings from the literature review and also from key informants involved in the formative assessment, are also supporting the fact that a significant proportion of HRW may be also involved in opportunistic sex work (often selling sex to meet basic needs or survive). Furthermore, there are, although small, networks of direct FSW that were identified during the assessment, particularly in Thimphu and to lesser extent in Gelephu. If HRW were used as proxy for FSW and the operational definition of HRW were broaden to include FSW, the multiple sampling approach using these hotspots as sampling units would fail capturing some of these networks of FSW who are operating outside of these hotspots. Therefore, in addition to broaden the definition of HRW, a RDS would be recommended to capture both HRW and FSWs networks. It is noteworthy that both populations i.e., FSWs and HRW reported a significant number of peer friends in their social network and they were also willing to refer them to any research.

The number of locations or hotspots for DU seems to be limited as per the findings of the formative sample. However, drug users also reported quite large social networks and strong ties within these networks of peers. Therefore the RDS may be the ideal option for sampling DU for the IBBS survey. However, it would be crucial to broaden the operational definition of DU used for the formative assessment to be able to capture PWID, even if the size of this population is small.

Unfortunately, for the time being, there are no options that we can propose to sample MSM and transgender populations. The difficulty of reaching these population either through the formative assessment and also through the current interventions implemented by the NACP strongly suggests that a random sampling approach that can capture an ample size of these populations required for the IBBS survey may not be feasible.

Table 9: Possible Sampling Approach for Key and Vulnerable Populations

Populations	Accessible and sizeable population	Existing sampling unit/frame	Existing population size estimation	Possibility of using chain-referral sampling	Options for sampling approach
MSM	No	No	No	N/A	No options
Transgender	No	No	No	N/A	No options
FSW	No	No	No	Yes	No options*
DU	Yes, in Thimphu and Gelephu	No	No	Yes	RDS
PWID	No	No	No	N/A	No options [†]
HRW	Yes in Thimphu and Phuntsholing	Entertainment establishments	No	Yes	RDS [‡]
Truck Drivers	Yes, except in Gelephu. Limited number in other cities [§]	Number of truck stands limited	No	Yes	RDS
Taxi Drivers	Yes, only in Thimphu and Phuntsholing but limited number [§]	Number of taxi stands limited	No	Yes	RDS
RBA	Yes in four cities**	Military camps/units	Yes but authorization would be needed	Yes, but not convenient for military personnel	Multi-Stage Sampling using PPS ^{††} at first stage
RBP	Yes in Thimphu and Gelephu. Limited number in other cities**	Police stations/units	Yes but authorization would be needed	Yes, but not convenient for police personnel	Multi-Stage Sampling using PPS ^{††} at first stage

* Using HRW as proxy for FSWs and broaden operational definition of HRW to include FSW

[†] Broaden operational definition of DU to include PWID

[‡] Multiple stage sampling could be also consider but may be difficult to plan/organize, particularly the second stage, due to the different types of hotspots, opening time, and availability of HRW. If used, a new mapping exercise should be conducted prior to the implementation of IBBS survey

[§] Recommended to combine truck and taxi drivers together even in Thimphu and Phuntsholing. Maybe be difficult to reach 250-300 respondents for each population

** Review population size prior to design the survey

^{††} PPS: Probability Proportional to Size

3.3.2 Availability of services

3.3.2.1 Prevention services

Prevention interventions targeting key and vulnerable populations in the four cities surveyed are implemented under the Transitional Funding Mechanism (TFM) of the GFATM. However, these interventions are rather new and technical assistance to strengthen these interventions is not provided consistently. The Table 10 shows the number of people reached by the interventions from January to June 2014. The most reached populations by the national program are the uniformed services (RBA and RBP), DU, taxi and truck drivers, and HRW/FSW. Unfortunately, the report system for monitoring interventions and up-take of HTC services, does not disaggregate the data by each key and vulnerable population. The findings are also somewhat consistent with the findings of the intercept survey of this formative assessment (Table 11) where about two-thirds of the respondents from vulnerable populations and also DU reported exposure to any interventions in the past 12 months. Based on program data (Table 10), the coverage of interventions reaching MSM and transgender women is extremely low and there is no available data related to PWID.

Table 10: Key and Vulnerable Populations reached through Interventions from January to June 2014 and Supported by the NACP

Source: NACP, Bhutan 2014

Populations	Number of persons reached through HIV prevention interventions	Number of people who had received HIV test through the program
MSM and Transgender*	28	6
FSW and HRW*	322	184
Trucker and taxi drivers*	699	161
Uniformed services*	1,028	151
Clients at DIC (DU)	774	N/A

* Disaggregated data by population were not available

For these latter key populations, networks of peer educators for prevention activities have not been established, yet. For instance, the NACP has not been successful yet in recruiting MSM as peer educators to reach and establish networks of MSM in these cities. Few transgender women have been selected to serve as POW to reach their peers and also MSM, but it has not been effective yet. UNDP APRC through the regional Round 9 GFATM grant is also planning to support Lhaksam to implement interventions reaching MSM and transgender women particularly through social media. For interventions reaching DU, Youth Development Fund (YDF) and Bhutan Narcotic Control Authority (BNCA) are managing drop-in centers and networks of peer educators for reaching DU.

Interventions reaching vulnerable populations seem to be more successful in terms of coverage. As the program data shows (Table 11), the number of

vulnerable populations reached through the interventions is much higher compared to key populations. However, the interventions reaching vulnerable populations described by the program implementers interviewed during the formative assessment, remains too conventional. For instance, prevention activities targeting uniform services rely mainly on lecture given by health care providers in plenary session (large group) with military and police personnel, including their family. There is no peer leadership strategy established yet. It is noteworthy that except for DU, there was no formal operational definition for the populations targeted by the prevention activities. For DU, the operational definition used by the program implementer also encompasses people who are using drugs and/or alcohol.

Findings from interviews with POW conducted during the formative assessment were also consistent with the program data. POW shared their difficulty in reaching key populations particularly MSM, transgender women and PWID. The majority of them felt that the easier people to reach are DU and HRW, particularly in Thimphu and Phuntsholing. They also expressed the challenge in gaining trust and establishing a relationship with their peers. When probing this issue, they were in agreement in saying that they are not equipped with appropriate skills to approach and discuss with their peers and they were not aware about the existence of any guidelines to guide them during their outreach activity.

“We have not had any formal training so we are lost most of the time to how to go about doing outreach”

25 year old POW, Phuntsholing

Table 11: Exposure to Interventions (in past 12 months) for the Respondents of the Intercept Survey

Populations	Exposed to HIV awareness	Accessed DIC* or HISC†	HIV test and get the results	Any of these interventions
	n (%) [N]	n (%) [N]	n (%) [N]	n (%) [N]
MSM	N/A‡	N/A	N/A	N/A
Transgender	N/A	N/A	N/A	N/A
FSW	15 (57.7) [26]	10 (38.5) [26]	12 (46.2) [26]	18 (69.2) [26]
DU	31 (40.8) [76]	40 (51.3) [78]	30 (39.5) [76]	54 (68.0) [78]
PWID	N/A	N/A	N/A	N/A
HRW	99 (66.4) [149]	95 (62.9) [151]	103 (68.2) [151]	120 (79.5) [151]
Truck Drivers	36 (44.4) [81]	27 (33.3) [81]	29 (36.3) [80]	49 (60.5) [81]
Taxi Drivers	25 (34.3) [73]	22 (30.1) [73]	33 (45.2) [73]	43 (58.9) [73]
RBA	13 (61.9) [21]	1 (4.8%) [21]	9 (42.9) [21]	14 (66.7) [21]
RBP	16 (47.1) [34]	10 (28.6) [35]	17 (50.0) [34]	23 (65.7) [35]

* DIC: Drop-in center

† HISC: Health Information Services Center

‡ N/A: Not available as the sample size was too small

3.3.2.2 HIV Testing and Counseling and STI services

HCT services are available in clinical services in the 4 sites surveyed such as hospitals, Basic Health Units^{xii} (BHU) and antenatal clinics. HISC are now available in four cities targeted by the assessment. These latter centers are particularly dedicated to key populations and aimed at increasing uptake of HTC services by offering friendly services in a safe environment. HTC services are not available at drop-in centers except when there is a mobile team providing these services (not on regular basis). Routine tests (free of charge) include HIV,^{xiii} syphilis (TPHA^{xiv} and RPR^{xv} for titer), and hepatitis B.^{xvi} Blood draw for the routine tests is done through phlebotomy (venous blood) procedure only. Confirmatory tests are shipped to the national public health laboratory based in Thimphu. Clients who are tested with active syphilis and/or reporting STI symptoms (syndromic approach) are referred to hospital

^{xii} Similar to health center

^{xiii} Alere Determine™ HIV-1/2

^{xiv} Alere Determine™ Syphilis

^{xv} Carbogen® Tulip Diagnostics

^{xvi} Alere Determine™ HBsAg

for further investigations and treatment. Referral system for clients to hospitals is well established and functioning, as well as for specimen referral from clinical services and HISC to national public health laboratory.

The MoH and NACP are currently reviewing the national guidelines for HIV testing and treatment. A new HIV testing algorithm will be recommended for all the HCT services. Unfortunately, at the time this report is written, this new algorithm was not available.

3.3.2.3 The national public health laboratory

The national public health laboratory at the National Referral Hospital based in Thimphu provides the confirmatory HIV tests^{xvii} for all the HTC services nationwide. Specimens are shipped on regular basis (postal services). It takes an average of 5-7 days for a confirmation of HIV test. PCR for HIV viral load, HIV Genotype and HIV genotypic drug resistance are not available in Bhutan. If needed, the national laboratory could ship the specimen to a laboratory abroad (MoPH in Thailand for HIV viral load and Japan for HIV genotype), but they reported that they have not used this procedure yet. However, portable CD4 count machine are available at regional hospital in the 4 cities surveyed.

Gram stain smear is used in the diagnosis of Chlamydia trachomatis and Neisseria gonorrhoea for female population only. Specimens are merely collected and tested at the national public health laboratory. There is a functioning machine for PCR at the laboratory but reagents for testing chlamydia and gonorrhoea and assays are not available. The laboratory technician also identified the need of technical assistance if chlamydia and gonorrhoea are tested through PCR for the respondents of the IBBS.

The Department of Medical Supplies and Health Infrastructures (DMSHI) in Bhutan is in charge for all procurement for essays, equipment and materials needed by the national laboratory.

The laboratory is also in charge of managing the specimen referral system (domestic and abroad). They have also developed standard operating procedures for the shipment.

3.3.2.4 Care and treatment services

The Care and Treatment unit is based in Thimphu. All people tested HIV positive are registered by this unit. Free antiretroviral treatment is provided to the PLHIV living in Thimphu. For those living outside Thimphu, the Care and Treatment unit ships the treatment to the nearest health facility where the PLHIV live. It could be hospital or BHU. As mentioned earlier, the MoH/NACP is currently reviewing the national guidelines for HIV testing and treatment that will also include new ARV regimens following the WHO recommendations.

3.3.3 Implementation of the IBBS survey

The findings of this section were identified through the analysis of discussions (FGD and KII) with stakeholders, program implementers, and health care

^{xvii} Murex HIV Ag/Ab Combination and Serodia® HIV-1/2

providers and combined with the inputs of the participants who attended the national consultation to discuss the preliminary findings of the formative assessment.

3.3.3.1 Leading agency

The MoH/NACP was mentioned by the majority of the participants as the leading agency for the implementation of the IBBS. However, concerns related to the in-house technical capacity and human resources were also raised. The following technical areas for technical assistance were identified:

- Design of the IBBS (sampling methodology and sample size requirements), and protocol development
- Development of curriculum and building the capacity (training and mentoring) of the IBBS field team (supervisors, data collectors, data entry clerks, counselors), and laboratory technicians
- Monitoring the implementation of the IBBS
- Analyzing data and reporting

In terms of human resources, most of the participants suggested recruiting a national consultant that could i) help the coordination between the selected external agencies or the international consultant(s) and other key partners that will be involved in the implementation of the IBBS, and the NACP; and ii) manage the supervisors and field team of the IBBS survey. This national consultant should be contracted full-time particularly during the preparation (design phase) and the implementation of the IBBS survey.

3.3.3.2 Collaborative agencies

- Ministry of Health
 - **Care & Treatment Unit:** based in Thimphu and where all HIV positive patients are registered for medical care and treatment services.
 - **Public Health Laboratory:** national laboratory where specimens from all districts are refereed. Also in charge of specimen referral system (domestic and international)
 - **Health Research Unit:** involved in health related survey in Bhutan. This unit could contribute to the research design and analysis
 - **Research Ethics Board of Health:** ethical clearance of the protocol for the IBBS survey
- NGO Partners
 - **Youth Development Fund (YDF):** work mainly with drugs users and to a lesser extent with PWID. In collaboration with the Bhutan Narcotics Control Agency (BNCA), they are also managing outreach activities and drop-in centers for DU
 - **Lhaksam:** National network of PLHIV. The network includes also counselors from key populations (mainly former DU) that

- could be also involved in the team field for HIV and other STI testing (pre-and post counseling).
- **RENEW**: NGO working with vulnerable women — gender-based violence mainly. RENEW has a network of volunteers across all the districts and to a lesser extend counselors. RENEW could be involved in data collection for HRW but they do not have experience in working with these populations yet.
- Autonomous Agencies
 - **Bhutan Narcotics Control Authority (BNCA)**: Manage drop-in, rehabilitation and detoxification centers for DU and PWID in Bhutan. Work closely with YDF.
 - **National Statistics Bureau (NSB)**: main agency involved in official statistics in Bhutan. Involved in different types of survey in Bhutan, including non-health related surveys. NSB could be a resource to discuss sampling approach (although they do not have experience in sampling hard-to-reach populations) and contribute to data entry and analysis, if necessary.
 - **Bhutan InfoComm and Media Authority (BICMA)**: provide clearance for any entertainment establishments. If working with HRW based in these establishments, BICMA should be approached, as it will help in accessing owners and staff.
 - Institutions
 - **The Royal Institute of Health Sciences (RIHS) and the University of Medical Sciences of Bhutan (UMSB)**: both institutions have students (nurses, medical doctors, public health officers) that could be involved as data collectors/interviewers. Furthermore, it is crucial to involve these two institutions in the IBBS survey and start building their capacity on developing biological and behavioral surveys among key and vulnerable populations.
 - Other Ministries
 - **Royal Bhutan Army (RBA) and Royal Bhutan Police (RBP)**: if uniformed services are involved in the IBBS survey, it would be crucial to start the discussion with high ranking officers at Police and Army headquarter to discuss requirements for access information needed for developing the sampling approach and to implement the IBBS in military and police units. Early discussions should be organized as it may take time to obtain authorizations to have access to information and to conduct the survey in the military or police premises. The NACP could help in organizing these discussions and obtaining the authorizations.

- **Road Safety and Transport Authority (RSTA):** taxi and truck drivers have their license registered with this authority. Should be involved if taxi and truck drivers are included in the IBBS
- **Ministry of Trade and Economic Affairs:** provide trade license, after clearance from BICAM, to entertainment establishments. If working with HRW based in these establishments, this ministry as well as the BICMA, should be approached to plan the IBBS survey among this population.
- Multilateral agencies
 - **WHO** and **UNAIDS** (Nepal): these agencies could provide technical assistance for the development of the IBBS survey: review protocol and tools before the submission to ethical clearance and contribute to the analysis.
 - **UNODC:** may be able to provide technical assistance from the regional office (Bangkok-based) such as providing materials and reviewing tools of the IBBS survey for DU and PWID.

3.3.3.3 External Technical Assistance

Most of the participants suggested selecting an international agency (either an INGO, an institution such as an university, or a consulting firm) to provide technical assistance to the NACP for the development of the IBBS. However, one of them clarified that independent consultants would be more secure as with an international agency/consulting firm it is never certain that the experts planned in the proposal would be the ones who are going to provide TA for the IBBS survey. Therefore, the participants suggested that CV of technical experts and the confirmation of their availability for the duration of the project should be required in the request for proposal.

Because of the technical assistance needs of the NACP for the implementation of the IBBS survey, it would be crucial that the applicants demonstrate in their proposal their experience in implementing IBBS survey, particularly with key and vulnerable populations in the region, and their in-house expertise or through a network of agencies (consortium) for designing and implementing IBBS survey, providing technical assistance for laboratory, analyzing data, and reporting. In addition, the selected agency would be expected to collaborate with national and regional agencies mentioned in the previous section, for the implementation of the IBBS survey.

3.3.3.4 Ethical review

Since the IBBS survey will involve data collection involving human participants, the protocol and tools of the IBBS should be submitted for a full review to the Research Ethics Board of Health (REHB) for ethical clearance to ensure the safety, rights, dignity and well-being of the participants and, as well as, those of the investigators. The ethics board regularly meets in February, May, August, and November, but there is also a possibility to request an extraordinary session.

It is more likely that for some for some populations such as DU and HRW, there would be underage respondents i.e., below 18 years old. However, the REHB requires parental or guardian consents for enrolling underage

respondents. Since it may be impossible to obtain this type of consent for these specific populations, a waiver could be submitted to the REHB at the time of the protocol submission. The REHB also requests that a written informed consent is obtained before enrolling any respondents identified as key and vulnerable populations. However, the REHB recognizes that written evidence of consent may not always be appropriate if the identification of the participant places them at risk since drug use (injected or not) and same-sex behavior are illegal in Bhutan. However, a waiver for administering verbal informed consent (witnessed) could be requested by the investigators to the REHB. In both case i.e., enrollment of underage respondents and use of verbal informed consent, a clear justification should be mentioned in the protocol.

The REHB is also managing a website^{xviii} that includes all the guidelines and forms required for the submission of the protocol. It is noteworthy that for any national survey conducted in Bhutan, a clearance for the National Statistic Bureau (NSB) should be obtained before submitting the protocol to REHB. The NSB is expected to assess the technical soundness of the sampling approach and the strategy for analyzing data (statistics used) of any national survey. Since the IBBS would be only implemented in 2 or 3 sites and would not be considered as a national survey i.e., representative of the surveyed populations at national level, it should not be necessary to obtain a technical clearance from the NSB. However, the NSB could be approached for technical assistance and as a partner of the IBBS (see previous section).

^{xviii} <http://www.health.gov.bt/357-2/> (Accessed on February 24, 2015)

4. Conclusion

The formative assessment highlighted a high level of acceptability among stakeholders and key and vulnerable populations for the implementation of IBBS survey in Bhutan, but also underscored critical issues for its feasibility particularly for reaching and sampling key populations.

Stakeholders, program implementers and health care providers stressed critical gaps in data to understand the magnitude and the trends of the HIV/AIDS epidemic among these populations. Up to now, all discussions related to the HIV epidemic and the development of HIV interventions reaching key and vulnerable populations in Bhutan have been mainly based on assumptions, but not really supported by research and surveillance-based data. Only few surveys were done and included some behavioral studies among key and vulnerable populations and a national survey to assess the HIV and AIDS awareness among general populations. They expressed a feeling of working blind and the needs of strengthening the surveillance system for HIV and STI in Bhutan. The development of the IBBS survey may contribute to the improvement of the surveillance system but other components of the surveillance system should be also considered to make the system more explanatory and to guide the MoH and the NACP in assessing HIV, STI, and behavioral trends, identifying priority sites and populations, and strengthening their national HIV program (prevention and CST services).

Key and vulnerable populations interviewed during the formative assessment also expressed a high level of acceptability to participate to the IBBS and recommended some strategies for key procedures of the IBBS that would be taken into consideration of the design of the IBBS survey. They also conveyed a high-level of trust towards the MoH if they conducted the IBBS survey in Bhutan, and as well a high level of willingness for their participation.

However, the formative assessment also identified some critical issues in terms of the feasibility of implementing the IBBS survey, particularly among key populations. Despite the existence of empirical evidences revealing high-risk behaviors such as transactional sex, same-sex sexual behaviors, and to a lesser extent injecting drugs, the coverage of the current interventions supported by the GFATM and reaching these populations is extremely low. The only interventions using peer network strategies to foster connections among peers are those targeting DU. More recently, the NACP also has recruited transgender women as peer outreach workers to reach their peers and as well as MSM, but the coverage is still low and no network has been established yet. Furthermore, the formative assessment team also faced some difficulties in reaching these populations, except for the DU. Through the intercept survey, which was used to gauge the number of people that the team could recruit during the field data collection, only two MSM, five transgender women, 26 FSW, and one PWID were recruited as opposed to 78 DU. Vulnerable populations were easier to reach and recruit compared to key populations. Population size estimation was not available for any of the populations surveyed except for uniformed services (RBA and RBP). For the latter only a rough estimation was obtained during the formative assessment, but detailed information about population size and structure could be

obtained, through the NACP, at the time of the IBBS design and upon the authorization from the RBA and RBP authorities. Primary sampling units for building the sample frame for a multi-stage sampling approach were identified for HRW (entertainment establishments), taxi and truck drivers (stands), and RBA and RBP (military/police units). However, for taxi and truck drivers the number of these stands seem to be limited and challenging a good quality and accurate multi-stage sampling design. For HRW, the entertainment establishments could be used as primary sampling units but if the operational definition included the FSW, it would not be the best option, as some networks of FSW, who are operating independently, may be not captured through this approach. Since these later populations i.e., taxi and truck drivers, and HRW/FSWs also reported quite large social networks and strong ties within these networks of peers, the use of RDS would be the best option. Similarly for DU, the RDS would be also a relevant option for the sampling approach. The Table 12 summarizes the feasibility of implementing IBBS by city and key and vulnerable populations based on the findings on the formative assessment.

Table 12: Summary of the Feasibility of Implementing IBBS

	Thimphu	P/sholing	S/Jongkar	Gelephu	Remarks
MSM	X	X	X	X	
TG	X	X	X	X	
FSW	X	X	X	X	Combine with HRW (Review operational definition of HRW)
DU	✓	✓	X	✓	Combine with PWID (Review operational definition)
PWID	X	X	X	X	Combine with DU (Review operational definition of DU)
HRW	✓	✓	X	X	Combine with FSW (Review operational definition)
Truck Drivers	✓	✓	X	X	Combine with taxi drivers in Thimphu and P/Sholing
Taxi Drivers	✓	✓	X	X	Combine with truck drivers in Thimphu and P/Sholing
RBA	✓	✓	✓	✓	Assess population size before designing IBBS
RBP	✓	X	X	✓	Assess population size before designing IBBS

✓ Feasible - X Not Feasible

The MoH// NACP was also identified as the leading agency for the development of the IBBS survey in Bhutan. However, lack of in-house technical capacity and human resources should be also taken into consideration. It has been recommended that contracting an international agency (INGO or university) or a consulting firm with experience in implementing IBBS among key and vulnerable populations and with in-house expertise, would be the best option to provide technical assistance for the development of the IBBS. Furthermore, UNAIDS and WHO could be also involved in the provision of technical assistance to the development of the IBBS but also to strengthen the national surveillance system in Bhutan.

In conclusion, the formative assessment provided essential information in terms of acceptability and feasibility for the implementation of an IBBS survey among key and vulnerable populations in Bhutan, particularly in obtaining preliminary insight for the design of the IBBS and in starting to gain the support of these populations for the IBBS survey. The implementation of IBBS among key populations, except for drug users, is too premature as there are no established networks for these populations hampering the feasibility of capturing a substantial number of individuals of each concerned key populations for sampling this population and obtaining unbiased estimates. However, there is a potential to implement the IBBS among vulnerable populations, who may be connected to interlinked sexual networks with key populations, and obtain relevant information to start strengthening the HIV and STI surveillance system and the national HIV program.

5. Recommendations

The recommendations also include the inputs of the stakeholders, program implementers, and health care providers who attended the consultation of the preliminary findings of the formative assessment. This section contains recommendations for the implementation of the IBBS survey and also for the program targeting key and vulnerable populations in Bhutan. These recommendations are proposed in primary intention for the MoH/NACP and their national partners. However, the international agency or the consulting firm that will be contracted for the development of the IBBS may also want to consider these recommendations, particularly those related for the IBBS survey.

It is noteworthy that the budget allocated for the IBBS survey has been proposed in the GFATM concept note for the national grant. As of today, this concept note has not been approved yet. Another source of funding for the IBBS survey may also be available from the GFATM regional grant that is managed by UNDP APRC.

5.1 Recommendations for the IBBS survey

5.1.1 Operational definitions

Operational definitions developed for this formative assessment^{xix} were relevant. However, for the IBBS it may be recommended to adapt the operational definition for HRW to include “reporting commercial sex” to be able to capture identified independent individuals and networks of FSW. Similarly, the definition of DU should be adapted to include PWID, even though only few of them will be able to be reached and enrolled in the IBBS.

5.1.2 Populations and sites

Because of the cost of the IBBS and the possible limited budget allocated for the IBBS, the priority populations and sites to include in the IBBS would be HRW (as a proxy for sex workers, as well) and DU in Thimphu and Phuntsholing. If further funding could be allocated for the IBBS, other vulnerable populations such as unformed services and taxi and trucker drivers (combined)

^{xix} See section 2.4.5

could be added in priority in Thimphu and Phuntsholing. Another possibility will be to plan IBBS among DU and HRW in these two priorities cities and only behavioral survey among HRM. Pertaining DU and HRW, it would be also crucial to also include underage participants (aged 16 or older) as it has been also reported young people for these populations.

5.1.3 Sampling approach

Since HRW, DU, and truck and taxi drivers reported quite large social networks and strong ties within these networks of peers, the RDS may be suitable for sampling these populations. For HRW, it is recommended to select seeds among HRW working in entertainment establishments but also among independent FSW groups and networks. Although uniformed services reported strong ties within their social network, the RDS may not be the most appropriate sampling approach for the IBBS. It is recommended to use a multi-stage sampling procedure using PPS for the first stage (selection of primary sampling units). Because of the difficulty of accessing data related to uniformed services either in terms of population size and number of police and military units it will be crucial to work closely with the NACP to obtain the data early in the process of the preparation of the IBBS. If the access of the data needed for the sampling approach is limited (information classified) the investigators will have the possibility to train a military and police focal point who could help in developing the sampling frame and the selection of the PSU. A formative assessment, including mapping, should be conducted prior to design the IBBS survey in order to identify seeds for the RDS and developing sampling frame if multiple stage sampling approach is considered. Since the situation is changing rapidly, the current data collected through this formative assessment may not be valid anymore at the time of the design of the IBBS.

5.1.4 Specimen collection

HIV and syphilis should be assessed in priority through the IBBS survey. Among key and vulnerable populations, there was a high-level of acceptability towards blood draw through phlebotomy compared to finger prick procedure, and a lack of trust in the oral-fluid test. PCR for Chlamydia and gonorrhoea could be considered if the budget allows it. In this case, the cost of reagents and essays and the capacity building of laboratory technicians need to be added in the budget. Key and vulnerable populations also expressed their desire of having health care providers to perform specimen collection including swab collection as opposed to swab self-collection.

5.1.5 Questionnaire

Face-to-face interview by health care providers was the preferred approach mentioned by key and vulnerable populations as opposed to CASI due to their low computer literacy reported through the intercept survey and their fear in being not able to use ICT devices to enter their answers.

Because the lack of knowledge and understanding of sexual networks among key and vulnerable populations in Bhutan, it would be crucial that the questionnaires for any male populations (DU, taxi and truck drivers, and uniformed services) also include a set of questions related to same-sex behaviours (ever, past 12 months, anal sex in past 12 months, number of male partners, condom use at last anal sex). Furthermore, all the questionnaires (for

any male and female populations surveyed) should also include a set of questions related to drug, including injecting drugs, and alcohol use, and exposure to current interventions implemented by the NACP and other partners, including HIV testing (ever and past 12 months, and place for the last HIV test). It is also recommended that for questionnaires for female populations to add questions related to anal sex practices (ever and past 12 months), and history of pregnancy and abortion.

5.1.6 Place for data collection

If RDS is used, hospital and HISC (available in 4 cities surveyed) are considered to set up the site for data collection. The team of investigators should ensure that these sites have enough space for the registration and waiting space and include separate rooms (with doors) for interview and specimen collection to respect the privacy of the participants. Pertaining, multi-stage sampling (recommended for uniformed services only), site for data collection could be identified in the military and police premises but the team should ensure that the privacy of the participants could be respected in the space provided by the military and police authorities.

5.1.7 Incentives

Participants interviewed during the formative assessment seemed to prefer extra-services (pap smear test for HRW and hearing and vision tests for taxi and trucks drivers) rather than monetary incentives to compensate their time for their participation to the IBBS survey and to support the cost for transportation to access the site for data collection. NACP should assess the possibility of adding these extra-services for the participants of the IBBS survey before initiating the bidding process for the selection of the international agency or consulting firm that will provide technical support for the implementation of the IBBS survey. It is noteworthy that for RDS the provision of incentives for successful referral is also a key component of the RDS design to increase recruitment. A combination of extra-services and incentives for RDS could be envisaged. For uniformed services personnel who will be recruited through a multi-stage sampling, non-monetary incentives (T-shirt or top-up card for mobile phone) could be considered.

5.1.8 Ethical considerations

As mentioned earlier, the protocol and the tools for the IBBS should be submitted for a full review to the Research Ethics Board of Health. Since it is also expected to include underage respondents for DU and HRW and that parental or guardian consent may not be possible to obtain for these populations, the submission should also include a waiver for enrolling young DU and HRW. Furthermore, in order to protect the participants of the IBBS, who may be engaged in illegal behaviors, it would be also relevant to request a waiver for all populations included in the IBBS to use a verbal versus written informed consent that is requested by the REHB for key and vulnerable populations enrolled in any research. For both waivers, a clear justification would be needed.

5.2 Recommendations for the national HIV program

In a low prevalence setting, a concentrated epidemic could be averted only if key populations were adequately reached and had access to friendly prevention, HTC and CST services. Acknowledging the lack of CBOs for key populations in Bhutan, the NACP should keep its focus on working with key populations in priority and starts encouraging the formation of CBOs to scale-up community-led interventions to identify, understand, and meet the needs of individuals and groups of these populations. This approach will also ensure that excluded and marginalized individuals and groups are reached and have access to relevant health, social, and legal services. While it may take time to achieve this objective in the current social and cultural context of Bhutan, it is crucial that the NACP starts to identify and mobilize individuals and groups of these populations to form initiate community-led interventions among key populations in Bhutan. These individuals and groups may be at the beginning fostered by a NGO (mother NGO), but it should ensured that step by step these groups become independent and form their own CBO with the support and guidance of the mother NGO and the NACP. The below recommendations may help in paving the way for initiating the process.

- Although the IBBS is considered as a key component of the HIV and STI surveillance system, it will not answer to all the questions and provide all information about the dynamic of the HIV and STI epidemics in Bhutan. It is crucial that the HIV and STI surveillance system is strengthened to be able to achieve this objective. The NACP should approach WHO Bhutan and UNAIDS to seek for technical assistance to improve this national surveillance system. The implementation of the IBBS may be a good opportunity to initiate the process of strengthening this surveillance system. For this, it would be important that the MoH/NACP with the support of WHO/UNAIDS, forms a coordinating body (e.g., technical working group for HIV & STI surveillance or for strategic information) including members of agencies identified as potential partners for the IBBS survey in this formative assessment. It would be also crucial to identify and involve in this coordinating body representatives or individuals of key and vulnerable populations, whenever it would be possible. This coordinating body would be in charge of ensuring that the surveillance system is established to meet the data needs of the national program and there is adequate funding to sustain and improve the system. Detailed scope of work of this body may be developed through a consultation process with key partners and WHO/UNAIDS.
- In order to guide the planning and implementation of HIV services and activities at the national and district levels, evidences should be gathered from a variety of sources to assess the coverage and inform the design of the interventions, implemented by the MoH/NACP and their partners During the formative assessment some gaps were identified in the reporting system. For instance, there were no operational definition used for the each targeted population; the reporting form for HTC services does not disaggregate the population by each key and vulnerable population as well as for the key performance indicators of the national program for prevention, HTC, and CST services. The monitoring system both at the

national and district level needs to be assessed and strengthen e.g., reviewing and harmonizing indicators of the national program, and reviewing and standardizing reporting forms used at prevention, HTC and CST services. Health care providers, including counsellors and those who are involved in CST services, should be trained to be able to assess in a friendly way and report accurately the level of HIV and STI risk-behaviour and to use operational definitions to identify key and vulnerable populations.

- For key populations (MSM, transgender women, FSW, DU and PWID), to be able to access HIV/STI services without fear of stigma and discrimination the NACP should also integrate interventions aimed at sensitizing health care providers and support staff on key populations needs and issues to be able to deliver non-discriminatory and non judgmental services. Furthermore, the NACP should also focus on advocacy with high-level decision makers within the MoH/DoH and other relevant agencies such as the judiciaries, police, parliaments and other partners to help create enabling and conducive environment for the implementation of HIV interventions reaching key populations
- While some key populations such as MSM and transgender women won't be included in this first IBBS, it is important that the NACP advocates for and focus on the development of interventions to reach these groups and networks with services through a peer educator strategy. Social media may be an entry point for identifying a first wave of peer educators that could reach MSM peers through some media, particularly Facebook. These channels could be also used for conveying prevention message and promoting friendly services. South-to-South technical assistance and exchange (through the MSA program managed by UNDP APRC) should be also considered for strengthening these interventions as well as mobilizing groups of MSM and transgender women for HIV prevention and to access HTC and CST services.
- With the Youth Development Fund (CSO) and Bhutan Narcotic Agency (BNCA) leading the way for service delivery to DU and PWID, the NACP should help in strengthening harm reduction interventions through South-to-South technical assistance and exchange. UNODC (in Bhutan but also the regional office) may also play an important role to initiate this technical assistance.
- There is a lack of social science research to understand the socio-cultural context and meanings of male same-sex erotic experiences, sex work, and drug use in Bhutan. The understanding of this social-cultural context is crucial for HIV interventions, as it would help in informing and strengthening current interventions and fine-tuning the operational definition of these key populations. Therefore, the NACP should also advocate for further funding to support the implementation of social science research.

- Similarly, there is a lack of operational research that could help in profiling, understanding the behavioural patterns (sexual and health seeking behaviors), and assessing level of vulnerability of populations (key and vulnerable populations, including young) gathering at hotspots and reached through current interventions implemented by the NACP and other program implementers. This issue has been already raised to the NACP by the consultant and a stakeholder during the preparation of the design of the formative assessment. The NACP has already included this activity in the GFATM concept note for the national grant and waiting for the final approval. In the case that this operational research is not funded under the national grant of the GFATM, the NACP should advocate for further funding to support this operational research.
- During the consultation with stakeholders and program implementers, other sites such as Paro where entertainment establishments are blooming and possibly commercial and informal sex work as well, and other vulnerable populations such as migrants working at hydropower project or monks at the monastery, were identified respectively as a site and populations to be considered for the IBBS survey. However, after discussing further the need to really focus on priority sites and populations for this first IBBS, as it won't be possible to survey all sites due mainly to the cost of the IBBS, it has been decided that the NACP should also investigated these sites and populations through formative assessment and operational research to assess risk-behaviours of these populations and the possibility to inform interventions.
- Appropriate training curriculum and tools should be developed to equip peer outreach workers with knowledge and skills for proving outreach activities to their peers.

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7. Appendixes

7.1 Ethical Clearance by REBH, Ministry of Health of Bhutan



དཔལ་ལྷན་འབྲུག་གཞུང་།
 ལེགས་བཟང་གི་ལྷན་ཚོགས་
 ལྷན་ཚོགས་ཀྱི་འཕུལ་གྲུབ་ལྷན་ཚོགས་
 རྒྱལ་ཁབ་འཕུལ་གྲུབ་ལྷན་ཚོགས་
 རྒྱལ་ཁབ་འཕུལ་གྲུབ་ལྷན་ཚོགས་

ROYAL GOVERNMENT OF BHUTAN
 MINISTRY OF HEALTH
 RESEARCH ETHICS BOARD OF HEALTH
 THIMPHU : BHUTAN
 P.O. BOX : 726



REBH/Approval/2014/024

2nd September, 2014

REBH Approval Letter

PI: Mr. Sonam Wangdi Institute: National AIDS Control Programme - DoPH, Ministry of Health Country: Bhutan	Study Title: Formative Assessment on the Feasibility of a National Integrated Biological and Behavioral Survey among Key and Vulnerable Populations in Bhutan
Co-PI: 1. Mr. LekeyKhandu, NACP 2. Mr. Phurpa Tenzin, NACP 3. Ms. DechenWangmo, Consultant, Thimphu, Bhutan 4. Mr. Philippe Girault, UNDP Asia Pacific Region Centre Consultant, Thailand	
Mode of Review: Full Board Review (Meeting No. 3/2014) Expedited Review for version 02	
Decision: Approved with conditions	
List of document(s) approved: Protocol Version No 2.0 Dated: August 25, 2014 Informed Consent Form Version No 2.0 Dated: August 25, 2014 Tools (Questionnaire/forms) Version No 2.0 Dated: August 25, 2014	
Conditions for Approval <ol style="list-style-type: none"> Any changes to the proposal or to the attachments (informed consent and research tools such as forms) should be approved by REBH before implementation Report serious adverse events to REBH within 10 working days after the incident and unexpected events should be included in the continuing review report or the final report. Final report of the study both in soft and hard copy must be submitted to REBH at the end of the study before publishing. This approval is valid till 1st September, 2015. The PI has to apply for the continuing review two months before this validity expires, if the study continues beyond the approved period. 	

(Dr. Pakila Drukpa)
 Chairperson-REBH

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7.2 Estimation Sample Size for the IBBS Survey in Bhutan

To gauge approximately the sample size that will be needed for each population in the IBBS survey in Bhutan, the below formula^{xx} for repeated survey was used. This sample size calculation was performed only for the purpose of the formative assessment. Investigators of the IBBS survey will need to review it for the development of the protocol for the IBBS survey.

$$n = D \frac{[z_{1-\alpha}\sqrt{2\bar{P}(1-\bar{P})} + Z_{1-\beta}\sqrt{P_1(1-P_1) + P_2(1-P_2)}]^2}{(P_2 - P_1)^2}$$

Where:

- D** Design effect
- P₁** Estimated proportion at the time of the first survey
- P₂** Target proportion at some future date (next round of the survey), so that (P₂ - P₁) is the magnitude of change that should be detected during the next round
- \bar{P}** (P₁ + P₂)/2
- Z_{1- α}** Z-score corresponding to desired level of significance
- Z_{1- β}** Z-score corresponding to the desired level of power

To estimate the sample size needed for each population, different scenarios were considered for the proportion of “*condom use at last penetrative sex with any partner excluding the spouse*” at the time of the first survey (P₁) and at the time of the next round (P₂), and fixed value for the other following factors:

- The design effect (D) was fixed at 2 to support multistage sampling (e.g., time location sampling) or RDS, although for RDS some authors recommend to use higher design effect (D ~ 3-4).^{xxi, xxii}
- $\alpha = 0.05$ — One-side test
- $\beta = 0.20$
- Attrition: 10% for missing data/errors (n' = n/1-q where q is the proportion of attrition)

^{xx} Family Health International. *Behavioral Surveillance Surveys: Guidelines for repeated behavioral surveys in populations at risk of HIV*; 2000.

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Scenarios Estimation Sample Size for One Population Selected for the IBBS Survey in Bhutan

Scenario #	P_1	P_2	Magnitude of Change ($P_2 - P_1$)	Sample Size (n)	Adjusted Sample Size for Attrition (10%) (n')
1	0.40	0.55	0.15	273	303
2		0.60	0.20	153	170
3	0.50	0.65	0.15	268	297
4		0.70	0.20	147	163
5	0.60	0.75	0.15	240	267
6		0.80	0.20	129	142
7	0.70	0.85	0.15	192	211
8		0.90	0.20	98	108

Note:

- The key behavioral indicator selected was “*condom use at last penetrative sex with any partners excluding the spouse.*” Estimating the sample size for the same indicator but with different types of sexual partner (e.g., sex workers or clients) will imply inflating the sample size since not all of the respondents will report transactional sex. For instance, if it were estimated that about 30% of the population surveyed engage in transactional sex and from the table we selected the scenario 3, the final sample size for would be 425 respondents to be able to detect a change of 15 points with a power at 80% during the next round for this indicator. If the sample size were not inflated, it would affect the statistical power (lower statistical power) for detecting this change. Considering the context in Bhutan, it won't be possible to capture 400 respondents for each population selected. Therefore, it is suggested to use the definition of this indicator that includes different types of sexual partner but excludes spouse. This does not rule out the possibility to include in the questionnaire the questions related to condom use for each type of sexual partner relevant to the populations surveyed. However, one should be cautious about comparing these indicators between two rounds of the IBBS survey as the sample size may not be adequate to achieve at least a 80% statistical power to detect expected magnitude of change.
- There is no recent data available related to sexual behaviors among key or vulnerable populations. The most reliable data are from previous BSS survey in 2006 and 2008. A safer practice would be to use the scenario # 3 i.e., a proportion of 0.5 for P_1 and a proportion of 0.65 for P_2 . Therefore, a sample size of ~ 300 respondents will be enough to be able to detect a magnitude of change of 0.15 with a statistical power of 80% between the two rounds of the IBBS survey. Note that this sample size would be for each population that would be selected for the first round of the IBBS in Bhutan.